

Original bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and have been scanned and collected by SGA Storia Geofisica Ambiente (Bologna) thanks to funding provided by the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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## The International Seismological Summary for 1928 July, August, September.

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FORMERLY THE BULLETIN OF THE  
BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

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The present number deals with 150 epicentres, 45 being new and 105 repetitions from old epicentres. La Paz and Sucre record after-shock from the epicentre  $5^{\circ}\text{0S}$ .  $79^{\circ}\text{5W}$ ., as on July 18d.

Cases of abnormal focus are as follows :

| Date, 1928. | Epicentre. |    |    |                      | Focal Depth.<br>(Below normal). |        |
|-------------|------------|----|----|----------------------|---------------------------------|--------|
|             | d.         | h. | m. | s.                   |                                 |        |
| Aug. 10     | 15         | 33 | 37 | $36\cdot5\text{N}$ . | $70\cdot5\text{E}$ .            | +0·035 |
| Aug. 12     | 8          | 8  | 45 | 2·1N.                | 127·8E.                         | +0·030 |
| Aug. 15     | 17         | 15 | 40 | 28·0S.               | 62·0W.                          | +0·080 |
| Aug. 16     | 3          | 49 | 6  | 28·5N.               | 140·5E.                         | +0·070 |
| Aug. 23     | 1          | 17 | 44 | 50·0N.               | 146·0E.                         | +0·070 |
| Aug. 24     | 21         | 43 | 30 | 16·0S.               | 168·0E.                         | +0·040 |
| Sept. 7     | 2          | 49 | 20 | 5·5S.                | 145·0E.                         | +0·020 |
| Sept. 21    | 13         | 27 | 0  | 15·5S.               | 70·0W.                          | +0·040 |

**Observers are earnestly requested to send their readings as soon as possible (either in MS. or print) to the University Observatory, Oxford.**

University Observatory,  
Oxford.

1932 March 3.

1928 JULY, AUGUST, SEPTEMBER.

July 1d. 9h. 22m. 48s. Epicentre 15°·5N. 101°·2W. (as on 1922 Sept. 29d.).

A = -·187, B = -·945, C = +·267; D = -·981, E = +·194;  
G = -·052, H = -·262, K = -·964.

|               | $\Delta$ | Az. | P.     | O-C. | S.        | O-C.             | L.     | M.   |
|---------------|----------|-----|--------|------|-----------|------------------|--------|------|
|               | °        | °   | m. s.  | s.   | m. s.     | s.               | m.     | m.   |
| Tucson        | 18·9     | 334 | —      | —    | —         | —                | e 20·9 | —    |
| St. Louis     | N. 25·1  | 20  | —      | —    | e 8 30    | -95              | 11·4   | 19·9 |
| Georgetown    | Z. 31·6  | 38  | e 6 56 | +13  | (e 11 58) | -3               | 17·0   | 22·3 |
| Toronto       | N. 33·7  | 30  | —      | —    | e 12 52   | +16              | 19·9   | —    |
| Ottawa        | 36·7     | 31  | e 8 0  | +32  | e 13 36   | +16              | e 18·2 | —    |
| Victoria      | E. 37·6  | 337 | —      | —    | —         | —                | 27·8   | 35·7 |
| La Paz        | 45·7     | 134 | e 8 29 | -9   | 15 8      | -16              | 20·5   | 23·3 |
| La Plata      | 65·0     | 142 | —      | —    | —         | —                | 35·4   | —    |
| Scoresby Sund | 71·8     | 20  | —      | —    | —         | —                | 30·2   | 43·9 |
| Kew           | 84·5     | 39  | —      | —    | e 28 4    | ?                | 39·2   | —    |
| Granada       | 86·5     | 53  | —      | —    | —         | —                | —      | 38·7 |
| Paris         | 87·1     | 40  | —      | —    | —         | —                | e 43·2 | —    |
| De Bilt       | 87·4     | 36  | —      | —    | —         | —                | e 42·2 | —    |
| Almeria       | 87·6     | 53  | —      | —    | —         | —                | e 45·1 | 50·2 |
| Copenhagen    | 89·8     | 31  | —      | —    | —         | —                | 73·2   | —    |
| Feldberg      | N. 90·1  | 38  | —      | —    | e 34 11   | ?SR <sub>2</sub> | —      | 46·7 |
| Strasbourg    | 90·4     | 40  | —      | —    | —         | —                | e 46·2 | —    |
| Pulkovo       | 95·2     | 23  | —      | —    | —         | —                | e 47·2 | —    |
| Rocca di Papa | 96·5     | 44  | —      | —    | —         | —                | e 55·6 | 56·7 |
| Zagreb        | 96·6     | 39  | —      | —    | —         | —                | e 63·2 | —    |
| Kucino        | 100·9    | 23  | —      | —    | —         | —                | e 50·8 | —    |
| Ekaterinburg  | 106·1    | 11  | —      | —    | (24 12?)  | [-40]            | 24·2   | —    |
| Makeyevka     | 106·8    | 26  | —      | —    | —         | —                | 42·6   | —    |
| Irkutsk       | 108·8    | 344 | —      | —    | —         | —                | e 66·2 | —    |
| Baku          | 118·0    | 24  | —      | —    | —         | —                | e 59·2 | —    |
| Tashkent      | 122·5    | 8   | —      | —    | —         | —                | e 59·2 | —    |

Additional readings and notes: St. Louis eN = +46s., +6m.30s., +7m.17s., and +10m.26s. = S + 21s. Georgetown eZ = +1m.0s., S is given as eLZ.  
Scoresby Sund eLE = +26·2m., MN = +42·4m. Copenhagen e = +26m.12s.?, eNZ = +29m.42s. The readings for La Paz are the only ones given with definite phase.

July 1d. Readings also at 0h. (near Batavia and Malabar), 7h. (San Fernando and Taihoku), 9h. (near La Paz (2)), 10h. (near Amboina), 11h. (La Paz), 12h. (La Paz and near Amboina), 15h. (Wellington and Tacubaya), 16h. (Makeyevka, Moncalleri, Naples, Pompeii, Rocca di Papa, Strasbourg, Venice, and Zagreb), 17h. (Bombay, Copenhagen, De Bilt, Feldberg, Kew, and Kucino), 19h. (La Paz).

July 2d. Readings at 2h. (Berkeley, Georgetown, Scoresby Sund, near Victoria, near Tacubaya, and Oaxaca), 5h. (near Tacubaya), 7h. (near Batavia and Malabar), 9h. (Ekaterinburg, Georgetown, Makeyevka, and Sydney), 10h. (Baku, Copenhagen, Ekaterinburg, Feldberg, Granada (2), Irkutsk, Kucino, Pulkovo, San Fernando, Scoresby Sund, Tashkent (3), Tucson, near Tacubaya, and Oaxaca), 11h. (near Zagreb), 12h. (Simferopol, Yalta, and near Toyooka), 13h. (Manila), 15h. (Simferopol (2), Theodosia (2), and Yalta (3)), 17h. (Granada), 21h. (La Paz).

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July 3d. 0h. 24m. 18s. Epicentre 42°·0N. 141°·0E. (as on 1924 Jan. 22d.).

A = -·577, B = +·467, C = +·669; D = +·629, E = +·777;  
G = -·520, H = +·421, K = -·743.

|              | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.     | M.   |
|--------------|----------|-----|--------|------|----------|------|--------|------|
|              | °        | °   | m. s.  | s.   | m. s.    | s.   | m.     | m.   |
| Mizusawa     | E. 2·9   | 178 | 0 46   | + 1  | 1 22     | + 2  | —      | —    |
| Ootomari     | 4·8      | 14  | e 1 26 | +12  | (e 2 19) | + 8  | e 2·3  | —    |
| Osaka        | 8·5      | 212 | e 2 30 | +21  | —        | —    | e 4·7  | 5·4  |
| Irkutsk      | 26·6     | 305 | e 5 46 | - 8  | e 10 38  | + 5  | e 14·7 | —    |
| Ekaterinburg | 51·0     | 318 | e 9 7  | - 6  | (15 42?) | -49  | 15·7   | 30·1 |
| Tashkent     | 51·9     | 296 | —      | —    | —        | —    | e 28·7 | 33·6 |
| Kucino       | 62·7     | 323 | —      | —    | —        | —    | e 34·9 | 38·3 |
| Pulkovo      | 63·5     | 329 | —      | —    | —        | —    | e 37·7 | 42·1 |
| Baku         | 65·0     | 304 | —      | —    | —        | —    | e 37·7 | 42·1 |
| Copenhagen   | 73·0     | 334 | —      | —    | —        | —    | 38·7   | 48·2 |
| De Bilt      | E. 78·4  | 335 | —      | —    | —        | —    | e 39·7 | —    |
| Feldberg     | N. 78·8  | 332 | —      | —    | —        | —    | e 44·7 | 51·9 |
| Uccle        | 79·8     | 335 | —      | —    | —        | —    | e 41·7 | —    |
| Granada      | 94·5     | 332 | —      | —    | —        | —    | e 59·6 | 63·7 |

Additional readings: Mizusawa SN = +1m.26s. Osaka MN = +6·1m.  
Copenhagen MN = +47·7m. De Bilt eLN = +45·7m.

July 3d. 7h. 46m. 50s. Epicentre 1°·5S. 76°·0W. (as on 1927 Oct. 19d.).

A = +·242, B = -·970, C = -·026; D = -·970, E = -·242;  
G = -·006, H = +·025, K = -1·000.

|                | $\Delta$ | Az. | P.    | O-C. | S.      | O-C.             | L.     | M.   |
|----------------|----------|-----|-------|------|---------|------------------|--------|------|
|                | °        | °   | m. s. | s.   | m. s.   | s.               | m.     | m.   |
| La Paz         | 16·9     | 153 | 1 4 6 | + 2  | 1 7 16  | 0                | 8·4    | 9·4  |
| Sucre          | 20·4     | 150 | 4 46  | 0    | 8 28    | - 4              | 10·5   | 12·8 |
| Rio de Janeiro | E. 38·4  | 129 | —     | —    | e 16 28 | ?SR <sub>1</sub> | e 21·4 | —    |
| De Bilt        | 85·7     | 39  | —     | —    | —       | —                | e 48·2 | —    |

La Paz gives also LN = +8·5m., MN = +11·2m.

July 3d. Readings also at 0h. (Tashkent and near Puebla), 1h. (Baku, Ekaterinburg, Irkutsk, Kucino, Pulkovo, Tashkent, and near Mizusawa (2)), 7h. (Baku, Ekaterinburg, Irkutsk, Ksara, and Tashkent), 8h. (Simferopol, near Yalta, and near Toyooka), 9h. (La Paz and Sucre), 14h. (La Paz, Sucre, and near Reykjavik), 15h. (near Reykjavik (2)), 17h. and 18h. (near Tacubaya), 19h. (La Paz), 21h. (La Paz and near Toyooka), 22h. (St. Louis), 23h. (near Sumoto).

July 4d. 17h. 53m. 28s. Epicentre 10°·0N. 56°·5E.

A = +·544, B = +·821, C = +·174; D = +·834, E = -·552;  
G = +·096, H = +·145, K = -·985.

|               | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------|---------|------|--------|------|
|               | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Bombay        | 18·2     | 59  | 4 19    | 0    | 7 38    | - 6  | 9·2    | 13·0 |
| Kodaikanal    | 20·6     | 87  | 8 38    | ?S   | (8 38)  | + 2  | —      | —    |
| Hyderabad     | 22·6     | 68  | —       | —    | 9 20    | + 3  | —      | 12·9 |
| Ksara         | 30·4     | 325 | e 6 34? | + 2  | e 12 51 | +70  | 18·0   | —    |
| Baku          | 30·9     | 351 | 6 33    | - 4  | 11 43   | - 7  | 15·5   | 22·5 |
| Tashkent      | 33·2     | 19  | 6 48    | -10  | 12 15   | -12  | e 15·5 | 20·8 |
| Makeyevka     | 41·1     | 343 | 7 50    | -14  | 14 13   | - 9  | 19·5   | 27·7 |
| Ekaterinburg  | 46·9     | 4   | 8 44    | - 2  | 15 31   | - 9  | 21·5   | 33·5 |
| Kucino        | 48·0     | 347 | —       | —    | e 16 2  | + 8  | 27·0   | 32·7 |
| Rocca di Papa | 49·7     | 318 | e 9 8   | + 3  | —       | —    | —      | —    |
| Vienna        | 50·8     | 326 | e 9 13  | + 1  | —       | —    | —      | —    |
| Florence      | 51·6     | 320 | 8 42    | -35  | —       | —    | 32·5   | 33·7 |
| Pulkovo       | 53·5     | 345 | 9 31    | + 1  | 17 5    | + 2  | 24·5   | 34·2 |
| Strasbourg    | 55·9     | 323 | e 9 54  | + 9  | —       | —    | e 36·5 | —    |
| Feldberg      | N. 56·3  | 325 | —       | —    | e 15 31 | ?    | —      | 37·3 |
| Lund          | 56·8     | 334 | —       | —    | —       | —    | 36·5   | —    |

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|            | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|------------|----------|-----|---------|------|---------|------|--------|------|
|            | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Copenhagen | 57.1     | 333 | —       | —    | e 17 56 | + 9  | 30.5   | 37.9 |
| Irkutsk    | 57.2     | 33  | 9 58    | + 5  | e 17 40 | - 9  | 27.5   | —    |
| Uccle      | 58.9     | 325 | —       | —    | —       | —    | e 30.5 | —    |
| De Bilt    | 59.0     | 327 | e 10 16 | +11  | —       | —    | e 29.5 | —    |
| Granada    | 60.2     | 309 | e 10 25 | +12  | —       | —    | e 29.9 | 32.3 |
| Kew        | 61.8     | 324 | e 10 38 | +14  | —       | —    | 36.5   | —    |

Additional readings: Kucino  $PR_1 = +7m.2s.$ ,  $SR_1 = +19m.50s.$ , Rocca di  
 Papa  $ePN = +9m.12s.$ ,  $PR_1 = +10m.13s.$ , Strasbourg  $e = +12m.32s.?$   
 $= PR_1 + 17s.$

July 4d. 21h. 38m. 33s. Epicentre  $24^\circ.1N. 126^\circ.7E.$  (given by Copenhagen and the Russian stations).

A = -546, B = +732, C = +408; D = +802, E = +598;  
 G = -244, H = +327, K = -913.

|               | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------|---------|------|--------|------|
|               | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Taihoku       | N. 4.8   | 282 | e 0 56  | -18  | —       | —    | —      | —    |
| Zi-ka-wei     | Z. 8.5   | 328 | 2 11    | + 2  | 3 55    | + 5  | 4.5    | 6.8  |
| Manila        | 10.9     | 211 | —       | —    | e 4 15  | -37  | —      | —    |
| Hong Kong     | 11.6     | 264 | —       | —    | —       | —    | —      | 8.9  |
| Phu-Lien      | 18.9     | 264 | 4 20    | - 8  | e 7 53  | - 7  | —      | —    |
| Irkutsk       | 33.0     | 335 | e 6 27  | -29  | e 11 49 | -35  | 21.4   | 22.8 |
| Tashkent      | 50.3     | 305 | e 9 3   | 6    | 16 19   | - 4  | e 25.4 | 29.6 |
| Ekaterinburg  | 57.0     | 325 | e 9 51  | - 1  | e 17 47 | + 1  | 21.4   | 35.6 |
| Baku          | 65.0     | 305 | e 10 54 | + 9  | 19 32   | + 7  | 33.0   | 38.2 |
| Kucino        | 69.7     | 323 | —       | —    | 20 21   | - 1  | e 37.6 | 40.4 |
| Makeyevka     | 71.5     | 316 | —       | —    | i 20 49 | + 5  | 40.4   | 47.0 |
| Pulkovo       | 72.5     | 329 | 11 34   | + 1  | 20 55   | - 1  | 37.4   | 47.4 |
| Lund          | 82.4     | 329 | —       | —    | 22 45   | - 5  | 45.4   | —    |
| Copenhagen    | 82.8     | 329 | —       | —    | e 22 50 | - 5  | 43.4   | 54.6 |
| Feldberg      | N. 87.9  | 325 | —       | —    | e 23 39 | -12  | —      | 57.4 |
| De Bilt       | N. 88.4  | 328 | —       | —    | —       | —    | e 47.4 | 59.2 |
| Strasbourg    | 89.3     | 325 | —       | —    | —       | —    | e 50.4 | —    |
| Uccle         | 89.6     | 328 | —       | —    | —       | —    | e 47.4 | —    |
| Rocca di Papa | 90.3     | 318 | —       | —    | —       | —    | e 53.4 | 63.6 |
| Kew           | 91.4     | 330 | —       | —    | —       | —    | e 52.4 | —    |
| Paris         | 91.7     | 327 | —       | —    | —       | —    | e 57.4 | 59.4 |
| Almeria       | 102.5    | 321 | —       | —    | —       | —    | —      | 57.6 |
| Granada       | 103.0    | 322 | —       | —    | —       | —    | e 58.0 | 62.4 |

Additional readings: Kucino  $e = +28m.15s. = SR_1 - 14s.$ , Copenhagen  $MN = +45.7m.$ ; epicentre  $24^\circ.1N. 126^\circ.7E.$ , De Bilt  $MZ = +58.3m.$ , Paris  $MN = +67.4m.$

July 4d. Readings also at 5h. (near Toyooka), 10h. and 11h. (near Tacubaya), 12h. (Kew and Strasbourg), 13h. and 16h. (Wellington), 18h. (Chicago), 19h. (near Irkutsk), 20h. (Georgetown), 21h. and 22h. (near La Paz).

July 5d. 3h. 31m. 12s. Epicentre  $39^\circ.2N. 34^\circ.8E.$  (given by Yalta).

A = +636, B = +442, C = +632; D = +571, E = -821;  
 G = +519, H = +361, K = -775.

|               | $\Delta$ | Az. | P.      | O-C. | S.     | O-C. | L.     | M.  |
|---------------|----------|-----|---------|------|--------|------|--------|-----|
|               | °        | °   | m. s.   | s.   | m. s.  | s.   | m.     | m.  |
| Yalta         | 5.3      | 355 | 1 30    | + 8  | 2 42   | +17  | 2.9    | 3.0 |
| Simferopol    | 5.7      | 355 | e 1 34  | + 6  | e 2 48 | +12  | e 3.0  | —   |
| Theodosia     | 5.8      | 4   | e 1 54  | +24  | —      | —    | e 3.4  | —   |
| Makeyevka     | 9.1      | 14  | —       | —    | e 4 6  | 0    | 5.8    | 8.3 |
| Baku          | 11.6     | 80  | e 3 3   | +10  | —      | —    | e 6.6  | —   |
| Belgrade      | N. 12.0  | 303 | e 2 59  | 0    | e 4 16 | -63  | e 6.1  | —   |
| Zagreb        | 15.3     | 302 | e 5 48? | ?    | —      | —    | e 19.8 | —   |
| Rocca di Papa | 17.0     | 286 | e 3 57  | - 8  | —      | —    | e 14.4 | —   |

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|            | $\Delta$ | Az. | P.    | O-C. | S.      | O-C. | L.     | M.   |
|------------|----------|-----|-------|------|---------|------|--------|------|
|            | °        | °   | m. s. | s.   | m. s.   | s.   | m.     | m.   |
| Pulkovo    | 20.7     | 354 | 4 43  | - 6  | 8 27    | -11  | 10.8   | 12.6 |
| Strasbourg | 21.5     | 304 | —     | —    | —       | —    | e 9.8  | —    |
| Copenhagen | 22.2     | 325 | —     | —    | —       | —    | 10.8   | —    |
| De Bilt    | 24.2     | 312 | —     | —    | —       | —    | e 11.8 | —    |
| Uccle      | 24.2     | 309 | —     | —    | —       | —    | 12.8   | —    |
| Kew        | 27.2     | 308 | —     | —    | e 8 48? | ?    | —      | —    |

Additional readings : Baku L = +10.4m. Belgrade eN = +3m.33s., iN = +4m.38s., eN = +4m.53s.

July 5d. 3h. 39m. 35s. Epicentre 36°.5N. 1°.5E. (as on 1925 July 2d.).

A = +.804, B = +.021, C = +.595.

|          | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | M.  |
|----------|----------|-----|--------|------|--------|------|-----|
|          | °        | °   | m. s.  | s.   | m. s.  | s.   | m.  |
| Algiers  | 1.3      | 76  | i 0 4  | -16  | 0 21   | -15  | 0.4 |
| Alicante | 2.4      | 320 | e 2 12 | ?    | —      | —    | —   |
| Almeria  | 3.2      | 276 | e 0 57 | + 7  | i 1 28 | 0    | 3.6 |
| Granada  | 4.1      | 280 | 1 3    | - 1  | 2 20   | +27  | 2.9 |

Algiers gives " Region Chercell à Orleansville."

July 5d. 23h. 12m. 6s. Epicentre 43°.5N. 17°.0E. (as on 1927 Jan. 23d.).

A = +.694, B = +.212, C = +.688 ; D = +.292, E = -.956 ;  
G = +.658, H = +.201, K = -.725.

|               | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.      | M.   |
|---------------|----------|-----|--------|------|----------|------|---------|------|
|               | °        | °   | m. s.  | s.   | m. s.    | s.   | m.      | m.   |
| Zagreb        | 2.4      | 342 | 0 37   | 0    | i 1 7    | + 1  | i 1.2   | 1.4  |
| Rocca di Papa | 3.6      | 243 | e 1 2  | + 6  | —        | —    | —       | 2.7  |
| Venice        | 3.8      | 301 | 2 1    | ?S   | (2 1)    | +17  | (3.5)   | —    |
| Florence      | 4.2      | 275 | e 1 29 | +24  | —        | —    | —       | —    |
| Vienna        | 4.8      | 355 | i 1 9  | - 5  | 2 25     | +14  | —       | 3.4  |
| Innsbruck     | 5.5      | 316 | 1 54?  | +29  | —        | —    | —       | —    |
| Zurich        | 7.1      | 307 | e 3 49 | ?L   | —        | —    | (e 3.8) | —    |
| Neuchatel     | 7.9      | 299 | e 3 25 | ?S   | (e 3 25) | - 9  | —       | —    |
| Strasbourg    | 8.2      | 312 | —      | —    | —        | —    | e 3.9   | —    |
| Uccle         | 11.3     | 315 | —      | —    | —        | —    | 5.9     | —    |
| De Bilt       | 11.7     | 321 | —      | —    | —        | —    | e 5.9   | —    |
| Copenhagen    | 12.6     | 348 | —      | —    | —        | —    | 5.9     | —    |
| Kew           | 14.1     | 310 | —      | —    | —        | —    | e 5.9   | —    |
| Granada       | 16.8     | 255 | e 3 43 | -19  | —        | —    | 9.8     | 13.6 |

Additional readings : Zagreb i = +40s. and +43s., e = +1m.3s. Rocca di  
Papa PR<sub>1</sub> = +1m.30s., PR<sub>2</sub> = +2m.20s. Venice S is given as P and L as S.  
Vienna P = +1m.31s., iE = +1m.44s. Zurich i = +4m.1s.

July 5d. Readings also at 0h. (near La Paz and Sucre), 1h. (near Nagoya), 3h. (Feldberg and Manila), 6h. (Rocca di Papa, Sydney, Taihoku, near Oaxaca and Tacubaya), 7h. (near Mizusawa, and Nagoya), 8h. (Taihoku), 9h. (Entebbe), 12h. (La Paz), 13h. (Entebbe), 14h. (Manila, near Tashkent, and Toyooka), 19h. (near La Paz (2) ), 23h. (Santiago).

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July 6d. 0h. 48m. 0s. Epicentre 4°·5N. 61°·5E. (as on 1927 Aug. 18d.).

A = +·476, B = +·876, C = +·078; D = +·879, E = -·477;  
G = +·037, H = +·069, K = -·997.

|               | $\Delta$ | Az. | P.      | O-C.  | S.      | O-C.  | L.     | M.   |
|---------------|----------|-----|---------|-------|---------|-------|--------|------|
|               | °        | °   | m. s.   | m. s. | m. s.   | m. s. | m.     | m.   |
| Kodaikanal    | 16·8     | 69  | —       | —     | —       | —     | 7·4    | 15·1 |
| Bombay        | 18·2     | 37  | 4 22    | + 3   | 8 46    | +62   | 11·9   | 16·2 |
| Baku          | 37·4     | 347 | e 7 28  | - 5   | 13 28   | - 2   | 20·0   | —    |
| Tashkent      | 37·5     | 10  | 6 24    | -70   | i 12 13 | -78   | 17·3   | 21·6 |
| Ksara         | N. 37·8  | 325 | e 7 35  | - 1   | 15 33   | +118  | 26·4   | —    |
| Makeyevka     | 47·9     | 340 | e 8 14  | -39   | 15 54   | + 1   | 25·0   | 39·5 |
| Ekaterinburg  | 52·4     | 358 | 9 24    | + 2   | e 16 52 | + 3   | 26·0   | 37·8 |
| Zagreb        | 57·1     | 324 | —       | —     | e 16 30 | -77   | e 30·0 | —    |
| Rocca di Papa | 57·2     | 319 | —       | —     | e 19 56 | +127  | —      | —    |
| Irkutsk       | 59·4     | 29  | e 10 6  | - 2   | e 18 24 | + 8   | 33·0   | 42·5 |
| Pulkovo       | 60·2     | 342 | 10 21   | + 8   | e 18 35 | + 9   | 37·7   | 50·8 |
| Copenhagen    | 64·4     | 333 | e 10 48 | + 7   | e 19 39 | +21   | 33·0   | —    |

Additional readings: Rocca di Papa e = +19m.59s. = [S] +26s. Copenhagen  
PR<sub>1</sub> = +13m.0s.?, eZ = +17m.18s., SR<sub>1</sub> = +23m.54s., SR<sub>2</sub> = +26m.0s., eE =  
+30m.23s.; epicentre 3°·7N. 58°·5E.

July 6d. 0h. 54m. 42s. Epicentre 16°·2N. 97°·2W. (as on 1928 June 27d.).

A = -·120, B = -·953, C = +·279; D = -·992, E = +·125;  
G = -·035, H = -·277, K = -·960.

|                | $\Delta$  | Az. | P.       | O-C.             | S.      | O-C.  | L.     | M.    |
|----------------|-----------|-----|----------|------------------|---------|-------|--------|-------|
|                | °         | °   | m. s.    | m. s.            | m. s.   | m. s. | m.     | m.    |
| Oaxaca         | 0·9       | 27  | (0 56)   | +42              | —       | —     | (1·3)  | (1·4) |
| Vera Cruz      | 3·2       | 18  | (1 18)   | +28              | (2 2)   | +34   | (2·0)  | (2·8) |
| Tacubaya       | 3·8       | 330 | (0 48)   | -11              | (1 44)  | 0     | (1·7)  | (2·3) |
| Guadalajara    | 7·5       | 307 | (2 9)    | +15              | (3 46)  | +22   | (3·9)  | (4·5) |
| Merida         | 8·6       | 55  | 2 48     | +38              | 3 58    | + 3   | —      | 4·1   |
| Tucson         | E. 20·3   | 325 | 5 12     | +27              | 9 17    | +48   | 12·1   | 13·3  |
| St. Louis      | N. 20·3   | 325 | 5 23     | +38              | 9 19    | +50   | 12·1   | 13·1  |
| Port au Prince | N.W. 23·2 | 14  | e 4 23   | -56              | e 8 20  | -69   | —      | —     |
| Chicago        | E. 26·9   | 16  | —        | —                | e 11 18 | +39   | —      | —     |
| Ottawa         | 34·3      | 28  | —        | —                | e 12 12 | -32   | 14·3   | —     |
| Victoria       | E. 35·7   | 333 | —        | —                | —       | —     | 21·4   | 24·2  |
| La Paz         | 43·5      | 139 | e 8 19   | - 3              | —       | —     | —      | —     |
| Sucre          | 47·2      | 139 | 8 40     | - 8              | 15 37   | - 7   | 21·7   | 24·1  |
| Scoresby Sund  | 69·9      | 20  | e 12 18? | +62              | 20 30   | + 5   | 35·3   | —     |
| Granada        | 83·1      | 54  | e 12 4   | -33              | i 22 11 | -47   | 38·3   | 41·4  |
| De Bilt        | 84·6      | 37  | —        | —                | e 23 11 | - 4   | e 35·3 | —     |
| Uccle          | 84·6      | 39  | —        | —                | e 23 12 | - 3   | e 33·3 | —     |
| Moncalleri     | E. 88·7   | 44  | (18 53)  | ?PR <sub>2</sub> | —       | —     | 18·9   | —     |
| Ekaterinburg   | 104·6     | 13  | —        | —                | —       | —     | 65·3   | —     |
| Baku           | 115·7     | 27  | —        | —                | —       | —     | e 52·9 | —     |
| Tashkent       | 121·1     | 11  | —        | —                | —       | —     | e 64·3 | 70·7  |
| Bombay         | 143·5     | 15  | —        | —                | —       | —     | e 58·3 | —     |
| Kodaikanal     | 153·0     | 12  | —        | —                | —       | —     | 57·3   | 58·8  |

Additional readings and notes: Oaxaca readings have been *increased* by 2m. Vera Cruz readings are given for 1h. and have been *diminished* by 56m. Tacubaya readings have been *diminished* by 1m. Guadalajara readings have been *increased* by 1m. Tucson PR<sub>1</sub> = +5m.50s., SR<sub>1</sub> = +11m.5s. St. Louis iN = +6m.15s., eSE = +8m.24s., SR<sub>1</sub>N = +9m.17s. = S - 12s. Port au Prince iNW = +5m.11s., eNW = +7m.9s. and +8m.17s.; the reading entered as P is given as eNW. Chicago eN = +4m.56s., eS (LN) = +8m.54s., iS(LE) = +9m.0s., eN = +11m.23s. Scoresby Sund eN = +28m.18s. ? = SR<sub>2</sub> - 15s., eE = +31m.18s. ? Uccle e = +20m.54s. Moncalleri eE = +7m.32s.

July 6d. Readings also at 1h. (Georgetown and La Paz), 2h. (near La Paz), 3h. (Kew, near Simferopol, Theodosia, and Yalta), 4h. (near La Paz (2) and Sucre (2)), 5h. (Simferopol and Yalta), 8h. (Baku, Copenhagen, Ekaterinburg, Makeyevka, La Paz, Pompei, Rocca di Papa, and Zagreb), 11h. (Taihoku), 15h. (Jena), 20h. (Baku, Ekaterinburg, Copenhagen, Irkutsk, Makeyevka, Pulkovo, Feldberg, Bombay, Tashkent, and near Tacubaya), 21h. (Rio de Janeiro), 22h. (Taihoku, Tucson, near Oaxaca, Tacubaya, and Vera Cruz).

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July 7d. 3h. 33m. 42s. Epicentre 17°·5N. 102°·0W. (as given by De Bilt).

A = -·198, B = -·933, C = +·301; D = -·978, E = +·208;  
G = -·063, H = -·294, K = -·954.

|               | $\Delta$ | Az. | P.      | O-C.             | S.       | O-C.  | L.     | M.    |
|---------------|----------|-----|---------|------------------|----------|-------|--------|-------|
|               | °        | °   | m. s.   | s.               | m. s.    | s.    | m.     | m.    |
| Manzanillo    | 2·7      | 305 | (1 6)   | +24              | —        | —     | (1·7)  | (1·9) |
| Tacubaya      | 3·2      | 54  | 1 0     | +10              | —        | —     | 1·7    | 2·0   |
| Guadalajara   | 3·5      | 336 | (1 10)  | +15              | —        | —     | (1·9)  | (2·0) |
| Puebla        | 3·9      | 66  | 1 28    | +27              | —        | —     | 2·3    | 2·4   |
| Oaxaca        | 5·0      | 94  | (1 20)  | +3               | —        | —     | (1·4)  | (2·6) |
| Vera Cruz     | 5·8      | 72  | (1 34)  | +4               | —        | —     | (2·9)  | (3·2) |
| Mazatlan      | 7·0      | 324 | —       | —                | —        | —     | 4·7    | 4·9   |
| Chihuahua     | 11·7     | 342 | (2 36)  | -19              | (4 45)   | -27   | —      | (6·1) |
| Tucson        | 16·8     | 333 | 4 13    | +11              | 7 32     | +19   | 9·1    | —     |
| St. Louis     | N. 23·5  | 23  | 1 5 22  | -1               | 1 9 36   | +1    | 13·5   | 15·8  |
| Berkeley      | E. 27·1  | 323 | —       | —                | —        | —     | e 14·1 | —     |
| Chicago       | Z. 27·2  | 24  | 5 56    | -4               | e 10 42  | -3    | i 15·1 | 17·8  |
| Ann Arbor     | E. 29·3  | 28  | —       | —                | —        | —     | e 16·2 | —     |
| Georgetown    | Z. 30·4  | 41  | e 6 25  | -7               | 10 40    | -61   | e 12·9 | 21·8  |
| Toronto       | N. 32·3  | 32  | —       | —                | e 12 40  | +27   | 19·5   | —     |
| Spokane       | N. 32·7  | 340 | —       | —                | e 11 38  | -41   | e 18·8 | 21·6  |
| Ottawa        | 35·4     | 33  | e 8 18  | ?PR <sub>1</sub> | e 13 6   | +5    | e 19·7 | —     |
| Victoria      | 35·4     | 337 | 7 13    | -4               | 12 41    | -20   | 20·0   | 23·0  |
| Harvard       | 36·1     | 40  | —       | —                | —        | —     | e 22·2 | —     |
| Scoresby Sund | 70·2     | 21  | 11 26   | +8               | 20 42    | +14   | 33·3   | 44·1  |
| Kew           | 83·4     | 38  | 1 12 41 | +3               | e 23 7   | +6    | 40·3   | —     |
| Granada       | 85·9     | 53  | 1 12 51 | -2               | 23 20    | -9    | 42·8   | 47·8  |
| Paris         | 86·2     | 40  | e 12 54 | 0                | —        | —     | 47·3   | —     |
| De Bilt       | 86·3     | 36  | 12 56   | +1               | e 23 49  | +16   | e 43·3 | —     |
| Uccle         | 86·4     | 38  | —       | —                | e 23 48  | +14   | e 42·3 | —     |
| Almeria       | 86·9     | 52  | e 12 57 | -1               | —        | —     | —      | 54·8  |
| Alicante      | 87·8     | 50  | —       | —                | e 22 1   | -109  | —      | —     |
| Copenhagen    | 88·5     | 30  | e 13 18 | +10              | e 24 3   | +5    | 43·3   | 56·5  |
| Feldberg      | N. 89·0  | 37  | —       | —                | —        | —     | e 54·3 | —     |
| Strasbourg    | 89·3     | 39  | e 13 9  | -3               | e 24 7   | +1    | e 49·3 | —     |
| Pulkovo       | 93·6     | 22  | —       | —                | —        | —     | e 47·3 | —     |
| Rocca di Papa | 95·5     | 44  | e 13 41 | -5               | —        | —     | e 59·7 | 71·3  |
| Kucino        | 99·3     | 22  | —       | —                | e 26 12  | +23   | 51·9   | 59·2  |
| Ekaterinburg  | 104·2    | 10  | e 18 37 | ?PR <sub>1</sub> | (28 18?) | +103  | 28·3   | —     |
| Makeyevka     | 105·3    | 26  | —       | —                | e 24 36  | [-13] | 51·3   | 64·7  |
| Irkutsk       | 106·6    | 345 | —       | —                | e 41 18  | ?     | 61·3   | 69·1  |
| Baku          | 116·5    | 24  | —       | —                | —        | —     | 64·3   | 73·3  |
| Tashkent      | 120·6    | 8   | e 31 1  | ?PS              | e 52 18  | ?     | e 55·3 | 65·3  |

Additional readings and notes: Manzanillo, Guadalajara, and Oaxaca readings have been increased by 2m. Vera Cruz readings have been increased by 3m. Chihuahua readings have been increased by 4m. Tucson PE = +4m.16s. St. Louis iN = +5m.31s., ePR<sub>1</sub>N = +5m.52s., iN = +6m.5s., eN = +6m.58s., and +10m.17s. = SR<sub>1</sub> - 9s. Berkeley eN? = +15m.32s., eZ = +16m.24s., eN = +16m.36s. Chicago eE = +6m.24s., iE = +10m.58s. Ann Arbor eN = +16m.30s., eE = +17m.42s., and +18m.42s. Scoresby Sund SR<sub>1</sub> = +12m.53s.; T<sub>0</sub> = 3h.33m.46s.; T<sub>0</sub>E = 3h.34m.1s. Kew LZ = +46·7m. Copenhagen PR<sub>1</sub> = +25m.18s.?, MN = +46·7m. Kucino e = +23m.48s. +16m.30s. Rocca di Papa PR<sub>1</sub> = +17m.37s.

July 7d. 8h. 39m. 35s. Epicentre 34°·0N. 134°·8E. (as on 1928 June 13d.).

A = -·584, B = +·588, C = +·559; D = +·710, E = +·705;  
G = -·394, H = +·397, K = -·829.

T. Matuzawa gives epicentre 34°·0N. 134°·58'E. in "Bulletin Equake. Research Institute Tokyo." Vol. VI, 1929. The above is the nearest previously adopted origin.

|          | $\Delta$ | Az. | P.    | O-C. | S.      | O-C. | L.    | M.  |
|----------|----------|-----|-------|------|---------|------|-------|-----|
|          | °        | °   | m. s. | s.   | m. s.   | s.   | m.    | m.  |
| Sumoto   | 0·4      | 11  | 10 8  | +2   | (10 15) | +4   | 10·2  | 0·3 |
| Kobe     | 0·7      | 25  | 10 12 | +1   | (10 23) | +3   | 10·4  | 0·4 |
| Osaka    | 0·9      | 38  | 0 10  | -4   | (0 24)  | -1   | 0·4   | 0·4 |
| Toyouka  | 1·6      | 0   | 10 24 | 0    | (10 45) | 0    | 10·8  | 0·8 |
| Matuyama | 1·7      | 264 | 10 24 | -2   | (10 35) | -13  | 10·6  | 0·7 |
| Nagoya   | 2·1      | 57  | 0 32  | -1   | 10 56   | -2   | 11·0  | 1·2 |
| Huknoka  | 3·7      | 269 | 0 52  | -6   | 1 58    | +16  | (2·0) | —   |
| Nagasaki | 4·3      | 254 | 1 1   | -6   | —       | —    | —     | 2·5 |

Additional readings: Osaka MN = +0·6m. Nagoya eSZ = +58s., MZ = +1·4m.

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July 7d. 18h. 0m. 22s. Epicentre 43°-0N. 144°-5E. (as on 1926 June 6d.).

A = -·595, B = +·425, C = +·682 ; D = +·581, E = +·814 ;  
G = -·555, H = +·396, K = -·731.

|               |    | $\Delta$ | Az. | P.       | O-C. | S.        | O-C.             | L.     | M.   |
|---------------|----|----------|-----|----------|------|-----------|------------------|--------|------|
|               |    | o        | o   | m. s.    | s.   | m. s.     | s.               | m.     | m.   |
| Ootomari      |    | 3-9      | 342 | 1 12     | +11  | —         | —                | e 2-0  | —    |
| Mizusawa      | E. | 4-6      | 214 | 1 9      | - 2  | 1 51      | -15              | —      | —    |
|               | N. | 4-6      | 214 | 1 8      | - 3  | 1 50      | -16              | —      | —    |
| Osaka         |    | 10-9     | 223 | e 2 51   | + 8  | (4 57)    | + 5              | 4-9    | 6-7  |
| Kobe          |    | 11-4     | 224 | e 2 35   | - 9  | —         | —                | —      | 6-3  |
| Sumoto        |    | 11-4     | 224 | e 2 40   | -10  | e 5 10    | + 6              | e 7-8  | —    |
| Taihoku       | E. | 26-0     | 234 | e 5 30   | -18  | —         | —                | —      | —    |
| Irkutsk       |    | 28-2     | 303 | 1 5 59   | -11  | —         | —                | 16-6   | —    |
| Hong Kong     |    | 32-5     | 240 | —        | —    | —         | —                | —      | 20-2 |
| Manila        |    | 34-8     | 226 | e 6 38   | -33  | (e 12 0)  | -52              | 12-0   | —    |
| Phu-Lien      |    | 38-6     | 247 | 7 25     | -18  | —         | —                | —      | —    |
| Ekaterinburg  |    | 52-1     | 317 | 1 9 20   | - 1  | 16 44     | - 1              | 19-6   | 33-9 |
| Tashkent      |    | 53-8     | 297 | 1 9 27   | - 5  | 17 0      | - 6              | e 27-0 | 33-5 |
| Kucino        |    | 63-5     | 324 | 10 38    | + 3  | 19 9      | + 2              | e 33-1 | 40-9 |
| Pulkovo       |    | 64-0     | 350 | 1 10 43  | + 5  | 19 17     | + 4              | 28-6   | 40-1 |
| Baku          |    | 66-6     | 305 | 1 10 59  | + 4  | 19 53     | + 8              | 36-1   | 41-5 |
| Upsala        |    | 68-3     | 335 | e 11 8   | + 2  | —         | —                | e 39-6 | —    |
| Makeyevka     |    | 68-4     | 317 | e 11 8   | + 1  | 20 9      | + 2              | 31-4   | 38-6 |
| Simferopol    |    | 72-4     | 317 | e 11 38? | + 6  | —         | —                | —      | —    |
| Yalta         |    | 72-6     | 317 | e 11 38? | + 4  | —         | —                | —      | —    |
| Lund          |    | 73-1     | 334 | —        | —    | 21 14     | + 11             | 36-6   | —    |
| Copenhagen    |    | 73-3     | 335 | —        | —    | e 21 9    | + 3              | 36-6   | 47-8 |
| Hamburg       |    | 75-8     | 335 | e 11 55  | + 1  | e 21 59   | [+ 4]            | e 35-6 | 48-6 |
| Vienna        |    | 78-0     | 329 | 1 12 6   | - 1  | 22 28     | [+18]            | —      | 50-1 |
| De Bilt       |    | 78-6     | 336 | 12 10    | - 1  | 22 10     | + 3              | e 38-6 | 42-5 |
| Feldberg      | N. | 79-2     | 334 | —        | —    | e 22 38   | +24              | —      | 51-0 |
| Uccle         |    | 80-0     | 336 | e 12 14  | - 5  | (e 22 20) | - 3              | e 39-6 | —    |
| Oxford        |    | 80-7     | 339 | —        | —    | —         | —                | —      | 46-6 |
| Innsbruck     |    | 80-7     | 330 | 11 38?   | -45  | —         | —                | —      | —    |
| Strasbourg    |    | 80-9     | 333 | e 12 22  | - 2  | e 22 38   | + 4              | e 41-6 | —    |
| Kew           |    | 81-4     | 340 | e 12 21  | - 6  | e 22 55   | +16              | 42-6   | 46-6 |
| Paris         |    | 82-3     | 336 | e 12 30  | - 2  | e 23 10   | +21              | 46-6   | 53-6 |
| Florence      |    | 83-6     | 328 | e 12 38  | - 2  | 22 48     | [+ 1]            | —      | 46-6 |
| Ottawa        |    | 84-7     | 27  | —        | —    | e 23 2    | -14              | e 40-6 | —    |
| Rocca di Papa |    | 84-8     | 326 | e 12 40  | - 7  | e 23 52   | ?PS              | —      | 55-2 |
| Toronto       |    | 84-9     | 30  | —        | —    | e 28 53   | ?SR <sub>1</sub> | 58-6   | —    |
| Georgetown    | Z. | 89-8     | 30  | —        | —    | —         | —                | e 57-9 | —    |
| Algiers       |    | 92-8     | 330 | —        | —    | —         | —                | —      | 57-6 |
| Almeria       |    | 94-6     | 335 | e 12 9   | ?    | —         | —                | —      | 54-5 |
| Granada       |    | 94-7     | 336 | —        | —    | —         | —                | 49-6   | 55-8 |
| San Fernando  | E. | 96-2     | 338 | —        | —    | —         | —                | —      | 64-7 |

Additional readings: Osaka MN = +6.4m. Irkutsk e = +11m.48s., eSR<sub>1</sub> = +14m.38s. Copenhagen eN = +21m.34s. = [S]-2s., MN = +47.3m.  
De Bilt MN = +51.3m., MZ = +51.5m. Kew eE = +22m.29s. = [S]-4s.,  
LZ = +45.6m. Uccle S has been *diminished* by 5m. Rocca di Papa  
ePN = +12m.44s. San Fernando MN = +62.9m.; readings have been  
increased by 1h.

July 7d. Readings also at 0h. (near Sumoto), 1h. (Lick and La Paz), 2h. (Cincinnati), 3h. (near Sumoto), 5h. (Tucson, near Puebla, Tacubaya, and Vera Cruz), 7h. (Simferopol, Tashkent, and near Tacubaya), 8h. (Ekaterinburg and La Paz), 10h. (Rocca di Papa and near Tananarive), 13h. (near Tananarive), 15h. (near Sumoto), 17h. (near Amboina), 19h. (near Oaxaca), 20h. (near Tacubaya), 21h. (Taihoku and Venice)



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July 8d. 11h. 55m. 54s. Epicentre 15°·5N. 96°·4W. (as on 1928 April 13d.).

A = -·107, B = -·958, C = +·267; D = -·994, E = +·111;  
G = -·003, H = -·266, K = -·964.

|               | $\Delta$ | Az. | P.        | O-C.             | S.      | O-C.  | L.     | M.    |
|---------------|----------|-----|-----------|------------------|---------|-------|--------|-------|
|               | °        | °   | m. s.     | s.               | m. s.   | s.    | m.     | m.    |
| Oaxaca        | 1·6      | 347 | (0 25)    | + 1              | (0 37)  | - 8   | (0·6)  | (0·6) |
| Vera Cruz     | 3·7      | 4   | 1 6       | + 8              | —       | —     | 2·0    | 2·5   |
| Puebla        | 3·9      | 334 | 1 6       | + 5              | (1 42)  | - 5   | 1·7    | 2·0   |
| Tacubaya      | 4·8      | 326 | 1 18      | + 4              | (2 11)  | 0     | 2·2    | 2·3   |
| Merida        | 8·4      | 48  | (2 17)    | +10              | (3 50)  | + 3   | —      | (4·1) |
| Guadalajara   | 8·5      | 309 | (2 10)    | + 1              | (3 48)  | - 2   | (3·8)  | (4·1) |
| Tucson        | E. 21·4  | 325 | 4 56      | - 2              | 8 34    | -19   | 11·0   | 12·1  |
|               | N. 21·4  | 325 | 4 56      | - 2              | 8 44    | - 9   | 10·8   | 11·6  |
| St. Louis     | E. 23·8  | 12  | e 5 22    | - 4              | e 9 38  | - 2   | e 14·2 | —     |
| Georgetown Z. | 28·9     | 32  | i 6 17    | 0                | e 11 24 | + 9   | e 14·3 | 22·7  |
| Lick          | E. 31·3  | 320 | —         | —                | —       | —     | e 17·3 | —     |
| Toronto       | N. 31·7  | 25  | —         | —                | e 11 47 | -16   | 18·1   | —     |
| Berkeley      | N. 32·0  | 320 | —         | —                | —       | —     | e 19·9 | —     |
| Ottawa        | 34·6     | 27  | e 7 12    | + 2              | e 12 30 | -19   | e 17·1 | —     |
| Victoria      | E. 39·7  | 333 | —         | —                | —       | —     | 20·2   | 25·2  |
| Scoresby Sund | 70·3     | 20  | —         | —                | —       | —     | 37·1   | 47·8  |
| Edinburgh     | 79·0     | 35  | —         | —                | 23 6?   | +54   | —      | —     |
| Kew           | 81·7     | 40  | e 12 36   | + 7              | —       | —     | 44·1   | —     |
| Granada       | 82·9     | 53  | i 12 46   | +11              | i 23 24 | ?PS   | 38·8   | 41·9  |
| Almeria       | 83·9     | 53  | 12 48     | + 7              | —       | —     | e 47·4 | 50·2  |
| De Bilt       | 84·7     | 38  | e 12 53   | + 7              | e 23 28 | +12   | e 42·1 | —     |
| Uccle         | 84·7     | 39  | —         | —                | e 23 6? | -10   | e 45·1 | —     |
| Copenhagen    | 87·4     | 31  | —         | —                | e 23 54 | + 9   | 40·1   | 52·7  |
| Strasbourg    | 87·5     | 40  | e 13 18   | +16              | —       | —     | e 44·1 | —     |
| Moncalieri    | 88·7     | 44  | (e 13 26) | +17              | (24 41) | ?PS   | (24·7) | —     |
| Pulkovo       | 93·4     | 24  | e 17 20   | [- 1]            | —       | —     | 48·4   | —     |
| Kucino        | 99·1     | 25  | —         | —                | e 24 54 | ?E    | 50·2   | —     |
| Makeyevka     | 104·6    | 29  | —         | —                | —       | —     | 51·1   | 67·9  |
| Ekaterinburg  | 105·2    | 13  | e 18 45   | ?PR <sub>1</sub> | (24 6?) | [-42] | 24·1   | —     |
| Irkutsk       | 109·9    | 346 | —         | —                | —       | —     | e 62·1 | —     |
| Baku          | 115·9    | 27  | —         | —                | —       | —     | e 58·7 | —     |
| Tashkent      | 121·7    | 11  | —         | —                | —       | —     | e 54·1 | 68·5  |

Additional readings and notes: Oaxaca readings have been *increased* by 2m. Merida readings have been *diminished* by 1m. Guadalajara readings have been *increased* by 2m. St. Louis eSE? = +9m.32s., iE = +9m.48s. Scoresby Sund eLN = +29·1m., MN = +43·4m. Moncalieri readings have been *increased* by 2m. Kucino e = +36m.36s.

July 8d. Readings also at 1h. (near Amboina), 2h. (near La Paz and Sucre), 6h. (St. Louis), 11h. (Naples, Pompeii, Rocca di Papa, and near Mizusawa), 13h. (Batavia and Malabar), 15h. (near Toyooka), 16h. (near Sumoto), 17h. (Toyooka and near Tananarive), 20h. (Suva and Wellington), 21h. (Manila, La Plata, and Santiago).

July 9d. 15h. 47m. 40s. Epicentre 27°·0N. 96°·0E. (as on 1927 July 15d.).

A = -·093, B = +·886, C = +·454; D = +·995, E = +·105;  
G = -·047, H = +·451, K = -·891.

|            | $\Delta$ | Az. | P.     | O-C. | S.        | O-C. | L.     | M.   |
|------------|----------|-----|--------|------|-----------|------|--------|------|
|            | °        | °   | m. s.  | s.   | m. s.     | s.   | m.     | m.   |
| Calcutta   | E. 8·3   | 239 | 3 10   | +64  | 4 9       | +24  | —      | —    |
|            | N. 8·3   | 239 | 3 6    | +60  | 4 15      | +30  | —      | —    |
| Phu-Lien   | 11·5     | 120 | —      | —    | 5 20?     | +13  | —      | —    |
| Hong Kong  | 17·2     | 102 | —      | —    | —         | —    | —      | 12·2 |
| Zi-ka-wei  | Z. 22·6  | 73  | e 5 45 | +33  | 9 53      | +36  | —      | 15·6 |
| Bombay     | 22·8     | 254 | 9 14   | ?S   | (9 14)    | - 7  | 12·9   | 13·1 |
| Irkutsk    | 26·0     | 12  | 5 51   | + 3  | e 10 29   | + 7  | 14·3   | 16·2 |
| Tashkent   | 26·2     | 310 | 15 41  | - 9  | 1 10 10   | -16  | 16·1   | 18·5 |
| Baku       | 40·1     | 303 | e 7 46 | -10  | —         | —    | 20·9   | —    |
| Makeyevka  | 49·2     | 313 | —      | —    | (e 13 38) | ?    | e 13·6 | 32·3 |
| Kucino     | 50·2     | 322 | —      | —    | —         | —    | e 32·3 | —    |
| Pulkovo    | 54·8     | 327 | —      | —    | —         | —    | 34·3   | 31·0 |
| Copenhagen | 64·4     | 322 | —      | —    | —         | —    | e 32·3 | —    |
| De Bilt    | 69·5     | 319 | —      | —    | —         | —    | e 43·3 | —    |

Additional readings: Bombay S = +11m.42s. Kucino e = +19m.56s., = SR, -14s. and +30m.50s, De Bilt eLN = +38·3m.

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July 9d. 21h. 23m. 22s. Epicentre 9°-5S. 160°-8E.

A = -.931, B = +.324, C = -.165 ; D = +.329, E = +.944 ;  
G = +.156, H = -.054, K = -.986.

|               |      | $\Delta$ | Az. | P.       | O-C.             | S.      | O-C.             | L.     | M.   |
|---------------|------|----------|-----|----------|------------------|---------|------------------|--------|------|
|               |      | °        | °   | m s.     | s.               | m. s.   | s.               | m.     | m.   |
| Suva          | E.   | 19.1     | 119 | 15 2     | +32              | i 10 2  | +118             | —      | 13.7 |
|               | N.   | 19.1     | 119 | 5 2      | +32              | —       | —                | i 12.1 | 17.9 |
| Riverview     |      | 25.9     | 199 | e 5 37   | -10              | i 10 0  | -20              | e 11.8 | 14.2 |
| Sydney        |      | 25.9     | 199 | 5 26     | -21              | 10 2    | -18              | —      | 13.4 |
| Apia          |      | 27.2     | 102 | 6 28     | +28              | —       | —                | —      | 15.0 |
| Melbourne     |      | 31.7     | 205 | 5 32     | -72              | 10 40   | -83              | 13.2   | 17.8 |
| Adelaide      |      | 32.5     | 216 | 6 38?    | -15              | i 11 45 | -31              | 14.0   | 19.0 |
| Amboina       |      | 32.9     | 278 | 15 58    | -58              | —       | —                | 16.6   | —    |
| Wellington    | E.   | 34.1     | 163 | 17 35    | +29              | i 14 5  | +83              | —      | 17.3 |
|               | N.   | 34.1     | 163 | 17 21    | +15              | i 14 1  | +79              | i 18.4 | 20.0 |
| Christchurch  |      | 35.6     | 166 | 16 14    | —                | 17 44   | ?                | 18.9   | 22.6 |
| Manila        |      | 46.3     | 301 | i 8 31   | -11              | —       | —                | i 23.6 | 25.3 |
| Perth         |      | 47.2     | 235 | 8 53     | +5               | i 15 36 | -8               | i 23.5 | 27.1 |
| Sumoto        |      | 49.9     | 333 | i 9 7    | +1               | e 16 21 | +3               | e 23.3 | —    |
| Osaka         |      | 50.3     | 333 | 9 3      | -6               | 16 23   | 0                | 21.1   | 27.5 |
| Kobe          |      | 50.4     | 333 | i 9 8    | -1               | —       | —                | e 24.0 | 26.5 |
| Honolulu T.H. |      | 51.0     | 53  | i 9 19   | +6               | i 16 38 | +7               | i 23.7 | 24.2 |
| Toyooka       |      | 51.3     | 334 | i 9 7    | -8               | i 16 29 | -6               | 25.1   | 27.0 |
| Taihoku       | E.   | 51.5     | 314 | 9 16     | -1               | —       | —                | —      | —    |
| Nagaasaki     |      | 51.5     | 327 | e 9 16   | -1               | e 16 32 | -6               | e 26.7 | —    |
| Hukuoka       |      | 51.8     | 329 | 9 20     | +1               | —       | —                | —      | —    |
| Mizusawa      | E.   | 51.9     | 342 | 9 22     | +3               | 16 32   | -11              | 21.1   | —    |
|               | N.   | 51.9     | 342 | 9 21     | +2               | 16 43   | 0                | 21.8   | —    |
| Batavia       |      | 53.5     | 270 | i 9 29   | -1               | i 17 0  | -3               | 29.6   | —    |
| Zi-ka-wei     | Z.   | 55.5     | 320 | i 9 47   | +4               | i 17 31 | +3               | 28.1   | 31.8 |
| Hong Kong     |      | 55.7     | 307 | 9 46     | +2               | —       | —                | 24.0   | 24.7 |
| Otomari       |      | 58.4     | 346 | 10 2     | +1               | 18 4    | 0                | e 24.6 | —    |
| Phu-Lien      |      | 61.3     | 300 | 10 25    | +4               | e 18 43 | +3               | 28.6   | —    |
| Calcutta      | N.   | 77.8     | 296 | 10 13    | -113             | —       | —                | —      | —    |
| Irkutsk       |      | 78.3     | 329 | i 12 11  | +2               | 22 45   | ?PS              | 36.6   | 45.5 |
| Colombo       |      | 82.2     | 278 | 12 24    | -7               | 22 47   | -1               | 41.6   | —    |
| Kodaikanal    |      | 85.3     | 282 | 32 2     | ?                | —       | —                | 51.9   | 68.9 |
| Berkeley      | E.Z. | 85.6     | 50  | e 12 48  | -3               | e 23 32 | +6               | e 39.3 | —    |
|               | N.   | 85.6     | 50  | e 12 53  | +2               | e 23 25 | -1               | e 37.2 | —    |
| Lick          | E.   | 86.0     | 51  | e 12 48  | -5               | e 23 28 | -2               | e 39.6 | 43.6 |
| Victoria      |      | 87.9     | 40  | 13 4     | 0                | 23 34   | -17              | 40.2   | 51.5 |
| Bombay        |      | 91.2     | 289 | 13 39    | +17              | 23 51   | [+16]            | 43.9   | 68.8 |
| Tucson        |      | 93.7     | 58  | 13 36    | 0                | 24 18   | ?E               | 39.7   | —    |
| Tashkent      |      | 97.4     | 312 | i 13 43  | -13              | i 24 20 | [+10]            | 49.6   | 62.1 |
| Denver        | E.   | 99.4     | 50  | e 17 38  | [-6]             | e 26 33 | ?PS              | e 45.6 | 52.2 |
| Tamanarive    |      | 108.4    | 245 | e 15 39  | +49              | 26 39   | -35              | 50.3   | 60.5 |
| St. Louis     |      | 110.7    | 51  | e 18 32  | [+8]             | —       | —                | 50.9   | 54.6 |
| Baku          |      | 112.0    | 310 | e 14 51  | -16              | —       | —                | 51.6   | 62.6 |
| Chicago       | E.   | 112.4    | 47  | —        | —                | e 28 40 | +61              | 57.0   | 63.2 |
|               | N.   | 112.4    | 47  | —        | —                | e 34 55 | ?SR <sub>1</sub> | 50.1   | 51.7 |
| Ann Arbor     | E.   | 115.2    | 46  | —        | —                | e 25 38 | [+8]             | e 56.1 | —    |
| Kucino        |      | 116.0    | 328 | —        | —                | 26 4    | [+32]            | 53.9   | 61.3 |
| Toronto       |      | 117.0    | 44  | e 20 15  | ?PR <sub>1</sub> | —       | —                | 47.6   | 63.6 |
| Pulkovo       |      | 117.7    | 334 | —        | —                | 25 49   | [+11]            | 54.6   | 74.6 |
| Makeyevka     |      | 118.7    | 320 | —        | —                | 25 53   | [+12]            | —      | 68.6 |
| Scoresby Sund |      | 119.0    | 2   | —        | —                | e 25 56 | [+14]            | e 50.6 | 73.2 |
| Helingsfors   |      | 119.7    | 336 | e 20 26  | ?PR <sub>1</sub> | 36 39   | ?SR <sub>1</sub> | 53.6   | —    |
| Ottawa        |      | 120.0    | 41  | e 20 20  | ?PR <sub>1</sub> | —       | —                | e 49.6 | 67.6 |
| Georgetown    | Z.   | 120.8    | 50  | i 20 33  | ?PR <sub>1</sub> | 130 32  | ?PS              | 58.7   | 70.1 |
| Theodosia     |      | 121.4    | 317 | e 20 38? | ?PR <sub>1</sub> | —       | —                | —      | —    |
| La Plata      |      | 122.5    | 142 | —        | —                | —       | —                | 64.5   | —    |
| Uppsala       |      | 122.7    | 339 | e 20 38  | ?PR <sub>1</sub> | —       | —                | e 57.6 | 72.0 |
| Cape Town     |      | 123.8    | 217 | —        | —                | e 32 18 | ?                | 72.6   | —    |
| Harvard       |      | 124.1    | 44  | —        | —                | e 41 8  | ?SR <sub>1</sub> | i 56.1 | —    |
| Ksara         | E.   | 124.1    | 304 | e 17 48  | [-75]            | —       | —                | 63.0   | 71.1 |
| Konigsberg    |      | 124.9    | 333 | e 21 2   | ?PR <sub>1</sub> | e 27 47 | ?E               | e 60.7 | 76.6 |
| La Paz        |      | 125.0    | 117 | 19 38    | [+32]            | —       | —                | —      | —    |
| Sucre         |      | 126.4    | 123 | 19 32    | [+23]            | —       | —                | 58.6   | 66.0 |
| Lund          |      | 127.3    | 336 | 21 14    | ?PR <sub>1</sub> | —       | —                | 54.6   | —    |
| Copenhagen    |      | 127.6    | 337 | e 19 14  | [+1]             | e 26 2  | [-3]             | 54.6   | 69.9 |
| Potsdam       |      | 129.7    | 334 | e 12 31  | ?PR <sub>1</sub> | —       | —                | e 74.5 | 73.3 |
| Hamburg       |      | 130.1    | 337 | e 19 22  | [+4]             | e 21 32 | ?PR <sub>1</sub> | e 61.6 | 70.6 |

Continued on next page.

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|                | $\Delta$ | Az. | P.      | O-C.             | S.      | O-C.             | L.     | M.   |
|----------------|----------|-----|---------|------------------|---------|------------------|--------|------|
|                | °        | °   | m. s.   | s.               | m. s.   | s.               | m.     | m.   |
| Budapest       | 130.2    | 326 | 19 30   | [+11]            | —       | —                | e 66.6 | 77.6 |
| Dyce           | 130.5    | 349 | —       | —                | —       | —                | 70.2   | 77.0 |
| Belgrade       | 130.9    | 322 | e 18 45 | [-36]            | —       | —                | e 42.8 | 72.9 |
| Vienna         | 131.0    | 330 | e 19 20 | [- 1]            | —       | —                | e 67.6 | 83.6 |
| Edinburgh      | 131.9    | 348 | —       | —                | —       | —                | e 72.6 | —    |
| Zagreb         | 132.9    | 326 | e 19 23 | [- 2]            | —       | —                | e 63.3 | —    |
| De Bilt        | 133.0    | 339 | 19 28   | [+ 3]            | —       | —                | e 59.6 | 62.0 |
| Feldberg       | N. 133.4 | 335 | e 21 54 | ?PR <sub>1</sub> | —       | —                | e 65.4 | 68.9 |
| Stonyhurst     | 133.6    | 345 | e 26 18 | ?                | —       | —                | e 67.6 | —    |
| Uccle          | 134.4    | 339 | e 19 26 | [- 3]            | —       | —                | e 55.6 | 76.8 |
| Ravensburg     | E. 134.7 | 333 | e 20 18 | [+49]            | —       | —                | e 66.6 | —    |
| Strasbourg     | 134.9    | 335 | 19 30   | [ 0]             | —       | —                | e 60.6 | 74.4 |
| Kew            | E. 135.3 | 343 | —       | —                | —       | —                | e 60.6 | 73.7 |
| Oxford         | 135.3    | 344 | —       | —                | 140 16  | ?SR <sub>1</sub> | e 56.9 | 72.0 |
| Zurich         | 135.5    | 332 | e 20 4  | [+33]            | —       | —                | e 71.6 | —    |
| Chur           | 135.5    | 332 | e 19 34 | [+ 3]            | —       | —                | e 68.1 | —    |
| Neuchatel      | 136.5    | 332 | e 19 30 | [- 3]            | e 27 54 | ?                | —      | —    |
| Paris          | 136.7    | 340 | e 19 36 | [+ 3]            | —       | —                | 60.6   | 80.6 |
| Florence       | 136.7    | 327 | 19 33   | [ 0]             | 39 38   | ?                | 69.6   | 79.6 |
| Pompeii        | 136.8    | 321 | e 19 38 | [+ 4]            | —       | —                | —      | —    |
| Naples         | E. 137.0 | 321 | e 19 58 | [+24]            | —       | —                | —      | —    |
| Rocca di Papa  | 137.3    | 323 | e 19 36 | [+ 1]            | 23 30   | ?PR <sub>1</sub> | e 67.4 | 73.5 |
| Moncalieri     | E. 137.6 | 331 | e 18 4  | ?                | 29 15   | ? $\Sigma$       | e 65.0 | 79.3 |
|                | 137.6    | 331 | e 19 28 | [- 7]            | 33 23   | ?                | 66.7   | 78.4 |
| Rio de Janeiro | 140.0    | 144 | e 22 38 | ?PR <sub>1</sub> | —       | —                | —      | —    |
| Tortosa        | N. 144.1 | 334 | i 19 44 | [- 3]            | 29 50   | ? $\Sigma$       | e 42.6 | 90.6 |
| Algiers        | 146.1    | 325 | 20 3    | [+13]            | 32 13   | ?                | 70.6   | 88.6 |
| Alicante       | 146.7    | 334 | e 19 50 | [- 1]            | e 30 6  | ? $\Sigma$       | e 43.8 | —    |
| Toledo         | 146.8    | 338 | e 19 48 | [- 3]            | e 30 8  | ? $\Sigma$       | —      | 85.1 |
| Almeria        | 148.7    | 334 | 19 55   | [+ 1]            | 29 48   | ? $\Sigma$       | e 73.7 | 91.7 |
| Granada        | 148.9    | 336 | i 19 52 | [- 2]            | i 23 19 | ?PR <sub>1</sub> | e 72.8 | 85.5 |
| Malaga         | 149.7    | 336 | 19 58   | [+ 3]            | 29 56   | ? $\Sigma$       | e 36.9 | —    |
| San Fernando   | 150.6    | 338 | 19 55   | [- 2]            | 30 30   | ? $\Sigma$       | e 46.6 | 79.7 |

Additional readings: Suva PR<sub>1</sub>E = +5m.50s. Riverview iP = +5m.39s. and +5m.49s. PR<sub>1</sub> = +6m.13s. PR<sub>2</sub> = +6m.22s. iS = +10m.27s. e = +10m.44s. SR<sub>1</sub> = +11m.18s. MZ = +17.7m. T<sub>1</sub> = 21h.23m.18s. Apia e = +3m.38s. Amboina i = +7m.2s. = P + 6s. Manila iPN = +8m.37s. iPR<sub>1</sub>E = +10m.41s. iSR<sub>1</sub>N = +19m.0s. iSR<sub>1</sub>N = +20m.29s. iSR<sub>1</sub>E = +20m.47s. Perth P = +9m.33s. SR<sub>1</sub> = +19m.15s. Osaka MN = +28.0m. Kobe MN = +27.7m. MZ = +27.8m. Honolulu T.H. eN = +17m.39s. SR<sub>1</sub>N = +21m.56s. eLN = +23.8m. MN = +26.7m. Toyooka iSN = +16m.33s. Batavia iZ = +9m.27s. and +9m.28s. Zi-ka-wei PR<sub>1</sub>Z = +11m.47s. PSZ = +17m.53s. Hong Kong SR<sub>1</sub>? = +19m.41s. = Z - 6s. Calcutta PE = +10m.25s. Victoria LN = +38.6m. MN = +50.8m. T<sub>1</sub> = 21h.23m.54s. Tucson PN = +13m.53s. PS = +24m.55s. = S + 2s. Denver eE = +32m.38s. = SR<sub>1</sub> + 8s. Tanana rive PR<sub>1</sub> = +19m.43s. PR<sub>1</sub> = +24m.3s. PS = +28m.23s. FPPS = +29m.40s. SPS = +34m.12s. SR<sub>1</sub> = +34m.27s. SR<sub>1</sub> = +38m.0s. SR<sub>1</sub> = +42m.12s. St. Louis i = +18m.32s. = PR<sub>1</sub> + 9s. e = +20m.47s. i = +26m.42s. + 29m.6s. = PS + 0s. + 30m.20s. and + 34m.32s. = SR<sub>1</sub> - 19s. Baku iPR<sub>1</sub> = +19m.35s. PS = +29m.6s. Chicago eE = +47m.55s. eN = +38m.35s. Ann Arbor e?E = +29m.50s. = PS - 4s. and + 35m.8s. Kucino PR<sub>1</sub> = +20m.14s. PS = +29m.56s. Toronto eE = +40m.12s. iE = +40m.23s. LN = +50.1m. MN = +62.6m. Pulkovo PR<sub>1</sub> = +20m.8s. Makeyevka PR<sub>1</sub> = +20m.18s. SR<sub>1</sub> = +36m.16s. Scoresby Sund ePR<sub>1</sub>N = +20m.50s. ePR<sub>1</sub>EN = +23m.50s. eS<sub>0</sub>P<sub>0</sub>SN = +27m.26s. eE = +28m.2s. and +28m.26s. ePSN = +30m.2s. ePPSN = +32m.20s. eLN = +52.6m. Ottawa e = +25m.56s. = [S] + 11s. and + 36m.2s. LN = +64.6m. Georgetown eZ = +3m.20s. and + 11m.6s. Upsala MN = +71.6m. Ksara PE = +20m.58s. = PR<sub>1</sub> + 7s. PR<sub>1</sub>E = +23m.19s. PR<sub>1</sub> - 82s. PR<sub>1</sub>E = +20m.0s. = [S] + 3s. PR<sub>1</sub>E = +28m.44s. = Z - 66s. PR<sub>1</sub>E = +30m.3s. = PS - 82s. Konigsberg eN = +21m.5s. = PR<sub>1</sub> + 8s. and + 38m.44s. eLN = +59.7m. Copenhagen ePR<sub>1</sub> = +21m.17s. e = +22m.3s. MN = +70.1m. MZ = +73.3m. Potsdam MN = +74.3m. Budapest MN = +70.6m. Belgrade eN = +20m.37s. e = +22m.47s. Vienna iPZ = +19m.23s. iNE = +21m.41s. = PR<sub>1</sub> + 5s. and + 22m.51s. MN = +81.1m. Zagreb e = +22m.48s. and +46m.56s. De Bilt iZ = +21m.55s. = PR<sub>1</sub> + 6s. e = +22m.59s. MZ = +77.1m. MN = +77.4m. Feldberg e = +30m.42s. + 39m.42s. = SR<sub>1</sub> + 10s. and +41m.21s. Stonyhurst e = +50m.58s. Uccle e = +22m.2s. = PR<sub>1</sub> + 3s. + 23m.3s. and

Continued on next page.

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+39m.38s.  $\dagger$  = SR<sub>1</sub> - 6s. Strasbourg iP<sub>0</sub>P<sub>0</sub>S = +23m.3s. SR<sub>1</sub>  $\dagger$  = +45m.38s.  $\dagger$  = SR<sub>1</sub> - 6s., MZ = +86.2m. Kew iPR<sub>1</sub>Z = +22m.9s., eEN = iZ = +23m.9s., ePS = +34m.9s., ePPS = +34m.13s., eSR<sub>1</sub>EN = +40m.16s., eSR<sub>1</sub>E = +45m.2s., LZ = +66.6m., MN = +78.8m. Zurich ePR<sub>1</sub> = +22m.1s. Rocca di Papa ePE = +19m.37s., ePN = +19m.41s., L = +69.9m. Moncalieri (second line) L = +58.0m., MN = +86.3m. Algiers MN = +84.6m. Toledo i = +19m.54s. = [P] + 4s., MNW = +89.7m. Almeria PR<sub>1</sub> = +22m.58s., MZ = +96.4m.

July 9d. Readings also at 1h. (near Sumoto), 4h. (near Matuyama), 5h. (Belgrade and Tananarive), 6h. (Taihoku), 8h. (Nagoya), 9h. (Cincinnati), 10h. (Irkutsk, Kucino, and Tashkent), 14h. (Cincinnati), 16h. (Tucson, near Oaxaca, Tacubaya, and Vera Cruz), 18h. (near Toyooka), 20h. (Calcutta, Irkutsk, Tashkent, and near Toyooka), 21h. (La Paz and Sucre).

July 10d. 2h. 2m. 24s. Epicentre 15°-6N. 97°-8W. (as on 1927 Dec. 27d.).

A = -.131, B = -.954, C = +.269; D = -.991, E = +.136; G = -.036, H = -.266, K = -.963.

|                | $\Delta$ | Az.   | P.               | O-C.             | S.      | O-C.             | L.     | M.    |
|----------------|----------|-------|------------------|------------------|---------|------------------|--------|-------|
|                | °        | m. s. | m. s.            | s.               | m. s.   | s.               | m.     | m.    |
| Oaxaca         | 1.7      | 35    | (0 24)           | - 2              | (0 40)  | - 8              | (0.7)  | —     |
| Puebla         | 3.4      | 354   | 0 53             | 0                | (1 39)  | + 5              | 1.6    | 1.8   |
| Vera Cruz      | 3.9      | 24    | 0 59             | - 2              | (1 47)  | 0                | 1.8    | 2.7   |
| Tacubaya       | 4.0      | 341   | 1 25             | +23              | —       | —                | 2.3    | 2.4   |
| Chihuahua      | 7.1      | 300   | —                | —                | —       | —                | 3.7    | 3.8   |
| Guadalajara    | 7.4      | 314   | (2 12)           | +20              | (3 40)  | +19              | (4.0)  | (4.2) |
| Chihuahua      | 15.1     | 331   | (3 24)           | -16              | —       | —                | (8.7)  | (9.4) |
| Tucson         | 20.4     | 327   | 5 5              | +19              | 9 2     | +30              | 11.3   | —     |
| St. Louis      | 24.0     | 15    | 15 40            | +12              | i 9 55  | +11              | 13.8   | —     |
| Chicago        | E. 27.6  | 17    | 15 33            | -31              | i 10 23 | -29              | 16.0   | 18.9  |
|                | N. 27.6  | 17    | 15 30            | -34              | i 10 11 | -41              | 16.3   | 18.8  |
|                | E. 27.6  | 17    | e 6 30           | +26              | e 10 16 | -36              | 15.8   | —     |
|                | N. 27.6  | 17    | e 6 23           | +24              | e 10 6  | -46              | 17.2   | 18.8  |
| Ann Arbor      | E. 29.3  | 22    | —                | —                | e 11 30 | + 8              | e 17.6 | —     |
| Georgetown     | Z. 29.5  | 34    | 1 6 16           | - 7              | 11 11   | -15              | e 12.5 | 23.1  |
| Berkeley       | Z. 31.0  | 321   | e 6 43           | + 5              | —       | —                | e 14.3 | —     |
| Toronto        | 32.1     | 26    | e 6 36           | -12              | 11 51   | -19              | 20.1   | 26.4  |
| Ottawa         | 35.1     | 28    | 1 7 4            | -10              | i 12 34 | -23              | e 15.6 | 24.6  |
| Harvard        | 35.2     | 35    | e 8 36 $\dagger$ | ?PR <sub>1</sub> | e 15 6  | ?SR <sub>1</sub> | 19.6   | —     |
| Spokane        | 35.9     | 339   | e 7 36           | +15              | —       | —                | 16.6   | 20.3  |
| Victoria       | E. 38.9  | 333   | 7 44             | - 1              | —       | —                | 21.0   | 23.5  |
|                | N. 38.9  | 333   | 8 2              | +17              | —       | —                | 20.5   | 22.7  |
| La Paz         | 43.6     | 137   | 8 25             | + 2              | 14 49   | - 7              | 20.6   | 25.4  |
| Sucre          | 47.2     | 137   | 8 48             | 0                | i 15 39 | - 5              | 22.5   | 26.9  |
| Rio de Janeiro | E. 65.9  | 126   | —                | —                | e 19 36 | 0                | —      | —     |
| Scoresby Sund  | 70.6     | 20    | e 11 30          | + 9              | 20 54   | +21              | 37.6   | 47.7  |
| Stonyhurst     | 80.6     | 38    | —                | —                | —       | —                | e 42.6 | 51.9  |
| Oxford         | 81.8     | 39    | —                | —                | e 22 50 | + 6              | e 38.6 | 49.6  |
| San Fernando   | N. 82.1  | 53    | —                | —                | —       | —                | —      | 46.5  |
| Kew            | 82.4     | 39    | e 12 38          | + 6              | e 22 56 | + 6              | 40.6   | 49.6  |
| Toledo         | 82.9     | 51    | —                | —                | —       | —                | e 40.7 | —     |
| Malaga         | 83.4     | 54    | 13 22            | +44              | 23 18   | +17              | 30.8   | —     |
| Granada        | 83.9     | 54    | i 12 53          | +12              | i 23 25 | +17              | 39.9   | 43.0  |
| Almeria        | 84.9     | 54    | 12 47            | 0                | e 23 12 | - 6              | 40.6   | 45.4  |
| Paris          | 84.9     | 40    | e 12 53          | + 6              | —       | —                | 43.6   | 50.6  |
| De Bilt        | 85.4     | 37    | e 12 53          | + 3              | e 23 23 | 0                | e 40.6 | 46.3  |
| Uccle          | 85.4     | 38    | e 12 48          | - 2              | e 23 18 | - 5              | e 40.6 | —     |
| Alicante       | 85.9     | 51    | e 12 44          | - 9              | e 23 16 | -13              | e 45.0 | —     |
| Tortosa        | N. 86.0  | 49    | —                | —                | —       | —                | e 42.6 | 45.2  |
| Hamburg        | 87.6     | 35    | —                | —                | —       | —                | e 48.6 | —     |
| Copenhagen     | 88.0     | 32    | 13 6             | + 1              | 23 34   | [+19]            | 40.6   | 49.1  |
| Strasbourg     | 88.2     | 39    | 13 5             | - 1              | e 23 56 | + 2              | e 44.6 | 53.7  |
| Neuchatel      | 88.2     | 42    | e 13 6           | 0                | —       | —                | —      | —     |
| Lund           | 88.4     | 31    | —                | —                | —       | —                | 45.6   | —     |
| Moncalieri     | E. 89.5  | 44    | e 13 58          | +45              | 23 44   | -25              | —      | —     |

Continued on next page,

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|               | $\Delta$ | Az. | P.      | O-C.             | S.       | O-C.  | L.     | M.   |
|---------------|----------|-----|---------|------------------|----------|-------|--------|------|
|               | °        | °   | m. s.   | s.               | m. s.    | s.    | m.     | m.   |
| Florence      | 92.4     | 44  | 12 33   | -56              | 23 36    | [- 6] | 46.6   | 50.6 |
| Pulkovo       | 93.8     | 25  | —       | —                | —        | —     | 54.6   | 60.3 |
| Rocca di Papa | 94.2     | 45  | —       | —                | e 24 53  | - 5   | e 46.3 | 53.9 |
| Kucino        | 99.5     | 25  | —       | —                | e 25 54  | + 3   | 53.8   | 60.0 |
| Makeyevka     | 105.2    | 29  | —       | —                | e 25 6   | [+18] | 49.3   | 64.6 |
| Irkutsk       | 109.4    | 346 | e 20 17 | ?PR <sub>1</sub> | e 28 36? | ?PS   | 61.6   | —    |
| Baku          | 116.5    | 26  | —       | —                | —        | —     | 56.6   | —    |
| Tashkent      | 121.9    | 11  | i 20 44 | ?PR <sub>1</sub> | i 30 36  | ?PS   | e 57.6 | 71.8 |

Additional readings and notes : Oaxaca readings have been *diminished* by 3m. Guadalajara readings have been *increased* by 2m. Chihuahua readings have been *increased* by 7m. Tucson PR<sub>1</sub>N = +5m.28s., PR<sub>1</sub>E = +5m.31s., MN = +13.6m. St. Louis iE = +5m.49s. = PR<sub>1</sub>-9s., i = +6m.13s., iSE = +9m.56s., iE = +11m.42s., and +17m.0s. Chicago (second line) eN = +12m.13s. = SR<sub>1</sub>+7s., (fourth line) eN = +12m.12s. = SR<sub>1</sub>+6s. Ann Arbor e?E = +9m.36s., eL?E = +19.9m. Georgetown PR<sub>1</sub>Z = +6m.56s. Berkeley eE = +15m.54s., eN = +16m.30s. and +17m.18s., eZ = +21m.2s., eE = +21m.7s. Toronto iPN = +6m.41s. Ottawa MN = +26.6m.; T<sub>0</sub> = 2h.2m.32s. La Paz MN = +26.9m. Scoresby Sund eE = +12m.48s., MN = +42.8m. De Bilt MZ = +55.2m.; epicentre 15°44N. 97°5'W. Copenhagen PR<sub>1</sub> = +16m.33s., PS = +24m.48s., SR<sub>1</sub> = +28m.36s.?, MN = +53.7m. Neuchatel e = +17m.58s. Kucino e = +23m.18s. and +33m.48s. Makeyevka e = +29m.0s. and +41m.6s.

July 10d. 10h. 22m. 40s. Epicentre 15°·6N. 97°·8W. (as at 2h.).

|            | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|------------|----------|-----|--------|------|---------|------|--------|------|
|            | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Puebla     | 3.4      | 354 | 0 39   | -14  | (1 23)  | -11  | 1.4    | —    |
| Tacubaya   | 4.0      | 341 | 1 15   | +13  | (1 33)  | -17  | 1.6    | 2.4  |
| Tucson     | 20.4     | 327 | 4 48   | + 2  | —       | —    | 11.0   | —    |
| St. Louis  | 24.0     | 15  | i 5 27 | - 1  | i 9 47  | + 3  | —      | —    |
| Georgetown | z. 29.5  | 34  | e 6 5  | -18  | —       | —    | e 12.7 | 23.1 |
| Toronto    | 32.1     | 26  | —      | —    | —       | —    | —      | 19.3 |
| Ottawa     | 35.1     | 28  | —      | —    | e 12 20 | -37  | e 19.3 | —    |

Additional readings : Tucson PE = +4m.53s. St. Louis iSE = +9m.54s. Georgetown eZ = 10h.4m.40s. and 10h.10m.24s., iZ = 10h.16m.27s.

July 10d. 21h. 33m. 42s. Epicentre 37°·7N. 64°·5E.

A = +.341, B = +.714, C = +.612; D = +.903, E = -.431;  
G = +.263, H = +.552, K = -.791.

|              | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.    | M.  |
|--------------|----------|-----|--------|------|--------|------|-------|-----|
|              | °        | °   | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Tashkent     | 5.1      | 45  | i 1 19 | 0    | i 2 14 | - 6  | —     | 2.7 |
| Baku         | 11.6     | 288 | —      | —    | —      | —    | e 7.0 | —   |
| Ekaterinburg | 19.3     | 354 | 4 34   | + 1  | 8 14   | + 6  | —     | —   |
| Pulkovo      | 30.9     | 327 | 6 35   | - 2  | 11 47  | - 3  | —     | —   |

No additional readings.

July 10d. Readings also at 4h. (Irkutsk, Melbourne, Riverview, near Merida, Tacubaya, and near Toyooka), 5h. (Tashkent), 6h. (Alicante, Tucson, near Tacubaya, near Almeria, Granada, and Nagasaki), 9h. (Adelaide, Melbourne, Riverview, Suva, Manila, Tashkent), 10h. (Honolulu T.H. Irkutsk, and Victoria), 11h. (Wellington, St. Louis, Tucson, and near Tacubaya), 12h. (Taihoku), 14h. (near Nagoya), 15h. (Lick), 20h. (Mizusawa), 21h. (Rocca di Papa).

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July 11d. 2h. 50m. 27s. Epicentre 32° 0S. 179° 0W. (as on 1927 Nov. 7d.).

A = - .848, B = - .015, C = - .530; D = - .017, E = + 1.000;  
G = + .530, H = + .009, K = - .848.

De Bilt gives epicentre north of New Zealand, but the determination is very uncertain.

|               |    | $\Delta$ | Az. | P.       | O-C.             | S.       | O-C.             | L.     | M.    |
|---------------|----|----------|-----|----------|------------------|----------|------------------|--------|-------|
|               |    | °        | °   | m. s.    | s.               | m. s.    | s.               | m.     | m.    |
| Wellington    | E. | 10.6     | 208 | 12 48    | +10              | 14 46    | + 1              | —      | 7.9   |
|               | N. | 10.6     | 208 | 12 49    | +11              | 14 51    | + 6              | —      | 8.6   |
| Christchurch  | E. | 13.3     | 207 | e 6 55   | ?L               | 9 37     | ?                | 10.5   | 12.6  |
| Suva          | N. | 14.1     | 350 | e 4 51   | +84              | 17 51    | +101             | 9.6    | 17.0  |
|               | E. | 14.1     | 350 | 1 5 3    | +96              | 18 21    | ?                | 9.6    | 12.4  |
| Riverview     |    | 25.1     | 258 | i 5 33   | - 6              | i 10 34  | +29              | e 12.0 | 15.6  |
| Sydney        |    | 25.1     | 258 | —        | —                | —        | —                | 12.6   | 15.0  |
| Melbourne     |    | 30.0     | 249 | e 5 45   | -43              | i 11 33  | - 1              | e 13.6 | 17.4  |
| Adelaide      |    | 35.3     | 254 | —        | —                | 14 49    | ?SR <sub>1</sub> | 18.3   | 22.9  |
| Honolulu T.H. |    | 57.0     | 24  | e 10 57  | +65              | (e 18 3) | +17              | e 18.0 | 22.0  |
| Zi-ka-wei     | Z. | 84.7     | 313 | e 12 46  | 0                | —        | —                | —      | 57.2  |
| Berkeley      | N. | 87.6     | 40  | —        | —                | —        | —                | e 43.2 | —     |
| Victoria      | N. | 94.5     | 33  | 25 1     | ?S               | (25 1)   | 0                | 49.5   | 69.1  |
| Sucre         |    | 98.6     | 120 | —        | —                | —        | —                | 53.6   | 58.0  |
| Irkutsk       |    | 107.5    | 320 | e 17 33  | [-40]            | —        | —                | 60.6   | —     |
| St. Louis     |    | 108.5    | 55  | —        | —                | e 26 38  | -37              | e 44.8 | 50.6  |
| Chicago       | E. | 111.6    | 52  | —        | —                | —        | —                | e 57.6 | 68.6  |
| Cincinnati    |    | 112.7    | 56  | —        | —                | —        | —                | e 59.6 | 64.6  |
| Bombay        |    | 115.0    | 276 | —        | —                | —        | —                | e 67.6 | —     |
| Toronto       | N. | 117.9    | 52  | —        | —                | e 36 33? | ?SR <sub>1</sub> | 53.9   | —     |
| Georgetown    | Z. | 118.0    | 59  | e 20 17  | ?PR <sub>1</sub> | e 27 40  | -54              | e 60.8 | 75.2  |
| Ottawa        | E. | 120.9    | 51  | —        | —                | —        | —                | 63.6   | 74.6  |
| Tashkent      |    | 125.8    | 300 | i 19 4   | [- 4]            | 26 16    | [+15]            | —      | —     |
| Ekaterinburg  |    | 132.7    | 319 | 19 39    | [+15]            | —        | —                | —      | 79.0  |
| Scoresby Sund |    | 139.5    | 11  | 22 45    | ?PR <sub>1</sub> | —        | —                | 72.6   | 81.8  |
| Baku          |    | 140.2    | 295 | 19 30    | [- 9]            | —        | —                | 71.6   | —     |
| Kucino        |    | 145.0    | 322 | 19 49    | [+ 1]            | —        | —                | e 74.4 | —     |
| Pulkovo       |    | 146.1    | 334 | 19 52    | [+ 2]            | —        | —                | 76.6   | 86.4  |
| Makeyevka     |    | 147.9    | 310 | 19 51    | [- 2]            | —        | —                | —      | 94.6  |
| Theodosia     |    | 150.4    | 306 | e 20 3   | [+ 7]            | —        | —                | —      | —     |
| Ksara         | E. | 150.8    | 283 | 20 1     | [+ 4]            | —        | —                | —      | —     |
| Simferopol    |    | 151.3    | 306 | e 20 3   | [+ 5]            | —        | —                | —      | —     |
| Yalta         |    | 151.4    | 305 | —        | —                | —        | —                | e 21.1 | —     |
| Lund          |    | 154.8    | 344 | —        | —                | —        | —                | 87.6   | —     |
| Copenhagen    |    | 155.0    | 345 | e 20 27  | [+25]            | —        | —                | 81.6   | 103.2 |
| Edinburgh     |    | 155.9    | 6   | —        | —                | —        | —                | e 79.6 | —     |
| Stonyhurst    |    | 158.0    | 5   | —        | —                | —        | —                | e 89.6 | —     |
| De Bilt       |    | 159.7    | 352 | 20 6     | [- 2]            | —        | —                | e 87.6 | 96.9  |
| Kew           |    | 160.5    | 3   | e 20 33  | [+24]            | —        | —                | 87.6   | —     |
| Uccle         |    | 161.0    | 353 | e 24 33? | ?PR <sub>1</sub> | —        | —                | e 86.6 | —     |
| Strasbourg    |    | 162.7    | 345 | e 20 5   | [- 5]            | e 38 28  | ?L               | e 87.6 | —     |
| Paris         |    | 163.1    | 357 | e 20 10  | [ 0]             | e 24 54  | ?PR <sub>1</sub> | 90.6   | 112.6 |
| Florence      |    | 165.7    | 328 | 20 8     | [- 4]            | 25 3     | ?PR <sub>1</sub> | 94.6   | 100.6 |
| Moncalieri    | E. | 166.0    | 340 | e 20 48  | [+36]            | 34 2     | ?                | 46.1   | —     |
| Toledo        |    | 171.1    | 26  | —        | —                | —        | —                | e 91.6 | —     |
| Tortosa       | N. | 171.1    | 3   | —        | —                | —        | —                | e 90.6 | 116.8 |
| San Fernando  |    | 172.6    | 51  | —        | —                | 88 37    | ?L               | (88.6) | 108.2 |
| Alicante      |    | 173.5    | 10  | —        | —                | —        | —                | e 95.9 | —     |
| Granada       |    | 173.6    | 35  | —        | —                | —        | —                | 186.4  | 92.0  |
| Almeria       |    | 174.4    | 28  | e 19 55  | [-21]            | —        | —                | —      | 36.4  |

Additional readings: Christchurch ? = +8m.43s. Riverview MN = +15.0m.  
Melbourne i = +7m.4s. = PR<sub>1</sub> - 14s. Honolulu T.H. MN = +28.0m.  
Berkeley eN = +54m.9s. Irkutsk PS = +28m.33s. St. Louis eE =  
+28m.59s. = PS + 18s., and +33m.33s., eN = +33m.18s., and +34m.52s.  
= SR<sub>1</sub> + 28s. Georgetown eZ = +30m.16s. = PS - 7s., and +42m.42s.  
Ottawa eE = +30m.33s. = PS - 20s., eN = +37m.3s. = SR<sub>1</sub> + 5s., LN =  
+64.6m. Tashkent PR<sub>1</sub> = +24m.27s., e = +54m.33s. Ekaterinburg  
PR<sub>1</sub> = +22m.53s., e = +31m.33s. Scoresby Sund eN = +23m.17s., MN =  
+82.0m. Baku S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +23m.18s. Kucino S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +29m.57s.,  
PPS = +37m.33s., SR<sub>1</sub> = +42m.3s. Pulkovo i = +20m.46s., e =  
+22m.33s. Makeyevka S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +30m.15s., PS = +35m.33s. Ksara  
ePR<sub>1</sub>E = +28m.57s., ePR<sub>1</sub>E = +31m.50s. Copenhagen eZ = +23m.33s.?,  
MN = +89.4m. De Bilt eZ = +24m.36s. = PR<sub>1</sub> + 0s., eE = +44m.51s. =  
SR<sub>1</sub> + 8s., MZ = +101.0m., MN = +101.6m. Kew ePR<sub>1</sub>Z = +24m.39s.  
Uccle e = +34m.33s. ? and +44m.33s. ? = SR<sub>1</sub> - 25s. Granada i =  
+50m.16s.

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July 11d. Readings also at 5h. (near Oaxaca and Tacubaya (2) ), 7h. (La Paz), 10h. (Ekaterinburg and Tashkent), 11h. (near La Paz and Sucre).

July 12d. 15h. 17m. 5s. Epicentre 40°-0N. 143°-5E. (as on 1928 June 2d.).

A = -.616, B = +.456, C = +.643; D = +.595, E = +.804;  
G = -.517, H = +.382, K = -.766.

|              |    | $\Delta$ | Az. | P.      | O-C. | S.       | O-C.             | L.       | M.   |
|--------------|----|----------|-----|---------|------|----------|------------------|----------|------|
|              |    | °        | °   | m. s.   | s.   | m. s.    | s.               | m.       | m.   |
| Mizusawa     | E. | 2.0      | 245 | 0 36    | + 5  | 1 10     | +15              | —        | —    |
|              | N. | 2.0      | 245 | 0 35    | + 4  | 1 9      | +14              | —        | —    |
| Nagoya       | E. | 7.1      | 229 | e 1 48  | 0    | (e 3 4)  | - 9              | e 3.1    | —    |
|              | N. | 7.1      | 229 | e 1 55  | + 7  | (e 3 9)  | - 4              | e 3.2    | —    |
| Osaka        |    | 8.3      | 232 | 2 22    | +16  | —        | —                | 4.3      | 4.6  |
| Kobe         |    | 8.5      | 233 | e 1 59  | -10  | —        | —                | —        | 4.6  |
| Sumoto       |    | 8.9      | 233 | e 2 3   | -12  | (e 3 55) | - 6              | e 3.9    | —    |
| Zi-ka-wei    | Z. | 19.9     | 251 | e 3 19  | -81  | 8 23     | + 2              | 12.4     | 13.6 |
| Irkutsk      |    | 29.4     | 308 | —       | —    | e 13 15  | ?SR <sub>2</sub> | 16.9     | 19.3 |
| Ekaterinburg |    | 53.8     | 319 | e 9 37  | + 5  | e 17 31  | ?PS              | 20.9     | 35.5 |
| Tashkent     |    | 54.5     | 298 | —       | —    | e 17 55  | ?PS              | —        | 35.1 |
| Kucino       |    | 65.5     | 324 | —       | —    | —        | —                | e 36.9   | —    |
| Pulkovo      |    | 66.3     | 330 | —       | —    | —        | —                | e 38.9   | —    |
| Baku         |    | 67.7     | 305 | —       | —    | —        | —                | 38.2     | 43.7 |
| Makeyevka    |    | 70.1     | 317 | —       | —    | —        | —                | 31.7     | 46.5 |
| Copenhagen   |    | 75.7     | 334 | —       | —    | —        | —                | 39.9     | 44.9 |
| De Bilt      |    | 81.1     | 335 | —       | —    | —        | —                | e 46.9   | —    |
| Feldberg     | N. | 81.6     | 333 | —       | —    | —        | —                | e 43.7   | 47.7 |
| Uccle        |    | 82.5     | 335 | —       | —    | —        | —                | e 46.9   | —    |
| Florence     |    | 85.8     | 327 | e 53 35 | ?L   | —        | —                | (e 53.6) | 55.9 |

Additional reading and notes: Readings for Irkutsk, Ekaterinburg, and Tashkent are given as e simply. Baku e = +35m.39s.

July 12d. Readings also at 1h. (Georgetown), 2h. (Manila), 5h. (near Taihoku), 18h. (near Amboina).

July 13d. 9h. 27m. 28s. Epicentre 55°-0S. 24°-0W. (as on 1928 April 7d.).

A = +.524, B = -.233, C = -.819; D = -.407, E = -.914;  
G = -.748, H = +.333, K = -.574.

|                |    | $\Delta$ | Az. | P.      | O-C.  | S.       | O-C.  | L.     | M.   |
|----------------|----|----------|-----|---------|-------|----------|-------|--------|------|
|                |    | °        | °   | m. s.   | s.    | m. s.    | s.    | m.     | m.   |
| Rio de Janeiro | E. | 35.1     | 329 | e 7 47  | +33   | 12 55    | - 2   | 16.0   | 18.2 |
|                | N. | 35.1     | 329 | e 7 42  | +28   | 12 53    | - 4   | 15.5   | 18.5 |
| Sucre          |    | 47.6     | 303 | 1 8 44  | - 7   | 1 15 47  | - 2   | 23.5   | 28.6 |
| La Paz         |    | 51.2     | 302 | 9 14    | —     | 1 16 34  | 0     | 25.5   | 36.1 |
| Tananarive     |    | 64.1     | 86  | —       | —     | e 19 29  | +15   | e 32.4 | 33.4 |
| Entebbe        |    | 71.6     | 60  | —       | —     | —        | —     | 37.5   | —    |
| Wellington     | N. | 82.4     | 194 | —       | —     | —        | —     | e 45.8 | —    |
| Melbourne      |    | 86.7     | 172 | —       | —     | —        | —     | e 48.9 | —    |
| Adelaide       |    | 88.8     | 167 | —       | —     | —        | —     | e 48.0 | 49.6 |
| Tortosa        | N. | 89.1     | 20  | —       | —     | —        | —     | e 52.5 | 53.8 |
| Riverview      |    | 91.1     | 176 | —       | —     | —        | —     | e 50.5 | 56.0 |
| San Fernando   |    | 92.7     | 14  | —       | —     | 23 59    | [+15] | —      | 53.6 |
| Granada        |    | 93.8     | 16  | —       | —     | e 22 32? | [-79] | e 47.5 | 51.5 |
| Almeria        |    | 93.8     | 18  | —       | —     | —        | —     | e 51.2 | 51.6 |
| Algiers        |    | 94.7     | 22  | —       | —     | —        | —     | e 45.5 | 52.5 |
| Alcante        |    | 95.5     | 20  | —       | —     | —        | —     | e 51.8 | —    |
| Toledo         |    | 96.4     | 16  | —       | —     | —        | —     | e 47.6 | —    |
| Rocca di Papa  |    | 101.6    | 29  | —       | —     | e 27 41  | ?     | e 56.5 | 72.8 |
| Ksara          |    | 102.5    | 46  | —       | —     | —        | —     | 57.5   | —    |
| Moncalieri     | E. | 103.6    | 24  | e 21 21 | ?     | —        | —     | 57.2   | —    |
| Georgetown     | Z. | 104.3    | 320 | e 18 8  | [+ 6] | —        | —     | 57.3   | 63.0 |
| Paris          |    | 106.2    | 19  | —       | —     | —        | —     | e 56.5 | —    |
| Strasbourg     |    | 108.9    | 22  | —       | —     | e 28 10  | ?     | e 54.5 | —    |
| Kew            |    | 108.3    | 15  | —       | —     | e 28 32? | ?     | e 57.5 | —    |
| Oxford         |    | 108.4    | 14  | —       | —     | —        | —     | e 57.5 | 61.5 |

Continued on next page.

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|                  | $\Delta$ | Az. | P.      | O-C.             | S.         | O-C.             | L.     | M.    |
|------------------|----------|-----|---------|------------------|------------|------------------|--------|-------|
|                  | °        | °   | m. s.   | s.               | m. s.      | s.               | m.     | m.    |
| Uccle            | 108.4    | 20  | —       | —                | e 26 32?   | ? $\Sigma$       | e 52.5 | —     |
| Feldberg         | N. 108.6 | 21  | —       | —                | e 28 48    | ?                | e 50.6 | 61.0  |
| Bombay           | 109.3    | 84  | —       | —                | —          | —                | e 56.5 | —     |
| Toronto          | 109.3    | 321 | —       | —                | —          | —                | 59.5   | —     |
| St. Louis        | E. 109.4 | 310 | e 20 14 | ?PR <sub>1</sub> | e 25 56    | [+48]            | 54.5   | 67.5  |
|                  | N. 109.4 | 310 | e 20 14 | ?PR <sub>1</sub> | —          | —                | 53.5   | 63.5  |
|                  | 109.5    | 326 | e 19 8  | ?                | e 26 50    | ? $\Sigma$       | 59.5   | —     |
| Ottawa           | 109.8    | 20  | —       | —                | e 28 55    | ?                | e 56.5 | 66.2  |
| De Bilt          | 109.8    | 314 | —       | —                | —          | —                | e 62.5 | —     |
| Chicago          | N. 112.2 | 12  | —       | —                | —          | —                | —      | 61.5  |
| Edinburgh        | 114.2    | 52  | —       | —                | (e 29 32?) | +88              | 62.5   | 75.6  |
| Baku             | 114.6    | 21  | 20 32?  | ?PR <sub>1</sub> | —          | —                | 56.5   | —     |
| Copenhagen       | 121.7    | 36  | —       | —                | —          | —                | e 67.5 | —     |
| Kucino           | 122.6    | 30  | —       | —                | —          | —                | e 58.5 | 71.7  |
| Pulkovo          | 124.4    | 65  | e 20 44 | ?PR <sub>1</sub> | e 27 32?   | ? $\Sigma$       | 77.6   | 109.8 |
| Tashkent         | 125.5    | 1   | —       | —                | 29 26      | ?                | 61.5   | 65.2  |
| Scoresby Sund    | 131.0    | 46  | e 19 21 | [ 0 ]            | e 22 39    | ?PR <sub>1</sub> | —      | —     |
| Ekaterinburg     | 131.9    | 244 | —       | —                | —          | —                | e 59.7 | —     |
| Honolulu T.H. N. | 149.9    | 75  | e 19 55 | [ 0 ]            | —          | —                | e 81.5 | —     |
| Irkutsk          | 149.9    | 75  | e 19 55 | [ 0 ]            | —          | —                | e 81.5 | —     |

Additional readings and note: La Paz PR<sub>1</sub> = +12m.10s., SR<sub>1</sub> = +19m.4s., MN = +44.5m. Tananarive eE = +21m.14s. and +23m.7s., e = +30m.13s. eE = +31m.25s. Riverview MN = +55.7m. San Fernando MN = +54.9m. Georgetown eZ = +32m.46s., +38m.18s., and +49m.22s. Strasbourg e = +42m.32s. Uccle e = +28m.32s. St. Louis eE = +27m.39s., e = +29m.32s., eE = +35m.22s., eN = +38m.32s., eE = +39m.32s. Ottawa eN = +28m.44s., eE = +34m.38s., LN = +58.5m. De Bilt ePR<sub>1</sub>Z = +19m.13s., eLN = +59.5m., MZ = +72.7m. Baku S is given as eL of an earlier shock. Tashkent e = +63m.32s.?

July 13d. 19h. 49m. 8s. Epicentre 5°0N. 141°0E.

A = -.774, B = +.627, C = +.087; D = +.629, E = +.777;  
G = -.068, H = +.055, K = -.996.

|              | $\Delta$ | Az. | P.      | O-C. | S.        | O-C.             | L.     | M.   |
|--------------|----------|-----|---------|------|-----------|------------------|--------|------|
|              | °        | °   | m. s.   | s.   | m. s.     | s.               | m.     | m.   |
| Riverview    | 40.0     | 167 | —       | —    | e 16 49   | ?SR <sub>1</sub> | 19.0   | 20.6 |
| Adelaide     | 40.0     | 183 | e 14 7? | ?S   | (e 14 7?) | 0                | 16.3   | 17.0 |
| Melbourne    | 42.9     | 176 | —       | —    | e 17 32   | ?SR <sub>1</sub> | 19.0   | 19.6 |
| Perth        | 44.0     | 210 | 16 52   | ?    | —         | —                | 20.4   | —    |
| Irkutsk      | 56.1     | 335 | —       | —    | —         | —                | e 30.9 | —    |
| Tashkent     | 73.0     | 312 | 11 34   | - 2  | 1 21 6    | + 4              | e 38.6 | 44.1 |
| Ekaterinburg | 80.5     | 327 | e 12 26 | + 4  | e 22 29   | 0                | —      | —    |
| Baku         | 87.6     | 310 | —       | —    | —         | —                | e 58.9 | —    |
| Pulkovo      | 95.9     | 331 | —       | —    | —         | —                | e 52.9 | —    |
| Copenhagen   | 106.2    | 334 | —       | —    | —         | —                | 54.9   | —    |
| Feldberg     | N. 111.4 | 330 | —       | —    | —         | —                | e 62.6 | 72.6 |
| De Bilt      | 111.8    | 332 | e 16 5  | +59  | —         | —                | e 61.9 | —    |
| Uccle        | 113.0    | 332 | —       | —    | —         | —                | e 61.9 | —    |
| Georgetown   | Z. 123.8 | 35  | —       | —    | —         | —                | 65.9   | —    |

Additional readings and notes: Riverview MN = +20.3m. Adelaide eS = +15m.52s. Melbourne readings have been diminished by 1h. Perth +17m.18s. and +19m.22s. = SR<sub>1</sub> + 10s. Ekaterinburg SR<sub>1</sub> = +27m.52s.

July 13d. Readings also at 2h. (near Tacubaya.), 5h. (Tananarive), 7h. (Manila), 8h. (near Tacubaya), 10h. (near Simferopol, Theodosia, Yalta, and near Toyooka), 11h. (near Toyooka), 20h. (Tucson, near Oaxaca, Puebla, Tacubaya, and Vera Cruz), 21h. (Tashkent), 22h. (Rio de Janeiro).

July 14d. Readings at 6h. (near Toyooka), 7h. (near Mizusawa), 8h. (Baku, Ekaterinburg, Irkutsk, Makeyevka, Tashkent, Copenhagen, and near Ksara), 11h. (near Sumoto), 17h. (near Taihoku), 19h. (near Taihoku, and near Uccle), 23h. (near Toyooka).



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July 15d. 9h. 33m. 24s. Epicentre 38°0N. 27°3E.

A = +.700, B = +.361, C = +.616; D = +.459, E = -.889;  
G = +.547, H = +.282, K = -.788.

|               |    | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.      | M.   |
|---------------|----|----------|-----|--------|------|----------|------|---------|------|
|               |    | °        | °   | m. s.  | s.   | m. s.    | s.   | m.      | m.   |
| Sebastopol    |    | 8.1      | 33  | 2 1    | - 2  | —        | —    | —       | —    |
| Ksara         | E. | 8.1      | 118 | 2 8    | + 5  | 3 43     | + 3  | 4.1     | —    |
| Yalta         |    | 8.3      | 36  | e 2 7  | + 1  | 3 46     | + 1  | —       | 4.1  |
| Belgrade      | N. | 8.5      | 325 | e 2 16 | + 7  | 4 14     | +24  | e 4.7   | 4.8  |
| Simferopol    |    | 8.6      | 34  | e 2 10 | 0    | 3 41     | -12  | —       | —    |
| Helwan        |    | 8.8      | 156 | e 2 13 | 0    | 3 54     | - 4  | —       | 9.8  |
| Theodosia     |    | 9.2      | 38  | e 2 23 | + 4  | e 4 21   | +13  | —       | —    |
| Pompeii       |    | 10.2     | 290 | e 2 36 | + 3  | e 6 36   | ?    | —       | —    |
| Budapest      |    | 11.2     | 330 | 2 50   | + 3  | —        | —    | 5.8     | 7.2  |
| Zagreb        |    | 11.4     | 318 | e 2 52 | + 2  | e 6 1    | ?L   | (e 6.0) | 7.5  |
| Rocca di Papa | E. | 11.8     | 293 | e 2 40 | -16  | e 6 55   | +101 | —       | 8.5  |
|               | N. | 11.8     | 293 | e 2 48 | - 8  | e 6 16   | +62  | —       | 8.5  |
| Lemberg       | N. | 12.0     | 350 | 2 54   | - 5  | —        | —    | —       | 7.3  |
| Laiabach      |    | 12.4     | 315 | e 3 3  | - 2  | e 6 51   | ?L   | (e 6.8) | 8.1  |
| Graz          |    | 12.5     | 320 | e 3 4  | - 2  | 5 30     | - 2  | 6.6     | 7.6  |
| Makeyevka     |    | 12.7     | 35  | 3 9    | 0    | 5 33     | - 4  | 1 6.3   | 12.3 |
| Vienna        |    | 12.9     | 326 | e 3 9  | - 3  | 7 5      | ?L   | (7.1)   | 8.6  |
| Venice        |    | 13.3     | 308 | e 3 29 | +12  | 7 16     | ?    | 8.1     | 10.7 |
| Florence      |    | 13.4     | 301 | e 3 16 | - 2  | 5 31     | -22  | 9.3     | 10.1 |
| Chur          |    | 15.7     | 310 | e 3 50 | + 2  | i 6 52   | + 4  | —       | —    |
| Moncalieri    | E. | 16.1     | 302 | e 3 50 | - 3  | 6 51     | - 6  | 9.2     | 10.6 |
| Ravensburg    |    | 16.2     | 313 | e 4 2  | + 7  | 7 9      | + 9  | 9.2     | 10.7 |
| Zurich        |    | 16.6     | 311 | 14 0   | 0    | 7 6      | - 3  | —       | —    |
| Neuchatel     |    | 17.4     | 307 | 14 10  | 0    | e 7 19   | - 8  | —       | —    |
| Potsdam       |    | 17.4     | 330 | 14 11  | + 1  | i 7 29   | + 2  | —       | 10.6 |
| Konigsberg    |    | 17.4     | 347 | e 4 12 | + 2  | —        | —    | e 9.8   | 10.9 |
| Baku          |    | 17.6     | 75  | e 4 18 | + 6  | i 7 42   | +11  | 9.1     | 12.5 |
| Strasbourg    |    | 17.6     | 313 | 14 17  | + 5  | 7 32     | + 1  | 9.1     | 11.7 |
| Feldberg      | E. | 18.1     | 318 | e 5 29 | +71  | —        | —    | —       | 10.6 |
|               | N. | 18.1     | 318 | e 4 27 | + 9  | 7 48     | + 6  | e 9.0   | 11.0 |
| Kucino        |    | 19.1     | 19  | 4 16   | -14  | 7 53     | -11  | 8.3     | 14.0 |
| Algiers       |    | 19.2     | 274 | e 4 33 | + 2  | 8 11     | + 5  | —       | 12.9 |
| Hamburg       |    | 19.6     | 328 | 4 37   | + 1  | e 8 12   | - 3  | e 10.7  | 12.6 |
| Lund          |    | 20.0     | 336 | 4 41   | 0    | 8 16     | - 7  | —       | 10.6 |
| Copenhagen    |    | 20.3     | 335 | 4 46   | + 1  | e 8 26   | - 3  | 9.6     | 14.3 |
| Uccle         |    | 20.6     | 316 | e 4 48 | 0    | i 8 37   | + 1  | e 10.0  | 12.1 |
| Paris         |    | 20.8     | 309 | e 4 55 | + 4  | i 8 46   | + 6  | 11.5    | 11.6 |
| Tortosa       | N. | 20.8     | 286 | 4 51   | 0    | 8 41     | + 1  | 16.5    | —    |
| De Bilt       |    | 20.9     | 320 | 4 52   | 0    | 8 50     | + 8  | e 9.6   | 12.2 |
| Alicante      |    | 21.8     | 279 | e 5 5  | + 2  | e 9 5    | + 4  | e 10.2  | —    |
| Pulkovo       |    | 21.8     | 4   | i 5 1  | - 2  | i 9 1    | 0    | 10.6    | 13.3 |
| Helsingfors   |    | 22.2     | 357 | 5 7    | 0    | 9 13     | + 4  | 11.6    | —    |
| Upsala        |    | 22.7     | 347 | e 5 9  | - 4  | e 9 13   | - 6  | e 11.4  | 15.0 |
| Almeria       |    | 23.5     | 277 | 5 17   | - 6  | i 9 35   | 0    | e 12.6  | 17.8 |
| Kew           |    | 23.5     | 314 | e 5 19 | - 4  | e 9 41   | + 6  | 12.1    | 14.5 |
| Oxford        | E. | 24.2     | 314 | e 5 23 | - 7  | 9 45     | - 3  | 12.2    | 14.6 |
| Toledo        |    | 24.3     | 284 | e 5 25 | - 6  | 9 48     | - 2  | e 11.4  | 15.3 |
| Granada       |    | 24.4     | 278 | i 5 0  | -32  | i 9 56   | + 4  | 11.8    | 15.4 |
| Stonyhurst    |    | 25.7     | 318 | —      | —    | e 10 7   | - 9  | —       | 15.0 |
| Bidston       |    | 25.9     | 316 | —      | —    | e 10 4   | -16  | 12.1    | 15.0 |
| San Fernando  |    | 26.6     | 277 | —      | —    | 10 24    | - 9  | —       | 16.8 |
| Edinburgh     |    | 27.0     | 321 | —      | —    | e 11 36? | +55  | —       | 16.6 |
| Dyce          |    | 27.2     | 324 | —      | —    | 10 59    | +14  | 14.5    | 18.5 |
| Ekaterinburg  |    | 28.9     | 39  | e 6 2  | -15  | e 10 54  | -21  | 13.6    | 19.3 |
| Tashkent      |    | 32.2     | 72  | 6 39   | -11  | i 11 46  | -25  | e 16.6  | 24.0 |
| Scoresby Sund |    | 41.2     | 337 | 7 58   | - 7  | e 14 22  | - 2  | 20.6    | 24.0 |
| Irkutsk       |    | 53.4     | 48  | —      | —    | e 17 8   | + 7  | 31.6    | —    |
| Ottawa        |    | 71.7     | 315 | —      | —    | e 20 54  | + 8  | e 31.6  | —    |
| Toronto       | N. | 74.8     | 315 | —      | —    | —        | —    | 44.0    | —    |
| Georgetown    | Z. | 76.4     | 310 | —      | —    | e 22 56  | +74  | e 40.8  | —    |
| St. Louis     |    | 84.2     | 316 | —      | —    | e 21 36? | ?    | e 39.6  | 47.6 |

Additional readings and notes: Ksara readings are given for 10h. Budapest MN = +9.6m. Zagreb eNE = +2m.59s., +3m.6s., and +5m.4s., eNW = +3m.48s. and +4m.2s., iNW = +6m.21s., MNW = +9.2m. Rocca di Papa iSN = +7m.4s. Lemberg eE = +3m.0s., ME = +7.4m. Vienna iN = +4m.15s. and +6m.9s. Konigsberg e = +4m.17s. and +4m.26s.,

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eE? = +4m.35s., eN = +6m.10s., eE = +8m.2s., eN = +9m.10s., iLN = +10.1m., MN = +12.8m. Strasbourg S = +7m.34s., MN = +10.6m. Hamburg eSE = +7m.57s. Copenhagen eSN = +8m.6s., MN = +13.6m. De Bilt MN = +12.3m., MZ = +14.2m. Upsala MN = +15.4m. Kew iPZ = +5m.23s., eSZ = +9m.49s., LZ = +13.6m., MN = +13.8m., MZ = +15.3m. Oxford iE = +10m.58s. = SR<sub>2</sub> + 0s. Toledo MNW = +16.4m. Stonyhurst e = +7m.12s. Scoresby Sund PR<sub>1</sub> = +9m.30s., PR<sub>2</sub> = +9m.57s., eE = +11m.54s., eSN = +14m.9s., SR<sub>1</sub> = +17m.18s., SR<sub>2</sub> = +18m.42s., MN = +25.8m. Irkutsk SR<sub>1</sub> = +21m.6s.

July 15d. 23h. 15m. 50s. Epicentre 7°·0N. 125°·0E. (as on 1913 March 14d.).

A = -·569, B = +·813, C = +·122; D = +·819, E = +·574;  
G = -·070, H = +·100, K = -·993.

|               | Δ     | Az. | P.      | O-C.             | S.      | O-C. | L.     | M.   |
|---------------|-------|-----|---------|------------------|---------|------|--------|------|
|               | °     | °   | m. s.   | s.               | m. s.   | s.   | m.     | m.   |
| Manila        | 8.5   | 333 | e 2 50  | +41              | —       | —    | i 5.8  | —    |
| Hong Kong     | 18.5  | 327 | —       | —                | —       | —    | —      | 8.5  |
| Batavia       | 22.4  | 235 | i 5 13  | + 3              | —       | —    | —      | —    |
| Irkutsk       | 48.3  | 343 | e 8 55  | - 1              | 15 53   | - 5  | e 28.2 | —    |
| Tashkent      | 60.0  | 314 | 10 20   | + 8              | —       | —    | e 32.3 | 34.7 |
| Ekaterinburg  | 70.3  | 328 | e 11 22 | + 3              | e 20 36 | + 6  | 28.2   | —    |
| Baku          | 74.2  | 310 | —       | —                | e 21 9  | - 7  | 39.7   | —    |
| Makeyevka     | 82.8  | 319 | —       | —                | e 22 52 | - 3  | 40.2   | —    |
| Pulkovo       | 86.3  | 330 | e 12 52 | - 3              | i 23 26 | - 7  | —      | —    |
| Rocca di Papa | 101.5 | 315 | e 18 38 | ?PR <sub>1</sub> | —       | —    | e 71.8 | 73.3 |

Additional readings: Tashkent i = +15m.51s.? e = +22m.52s. = SR<sub>1</sub> - 16s., and +25m.52s. = SR<sub>2</sub> - 16s. Pulkovo iS<sub>C</sub>P<sub>C</sub>S = +23m.11s. = [+7], i = +23m.54s.

July 15d. Readings also at 1h. (Rocca di Papa), 2h. (Ksara and near Sumoto), 7h. (Tashkent, near Oaxaca, and Tacubaya), 10h. (near Ksara and near Tananarive), 13h. (Georgetown, Irkutsk, Tashkent, and near Taihoku), 14h. (Baku, Tucson, near Oaxaca, and Tacubaya), 18h. (Malabar and near Batavia), 19h. (Toyooka and near Tananarive), 20h. (Tashkent), 21h. (near Toyooka, near La Paz, and Sucre), 22h. (Rocca di Papa, La Paz, La Plata, Sucre, near Oaxaca, and Tacubaya).

July 16d. Readings at 1h. (Baku, Copenhagen, De Bilt, Ekaterinburg, Florence, Kew, Kucino, Makeyevka, Moncalieri, Pulkovo, Strasbourg, Uccle, and Zagreb), 2h. (Copenhagen, De Bilt, Kew, Moncalieri, Rocca di Papa, Strasbourg, and Uccle), 3h. (La Paz, Sucre, and near Zagreb), 9h. (Taihoku), 12h. (Alicante and Tacubaya), 15h. (near Tacubaya), 16h. (Sucre and near La Paz), 17h. (Tananarive, Hukuoka, and Nagasaki), 19h. (Taihoku).

July 17d. Readings at 0h. (La Paz and Yalta), 3h. (near La Paz and near Sumoto) 5h. (near Sumoto), 13h. and 14h. (Taihoku), 16h. (St. Louis, near Oaxaca (2), Puebla, Tacubaya (2), Vera Cruz (2), and near Tucson), 17h. (near Tacubaya), 19h. (near Mizusawa), 20h. (Batavia).

July 18d. 9h. 22m. 12s. (I) } Epicentre 44°·6N. 9°·5E.  
11h. 26m. 46s. (II) } (as on 1927 Dec. 10d.).

A = +·702, B = +·118, C = +·702; D = +·165, E = -·986;  
G = +·692, H = +·116, K = -·712.

|              | Δ   | Az. | P.     | O-C. | S.    | O-C. | L.    | M.  |
|--------------|-----|-----|--------|------|-------|------|-------|-----|
|              | °   | °   | m. s.  | s.   | m. s. | s.   | m.    | m.  |
| I Moncalieri | 1.3 | 287 | 0 48   | +28  | —     | —    | —     | —   |
| II           | 1.3 | 287 | e 0 48 | +28  | —     | —    | —     | —   |
| I Florence   | 1.5 | 123 | 0 25   | + 2  | —     | —    | —     | 1.0 |
| II           | 1.5 | 123 | 0 48   | ?L   | —     | —    | (0.8) | 0.9 |
| I Chur       | 2.2 | 1   | 10 35  | + 1  | i 1 0 | 0    | —     | —   |
| II           | 2.2 | 1   | 10 35  | + 1  | i 1 0 | 0    | —     | —   |

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|                 | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.      | M.  |
|-----------------|----------|-----|--------|------|---------|------|---------|-----|
|                 | °        | °   | m. s.  | s.   | m. s.   | s.   | m.      | m.  |
| I Zurich        | 2-8      | 347 | i 0 43 | - 1  | i 1 18  | + 1  | —       | —   |
| II              | 2-8      | 347 | i 0 43 | - 1  | i 1 18  | + 1  | —       | —   |
| I Neuchatel     | 3-0      | 324 | i 0 46 | - 1  | i 1 32  | + 9  | —       | —   |
| II              | 3-0      | 324 | i 0 47 | 0    | i 1 23  | + 0  | —       | —   |
| I Ravensburg    | 3-2      | 359 | e 1 10 | +20  | —       | —    | 1-8     | —   |
| II              | 3-2      | 359 | —      | —    | —       | —    | e 1-7   | —   |
| I Rocca di Papa | 3-7      | 139 | e 2 8  | ?L   | —       | —    | (e 2-1) | 2-4 |
| I Strasbourg    | 4-2      | 344 | 1 25   | +20  | 2 23    | +28  | —       | —   |
| II              | 4-2      | 344 | e 2 5  | ?S   | (e 2 5) | +10  | e 2-4   | —   |
| I Zagreb        | 4-7      | 73  | 1 18   | + 5  | e 2 13  | + 4  | e 2-4   | —   |

Additional readings to shock I: Zurich iP = +51s. Neuchatel iP = +56s.  
Zagreb i = +1m.38s.

**July 18d. 19h. 4m. 52s. Epicentre 5°-0S. 79°-5W.**

(adopted from the origin 5°-0S. 78°-0W. of 1928 May 26d., and earlier dates).

A = +.182, B = -.980, C = -.087; D = -.983, E = -.182;  
G = -.016, H = +.086, K = -.996.

|                    | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.     |
|--------------------|----------|-----|---------|------|---------|------|--------|--------|
|                    | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.     |
| Balboa Hts. E.     | 14-0     | 0   | 3 46    | +20  | 6 33    | +25  | 8-2    | 9-3    |
| La Paz E.          | 16-0     | 137 | i 3 51  | - 1  | i 7 40  | +45  | 8-3    | 9-6    |
| N.                 | 16-0     | 137 | i 3 50  | - 2  | i 7 12  | +17  | 8-3    | 11-0   |
| Sucre E.           | 19-7     | 136 | i 4 34  | - 3  | i 8 25  | + 8  | 10-5   | 11-2   |
| Port au Prince E.  | 24-6     | 16  | e 5 24  | -10  | i 10 13 | +18  | e 13-7 | 20-9   |
| San Juan E.        | 26-9     | 29  | 5 56    | - 1  | 10 42   | + 3  | 14-9   | 17-8   |
| N.                 | 26-9     | 29  | 5 55    | - 2  | 10 39   | 0    | 16-6   | 15-4   |
| Merida E.          | 27-8     | 339 | (6 20)  | +14  | (11 12) | +17  | (13-4) | (17-7) |
| Oaxaca E.          | 27-9     | 323 | (6 45)  | +38  | (11 39) | +42  | (13-7) | —      |
| Vera Cruz E.       | 29-2     | 326 | (6 22)  | + 2  | (11 26) | + 6  | (13-6) | (21-8) |
| Santiago E.        | 29-6     | 165 | e 6 6   | -18  | 11 21   | - 6  | 18-5   | —      |
| Tacubaya E.        | 31-2     | 322 | 6 50    | +10  | 12 13   | +19  | 14-4   | 17-7   |
| La Plata E.        | 35-9     | 149 | 7 6     | -15  | 12 35   | -34  | 17-5   | —      |
| Rio de Janeiro E.  | 39-4     | 120 | 17 34   | -16  | 13 36   | -21  | 18-6   | 26-0   |
| N.                 | 39-4     | 120 | i 7 36  | -14  | 13 33   | -24  | 18-3   | 27-5   |
| Chihuahua E.       | 42-3     | 324 | (8 26)  | +13  | (14 58) | +19  | (19-2) | (24-7) |
| Charlottesville N. | 43-0     | 1   | 18 30   | +12  | 14 55   | + 7  | 21-1   | 25-8   |
| Georgetown Z.      | 44-0     | 3   | 8 23    | - 3  | 15 16   | +14  | e 22-5 | 28-8   |
| Cincinnati E.      | 44-4     | 355 | 18 29   | 0    | i 15 10 | + 3  | 22-0   | 22-1   |
| St. Louis E.       | 44-7     | 349 | 18 27   | - 4  | i 15 6  | - 5  | e 22-0 | 32-4   |
| Chicago E.         | 47-4     | 353 | 18 30   | -20  | i 15 28 | -18  | i 22-3 | 26-2   |
| N.                 | 47-4     | 353 | 18 30   | -20  | i 15 42 | - 4  | —      | 28-4   |
| Ithaca E.          | 47-5     | 4   | 8 8?    | -43  | —       | —    | —      | —      |
| Ann Arbor E.       | 47-5     | 357 | 18 50   | - 1  | i 15 50 | + 2  | i 23-2 | 24-4   |
| Tucson E.          | 47-7     | 324 | 18 55   | + 3  | —       | —    | e 19-7 | 23-7   |
| N.                 | 47-7     | 324 | 18 54   | + 2  | i 15 51 | + 1  | 19-6   | 23-6   |
| Harvard E.         | 48-0     | 9   | 18 50   | - 4  | i 15 54 | 0    | e 23-4 | 30-0   |
| Toronto E.         | 48-6     | 0   | e 8 46  | -12  | i 16 2  | + 1  | i 21-7 | —      |
| N.                 | 48-6     | 0   | 18 53   | - 5  | i 15 51 | -10  | 23-4   | 27-0   |
| Ottawa E.          | 50-5     | 4   | 19 11   | + 1  | i 16 25 | 0    | e 24-1 | 25-5   |
| Lick E.            | 57-7     | 320 | e 10 9  | +12  | i 18 30 | ?PS  | i 26-6 | —      |
| N.                 | 57-7     | 320 | e 10 9  | +12  | e 18 6  | +11  | e 29-3 | —      |
| E.                 | 57-7     | 320 | e 10 9  | +12  | e 18 8  | +13  | e 27-9 | —      |
| Berkeley E.        | 58-5     | 320 | e 10 9  | + 7  | e 18 30 | ?PS  | e 26-7 | —      |
| Saskatoon E.       | 61-6     | 342 | e 10 19 | - 4  | i 18 44 | + 1  | e 27-1 | 40-1   |
| Spokane E.         | 62-3     | 333 | e 10 51 | +24  | i 19 27 | +35  | 27-1   | 35-1   |
| Victoria E.        | 65-7     | 330 | 11 5    | +16  | 20 1    | +28  | 33-2   | 40-0   |
| N.                 | 65-7     | 330 | 11 5    | +16  | 20 0    | +27  | 30-7   | 33-4   |
| Azores E.          | 65-7     | 45  | 10 50   | + 1  | (21 20) | ?E   | —      | 21-3   |
| Sitka E.           | 78-7     | 333 | —       | —    | —       | —    | e 34-8 | 35-9   |
| San Fernando E.    | 79-7     | 51  | 112 28  | +11  | i 22 28 | + 8  | 38-0   | 42-2   |
| Honolulu T.H. E.   | 81-0     | 293 | 112 38  | +13  | i 22 52 | +17  | 38-0   | 40-8   |
| N.                 | 81-0     | 293 | 112 39  | +14  | i 23 1  | ?E   | 36-6   | 37-3   |
| Malaga E.          | 81-2     | 51  | 12 27   | + 1  | 22 43   | + 6  | 30-0   | —      |

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|               | $\Delta$ | Az. | P.        | O-C.             | S.      | O-C.             | L.               | M.     |
|---------------|----------|-----|-----------|------------------|---------|------------------|------------------|--------|
|               | °        | °   | m. s.     | s.               | m. s.   | s.               | m.               | m.     |
| Granada       | 81-9     | 51  | i 12 33   | + 3              | i 22 51 | + 6              | 39-6             | 45-6   |
| Toledo        | 82-2     | 49  | i 12 32   | + 1              | i 22 45 | - 3              | e 34-2           | 45-9   |
| Almeria       | 82-8     | 51  | i 12 35   | + 0              | i 22 56 | + 1              | 33-0             | 44-5   |
| Scoresby Sund | 84-5     | 15  | i 12 46   | + 1              | 23 12   | - 2              | 42-1             | 43-5   |
| Alicante      | 84-5     | 50  | i 12 51   | + 6              | i 23 15 | + 1              | e 35-5           | 49-1   |
| Tortosa       | E. 85-8  | 48  | 12 50     | - 2              | 23 23   | - 5              | —                | 53-7   |
|               | N. 85-8  | 48  | 12 52     | 0                | i 23 27 | - 1              | 35-4             | 54-1   |
| Bidston       | 86-0     | 36  | 12 56     | + 3              | 23 20   | - 10             | 35-3             | 46-0   |
| Bagnères      | 86-1     | 46  | e 12 53   | - 1              | e 23 24 | - 7              | e 40-1           | —      |
| Stonyhurst    | 86-5     | 36  | i 12 54   | - 2              | i 23 29 | - 7              | 43-1             | 46-8   |
| Edinburgh     | 86-6     | 33  | 12 58     | + 1              | 23 27   | - 10             | 42-1             | 47-0   |
| Oxford        | E. 86-7  | 37  | i 12 56   | - 1              | i 23 28 | - 10             | e 30-1           | 48-8   |
| Barcelona     | 87-1     | 48  | 12 56     | - 4              | 23 30   | - 12             | e 36-4           | 49-5   |
| Algiers       | 87-1     | 52  | e 12 56   | - 4              | 23 30   | - 12             | e 37-1           | 50-1   |
| Kew           | 87-3     | 38  | i 12 59   | - 2              | i 23 44 | 0                | 38-2             | 45-9   |
| Dyce          | 87-5     | 31  | 13 1      | - 1              | 23 30   | - 17             | 38-0             | 47-5   |
| Paris         | 88-6     | 40  | i 13 4    | - 4              | i 23 38 | - 21             | 37-1             | 45-1   |
| Marseilles    | 89-7     | 46  | 13 12     | - 2              | e 23 44 | - 27             | e 41-1           | —      |
| Uccle         | 90-0     | 39  | (e 13 11) | - 5              | i 23 49 | - 25             | 38-1             | 49-6   |
| Grenoble      | 90-1     | 45  | e 17 8?   | ?PR <sub>1</sub> | e 27 8? | ?SR <sub>1</sub> | 35-1             | —      |
| De Bilt       | 90-7     | 38  | i 13 16   | - 4              | e 24 16 | - 5              | e 45-1           | 49-5   |
| Neuchatel     | 91-2     | 44  | e 13 17   | - 5              | e 23 57 | [+22]            | —                | —      |
| Moncalieri    | 91-6     | 45  | 13 21     | - 4              | 23 48   | [+10]            | 30-9             | 59-2   |
| Bergen        | 91-9     | 29  | 13 8?     | - 18             | 25 8?   | [+34]            | —                | 40-1   |
| Strasbourg    | 92-0     | 41  | i 13 19   | - 8              | 24 33   | - 2              | e 37-1           | 52-1   |
| Zurich        | 92-3     | 43  | i 13 23   | - 6              | i 24 4  | [+22]            | —                | —      |
| Feldberg      | E. 92-5  | 40  | e 13 32   | + 2              | i 24 33 | - 7              | —                | 50-1   |
|               | N. 92-5  | 40  | e 13 31   | + 1              | e 24 26 | - 14             | e 39-7           | 50-6   |
| Hohenheim     | 92-8     | 40  | e 13 32   | + 1              | 24 8    | [+23]            | 40-1             | —      |
| Chur          | 93-0     | 43  | e 13 25   | - 7              | i 24 7  | [+21]            | —                | —      |
| Ravensburg    | 93-1     | 41  | e 13 30   | - 3              | 24 8    | [+21]            | 48-1             | 65-5   |
| Hamburg       | 93-6     | 36  | i 13 30   | - 6              | i 24 14 | [+24]            | e 45-9           | 52-1   |
| Cape Town     | 93-8     | 125 | e 13 33   | - 4              | i 24 13 | [+22]            | 49-3             | 53-4   |
| Florence      | 94-0     | 46  | i 13 30   | - 8              | e 24 18 | [+26]            | 42-6             | 47-0   |
| Innsbruck     | 94-2     | 43  | e 13 38   | - 1              | 24 12   | [+19]            | —                | —      |
| Jena          | E. 94-4  | 40  | e 13 32   | - 8              | i 24 18 | [+24]            | e 39-9           | 51-4   |
|               | N. 94-4  | 40  | e 13 38   | - 2              | e 24 17 | [+23]            | e 48-9           | 51-4   |
|               | Z. 94-4  | 40  | e 13 34   | - 6              | 24 18   | [+24]            | e 49-9           | 51-4   |
| Rocca di Papa | 94-9     | 48  | 13 32     | - 11             | i 24 18 | [+22]            | 45-3             | 64-4   |
| Copenhagen    | 95-2     | 35  | 13 36     | - 8              | i 25 2  | - 6              | e 45-1           | 54-5   |
| Potsdam       | 95-5     | 38  | i 13 46   | 0                | i 25 1  | - 10             | e 45-5           | 50-1   |
| Lund          | 95-6     | 35  | 13 38     | - 9              | 25 3    | - 9              | 40-1             | —      |
| Naples        | E. 96-0  | 49  | e 13 32   | - 17             | e 21 38 | ?PR <sub>1</sub> | ?PR <sub>1</sub> | 70-1   |
| Pompeii       | 96-3     | 49  | e 13 28   | - 23             | e 24 18 | [+14]            | 45-1             | 60-1   |
| Graz          | 97-0     | 43  | i 13 42   | - 12             | i 24 26 | [+18]            | 39-1             | 56-7   |
| Zagreb        | 97-4     | 45  | e 13 44   | - 12             | e 24 24 | [+14]            | e 38-8           | 53-1   |
| Vienna        | 97-6     | 41  | e 13 43   | - 15             | 25 14   | - 18             | e 41-1           | 55-6   |
| Upsala        | 97-8     | 30  | e 13 50   | - 9              | e 25 18 | - 16             | e 41-1           | 53-8   |
| Wellington    | E. 98-3  | 227 | —         | —                | i 25 45 | + 6              | e 45-9           | 47-9   |
|               | N. 98-3  | 227 | i 14 2    | 0                | 25 30   | - 9              | e 46-5           | 52-8   |
| Christchurch  | 99-3     | 225 | —         | —                | —       | —                | —                | 66-2   |
| Budapest      | 99-4     | 43  | 14 3      | - 4              | 24 44   | [+23]            | e 50-1           | 55-6   |
| Konigsberg    | 99-8     | 35  | e 14 6    | - 4              | e 25 40 | - 14             | e 41-1           | 56-1   |
| Suva          | N. 99-9  | 250 | (i 13 50) | - 10             | (25 2)  | ?E               | (48-5)           | —      |
| Belgrade      | 100-5    | 45  | (e 14 11) | - 2              | (25 53) | - 8              | (50-7)           | (67-8) |
| Hel싱fors      | 101-5    | 29  | —         | —                | 24 52   | [+21]            | 42-4             | —      |
| Pulkovo       | 104-1    | 29  | 14 15     | - 15             | i 25 1  | [+18]            | 43-1             | 57-3   |
| Kucino        | 109-2    | 32  | e 14 40   | - 14             | —       | —                | 48-1             | 61-1   |
| Simferopol    | 110-1    | 43  | e 18 0    | [-22]            | —       | —                | e 32-1           | —      |
| Yalta         | 110-2    | 43  | e 18 23   | [+ 1]            | —       | —                | —                | —      |
| Theodosia     | 111-0    | 42  | e 29 8?   | ?PS              | —       | —                | —                | —      |
| Entebbe       | 111-8    | 90  | 19 8      | ?PR <sub>1</sub> | 28 58   | ?PS              | —                | 62-1   |
| Makeyevka     | 111-8    | 39  | 14 55     | - 11             | —       | —                | 38-7             | 67-6   |
| Ksara         | N. 113-7 | 54  | 19 10     | [+37]            | 24 36   | ?PR <sub>1</sub> | 50-0             | 60-1   |
| Riverview     | 118-4    | 225 | —         | —                | —       | —                | e 55-8           | 59-1   |
| Sydney        | 118-4    | 225 | 20 38     | ?PR <sub>1</sub> | 26 26   | [+46]            | 57-9             | 64-8   |
| Katerinburg   | 119-4    | 24  | e 15 37   | - 3              | 27 42   | ?E               | 45-1             | 66-5   |
| Melbourne     | 120-6    | 219 | —         | —                | 126 28  | [+42]            | e 56-6           | 61-8   |
| Baku          | 122-5    | 44  | e 15 46   | - 9              | i 26 27 | [+35]            | —                | 73-7   |
| Tananarive    | 122-6    | 116 | —         | —                | 26 26   | [+33]            | e 54-0           | 72-6   |
| Adelaide      | 126-3    | 218 | e 18 8?   | [-61]            | e 33 38 | ?E               | e 62-6           | 76-2   |
| Mirusawa      | E. 129-9 | 318 | 19 27     | [+ 9]            | 22 57   | ?E               | —                | —      |
| Irkutsk       | 132-6    | 357 | 19 27     | [+ 3]            | 26 41   | [+25]            | 60-1             | 80-0   |

Continued on next page.

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|            | $\Delta$ | Az. | P.      | O-C.  | S.      | O-C. | L.     | M.    |
|------------|----------|-----|---------|-------|---------|------|--------|-------|
|            | °        | °   | m. s.   | s.    | m. s.   | s.   | m.     | m.    |
| Tashkent   | 134.2    | 33  | i 19 33 | [+ 5] |         |      | e 60.1 | 77.5  |
| Osaka      | 136.1    | 317 | 19 56   | [+24] | 34 22   | ?    | 65.4   | —     |
| Kobe       | 136.3    | 317 | e 19 41 | [+ 8] | e 41 19 | ?    | e 65.3 | 65.9  |
| Sumoto     | 136.7    | 317 | e 19 50 | [+17] |         | ?    | —      | —     |
| Nagasaki   | 141.0    | 319 | e 7 27  | ?     |         |      | —      | —     |
| Dehra Dun  | 147.0    | 37  | 20 17   | [+26] | 30 35   | ? E  | 43.7   | 97.8  |
| Zi-ka-wel  | z. 147.2 | 325 | 19 58   | [+ 7] | 36 26   | ?    | 74.8   | 96.2  |
| Bombay     | 149.6    | 60  | 20 11   | [+16] | 30 45   | ? E  | 52.4   | —     |
| Taihoku    | N. 151.5 | 317 | e 21 8  | ?     |         |      | —      | —     |
| Kodalkanal | E. 156.5 | 76  | 29 2    | ?     |         |      | 93.2   | 102.1 |
| Manila     | N. 157.7 | 297 | i 20 21 | [+15] | i 42 52 | ?    | e 76.6 | —     |
|            |          |     | e 20 24 | [+18] | e 42 25 | ?    | e 76.5 | —     |
| Hong Kong  | 158.2    | 324 | 20 18   | [+12] |         |      | —      | 103.8 |
| Colombo    | 159.4    | 84  | 20 18   | [+11] |         |      | 74.5   | 88.7  |
| Phu-Lien   | 163.1    | 340 | e 20 28 | [+18] |         |      | 70.1   | —     |
| Batavia    | 167.2    | 209 | i 20 20 | [+ 7] |         |      | 54.1   | 95.4  |

Additional readings and notes: La Paz iE = +4m.41s.; epicentre 4°-0S. 80°-5W. Sucre i = +4m.57s. Port au Prince iP = +5m.36s. Merida readings have been *diminished* by 2m. Oaxaca readings have been *diminished* by 3m. Vera Cruz readings have been *diminished* by 2m. Santiago SR<sub>1</sub> = +12m.47s. Chihuahua readings have been *increased* by 4m. Charlottesville PR<sub>1</sub>N = +10m.14s. Georgetown PR<sub>1</sub>Z = +10m.13s. PR<sub>1</sub>Z = +10m.47s. SR<sub>1</sub>Z = +18m.40s. SR<sub>1</sub>Z = +19m.37s. Cincinnati PR<sub>1</sub>N = +10m.23s. iSR<sub>1</sub> = +18m.30s. iSR<sub>1</sub> = +19m.19s. = SR<sub>1</sub> - 2s.; epicentre 6°-5S. 79°-5W. St. Louis iPR<sub>1</sub>N = +9m.48s. iPR<sub>1</sub>N = +10m.17s. PR<sub>1</sub> - 2s. iSN = +15m.7s. iPSN = +15m.20s. iSR<sub>1</sub>E = +18m.31s. PR<sub>1</sub>N = +18m.34s. iSR<sub>1</sub>E = +19m.41s. MN = +31.9m. Chicago eSN = +14m.47s. iSR<sub>1</sub>E = +15m.26s. iE = +18m.48s. iSR<sub>1</sub>N = +19m.5s. Ann Arbor ePR<sub>1</sub> = +10m.50s. ePR<sub>1</sub> = +11m.26s. eSR<sub>1</sub> = +19m.26s. eSR<sub>1</sub> = +20m.26s. MN = +29.9m. T<sub>0</sub> = 19h.4m.54s. Tucson iN = +10m.29s. and +15m.21s. Harvard i = +17m.56s. eSR<sub>1</sub> = +19m.28s.; T<sub>0</sub> = 19h.4m.48s. Toronto SR<sub>1</sub>N = +19m.33s.; T<sub>0</sub> = 19h.4m.58s. Ottawa, iPR<sub>1</sub> = +11m.20s. iN = +12m.18s. and +14m.32s. iE = +12m.43s. +17m.8s. and +19m.8s. eSR<sub>1</sub>E = +20m.8s. iSR<sub>1</sub>N = +21m.18s. iE = +21m.50s. MN = +30.1m. T<sub>0</sub> = 19h.4m.58s. Lick (first line) iPE = +10m.17s. eE = +10m.25s. +11m.28s. ePR<sub>1</sub>E = +14m.22s. eE = +18m.52s. eSR<sub>1</sub>E = +24m.58s.; (second line) eE = +10m.18s. and +24m.8s. Berkeley ePNZ = +10m.15s. eZ = +10m.20s. eSN = +18m.31s. eEN = +19m.2s. eZ = +25m.8s. +29m.32s. and +40m.2s. eE = +33m.8s. Spokane iPN = +10m.50s. iN = +19m.8s. = PS - 15s. and +20m.49s. = E + 1s. Sitka SR<sub>1</sub>N = +26m.56s. San Fernando PS = +23m.45s. MN = +46.6m. Honolulu T.H. iPSE = +23m.37s. iSR<sub>1</sub>E = +27m.58s. Granada PR<sub>1</sub> = +15m.49s. i = +23m.0s. = E - 4s. G = +31m.53s. = SR<sub>1</sub> - 2s. Toledo PR<sub>1</sub>NW = +15m.57s. PR<sub>1</sub>NE = +16m.4s. iNE = +22m.52s. iNW = +22m.56s. SR<sub>1</sub> = +28m.11s. MNW = +37.9m. MZ = +45.7m. Almeria PR<sub>1</sub> = +15m.48s. PR<sub>1</sub> = +17m.45s. Scoresby Sund eZ = +14m.2s. iScP<sub>1</sub>SN = +23m.20s. PS = +24m.14s. SR<sub>1</sub> = +28m.8s. SR<sub>1</sub> = +33m.38s. L = +36.1m. MN = +43.8m. Alicante PR<sub>1</sub> = +14m.53s. MN = +54.4m. Bagnères P = +12m.57s. i = +12m.58s. Oxford iE = +15m.12s. PR<sub>1</sub>E = +16m.31s. Barcelona MN = +48.5m. Algiers iP = +13m.2s. Kew iPR<sub>1</sub>Z = +16m.16s. iScP<sub>1</sub>S = +23m.31s. iPSN = +24m.25s. iPPSE = +24m.43s. SR<sub>1</sub> = +29m.29s. LN = +37.4m. LZ = +43.1m. MZ = +46.5m. MN = +48.0m. Dyce PR<sub>1</sub> = +16m.45s. Paris MN = +40.1m. Uccle MN = +41.9m.; P has been increased by 5m. De Bilt iPR<sub>1</sub>Z = +16m.30s. eSE = +23m.55s. = E - 9s. MN = +49.6m. Moncalieri MN = +50.6m. Strasbourg PR<sub>1</sub> = +17m.0s. ScP<sub>1</sub>S = +24m.2s. MZ = +52.0m. MN = +63.8m. Feldberg eN = +14m.11s. ePR<sub>1</sub>N = +17m.44s. ScP<sub>1</sub>SE = +24m.5s. eScP<sub>1</sub>SN = +24m.18s. = E + 2s. ePSN = +25m.44s. eN = +27m.14s. eSR<sub>1</sub>N = +30m.44s. eSR<sub>1</sub>E = +30m.56s. eSR<sub>1</sub>E = +34m.26s. eSR<sub>1</sub>N = +34m.56s. eN = +38m.38s. Hohenheim ePR<sub>1</sub> = +17m.0s. ePR<sub>1</sub> = +19m.8s. Ravensburg PR<sub>1</sub> = +17m.2s. PR<sub>1</sub> = +19m.10s. Ham- burg ePR<sub>1</sub>Z = +16m.55s. eLN = +40.6m. Innsbruck iNE = +14m.6s. ePR<sub>1</sub> = +19m.14s. Jena ePN = +13m.46s. iZ = +17m.5s. iN = +24m.57s. = S - 3s. eN = +25m.57s. = PS + 4s. eSR<sub>1</sub>N = +30m.56s. Copenhagen eZ = +15m.8s. eEN = +16m.37s. and +17m.26s. = [P] - 1s. iZ = +17m.30s. eE = +23m.44s. = [S] - 14s. ScP<sub>1</sub>S = +24m.26s. = E - 11s. eZ = +25m.8s. ePSZ = +26m.5s. iE = eN = +26m.12s. eE = +27m.56s. eSR<sub>1</sub>EN = +31m.20s. eLN = +40.1m. MN = +41.2m. MZ = +55.5m. Pots- dam i = +24m.24s. = E - 15s. eLN = +46.1m. Lund +24m.21s. = E - 19s. Graz MN = +64.7m. Zagreb iNE = +13m.52s. +14m.28s. +14m.54s. eNW = +16m.52s. +17m.53s. = PR<sub>1</sub> - 3s. +21m.51s. = PR<sub>1</sub> - 15s.

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and +31m.38s., eNE = +17m.32s. = [S] - 4s., +19m.54s., +26m.28s. = PS - 7s., +27m.36s., +29m.38s., and +31m.46s. = SR<sub>1</sub> - 18s., i = +24m.32s. = Σ - 18s., e = +36m.38s. = SR<sub>2</sub> - 8s., and +37m.48s., eLNW = +41.7m. Vienna iPZ = +13m.50s., PR<sub>1</sub> = +17m.38s., PR<sub>2</sub> = +20m.24s., S<sub>c</sub>P<sub>c</sub>S = +24m.31s., PS = +26m.38s., SR<sub>1</sub> = +32m.4s., SR<sub>2</sub> = +37m.51s. Upsala iS<sub>c</sub>P<sub>c</sub>SE = +24m.30s., eSR<sub>1</sub>N = +31m.57s., MN = +57.0m. Wellington SR<sub>2</sub>N = +36m.33s.; T<sub>0</sub>N = 19h.5m.4s. Königsberg ePN = +14m.13s., P'E? = +17m.45s., ePR<sub>1</sub>E = +18m.8s., eN? = +19m.26s., eN = +19m.40s., iS<sub>c</sub>P<sub>c</sub>SE = +24m.45s., iS<sub>c</sub>P<sub>c</sub>SN = +24m.46s., iE = +25m.3s. = Σ - 4s., iN = +25m.44s., eE = +27m.14s. = PS + 12s., and +31m.56s. Suva readings have been increased by 2m., PR<sub>1</sub>N = (+20m.44s.); T<sub>0</sub> = 19h.3m.24s. Belgrade readings have been increased by 2m., e = (+18m.2s.) = PR<sub>1</sub> - 15s. Helsingfors ePR<sub>1</sub> = +18m.23s., PS = +27m.22s. Pulkovo P' = +17m.48s. = [P] - 13s., PR<sub>1</sub> = +18m.24s., S = +25m.41s. = Σ + 5s. Kucino P' = +18m.6s. = [P] - 14s., PR<sub>1</sub> = +19m.8s., PS = +28m.39s. Entebbe PR<sub>1</sub>? = +25m.34s. = [S] + 17s. Makeyevka PR<sub>1</sub> = +19m.30s., PS = +29m.6s. Ksara PR<sub>1</sub>N = +19m.36s., PR<sub>2</sub>N = +22m.20s., PPSN = +29m.39s. = PS + 1s., SR<sub>1</sub>N = +34m.33s., SR<sub>2</sub>N? = +39m.3s. Riverview ePR<sub>1</sub> = +20m.19s., i = +22m.13s., ePR<sub>2</sub> = +23m.41s., iPR<sub>2</sub> = +26m.15s., iPR<sub>1</sub> = +27m.14s. = Σ + 10s., PS = +30m.19s., PPS = +31m.26s., ePPS = +32m.31s., iSR<sub>1</sub> = +37m.5s., PPS = +37m.31s., PR<sub>1</sub>? = +38m.10s., PPS = +41m.15s., eSR<sub>2</sub> = +41m.45s., eL<sub>c</sub> = +50.3m., MN = +58.3m. Ekaterinburg P' = +19m.17s. = [P] + 26s., PR<sub>1</sub> = +20m.14s., S<sub>c</sub>P<sub>c</sub>S = +26m.15s. Melbourne i = +37m.13s. = SR<sub>1</sub> + 19s. Baku P' = +19m.13s. = [P] + 13s., PR<sub>1</sub> = +21m.4s. Tananarive e = +27m.48s. = Σ + 19s., eEN = +29m.56s., PS = +31m.9s., PPS = +32m.15s., iSPS = +37m.27s. = SR<sub>1</sub> + 7s., SR<sub>2</sub> = +42m.51s., LN = +54.9m., MN = +72.9m. Adelaide e = +21m.55s., +40m.58s. and +47m.20s. Irkutsk PR<sub>1</sub> = +21m.54s. Tashkent iPR<sub>1</sub> = +22m.10s., S<sub>c</sub>P<sub>c</sub>S = +28m.17s. Sumoto PR<sub>1</sub>? = +21m.34s., e = +23m.17s. Zi-ka-wei iPZ = +20m.4s., PR<sub>2</sub>Z = +23m.34s., PR<sub>1</sub>Z = +26m.58s. Batavia iZ = +20m.26s., iE = +20m.28s., i = +20m.32s., iN = +21m.6s., iE = +21m.44s., i = +31m.35s. = Σ - 22s.

July 18d. After-shocks from the epicentre 5°-0S. 79°-5W. of 19h. were recorded by La Paz and Sucre at the following times:—

| By La Paz. | h. | m. | s. | h. | m. | s. |
|------------|----|----|----|----|----|----|
|            | 21 | 1  | 13 | 22 | 29 | 8  |
|            | 22 | 21 | 20 | 23 | 53 | 19 |
| By Sucre.  | 21 | 2  | 4  | 21 | 5  | 23 |

July 18d. Readings also at 5h. (near La Paz and Sucre), 9h. (near Toyooka), 10h. (near Zagreb), 12h. (Sucre and near La Paz), 15h. (near Sucre and La Paz), 17h. (near Kobe), 18h. (near Sumoto), 19h. (Tananarive), 20h. (La Paz and Perth).

July 19d. 20h. 13m. 40s. Epicentre 31°-5N. 102°-0E.

A = -177, B = +334, C = +522; D = +978, E = +208;  
G = -109, H = +511, K = -853.

|               | Δ    | Az. | P.      | O-C. | S.       | O-C. | L.     | M.   |
|---------------|------|-----|---------|------|----------|------|--------|------|
|               | o.   | o.  | m. s.   | s.   | m. s.    | s.   | m.     | m.   |
| Phu-Lien      | 11.4 | 158 | 2 20?   | -30  | —        | —    | —      | —    |
| Hong Kong     | 14.2 | 127 | 6 40    | 78   | (6 40)   | +27  | —      | 7.8  |
| Zi-ka-wei     | 16.6 | 86  | e 3 53  | -7   | 7 13     | +4   | —      | —    |
| Taihoku       | 18.4 | 108 | —       | —    | —        | —    | e 9.0  | —    |
| Irkutsk       | 20.9 | 4   | 14 50   | -2   | 8 41     | -1   | 11.3   | 13.0 |
| Manila        | 24.2 | 130 | e 5 35  | +5   | (e 9 44) | -4   | e 9.7  | —    |
| Tashkent      | 27.9 | 300 | 16 2    | -5   | e 11 14  | +17  | i 13.3 | 16.5 |
| Ekaterinburg  | 38.0 | 325 | e 7 38  | 0    | e 13 35  | -3   | 15.3   | —    |
| Baku          | 42.5 | 299 | e 8 12  | -3   | e 14 52  | +10  | 23.3   | —    |
| Kucino        | 50.1 | 320 | —       | —    | —        | —    | 27.7   | —    |
| Makeyevka     | 50.3 | 310 | —       | —    | 16 20    | -3   | 27.3   | 32.9 |
| Theodosia     | 52.5 | 307 | e 9 27  | +4   | —        | —    | —      | —    |
| Yalta         | 53.4 | 308 | e 9 9   | +20  | —        | —    | —      | —    |
| Pulkovo       | 54.1 | 325 | 9 35    | +1   | —        | —    | e 24.3 | 31.1 |
| Copenhagen    | 64.2 | 323 | 10 46   | +7   | —        | —    | 34.3   | —    |
| Zagreb        | 65.4 | 311 | e 9 55  | -52  | —        | —    | —      | —    |
| Hamburg       | 66.3 | 320 | —       | —    | —        | —    | e 35.3 | —    |
| Rocca di Papa | 69.2 | 309 | —       | —    | —        | —    | e 37.6 | 40.1 |
| De Bilt       | 69.5 | 320 | e 11 22 | +8   | —        | —    | e 36.3 | 44.2 |
| Strasbourg    | 69.5 | 317 | e 11 12 | -2   | e 20 20? | 0    | e 37.3 | —    |

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|         | $\Delta$ | Az. | P.      | O-C.  | S.    | O-C. | L.     | M.   |
|---------|----------|-----|---------|-------|-------|------|--------|------|
|         | °        | °   | m. s.   | m. s. | m. s. | s.   | m.     | m.   |
| Uccle   | 70.4     | 320 | —       | —     | —     | —    | e 37.3 | —    |
| Paris   | 72.5     | 319 | e 11 41 | + 8   | —     | —    | 44.3   | —    |
| Kew     | 72.3     | 322 | e 11 39 | + 4   | —     | —    | 43.3   | —    |
| Granada | 82.3     | 310 | 12 34   | + 2   | —     | —    | 49.8   | 53.3 |
| Almeria | 82.7     | 310 | 12 17   | -17   | —     | —    | —      | 53.7 |
| La Paz  | 162.5    | 327 | 20 14   | [+ 4] | —     | —    | —      | —    |

Additional readings: Taihoku SN = +10m.6s. Makeyevka eSR<sub>1</sub> = +20m.38s. Granada PR<sub>1</sub> = +15m.48s. Almeria PR<sub>1</sub> = +15m.23s.

July 19d. 23h. 38m. 38s. Epicentre 55°08. 10°5E.

A = +.564, B = +.105, C = -.819; D = +.182, E = -.983;  
G = -.806, H = -.149, K = -.574.

|                | $\Delta$ | Az. | P.       | O-C.             | S.      | O-C.       | L.     | M.   |
|----------------|----------|-----|----------|------------------|---------|------------|--------|------|
|                | °        | °   | m. s.    | m. s.            | m. s.   | s.         | m.     | m.   |
| Cape Town      | 21.8     | 18  | 15 10    | + 7              | e 7 16  | -105       | 9.3    | 9.7  |
| Tananarive     | N. 45.7  | 53  | —        | —                | e 15 36 | +12        | —      | 24.4 |
| La Plata       | 50.1     | 265 | 8 58     | -10              | 16 0    | -20        | 23.4   | —    |
| Rio de Janeiro | N. 50.8  | 286 | e 9 7    | - 5              | —       | —          | —      | —    |
| Entebbe        | 57.7     | 26  | —        | —                | —       | —          | —      | 33.4 |
| Sucre          | 66.4     | 270 | 1 10 56  | + 2              | 1 19 47 | + 5        | 29.0   | 34.8 |
| La Paz         | 70.1     | 270 | 1 11 20  | + 2              | 1 20 26 | - 1        | 34.4   | 40.3 |
| Wellington     | N. 82.7  | 168 | —        | —                | 1 23 8  | +14        | e 43.2 | —    |
| Riverview      | 85.0     | 147 | —        | —                | —       | —          | e 42.9 | 49.7 |
| Ksara          | 91.4     | 21  | 13 39    | +16              | —       | —          | 45.3   | 55.3 |
| Algiers        | 92.0     | 355 | —        | —                | e 24 29 | - 6        | 52.4   | 56.4 |
| San Fernando   | 92.5     | 347 | —        | —                | 24 28   | -12        | 47.9   | 53.2 |
| Almeria        | 92.6     | 349 | 1 13 21  | - 9              | —       | —          | 44.1   | 49.4 |
| Malaga         | 92.6     | 349 | e 13 22  | - 8              | e 23 58 | [+14]      | —      | —    |
| Granada        | 93.0     | 349 | 1 13 21  | -11              | 22 59   | [-47]      | 44.1   | 48.3 |
| Alicante       | 93.8     | 352 | e 13 36  | - 1              | e 24 46 | - 8        | e 46.6 | —    |
| Toledo         | 95.6     | 349 | e 13 37  | -10              | e 24 53 | -19        | e 42.6 | 55.4 |
| Tortosa        | N. 96.2  | 353 | e 13 37  | -13              | 24 19   | [+16]      | e 45.4 | 61.0 |
| Rocca di Papa  | 96.8     | 2   | —        | —                | 25 7    | -17        | e 54.4 | 62.2 |
| Florence       | 98.8     | 1   | e 13 22  | -42              | —       | —          | 47.4   | 51.4 |
| Moncalieri     | E. 100.0 | 358 | e 17 39  | [-8]             | 26 28   | +32        | 44.7   | —    |
| Zagreb         | 100.0    | 358 | e 16 32  | [-75]            | 26 38   | +40        | 48.9   | —    |
| Baku           | 101.1    | 29  | e 14 3   | -12              | e 23 58 | [-30]      | e 54.9 | 66.4 |
| Yalta          | 101.5    | 17  | e 18 22? | - 8              | e 25 4  | ? $\Sigma$ | 51.4   | 64.4 |
| Neuchatel      | 102.0    | 358 | —        | —                | —       | —          | —      | 55.4 |
| Theodosia      | 102.2    | 17  | e 18 17  | ?PR <sub>1</sub> | —       | —          | —      | —    |
| Strasbourg     | 103.9    | 359 | e 18 18  | ?PR <sub>1</sub> | e 27 8  | +36        | e 50.4 | —    |
| Paris          | 104.0    | 354 | e 14 8   | -22              | —       | —          | 49.4   | 58.4 |
| Makeyevka      | 105.6    | 19  | —        | —                | 25 4    | [+14]      | —      | 64.6 |
| Uccle          | 106.0    | 355 | e 18 40  | ?PR <sub>1</sub> | e 27 52 | +60        | e 49.4 | —    |
| Kew            | 106.9    | 351 | e 18 48  | ?PR <sub>1</sub> | e 27 56 | ?PS        | e 50.4 | 57.4 |
| Oxford         | 107.2    | 351 | —        | —                | —       | —          | e 46.4 | 61.4 |
| De Bilt        | 107.2    | 356 | e 14 37  | - 8              | e 28 6  | ?PS        | e 49.4 | 57.6 |
| Tashkent       | 108.4    | 41  | —        | —                | —       | —          | e 49.4 | 64.4 |
| Hamburg        | 108.6    | 359 | —        | —                | —       | —          | e 59.4 | 61.4 |
| Stonyhurst     | 109.4    | 351 | —        | —                | e 26 56 | -27        | e 54.9 | 61.9 |
| Copenhagen     | 110.7    | 1   | —        | —                | —       | —          | 52.4   | 64.7 |
| Lund           | 110.7    | 2   | —        | —                | 28 46   | ?PS        | 53.4   | —    |
| Edinburgh      | 111.5    | 350 | —        | —                | —       | —          | e 51.4 | —    |
| Dyce           | 112.7    | 350 | —        | —                | e 28 54 | ?PS        | e 58.2 | —    |
| Kucino         | 113.0    | 15  | —        | —                | —       | —          | 53.7   | 70.7 |
| Pulkovo        | 115.8    | 10  | e 16 47  | +83              | —       | —          | 55.9   | 65.4 |
| Ekaterinburg   | 119.0    | 28  | e 19 15  | [+25]            | —       | —          | —      | 73.5 |
| Georgetown     | Z. 119.8 | 295 | e 21 12  | ? $\Sigma$       | 1 31 32 | ? $\Sigma$ | e 53.5 | —    |
| Ottawa         | 123.8    | 301 | e 20 22? | ?PR <sub>1</sub> | —       | —          | e 57.4 | —    |
| Toronto        | 124.4    | 298 | 30 22?   | ? $\Sigma$       | —       | —          | —      | —    |
| St. Louis      | E. 126.5 | 285 | e 22 19  | ? $\Sigma$       | —       | —          | —      | —    |
| Zi-ka-wei      | Z. 126.8 | 85  | e 19 19  | [+ 9]            | —       | —          | —      | 65.1 |
| Scoresby Sund  | 127.6    | 346 | e 19 15  | [+ 2]            | —       | —          | —      | 63.5 |
| Irkutsk        | 132.1    | 53  | 19 25    | [+ 2]            | —       | —          | 61.4   | —    |
| Tucson         | N. 133.6 | 265 | e 22 44  | ? $\Sigma$       | —       | —          | 65.4   | —    |

For Notes see next page.

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NOTES TO JULY 19d. 23h. 38m. 38s.

Additional readings: Tananarive e = +18m.35s. = SR<sub>1</sub> - 9s. and +20m.6s. = SR<sub>1</sub> - 13s. La Paz SE = +20m.32s., PSE = +21m.26s. Ksara PR<sub>1</sub>N = +14m.23s., PR<sub>1</sub>E = +17m.0s. = PR<sub>1</sub> - 16s., PR<sub>1</sub>N = +17m.3s. = PR<sub>1</sub> - 3s., PR<sub>2</sub> = +19m.23s. = PR<sub>1</sub> - 15s., PR<sub>1</sub> = +20m.5s., PSN = +23m.31s. = [S] - 5s., PPSE = +24m.31s. = S + 3s., PPSN = +24m.37s., SR<sub>1</sub>N = +23m.39s., SR<sub>1</sub>N = +34m.50s., LN = +47.9m., MN = +54.5m. Toledo MNW = +55.1m. Zagreb e = +18m.4s. = PR<sub>1</sub> - 15s. and +31m.46s. Baku ePR<sub>1</sub> = +18m.18s. Makeyevka ePR<sub>1</sub> = +18m.46s., SR<sub>1</sub> = +33m.28s. De Bilt MN = +68.9m., MZ = +73.4m. Tashkent iPR<sub>1</sub> = +16m.23s., PS = +25m.28s. = [S] + 25s. Copenhagen ePR<sub>1</sub>Z = +19m.14s., eE = +26m.58s., eEN = +23m.34s. Kucino PR<sub>1</sub> = +19m.36s., PPS = +31m.10s. = PS + 39s., SR<sub>1</sub> = +35m.20s. Pulkovo PR<sub>1</sub> = +19m.49s., PS = +29m.39s. Ekaterinburg iPR<sub>1</sub> = +20m.40s., PS = +30m.31s., SR<sub>1</sub> = +36m.46s. Ottawa e = +30m.22s. St. Louis eE = +27m.22s. and +30m.22s.?, +33m.22s.?, and +38m.22s.? = SR<sub>1</sub> + 14s. Scoresby Sund eEN = +19m.16s. = [P] + 4s., eN = +20m.58s. = PR<sub>1</sub> - 16s., eEN = +29m.34s. = S - 10s., eN = +31m.22s.? = PS - 38s., eEN = +33m.22s.? eN = +38m.22s.? = SR<sub>1</sub> + 0s., eE = +42m.22s.? Irkutsk P<sub>1</sub>C<sub>1</sub>S = +22m.55s., SR<sub>1</sub> = +40m.17s. Tucson eE = +22m.55s.

July 19d. After-shocks from the epicentre 5°-0S, 79°-5W. of 18d. 19h. were recorded by La Paz and Sucre at the following times:—

By La Paz:—

| h. | m. | s. | h. | m. | s. | h. | m. | s. |
|----|----|----|----|----|----|----|----|----|
| 0  | 16 | 47 | 3  | 15 | 0  | 6  | 21 | 10 |
| 0  | 26 | 0  | 3  | 24 | 0  | 7  | 17 | 57 |
| 0  | 39 | 57 | 4  | 18 | 59 | 7  | 30 | 20 |
| 1  | 7  | 15 | 4  | 20 | 30 | 8  | 27 | 32 |
| 2  | 17 | 33 | 4  | 43 | 13 | 11 | 54 | 32 |
| 2  | 40 | 5  | 5  | 58 | 15 | 22 | 13 | 6  |

By Sucre:—

| h. | m. | s. | h. | m. | s. | h. | m. | s. |
|----|----|----|----|----|----|----|----|----|
| 0  | 22 | 31 | 4  | 22 | 10 | 19 | 59 | 22 |
| 4  | 20 | 1  | 7  | 36 | 28 |    |    |    |

July 19d. Readings also at 1h. (Wellington), 2h. (Scoresby Sund), 3h. (Manila, Tucson, near Oaxaca, Tacubaya, and Vera Cruz), 5h. (St. Louis, Victoria, and near Tucson), 6h. (Georgetown, Ottawa, and Toronto), 12h. (2) and 14h. (La Paz), 15h. (La Paz (2), Sucre, Tashkent, Ekaterinburg, Irkutsk, and near Toyooka), 16h. (Baku, Pulkovo, and St. Louis), 18h. (La Paz), 19h. (La Paz), 20h. (Florence), 21h. and 22h. (La Paz).

July 20d. 18h. 29m. 45s. Epicentre 38°-0N, 23°-2E. (as on 1928 April 29d.).

A = +.724, B = +.310, C = +.616; D = +.394, E = -.919;  
G = +.566, H = +.243, K = -.788.

|               | Δ       | Az. | P.     | O-C. | S.     | O-C. | L.     | M.   |
|---------------|---------|-----|--------|------|--------|------|--------|------|
|               | m.      | s.  | m.     | s.   | m.     | s.   | m.     | m.   |
| Trenta        | 5.5     | 285 | e 1 15 | -10  | —      | —    | —      | —    |
| Pompei        | 7.2     | 295 | e 2 5  | +16  | e 3 20 | + 5  | —      | —    |
| Rocca di Papa | E. 8.8  | 299 | e 1 54 | -19  | 4 20   | +22  | —      | —    |
|               | N. 8.8  | 299 | e 2 14 | + 1  | 4 13   | +15  | —      | —    |
| Zagreb        | 9.4     | 328 | e 2 54 | +32  | e 4 11 | - 2  | —      | —    |
| Florence      | 10.7    | 306 | —      | —    | 4 40   | - 8  | —      | 6.8  |
| Moncalieri    | 13.5    | 306 | —      | —    | —      | —    | 6.5    | —    |
| Strasbourg    | 15.4    | 319 | —      | —    | —      | —    | e 9.2  | —    |
| Feldberg      | N. 16.1 | 324 | —      | —    | —      | —    | e 7.2  | 9.0  |
| Uccle         | 18.4    | 320 | —      | —    | —      | —    | e 8.2  | —    |
| De Bilt       | 18.9    | 324 | —      | —    | —      | —    | e 9.2  | —    |
| Copenhagen    | 19.1    | 341 | —      | —    | —      | —    | e 9.2  | 10.8 |
| Kew           | 21.2    | 317 | —      | —    | —      | —    | e 11.2 | —    |

Additional readings and note: Rocca di Papa PR<sub>1</sub>E = +3m.31s., PR<sub>1</sub>N = +3m.39s. Florence e = 18h.27m.16s. Moncalieri e = 18h.29m.10s. Strasbourg e = +7m.15s. and +7m.51s. Feldberg readings have been increased by 1h.



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July 20d. 19h. 53m. 20s. Epicentre 44°·6N. 9°·5E. (as on 18d.).

A = +·702, B = +·118, C = +·702; D = +·165, E = -·986;  
G = +·692, H = +·116, K = -·712.

|               | Δ   | Az.  | P.     | O-C.  | S.    | O-C.  | L.  | M.        |
|---------------|-----|------|--------|-------|-------|-------|-----|-----------|
|               | °   | °    | m. s.  | s.    | m. s. | s.    | m.  | m.        |
| Piacenza      | 0·5 | 15   | 0 10   | + 2   | —     | —     | —   | —         |
| Moncalieri    | 1·3 | 287  | 0 45   | +25   | 1 2   | +26   | —   | —         |
| Florence      | 1·5 | 123  | 0 23   | 0     | —     | —     | —   | 1·1       |
| Chur          | 2·2 | 1    | 1 0 36 | + 2   | 1 1 3 | + 3   | —   | —         |
| Neuchatel     | 3·0 | 324  | e 0 47 | 0     | —     | —     | —   | —         |
| Rocca di Papa | N.  | 3·7  | 139    | e 1 3 | + 5   | (2 1) | +19 | —         |
| Strasbourg    |     | 4·2  | 344    | —     | —     | 1 49  | - 6 | —         |
| Feldberg      | N.  | 5·7  | 353    | —     | —     | —     | —   | e 3·1 4·1 |
| Paris         |     | 6·4  | 314    | —     | —     | —     | —   | e 3·6 3·7 |
| De Bilt       |     | 8·0  | 340    | —     | —     | —     | —   | e 6·7 —   |
| Kew           |     | 9·5  | 320    | —     | —     | —     | —   | e 4·7 —   |
| Copenhagen    |     | 11·3 | 8      | —     | —     | —     | —   | e 6·7 —   |

Additional readings and notes: Moncalieri SZ? = +1m.10s. Neuchatel  
1P = +56s. Rocca di Papa ePE = +1m.19s., PR<sub>1</sub>E = +2m.3s., S is given  
as PR<sub>1</sub>N. Strasbourg S = +2m.19s., SR<sub>2</sub>? = +2m.47s. Feldberg  
readings have been increased by 1h.

July 20d. An after-shock from the epicentre 5°·0S. 79°·5W. of 18d. 19h. was recorded by La Paz at:—

4h. 35m. 32s.

July 20d. Readings also at 0h. (La Paz (2)), 1h. (Baku, Makeyevka, Tashkent, Copenhagen, Uccle, Kew, Paris, Chur, Neuchatel, Zurich, Rocca di Papa, Granada, and St. Louis), 3h. (Port au Prince), 4h. (La Paz), 6h. (La Paz and near Batavia), 9h. (near Irkutsk and near Tananarive), 10h. (Ekaterinburg and Manila), 11h. (Feldberg), 12h. (La Paz), 15h. (Feldberg), 18h. (Neuchatel), 19h. (near Tacubaya).

July 21d. 2h. 40m. 0s. Epicentre 3°·5S. 119°·5E.

A = -·491, B = +·869, C = -·061; D = +·870, E = +·492;  
G = +·030, H = -·053, K = -·998.

|               | Δ    | Az.   | P.     | O-C.     | S.               | O-C.     | L.               | M.          |
|---------------|------|-------|--------|----------|------------------|----------|------------------|-------------|
|               | °    | °     | m. s.  | s.       | m. s.            | s.       | m.               | m.          |
| Batavia       | 12·9 | 257   | 3 13   | + 1      | 1 5 46           | + 4      | 1 6·7            | —           |
| Manila        | 18·1 | 5     | e 4 9  | - 9      | (1 8 3)          | +21      | 8·0              | —           |
| Hong Kong     | 26·3 | 349   | 5 50   | - 1      | —                | —        | —                | 11·8        |
| Phu-Lien      | 27·4 | 333   | e 5 56 | - 6      | e 10 38          | -10      | —                | —           |
| Zi-ka-wel     | Z.   | 34·7  | 4      | e 7 3    | - 8              | 1 5 19   | ?L               | (15·3) 40·0 |
| Adelaide      |      | 36·1  | 153    | e 11 45? | ?S               | (11 45?) | -86              | 20·2 23·5   |
| Melbourne     |      | 41·5  | 149    | —        | —                | 1 14 24  | - 4              | — 26·7      |
| Riverview     |      | 42·3  | 140    | 1 8 6    | - 7              | e 14 4   | -35              | e 24·1 26·5 |
| Irkutsk       |      | 57·2  | 350    | 9 53     | 0                | 1 7 47   | - 2              | 29·0 41·8   |
| Wellington    | E.   | 62·2  | 137    | —        | —                | —        | —                | — 40·0      |
| Tashkent      |      | 63·9  | 321    | 10 54    | +17              | e 19 42  | ?PS              | e 30·0 36·0 |
| Ekaterinburg  |      | 76·6  | 332    | 12 16    | +17              | 21 54    | +10              | 30·0 44·7   |
| Baku          |      | 77·0  | 315    | 12 9     | + 8              | —        | —                | — 41·0      |
| Kudno         |      | 88·2  | 326    | —        | —                | e 23 18  | [+ 2]            | e 44·0 —    |
| Pulkovo       |      | 92·6  | 330    | 13 23    | - 7              | e 25 3   | +22              | 48·0 60·8   |
| Copenhagen    |      | 102·5 | 328    | e 20 42  | ?PR <sub>1</sub> | e 24 48  | [+12]            | 53·0 64·8   |
| Florence      |      | 105·5 | 315    | e 21 0   | ?PR <sub>1</sub> | —        | —                | — —         |
| Strasbourg    |      | 106·9 | 321    | e 18 56  | ?PR <sub>1</sub> | —        | —                | e 60·0 —    |
| De Bilt       |      | 107·5 | 323    | —        | —                | e 19 3   | ?PR <sub>1</sub> | e 54·0 —    |
| Moncalieri    | E.   | 107·7 | 317    | e 18 48  | ?PR <sub>1</sub> | —        | —                | — 48·5      |
| Uccle         |      | 108·4 | 322    | —        | —                | —        | —                | e 54·0 —    |
| Scoresby Sund |      | 108·5 | 347    | 19 0?    | ?PR <sub>1</sub> | e 25 18  | [+14]            | 61·0 —      |
| Paris         |      | 110·1 | 320    | e 19 0?  | ?PR <sub>1</sub> | —        | —                | — 68·0      |
| Kew           |      | 110·9 | 324    | e 19 27  | ?PR <sub>1</sub> | —        | —                | — 60·0      |
| Granada       |      | 118·1 | 310    | —        | —                | —        | —                | e 65·0 71·0 |
| St. Louis     | E.   | 135·7 | 33     | e 22 57  | ? —              | —        | —                | — —         |

Additional readings and notes: Batavia iZ = +3m.12s., i = +6m.58s., and  
+7m.43s.; all readings are given for 1h. Adelaide S = +17m.33s., MN =  
+24·2m. Riverview eS? = +14m.40s., iSR<sub>2</sub> = +17m.38s., =SR<sub>1</sub>+4s.,  
iSR<sub>1</sub> = +18m.0s. =SR<sub>2</sub>-30s. Baku PR<sub>1</sub> = +15m.14s., e = +32m.16s.  
Pulkovo PR<sub>1</sub> = +17m.15s. Scoresby Sund eN = +22m.12s. =PR<sub>1</sub>+1s.,  
eRN = +28m.36s., =PS-5s., eN = +40m.0s., eEN = +52m.0s.

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July 21d. After-shocks from the epicentre 5°-08. 79°-5W. of 18d. 19h. were recorded by La Paz at:—

| h. | m. | s. | h. | m. | s. | h. | m. | s. |
|----|----|----|----|----|----|----|----|----|
| 2  | 23 | 32 | 12 | 31 | 52 | 22 | 53 | 18 |

July 21d. Readings also at 2h. (Georgetown, Theodosia, and near Yalta), 4h. (Tashkent, Wellington (2), and Zagreb), 5h. (La Paz and La Plata), 6h. (Georgetown, Ottawa, St. Louis, Toronto, Tucson, Victoria, La Paz, near Oaxaca, Puebla, and Tacubaya), 7h. (Granada, Scoresby Sund, Rio de Janeiro, La Plata, La Paz, and Sucre), 8h. (De Bilt and Rocca di Papa), 10h. (Phu-Lien and Tashkent), 11h. (Baku, Irkutsk, Kudno, Phu-Lien, Rocca di Papa, Tashkent, and Zi-ka-wei), 12h. (De Bilt), 15h. (La Paz, Sucre, and near Tananarive), 16h. (Baku, Ekaterinburg, Granada, and La Paz), 17h. (La Paz), 19h. (La Paz and Sucre).

July 22d. 7h. 28m. 8s. Epicentre 16°-2N. 97°-2W. (as on July 6d.).

$$A = -.120, B = -.953, C = +.279; \quad D = -.992, E = +.125; \\ G = -.035, H = -.277, K = -.960.$$

T<sub>0</sub> was adopted after direct comparison with the large shock from this epicentre of 1928 June 17d. 3h.

|               | Δ       | Az. | P.       | O-C.             | S.       | O-C.             | L.     | M.    |
|---------------|---------|-----|----------|------------------|----------|------------------|--------|-------|
|               | °       | °   | m. s.    | s.               | m. s.    | s.               | m.     | m.    |
| Oaxaca        | 0-9     | 27  | (0 6)    | - 8              | (0 21)   | - 4              | (0-4)  | (0-5) |
| Puebla        | 3-0     | 341 | (0 56)   | + 9              | —        | —                | (1-6)  | (2-0) |
| Vera Cruz     | 3-2     | 18  | (0 45)   | - 5              | —        | —                | (1-7)  | (1-9) |
| Tacubaya      | 3-8     | 330 | 1 12     | +13              | —        | —                | 2-3    | 2-5   |
| Guadalajara   | 7-5     | 307 | —        | —                | (3 1)    | -23              | (3-2)  | (3-4) |
| Merida        | 8-6     | 55  | (2 37)   | +27              | (4 13)   | +20              | (4-4)  | (4-7) |
| Tucson        | 20-3    | 325 | 4 52     | + 7              | 8 50     | +21              | 11-0   | 13-3  |
| St. Louis     | E. 23-2 | 14  | 16 10    | +51              | 1 10 26  | +57              | —      | 15-4  |
| Cincinnati    | N. 25-5 | 23  | 14 31    | -72              | e 8 52   | -81              | 16-0   | 12-9  |
| Chicago       | N. 26-9 | 16  | 15 20    | -37              | (9 59)   | -40              | 10-0   | —     |
| Ann Arbor     | E. 28-5 | 21  | —        | —                | e 11 46  | +38              | —      | —     |
| Georgetown    | Z. 28-7 | 34  | 6 9      | - 6              | 11 43    | +31              | e 15-5 | 24-3  |
| Lick          | N. 30-2 | 320 | e 6 24   | - 6              | —        | —                | e 16-6 | —     |
| Berkeley      | 31-0    | 320 | —        | —                | —        | —                | e 17-2 | —     |
| Toronto       | N. 31-3 | 26  | —        | —                | e 11 38  | -18              | 19-9   | —     |
| Ottawa        | 34-3    | 28  | e 6 58   | - 9              | i 12 25  | -19              | e 22-9 | —     |
| Victoria      | 38-7    | 333 | 9 19     | -? 13            | 13 39    | - 9              | 22-1   | 25-6  |
| La Paz        | 43-5    | 139 | 8 9      | -13              | 14 55    | 0                | 22-9   | 28-5  |
| Sucre         | 47-2    | 139 | 8 39     | - 9              | 15 35    | - 9              | —      | 27-0  |
| Honolulu T.H. | E. 57-3 | 286 | —        | —                | —        | —                | 30-6   | —     |
| Scoresby Sund | E. 69-9 | 20  | 11 22    | + 6              | e 20 52  | ?PS              | e 41-9 | 45-1  |
|               | N. 69-9 | 20  | 11 22    | + 6              | e 21 39  | +74              | e 36-9 | 40-2  |
| Edinburgh     | 78-9    | 35  | —        | —                | e 20 52? | ?                | —      | —     |
| Kew           | 81-6    | 40  | e 12 27  | - 1              | e 22 42  | 0                | 45-9   | —     |
| Granada       | 83-1    | 54  | e 16 52? | ?PR <sub>1</sub> | —        | —                | 42-4   | 45-4  |
| Paris         | 84-1    | 41  | e 12 41  | - 2              | e 23 4   | - 5              | 46-9   | —     |
| De Bilt       | 84-6    | 37  | 12 45    | - 1              | e 23 17  | + 2              | e 43-9 | —     |
| Uccle         | 84-6    | 39  | —        | —                | e 23 13  | - 2              | e 46-9 | —     |
| Copenhagen    | 87-2    | 32  | —        | —                | e 23 42  | - 1              | 48-9   | 54-7  |
| Strasbourg    | 87-4    | 40  | e 12 54  | - 7              | e 23 43  | - 2              | e 47-9 | —     |
| Fulkovo       | 93-0    | 24  | —        | —                | —        | —                | e 54-4 | —     |
| Ekaterinburg  | 104-6   | 13  | e 18 55  | ?PR <sub>1</sub> | —        | —                | 32-9   | —     |
| Irkutsk       | 109-0   | 346 | e 31 5   | ?                | —        | —                | 70-9   | —     |
| Baku          | 115-7   | 27  | —        | —                | —        | —                | 61-9   | —     |
| Tashkent      | 121-1   | 11  | —        | —                | e 37 28  | ?SR <sub>1</sub> | e 61-9 | 74-8  |

Additional readings and notes: Oaxaca, Vera Cruz, and Merida readings have been *diminished* by 2m. Puebla readings have been *diminished* by 1m. Guadalajara readings have been *increased* by 2m. Tucson PR<sub>1</sub> = +5m.15s., SN = +8m.47s. Cincinnati eN = +11m.12s., -SR<sub>1</sub> = 4s. Chicago iLE = +9-9m., L = +16-9m. Ann Arbor eE = +20m.28s., +24m.46s. and +32m.46s. Lick eE = +17m.10s. and +20m.34s., eN = +20m.17s., and +22m.52s. Berkeley eE = +20m.40s., eZ = +20m.44s., eN = +21m.20s. and +25m.48s., readings being given as for 6h. Ottawa iN = +12m.28s. Honolulu T.H. eN = +26m.34s., eE = +27m.10s., LN = +33-1m. Scoresby Sund SR<sub>1</sub> = +24m.52s., SR<sub>2</sub> = +28m.16s. Copenhagen eN = +29m.22s., -SR<sub>1</sub> = 30s., Irkutsk e = +38m.27s. and +42m.19s.

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July 22d. Readings also at 0h. (La Paz), 5h. (Lick), 10h. (Apia and near Lick), 11h. (near Lick (2)), 16h. (La Paz (2)), 19h. (Alicante and near Algiers), 22h. (Moncalieri), 23h. (Taihoku, Sebastopol, Simferopol, near Theodosia, and Yalta).

July 23d. 7h. 40m. 42s. Epicentre  $51^{\circ}08.164^{\circ}0E$ .

A = -·605, B = +·173, C = -·777; D = +·276, E = +·961;  
G = +·747, H = -·214, K = -·629.

Very uncertain.

|               |    | $\Delta$ | Az. | P.       | O-C.             | S.       | O-C.             | L.      | M.    |
|---------------|----|----------|-----|----------|------------------|----------|------------------|---------|-------|
|               |    | °        | °   | m. s.    | m. s.            | m. s.    | m. s.            | m.      | m.    |
| Christchurch  |    | 9.4      | 42  | 3 26     | +64              | 4 41     | +28              | 5.2     | —     |
| Wellington    | E. | 12.2     | 42  | —        | —                | 1.5 20   | -4               | 17.7    | 7.9   |
|               | N. | 12.2     | 42  | —        | —                | 1.5 25   | +1               | 16.8    | 8.9   |
| Melbourne     |    | 18.9     | 307 | e 5 6    | +38              | (1.7 53) | —                | e 7.9   | 8.8   |
| Riverview     |    | 19.6     | 327 | 1 4 34   | -2               | 1.8 6    | -9               | —       | 8.8   |
| Sydney        |    | 19.6     | 327 | 4 36     | 0                | (8 0)    | -15              | 8.0     | —     |
| Adelaide      |    | 24.4     | 301 | 1 5 31   | -1               | 1.9 55   | +3               | i 11.5  | 12.8  |
| Perth         |    | 39.9     | 280 | —        | —                | 13 13    | -52              | 18.0    | —     |
| Tashkent      |    | 123.5    | 295 | —        | —                | e 33 12  | ?                | e 57.3  | 69.3  |
| St. Louis     | E. | 123.2    | 72  | e 21 32  | ?PR <sub>1</sub> | —        | —                | e 54.8  | 67.1  |
| Chicago       | E. | 131.7    | 71  | —        | ?                | —        | —                | e 69.3  | —     |
| Baku          |    | 134.4    | 282 | e 23 22  | ?                | —        | —                | 60.3    | —     |
| Georgetown    | Z. | 136.5    | 81  | 22 23    | ?PR <sub>1</sub> | —        | —                | 72.4    | 79.9  |
| Ekaterinburg  |    | 136.9    | 307 | e 20 21  | ?                | e 23 52  | ?                | 33.3    | —     |
| Toronto       | E. | 137.7    | 73  | e 23 25  | ?                | —        | —                | 70.3    | —     |
| Ksara         | E. | 139.1    | 266 | e 27 11  | ?                | 29 36    | ?Σ               | 30.7    | —     |
| Ottawa        |    | 140.9    | 73  | e 23 0   | ?PR <sub>1</sub> | —        | —                | 74.3    | —     |
| Makeyevka     |    | 145.6    | 286 | —        | —                | i 28 4   | ?                | e 44.9  | 62.8  |
| Theodosia     |    | 145.9    | 280 | e 20 18? | [+28]            | —        | —                | —       | —     |
| Pulkovo       |    | 153.0    | 307 | e 28 39  | ?                | —        | —                | e 85.3  | 91.9  |
| Scoresby Sund |    | 160.3    | 6   | e 24 18? | ?PR <sub>1</sub> | e 45 18? | ?SR <sub>1</sub> | 77.3    | 86.3  |
| Florence      |    | 160.4    | 259 | e 23 16  | ?                | e 33 18  | ?                | e 86.3  | 99.3  |
| Copenhagen    |    | 162.6    | 297 | e 20 42  | [+32]            | —        | —                | 73.3    | 93.8  |
| Granada       |    | 163.6    | 217 | e 20 43  | [+32]            | —        | —                | e 80.9  | 84.9  |
| San Fernando  | E. | 163.8    | 209 | —        | —                | —        | —                | —       | 97.3  |
| Strasbourg    |    | 164.6    | 270 | e 21 23  | ?                | —        | —                | e 94.3  | —     |
| De Bilt       |    | 166.9    | 283 | e 20 50  | [+37]            | —        | —                | e 89.3  | 106.0 |
| Uccle         |    | 167.2    | 277 | e 29 18? | ?PR <sub>1</sub> | e 46 18? | ?SR <sub>1</sub> | —       | —     |
| Paris         |    | 167.9    | 267 | e 21 30  | ?                | e 25 24  | ?PR <sub>1</sub> | 93.3    | 98.3  |
| Kew           |    | 170.2    | 279 | e 21 49  | ?                | —        | —                | 93.3    | —     |
| Edinburgh     |    | 171.0    | 307 | —        | —                | —        | —                | e 102.3 | —     |

Additional readings and note: The following stations, only, give readings with definite phase: Christchurch, Riverview, Sydney, Adelaide, Perth, Georgetown, and Florence. Riverview MN = +8.4m.; T<sub>0</sub> = 7h.40m.49s.; epicentre  $49^{\circ}S. 166^{\circ}E$ . Adelaide SR<sub>2</sub> = +11m.13s. Tashkent e = +37m.24s. = SR<sub>1</sub> - 6s., +42m.0s., and +46m.18s. St. Louis eE = +31m.0s., +35m.6s., +38m.48s., and +50m.48s. Baku e = +31m.44s., +34m.36s., and +39m.56s. = SR<sub>1</sub> + 12s. Georgetown eZ = +25m.50s. = PR<sub>2</sub> - 1s., +27m.33s., +33m.25s., +35m.42s., and +36m.50s. Ottawa eE? = +29m.42s., eE = +38m.54s., eN = +41m.12s. = SR<sub>1</sub> + 9s., eL = +58.3m. Makeyevka i = +28m.17s. and +28m.37s. Pulkovo e = +32m.23s. Scoresby Sund eN = +35m.6s. and +51m.18s. = SR<sub>1</sub> + 13s. Florence e = +20m.28s. = [P] + 20s. Copenhagen eE = +36m.18s. eEN = +37m.18s. ? and +45m.12s. = SR<sub>1</sub> - 4s., eN = +54m.18s. ? Granada i = +25m.7s. = PR<sub>1</sub> + 9s. San Fernando MN = +91.6m. Strasbourg e = +25m.7s. = PR<sub>1</sub> + 3s., +35m.33s., and +36m.54s. De Bilt MN = +102.6m., MZ = +107.8m.

July 23d. Readings also at 3h. (La Paz), 6h. (Tashkent), 7h. (near Tacubaya), 8h. (near Simferopol, Theodosia, and Yalta), 10h. (Sucre, near La Paz, and near Tacubaya), 11h. (Florence), 13h. (near La Paz and Sucre), 15h. (Baku, Ekaterinburg, Tashkent, Georgetown, Ottawa, Toronto, and St. Louis), 16h. (Ekaterinburg, Irkutsk, Pulkovo, Tashkent, Phu-Lien, Scoresby Sund, De Bilt, Kew, and Granada), 19h. (La Paz), 23h. (Rocca di Papa, Chur, Neuchatel, and Zurich).

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July 24d. An after-shock from the epicentre 5°0S. 79°5W. of 18d. 19h. was recorded by La Paz at

13h. 4m. 5s.

July 24d. Readings also at 0h. (La Paz and Sucre), 6h. (near Malabar), 9h. (near Algiers and near Amboina), 11h. (Alicante), 12h. (Ekaterinburg and Tashkent), 13h. (Ekaterinburg and Irkutsk), 14h. (Tashkent and Wellington), 15h. (Ekaterinburg and Tashkent), 16h. (La Paz and Sucre), 19h. (La Paz), 21h. (Feldberg), 22h. (near Malabar), 23h. (near Manila).

July 25d. An after-shock from the epicentre 5°0S. 79°5W. of 18d. 19h. was recorded:—

By La Paz at

17h. 50m. 14s.

By Sucre at

17h. 50m. 56s.

July 25d. Readings also at 1h. (Strasbourg, Neuchatel, and Zurich), 5h. (near Kobe), 6h. (Ekaterinburg, Irkutsk, Tashkent, Yalta, and Georgetown), 8h. (near Batavia and Malabar (2) ), 9h. (La Paz, San Fernando, and near Taihoku), 11h. (La Paz and Sucre), 17h. (Wellington), 18h. (Chicago, Georgetown, St. Louis, Tucson, Tacubaya, and near Toyooka), 19h. (Ottawa, Toronto, Victoria, Scoresby Sund, Granada, De Bilt, Copenhagen, Pulkovo, Baku, Tashkent, Ekaterinburg, and Irkutsk), 20h. (La Paz and Sucre).

July 26d. 12h. 15m. 10s. Epicentre 9°5S. 119°0E.

A = -·478, B = +·863, C = -·165; D = +·875, E = +·485;  
G = +·080, H = -·144, K = -·986.

Very uncertain.

|               | $\Delta$ | Az. | P.                  | O-C.             | S.      | O-C.  | L.     | M.   |
|---------------|----------|-----|---------------------|------------------|---------|-------|--------|------|
|               | °        | °   | m. s.               | s.               | m. s.   | s.    | m.     | m.   |
| Malabar       | 11·5     | 280 | e 2 55              | + 3              | —       | —     | —      | —    |
| Batavia       | 12·5     | 284 | i 3 15              | + 9              | 15 21   | -11   | 17·8   | —    |
| Perth         | 22·6     | 187 | ( $\frac{1}{2}$ 58) | -14              | 4 58    | ?P    | 13·7   | —    |
| Manila        | 24·2     | 5   | 15 30               | 0                | —       | —     | —      | —    |
| Adelaide      | 31·1     | 148 | 6 55?               | +16              | i 12 7  | +14   | 17·1   | 22·0 |
| Hong Kong     | 32·2     | 353 | —                   | —                | —       | —     | —      | 20·5 |
| Phu-Lien      | 32·6     | 339 | 6 34                | -19              | —       | —     | 18·8   | —    |
| Melbourne     | 36·2     | 145 | —                   | —                | i 13 18 | + 5   | 22·8   | 25·0 |
| Riverview     | 38·3     | 136 | e 8 44              | ?PR <sub>1</sub> | —       | —     | e 20·8 | 25·9 |
| Sydney        | 38·3     | 136 | —                   | —                | 21 20   | ?     | 24·5   | 25·8 |
| Zi-ka-wei     | Z. 40·8  | 5   | —                   | —                | 15 15   | +57   | 19·9   | —    |
| Wellington    | E. 58·3  | 134 | —                   | —                | —       | —     | e 31·8 | —    |
| Irkutsk       | 63·1     | 351 | 10 28               | - 5              | —       | —     | 36·8   | —    |
| Tashkent      | 68·3     | 323 | i 10 58             | - 8              | 120 6   | 0     | e 32·8 | 47·1 |
| Baku          | 80·7     | 315 | 12 14               | - 9              | 22 20   | -11   | 40·6   | —    |
| Ekaterinburg  | 81·6     | 333 | 12 33               | + 5              | 22 40   | - 2   | 26·8   | —    |
| Ksars         | 89·6     | 306 | e 13 9              | - 5              | 23 49   | -21   | —      | —    |
| Makeyevka     | 91·1     | 320 | e 11 38             | ? 123 36         | —       | [+ 1] | —      | —    |
| Kucino        | 92·9     | 326 | e 20 14             | ?PR <sub>2</sub> | —       | —     | e 50·8 | —    |
| Pulkovo       | 97·5     | 330 | —                   | —                | e 26 20 | ?PS   | e 54·8 | 62·5 |
| Copenhagen    | 107·2    | 325 | —                   | —                | —       | —     | 60·8   | —    |
| Strasbourg    | 111·1    | 318 | —                   | —                | —       | —     | e 63·8 | —    |
| De Bilt       | 112·0    | 322 | —                   | —                | e 29 5  | ?PS   | e 64·8 | —    |
| Scoresby Sund | 114·3    | 346 | —                   | —                | —       | —     | 70·8   | —    |
| Paris         | 114·4    | 320 | —                   | —                | —       | —     | e 70·8 | —    |
| Kew           | 115·4    | 323 | —                   | —                | —       | —     | e 67·8 | —    |
| Granada       | 121·5    | 307 | —                   | —                | —       | —     | e 68·8 | 75·6 |
| Sucre         | 151·2    | 171 | 19 56               | [- 1]            | —       | —     | —      | —    |
| La Paz        | 153·1    | 165 | 20 1                | [+ 1]            | —       | —     | —      | —    |

Additional readings: Malabar i = +4m.50s. =S-17s. Batavia 1 = +6m.28s.  
Perth SR, = +8m.50s. =S-27s. Phu-Lien e = +17m.6s. Melbourne  
i = +17m.30s. and +19m.36s. Riverview e? = +10m.32s., MN = +25·3m.  
Zi-ka-wei eZ = +5m.39s., PR<sub>1</sub>Z = +7m.29s., PR<sub>2</sub>Z = +11m.57s. Wellington eN = +29m.50s.?

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July 26d. Readings also at 0h. (Georgetown and near Tananarive), 3h. (Tucson, near Tacubaya, and Vera Cruz), 7h. (near Simferopol, Theodosia, and Yalta (2)), 8h. (near Toyooka.), 11h. (La Paz), 15h. (La Paz and near La Plata), 18h. (Ekaterinburg, Tashkent, Irkutsk, Zi-ka-wei, and near Taihoku), 19h. (Scoresby Sund), 20h. and 21h. (Yalta), 22h. (near La Paz, Sucre, and near Lick).

July 27d. 15h. 22m. 54s. Epicentre 7°·0N. 94°·0E. (as on 1924 Jan. 24d.).

A = -·069, B = +·990, C = +·122; D = +·998, E = +·070;  
G = -·009, H = +·122, K = -·993.

|               | Δ        | Az. | P.      | O-C.             | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------------------|---------|------|--------|------|
|               | °        | °   | m. s.   | s.               | m. s.   | s.   | m.     | m.   |
| Colombo       | 14·1     | 268 | 3 45    | +18              | —       | —    | —      | 10·6 |
| Kodaikanal    | 16·7     | 283 | 9 54    | ?L               | —       | —    | 11·2   | 13·3 |
| Batavia       | 18·3     | 135 | 5 13    | +52              | 9 4     | +77  | —      | —    |
| Phu-Lien      | 18·4     | 40  | 4 13    | - 9              | 7 42    | - 7  | 8·6    | 10·9 |
| Bombay        | 23·8     | 302 | 5 40    | +14              | 10 3    | +23  | 13·2   | 18·4 |
| Hong Kong     | 24·8     | 50  | 9 36    | ?S               | (9 36)  | -23  | —      | 14·8 |
| Taihoku       | E. 31·9  | 50  | —       | —                | —       | —    | e 13·1 | —    |
| Zi-ka-wei     | Z. 35·2  | 43  | e 15 5  | ?SR <sub>1</sub> | 17 17   | ?L   | 19·0   | 20·0 |
| Tashkent      | 40·7     | 332 | i 7 58  | - 3              | i 14 14 | - 3  | —      | —    |
| Irkutsk       | 46·0     | 9   | e 8 29  | -11              | 15 16   | -12  | 24·1   | —    |
| Baku          | 51·6     | 317 | e 9 22  | + 5              | e 16 46 | + 7  | 25·9   | —    |
| Ksara         | 59·8     | 306 | e 10 23 | +12              | e 19 9  | ?PS  | e 31·4 | —    |
| Theodosia     | 63·2     | 319 | e 11 37 | +64              | —       | —    | —      | —    |
| Melbourne     | 65·2     | 137 | —       | —                | —       | —    | e 31·8 | 42·7 |
| Kucino        | 65·6     | 330 | —       | —                | e 20 18 | ?PS  | 35·1   | 44·1 |
| Pulkovo       | 71·0     | 332 | —       | —                | e 20 43 | + 5  | e 37·1 | 47·7 |
| Copenhagen    | 79·6     | 326 | —       | —                | e 22 15 | - 4  | 41·1   | 55·9 |
| Strasboturg   | 82·3     | 319 | —       | —                | —       | —    | e 69·1 | —    |
| De Bilt       | 83·8     | 323 | e 12 40 | - 1              | —       | —    | e 47·1 | —    |
| Paris         | 85·7     | 319 | —       | —                | —       | —    | e 54·1 | —    |
| Granada       | 91·8     | 308 | —       | —                | e 29 2  | ?    | e 51·1 | 56·3 |
| Scoresby Sund | 91·8     | 344 | —       | —                | —       | —    | 52·1   | —    |
| Ottawa        | 126·8    | 350 | —       | —                | —       | —    | e 72·1 | —    |
| Toronto       | 129·0    | 353 | —       | —                | —       | —    | —      | 80·1 |
| Georgetown    | Z. 133·3 | 350 | —       | —                | —       | —    | e 73·4 | —    |

Additional readings: Batavia eZ = +3m.54s., iZ = +4m.52s., i = +7m.12s.,  
IS = +9m.7s. Phu-Lien MN = +12·2m. Tashkent ePR<sub>1</sub> = +8m.16s.  
Ksara ePN = +10m.32s. Copenhagen MN = +49·8m. Georgetown  
eLZ? = +78·7m.

July 27d. An after-shock from the epicentre 5°·0S. 79°·5W. of 18d. 19h. was recorded by

La Paz at 0h. 46m. 55s.  
by Sucre at 0h. 47m. 39s.

July 27d. Readings also at 5h. (near Yalta), 6h. (Entebbe), 7h. (La Paz and near Tacubaya), 8h. (near Tananarive), 12h. (Baku, Copenhagen, Ekaterinburg, Irkutsk, Tashkent, and Zagreb (2)), 21h. (near Tacubaya), 22h. (near Ksara), 23h. (near Tashkent).

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July 28d. 19h. 49m. 45s. Epicentre 31°-9S. 75°-0W.

A = +.220, B = -.820, C = -.528 ; D = -.966, E = -.259 ;  
G = -.137, H = +.510, K = -.849.

Given by La Paz.

|                | $\Delta$ | Az. | P.        | O-C.             | S.        | O-C.             | L.     | M.   |
|----------------|----------|-----|-----------|------------------|-----------|------------------|--------|------|
|                | °        | °   | m. s.     | s.               | m. s.     | s.               | m.     | m.   |
| Santiago       | 4.0      | 115 | i 1 21    | +19              | 1 34      | -16              | 1.9    | —    |
| La Plata       | 14.4     | 107 | 3 19      | -13              | 5 29      | -49              | 6.2    | —    |
| Sucre          | 15.6     | 37  | 3 42      | -5               | 1 6 39    | -7               | 7.6    | 8.8  |
| La Paz         | 16.6     | 24  | 4 5       | +5               | 7 18      | +9               | 1 8.2  | 11.0 |
| Rio de Janeiro | E. 29.4  | 80  | e 6 8     | -14              | 10 37     | +13              | 13.4   | 17.4 |
|                | N. 29.4  | 80  | e 6 5     | -17              | 10 35     | +11              | 13.4   | 17.5 |
| Georgetown     | Z. 70.8  | 359 | (i 11 43) | +21              | (i 20 51) | +15              | 30.2   | —    |
| St. Louis      | 71.9     | 349 | i 11 51   | +22              | i 21 6    | +17              | —      | 42.7 |
| Toronto        | N. 75.7  | 357 | i 12 11   | +18              | i 21 40   | +6               | 39.2   | —    |
| Ottawa         | 77.3     | 0   | e 12 27   | +24              | e 22 0    | +8               | e 39.2 | —    |
| Granada        | 95.9     | 50  | i 13 43   | -5               | 24 46     | ? $\Sigma$       | 51.2   | 55.2 |
| Almeria        | 96.6     | 50  | e 13 40   | -12              | e 24 31   | ? $\Sigma$       | —      | 57.3 |
| Toledo         | 97.2     | 47  | e 13 49   | -6               | e 24 45   | ? $\Sigma$       | —      | —    |
| Alicante       | 98.6     | 50  | e 16 40   | ?                | —         | —                | —      | —    |
| Kew            | 105.9    | 37  | e 18 15?  | [+ 7]            | —         | —                | 49.2   | —    |
| Paris          | 106.0    | 41  | —         | —                | —         | —                | e 53.2 | 59.2 |
| Stonyhurst     | 106.1    | 36  | —         | —                | —         | —                | e 54.2 | —    |
| Uccle          | 108.1    | 40  | —         | —                | e 25 45   | ? $\Sigma$       | e 48.2 | —    |
| Strasbourg     | 108.9    | 43  | —         | —                | —         | —                | e 73.2 | —    |
| De Bilt        | 109.1    | 40  | —         | —                | —         | —                | e 53.2 | 64.5 |
| Scoresby Sund  | 109.1    | 15  | —         | —                | 25 51     | ? $\Sigma$       | 54.2   | 59.6 |
| Copenhagen     | 114.5    | 37  | 16 15?    | +57              | e 29 21   | +75              | 52.2   | 62.6 |
| Lund           | 114.9    | 37  | —         | —                | —         | —                | 64.2   | —    |
| Pulkovo        | 124.7    | 35  | e 17 52   | [-73]            | e 30 56   | ?PS              | 59.8   | 66.8 |
| Makeyevka      | 127.9    | 50  | e 21 15   | ?PR <sub>1</sub> | e 29 15   | -31              | —      | —    |
| Baku           | 135.4    | 61  | e 22 3    | ?PR <sub>1</sub> | —         | —                | 66.0   | 81.4 |
| Ekaterinburg   | 140.8    | 36  | i 20 9    | [+28]            | —         | —                | —      | 77.4 |
| Tashkent       | 150.0    | 62  | i 20 15   | [+19]            | —         | —                | e 67.2 | 88.6 |
| Irkutsk        | 159.6    | 1   | i 20 26   | [+18]            | i 24 42   | ?PR <sub>1</sub> | —      | —    |

Additional readings: Sucre i = +7m.24s. = SR<sub>1</sub> + 22s. St. Louis iE = +21m.28s. Georgetown eZ = +5m.43s., P is given as S and S as L.  
Granada PR<sub>1</sub> = +17m.24s. De Bilt ePR<sub>1</sub>Z = +19m.5s. Scoresby Sund  
PR<sub>1</sub> = +19m.15s., PS = +28m.18s., SR<sub>1</sub> = +34m.15s.? and +52m.15s.?  
Copenhagen MN = +67.6m. Baku i = +23m.35s., e = +40m.8s. =  
SR<sub>1</sub> + 12s. Ekaterinburg i = +22m.53s. = PR<sub>1</sub> + 15s., e = +30m.52s.  
Tashkent i = +20m.34s., e = +34m.15s.

July 28d. Readings also at 0h. (Adelaide, Riverview, Melbourne, Wellington, and La Paz), 2h. (Georgetown, near Lick (2), and Victoria), 5h. (near Tashkent), 6h. (Suva), 7h. (Georgetown), 13h. (Feldberg), 15h. (near Zurich), 16h. (near La Paz), 17h. (Granada, Phu-Lien, and near Mizusawa), 18h. (Apia), 19h. (Hong Kong, Baku, Ekaterinburg, Tashkent, Irkutsk, and Phu-Lien), 21h. (Apia), 23h. (Tanarive).

July 29d. 18h. 15m. 54s. Epicentre 41°-7N. 26°-3E. (as on 1928 April 28d.).

A = +.669, B = +.331, C = +.665 ; D = +.443, E = -.896 ;  
G = +.596, H = +.295, K = -.747.

|            | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.    | M.  |
|------------|----------|-----|--------|------|----------|------|-------|-----|
|            | °        | °   | m. s.  | s.   | m. s.    | s.   | m.    | m.  |
| Belgrade   | N. 5.3   | 309 | e 1 25 | + 3  | 2 6      | -19  | —     | 2.6 |
| Sebastopol | 6.0      | 58  | i 1 30 | -2   | —        | —    | —     | —   |
| Yalta      | 6.4      | 61  | e 2 52 | ?S   | (e 2 52) | -3   | —     | —   |
| Theodosia  | 7.3      | 59  | i 1 52 | + 1  | (3 20)   | + 2  | 3.3   | —   |
| Budapest   | 7.7      | 320 | e 2 6? | + 9  | —        | —    | —     | —   |
| Zagreb     | 8.5      | 303 | e 2 6? | - 3  | e 3 32   | -18  | e 4.0 | 4.6 |
| Makeyevka  | 10.4     | 48  | —      | —    | e 4 39   | - 1  | e 4.9 | 6.1 |
| Florence   | 11.2     | 286 | —      | —    | e 5 6    | + 7  | —     | 6.8 |
| Strasbourg | 14.8     | 304 | —      | —    | —        | —    | e 7.2 | —   |
| Feldberg   | N. 15.0  | 311 | —      | —    | —        | —    | e 7.7 | —   |

Continued on next page.

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|              | $\Delta$ | Az. | P.     | O-C. | S.    | O-C. | L.     | M.   |
|--------------|----------|-----|--------|------|-------|------|--------|------|
|              | °        | °   | m. s.  | s.   | m. s. | s.   | m.     | m.   |
| Lund         | 16.5     | 333 | —      | —    | —     | —    | 8.1    | —    |
| Copenhagen   | 16.7     | 332 | —      | —    | —     | —    | 8.1    | —    |
| Uccle        | 17.6     | 309 | —      | —    | —     | —    | 8.1    | —    |
| De Bilt      | 17.7     | 313 | —      | —    | —     | —    | e 9.1  | 9.4  |
| Paris        | 18.1     | 301 | —      | —    | —     | —    | e 9.6  | —    |
| Pulkovo      | 18.2     | 6   | —      | —    | —     | —    | —      | 8.1  |
| Kew          | 20.6     | 307 | —      | —    | —     | —    | e 11.1 | —    |
| Almeria      | 22.6     | 267 | —      | —    | —     | —    | —      | 14.0 |
| Granada      | 23.4     | 268 | —      | —    | —     | —    | e 13.1 | 14.4 |
| Ekaterinburg | 26.6     | 44  | e 3 57 | -117 | —     | —    | e 14.4 | —    |
| Tashkent     | 31.8     | 78  | —      | —    | —     | —    | e 21.2 | 22.1 |

Additional readings: Belgrade iN = +1m.31s., +2m.19s., and +2m.22s.  
Florence e? = 18h.11m.30s. Strasbourg i = +7m.27s.

July 29d. Readings also at 4h. (near Ksara), 15h. (Budapest), 19h. (Wellington), 22h. (near Suva), 23h. (Graz).

July 30d. 2h. 41m. 10s. Epicentre 9°·0N. 115°·5W.

A = -·425, B = -·891, C = +·156; D = -·903, E = +·431;  
G = -·067, H = -·141, K = -·988.

Very uncertain.

|                 | $\Delta$ | Az. | P.       | O-C.             | S.        | O-C.             | L.     | M.   |
|-----------------|----------|-----|----------|------------------|-----------|------------------|--------|------|
|                 | °        | °   | m. s.    | s.               | m. s.     | s.               | m.     | m.   |
| Tucson          | 23.7     | 10  | 9 31     | ?S               | (9 31)    | - 7              | 20.7   | —    |
| Lick            | 28.9     | 350 | —        | —                | —         | —                | e 26.5 | —    |
| St. Louis       | 37.3     | 35  | —        | —                | e 12 20   | -68              | e 17.0 | 29.0 |
| Victoria        | 40.0     | 353 | 5 8      | ?                | —         | —                | 32.2   | 36.3 |
| Chicago         | 40.9     | 34  | e 7 29   | -33              | e 14 23   | + 3              | 20.2   | 21.3 |
| Georgetown      | 40.9     | 34  | e 8 54   | +52              | e 14 17   | - 3              | 20.8   | 21.0 |
| Charlottesville | 44.1     | 44  | 8 28     | + 1              | 12 19     | ?                | e 18.8 | 21.3 |
| Georgetown      | 45.5     | 44  | 19 53    | ?PR <sub>1</sub> | —         | —                | e 11.9 | 21.0 |
| Toronto         | 46.7     | 36  | e 6 5    | ?                | e 15 0    | -37              | e 21.4 | —    |
| Ottawa          | 49.9     | 37  | e 6 2    | ?                | e 11 2    | ?PR <sub>1</sub> | —      | 23.8 |
| Harvard         | 51.2     | 42  | e 10 50  | ?PR <sub>1</sub> | —         | —                | 21.8   | —    |
| La Paz          | 53.3     | 119 | 9 26     | - 2              | 16 57     | - 3              | 22.1   | 25.3 |
| Sucre           | 56.9     | 120 | 9 55     | + 4              | e 17 51   | + 6              | 23.3   | 26.7 |
| La Plata        | 69.8     | 134 | —        | —                | —         | —                | 36.9   | —    |
| Rio de Janeiro  | 77.5     | 116 | —        | —                | —         | —                | e 32.8 | —    |
| Scoresby Sund   | 82.7     | 20  | e 13 56  | +82              | e 22 50?  | - 4              | e 26.8 | 46.0 |
| Edinburgh       | 94.7     | 32  | —        | —                | —         | —                | e 40.8 | —    |
| Kew             | 98.1     | 35  | e 14 50  | +49              | —         | —                | 38.8   | 45.8 |
| Toledo          | 100.2    | 47  | —        | —                | e 33 26   | ?SR <sub>1</sub> | —      | 45.2 |
| Paris           | 100.8    | 37  | —        | —                | —         | —                | e 38.8 | 46.8 |
| De Bilt         | 100.8    | 34  | e 15 5   | +51              | e 26 30   | +27              | e 38.8 | 51.0 |
| Uccle           | 101.0    | 35  | —        | —                | —         | —                | e 37.8 | —    |
| Copenhagen      | 102.3    | 27  | e 15 26  | +64              | e 25 50?  | -28              | 42.8   | 51.7 |
| Almeria         | 102.6    | 50  | —        | —                | —         | —                | 42.2   | 44.5 |
| Lund            | 102.7    | 27  | —        | —                | —         | —                | 42.8   | —    |
| Tortosa         | 103.1    | 45  | —        | —                | —         | —                | e 38.8 | 47.7 |
| Alicante        | 103.4    | 47  | —        | —                | —         | —                | e 43.6 | —    |
| Feldberg        | 103.5    | 34  | —        | —                | —         | —                | e 42.0 | 49.3 |
| Strasbourg      | 104.0    | 35  | e 14 50? | +20              | e 26 50?  | +17              | e 41.8 | —    |
| Pulkovo         | 106.1    | 19  | —        | —                | —         | —                | 46.8   | 55.5 |
| Irkutak         | 110.0    | 335 | —        | —                | —         | —                | 67.8   | —    |
| Kucino          | 111.6    | 15  | —        | —                | e 29 50   | ?PS              | e 38.7 | 54.5 |
| Ekaterinburg    | 114.1    | 3   | e 21 40  | ?                | e 32 9    | ?                | e 27.2 | 64.6 |
| Makeyevka       | 118.4    | 20  | —        | —                | (e 27 14) | ?E               | e 27.2 | 59.5 |
| Tashkent        | 129.6    | 355 | e 32 14  | ?PS              | e 40 50?  | ?SR <sub>1</sub> | e 59.8 | 71.5 |

Additional readings: Tucson LN = +21.2m. Lick eE = +33m.56s. St. Louis eE = +22m.0s. Chicago iN = +10m.12s. Charlottesville eN = +13m.30s., eLE = +18.6m., ME = +20.5m. Georgetown eZ = 2h.37m.15s. iZ = 2h.49m.53s. Scoresby Sund eE = +18m.26s., eLN = +28.6m., MN = +46.6m. Toledo MNV = +48.4m. De Bilt MN = +47.9m., MZ = +50.7m. Copenhagen MN = +51.1m.

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July 30d. Readings also at 0h. (near Batavia and Malabar), 2h. (St. Louis, Tucson, near Puebla, Vera Cruz, Tacubaya, and La Paz), 3h. (La Paz), 4h. (near Tashkent), 6h. (near Puebla, Tacubaya, Vera Cruz, and near Tucson), 7h. (Georgetown, Scoresby Sund, and near Tashkent), 9h. (La Paz and La Plata), 17h. (Tashkent, Florence, near Rocca di Papa and near Wellington), 18h. (Pompeii), 20h. (near Tananarive), 22h. (near La Paz).

July 31d. 0h. 48m. 30s. Epicentre 1°5S. 88°5E. (as on 1928 Feb. 7d.).

A = +.026, B = +.999, C = -.026; D = +1.000, E = -.026;  
G = -.001, H = -.026, K = -1.000.

|              | $\Delta$ | Az. | P.      | O-C.  | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|---------|-------|---------|------|--------|------|
|              | °        | °   | m. s.   | s.    | m. s.   | s.   | m.     | m.   |
| Colombo      | 12.0     | 314 | —       | —     | (5 30)  | +11  | 5.5    | 10.5 |
| Kodaikanal   | 16.1     | 317 | —       | —     | —       | —    | 3.2    | 5.3  |
| Batavia      | 18.9     | 105 | 4 24    | - 4   | i 7 36  | -24  | —      | —    |
| Bombay       | 25.5     | 324 | —       | —     | —       | —    | e 11.5 | —    |
| Phu-Lien     | 28.5     | 37  | e 6 30  | +17   | —       | —    | 14.5   | —    |
| Hong Kong    | 34.6     | 46  | —       | —     | —       | —    | —      | 21.5 |
| Tashkent     | 46.2     | 340 | 8 39    | - 2   | 15 28   | - 3  | e 24.5 | 26.0 |
| Baku         | 54.7     | 325 | —       | —     | —       | —    | 33.5   | —    |
| Irkutsk      | 55.4     | 11  | —       | —     | —       | —    | 30.5   | —    |
| Ekaterinburg | 62.5     | 344 | e 10 32 | + 3   | e 19 0  | + 5  | 21.5   | —    |
| Makeyevka    | 66.0     | 326 | —       | —     | e 19 48 | +11  | 37.8   | —    |
| Kucino       | 70.4     | 333 | —       | —     | —       | —    | e 37.7 | —    |
| Pulkovo      | 75.9     | 335 | —       | —     | —       | —    | e 45.5 | —    |
| Copenhagen   | 83.4     | 327 | —       | —     | —       | —    | 47.5   | —    |
| De Bilt      | 87.1     | 323 | —       | —     | —       | —    | e 56.5 | —    |
| La Paz       | 150.8    | 231 | 20 6    | [+ 9] | —       | —    | —      | —    |

Additional readings: Batavia iE = +5m.11s.  
IPR<sub>1</sub> = +10m.34s., eSR<sub>1</sub> = +18m.42s.

Tashkent i = +8m.45s.,

July 31d. 19h. 28m. 24s. Epicentre 40°0N. 143°5E. (as on 1928 July 12d.).

A = -.616, B = +.456, C = +.643; D = +.595, E = +.804;  
G = -.517, H = +.382, K = -.766.

|              | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|---------|------|---------|------|--------|------|
|              | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Mizusawa     | 2.0      | 245 | 0 38    | + 7  | 0 59    | + 4  | —      | —    |
| Nagoya       | 7.1      | 229 | e 1 45  | - 3  | (3 13)  | 0    | 3.2    | 3.5  |
| Kobe         | 8.5      | 233 | 2 9     | 0    | e 3 49  | - 1  | e 5.1  | 6.3  |
| Irkutsk      | 29.4     | 308 | e 6 16  | - 6  | e 11 13 | -11  | 18.6   | 18.9 |
| Hong Kong    | 30.4     | 243 | —       | —    | —       | —    | —      | 20.1 |
| Phu-Lien     | 36.8     | 250 | —       | —    | —       | —    | 16.6   | —    |
| Ekaterinburg | 53.8     | 319 | 9 33    | + 1  | e 17 9  | + 3  | 20.6   | 33.7 |
| Tashkent     | 54.5     | 298 | i 9 39  | + 3  | 17 22   | + 7  | —      | 35.3 |
| Kucino       | 65.5     | 324 | —       | —    | e 18 54 | -37  | 35.1   | 37.6 |
| Pulkovo      | 66.3     | 330 | e 10 53 | - 1  | e 19 53 | +12  | 36.1   | 42.1 |
| Baku         | 67.7     | 305 | —       | —    | —       | —    | 38.4   | 43.9 |
| Makeyevka    | 70.1     | 317 | —       | —    | —       | —    | 32.4   | 44.5 |
| Lund         | 75.4     | 334 | —       | —    | —       | —    | 43.6   | —    |
| Copenhagen   | 75.7     | 334 | —       | —    | —       | —    | 37.6   | 48.8 |
| De Bilt      | 81.1     | 335 | —       | —    | —       | —    | e 43.6 | 52.8 |
| Uccle        | 82.5     | 335 | —       | —    | —       | —    | e 43.6 | —    |
| Strasbourg   | 83.2     | 332 | —       | —    | —       | —    | e 47.6 | —    |
| Kew          | 83.2     | 339 | —       | —    | —       | —    | e 47.6 | —    |
| Paris        | 84.8     | 335 | —       | —    | —       | —    | e 52.6 | —    |
| Tortosa      | N. 92.4  | 334 | —       | —    | —       | —    | e 53.6 | 62.8 |
| Granada      | 97.1     | 334 | —       | —    | —       | —    | e 57.6 | 61.4 |

Additional readings: Mizusawa SN = +57s.  
Kucino e = +23m.42s.

Phu-Lien L = +21.6m.

July 31d. Readings also at 0h. (Baku, Copenhagen, Ekaterinburg, Ksara (2), Kucino, Pulkovo, Tashkent, and near Matuyama), 3h. (Ekaterinburg, Tashkent, and near Irkutsk), 4h. (Copenhagen and Pulkovo), 6h. (La Paz), 7h. and 8h. (Kingston), 9h. and 10h. (near Mizusawa), 12h. (Baku, Copenhagen, Ekaterinburg, Irkutsk, Kucino, Makeyevka, Pulkovo, and Tashkent), 18h. (near Belgrade, Rocca di Papa, and Zagreb).



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Aug. 1d. 2h. 53m. 44s. Epicentre 43°·5N. 143°·0E. (as on 1927 July 11d.).

A = -·579, B = +·437, C = +·688; D = +·602, E = +·799;  
G = -·550, H = +·414, K = -·725.

|              |    | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----|----------|-----|--------|------|---------|------|--------|------|
|              |    | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Mizusawa     | E. | 4·6      | 198 | 1 17   | + 6  | 2 6     | 0    | —      | —    |
| Nagoya       |    | 9·5      | 211 | e 2 29 | + 6  | —       | —    | —      | —    |
| Irkutsk      |    | 27·0     | 302 | e 5 57 | - 1  | 10 39   | - 2  | 17·3   | —    |
| Ekaterinburg |    | 51·0     | 316 | i 9 12 | - 1  | i 16 30 | - 1  | 20·3   | —    |
| Tashkent     |    | 52·6     | 296 | i 9 26 | + 2  | e 17 0  | + 9  | e 29·3 | 33·5 |
| Kucino       |    | 62·4     | 323 | —      | —    | —       | —    | e 36·0 | —    |
| Pulkovo      |    | 63·0     | 329 | 10 33  | + 1  | —       | —    | 37·3   | 41·4 |
| Makeyevka    |    | 67·3     | 316 | —      | —    | e 20 52 | +58  | 37·8   | 44·5 |
| Copenhagen   |    | 72·4     | 335 | —      | —    | —       | —    | 38·3   | —    |
| Granada      |    | 93·8     | 335 | —      | —    | —       | —    | e 55·3 | 58·8 |

Additional readings: Mizusawa SN = +2m.7s. Irkutsk e = +13m.29s.

Aug. 1d. 16h. 53m. 0s. (I)  
19h. 3m. 22s. (II)  
19h. 46m. 18s. (III)  
20h. 28m. 7s. (IV)  
20h. 35m. 3s. (V)  
20h. 45m. 49s. (VI)  
21h. 0m. 29s. (VII)  
21h. 34m. 59s. (VIII)  
21h. 51m. 4s. (IX)

Epicentre 62°·7N. 22°·0W.

A = +·425, B = -·172, C = +·889; D = -·375, E = -·927;  
G = +·824, H = -·333, K = -·459.

|      |               | $\Delta$ | Az. | P.      | O-C. | S.     | O-C. | L.     | M.   |
|------|---------------|----------|-----|---------|------|--------|------|--------|------|
|      |               | °        | °   | m. s.   | s.   | m. s.  | s.   | m.     | m.   |
| I    | Reykjavik     | 1·5      | 1   | 0 23    | 0    | 0 41   | - 1  | i 0·8  | 1·5  |
| II   |               | 1·5      | 1   | e 0 23  | 0    | 0 45   | + 3  | —      | 1·6  |
| III  |               | 1·5      | 1   | 0 23    | 0    | 0 41   | - 1  | —      | 1·6  |
| IV   |               | 1·5      | 1   | 0 23    | 0    | 0 44   | + 2  | —      | 1·6  |
| V    |               | 1·5      | 1   | 0 23    | 0    | 0 42   | + 0  | —      | 1·2  |
| VI   |               | 1·5      | 1   | 0 23    | 0    | 0 45   | + 3  | —      | 1·6  |
| VII  |               | 1·5      | 1   | —       | —    | 0 43   | + 1  | —      | 1·4  |
| VIII |               | 1·5      | 1   | —       | —    | 0 43   | + 1  | —      | 1·4  |
| IX   |               | 1·5      | 1   | —       | —    | 0 43   | + 1  | —      | 1·2  |
| II   | Scoresby Sund | 7·8      | 0   | —       | —    | —      | —    | 2·6    | —    |
| III  |               | 7·8      | 0   | —       | —    | —      | —    | 3·7    | 6·6  |
| IV   |               | 7·8      | 0   | —       | —    | —      | —    | 3·4    | 6·6  |
| V    |               | 7·8      | 0   | —       | —    | —      | —    | 3·7    | 6·7  |
| III  | Edinburgh     | 11·7     | 117 | —       | —    | —      | —    | e 6·7  | —    |
| IV   |               | 11·7     | 117 | —       | —    | —      | —    | e 6·9  | —    |
| II   | Kew           | 16·1     | 124 | —       | —    | —      | —    | e 9·3  | —    |
| III  |               | 16·1     | 124 | —       | —    | —      | —    | 8·7    | —    |
| IV   |               | 16·1     | 124 | e 3 53? | 0    | —      | —    | —      | —    |
| I    | De Bilt       | 17·9     | 114 | —       | —    | —      | —    | e 10·0 | —    |
| II   |               | 17·9     | 114 | —       | —    | —      | —    | e 10·6 | —    |
| III  |               | 17·9     | 114 | 4 12    | - 4  | —      | —    | e 9·7  | —    |
| IV   |               | 17·9     | 114 | e 4 12  | - 4  | —      | —    | e 9·9  | —    |
| VI   |               | 17·9     | 114 | 4 15    | - 1  | —      | —    | e 9·2  | —    |
| III  | Uccle         | 18·5     | 117 | —       | —    | —      | —    | e 8·7  | —    |
| IV   |               | 18·5     | 117 | —       | —    | —      | —    | e 9·9  | —    |
| VI   |               | 18·5     | 117 | —       | —    | —      | —    | e 9·2  | —    |
| I    | Copenhagen    | 18·7     | 96  | —       | —    | e 8 26 | +31  | 13·0   | —    |
| II   |               | 18·7     | 96  | —       | —    | —      | —    | —      | 12·6 |
| III  |               | 18·7     | 96  | 4 24    | - 1  | 8 16   | +21  | 9·7    | 13·2 |
| IV   |               | 18·7     | 96  | 4 22    | - 3  | 8 15   | +20  | 9·9    | 13·1 |
| VI   |               | 18·7     | 96  | 4 27    | + 2  | 8 22   | +27  | 10·2   | 13·5 |
| I    | Paris         | 19·4     | 124 | —       | —    | —      | —    | e 11·0 | —    |
| III  |               | 19·4     | 124 | —       | —    | —      | —    | e 10·7 | —    |
| VI   |               | 19·4     | 124 | —       | —    | —      | —    | e 10·2 | —    |
| III  | Strasbourg    | 21·6     | 117 | e 4 54  | - 6  | —      | —    | e 13·7 | —    |
| IV   |               | 21·6     | 117 | —       | —    | —      | —    | e 12·9 | —    |

Continued on next page.

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|                   | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|-------------------|----------|-----|--------|------|---------|------|--------|------|
|                   | e        | o   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| I Pulkovo         | 24.6     | 73  | —      | —    | —       | —    | e 14.0 | —    |
| III               | 24.6     | 73  | —      | —    | —       | —    | 12.7   | —    |
| IV                | 24.6     | 73  | —      | —    | —       | —    | 11.9   | —    |
| VI                | 24.6     | 73  | —      | —    | —       | —    | 14.2   | —    |
| III Tortosa N.    | 25.7     | 138 | —      | —    | —       | —    | e 15.7 | 16.3 |
| VI N.             | 25.7     | 138 | —      | —    | —       | —    | e 15.2 | 16.6 |
| III Granada       | 27.9     | 147 | —      | —    | —       | —    | e 14.2 | 16.3 |
| IV                | 27.9     | 147 | —      | —    | —       | —    | 14.2   | 16.3 |
| VI                | 27.9     | 147 | e 6 38 | +31  | e 9 41  | -76  | —      | 17.0 |
| III Rocca di Papa | 29.2     | 119 | —      | —    | —       | —    | e 21.6 | 39.1 |
| III Kucino        | 30.3     | 77  | —      | —    | —       | —    | e 16.6 | —    |
| IV                | 30.3     | 77  | —      | —    | —       | —    | e 16.7 | —    |
| VI                | 30.3     | 77  | —      | —    | —       | —    | e 16.8 | —    |
| III Makeyevka     | 35.5     | 86  | —      | —    | e 12 48 | -15  | 19.5   | 22.8 |
| IV                | 35.5     | 86  | —      | —    | —       | —    | 18.9   | 23.3 |
| VI                | 35.5     | 86  | —      | —    | —       | —    | 16.2   | 22.3 |
| III Ekaterinburg  | 39.1     | 61  | —      | —    | —       | —    | 10.7   | —    |
| IV                | 39.1     | 61  | —      | —    | —       | —    | 14.9   | —    |
| I Tashkent        | 54.7     | 68  | —      | —    | —       | —    | e 28.2 | 30.1 |
| III               | 54.7     | 68  | —      | —    | —       | —    | e 27.9 | 30.2 |
| IV                | 54.7     | 68  | —      | —    | —       | —    | e 28.1 | 29.5 |

Additional readings: Reykjavik I e? = +19s., MN = +1.4m., II MN = +1.5m., III MN = +1.4m., IV MN = +1.5m., V MN = +1.4m., VI MN = +1.5m., VII MN = +1.5m., IX MN = +1.4m. Scoresby Sund III MN = +6.7m., IV MN = +6.8m., VI MN = +6.9m. Rocca di Papa III e = 19h.46m.40s.

Aug. 1d. Readings also at 0h. (Victoria), 1h. (Toronto, Ottawa, and Georgetown), 8h. and 9h. (Georgetown), 12h. (Makeyevka, Pulkovo, Sebastopol (4), near Simferopol (4), Theodosia (4), and Yalta (5)), 15h. (Sebastopol, Simferopol, and near Yalta), 18h. (near Bagnères), 19h. (Zi-ka-wel), 21h. (near Entebbe), 23h. (Mizusawa).

Aug. 2d. 1h. 31m. 14s. Epicentre 36° 5N. 65° 5E. (as on 1928 Feb. 25d.).

A = +.333, B = +.731, C = +.595; D = +.910, E = -.415;  
G = +.247, H = +.541, K = -.804.

|              | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.   | M.   |
|--------------|----------|-----|--------|------|---------|------|------|------|
|              | e        | o   | m. s.  | s.   | m. s.   | s.   | m.   | m.   |
| Tashkent     | 5.6      | 30  | i 1 30 | + 3  | i 2 23  | -11  | —    | 2.5  |
| Ekaterinburg | 20.6     | 353 | e 4 48 | 0    | e 8 39  | + 3  | —    | —    |
| Makeyevka    | 23.2     | 309 | e 6 46 | +87  | —       | —    | 10.9 | 11.3 |
| Kucino       | 26.8     | 325 | —      | —    | e 10 34 | - 3  | 10.9 | 11.3 |
| Irkutsk      | 31.3     | 48  | e 9 46 | ?    | —       | —    | —    | —    |
| Pulkovo      | 32.3     | 329 | 6 50   | - 1  | —       | —    | 13.8 | —    |

Kucino gives also e = +11m.58s. = 3R<sub>1</sub> + 12s.

Aug. 2d. 8h. 42m. 15s. Epicentre 46° 5N. 13° 0E. (as on 1928 May 15d.).

A = +.671, B = +.155, C = +.725; D = +.225, E = -.974;  
G = +.707, H = +.163, K = -.688.

|              | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.    | M.  |
|--------------|----------|-----|--------|------|--------|------|-------|-----|
|              | e        | o   | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Venice       | 1.1      | 204 | e 0 19 | + 2  | 0 30   | - 1  | —     | 2.4 |
| Zagreb       | 2.2      | 108 | 0 33   | - 1  | 0 54   | - 6  | e 1.0 | —   |
| Chur         | 2.4      | 278 | e 0 35 | - 2  | 1 1 8  | + 2  | —     | —   |
| Zurich       | 3.2      | 288 | 1 0 44 | - 6  | 1 1 35 | + 7  | —     | —   |
| Neuchatel N. | 4.1      | 278 | e 0 58 | - 6  | 1 47   | - 6  | —     | —   |
| Strasbourg   | 4.1      | 302 | —      | —    | 2 15   | +22  | —     | —   |
| Jena E.      | 4.5      | 348 | —      | —    | e 1 57 | - 7  | i 2.3 | 2.5 |
| Besançon     | 4.9      | 280 | 1 45?  | +29  | —      | —    | —     | —   |
| Toledo N.W.  | 14.0     | 248 | —      | —    | e 5 41 | -27  | —     | —   |

Additional readings: Zagreb iNW = +1m.8s. Zurich iP = +52s. = P + 2s.  
Neuchatel eP = +1m.12s. = P + 8s. Strasbourg PR<sub>1</sub> = +1m.45s., S = +2m.23s. Jena iE = +2m.21s.

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Aug. 2d. Readings also at 0h. (Sebastopol, Simferopol, and Yalta), 1h. (La Paz), 2h. (Mizusawa, Zi-ka-wei, and near Nagoya), 3h. (near Mizusawa), 4h. (Makeyevka, Pulkovo, and Granada), 5h. (Ekaterinburg, Tashkent, and near Ksara (2)), 6h. (Copenhagen, Ekaterinburg, Irkutsk, Tashkent, Granada, Scoresby Sund, Georgetown, Ottawa, Toronto, Florissant, and Victoria), 7h. (Apia, Makeyevka, Pulkovo, Tashkent (2), Edinburgh, Kew, De Bilt, Strasbourg, Rocca di Papa, Almeria, Granada, and Chicago), 8h. (Ekaterinburg, Irkutsk, Tashkent, and near Manila), 13h. (Taihoku and Barcelona), 17h. (Bagnères and near Tortosa), 19h. (Ekaterinburg, Irkutsk, Pulkovo, and Tashkent), 21h. (near Tacubaya), 22h. (Suva).

Aug. 3d. 7h. 2m. 54s. Epicentre 2°-0S. 14°-0W.

(as on 1921 Dec. 18d., but see 1928 Aug. 3d. 11h.).

A = +.970, B = -.242, C = -.035; D = -.242, E = -.970;  
G = -.034, H = +.008, K = -.999.

|               | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|--------|------|---------|------|--------|------|
|               | °        |     | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Algiers       | 41.9     | 22  | —      | —    | —       | —    | e 17.1 | 23.1 |
| Rocca di Papa | 50.0     | 27  | —      | —    | e 16 18 | - 1  | e 26.3 | 29.3 |
| Paris         | 52.8     | 13  | —      | —    | —       | —    | e 25.1 | 29.1 |
| Sucre         | 52.9     | 248 | e 9 7  | -18  | —       | —    | —      | —    |
| Strasbourg    | 54.0     | 19  | —      | —    | e 17 8  | - 1  | e 27.1 | —    |
| Kew           | 54.7     | 10  | —      | —    | e 17 22 | + 5  | e 27.1 | —    |
| Uccle         | 55.1     | 14  | —      | —    | —       | —    | e 22.1 | —    |
| La Paz        | 55.2     | 252 | e 9 35 | - 5  | —       | —    | e 25.1 | 28.5 |
| De Bilt       | 56.5     | 14  | —      | —    | e 17 45 | + 5  | e 27.1 | —    |
| Copenhagen    | 61.6     | 17  | —      | —    | e 18 47 | + 4  | e 27.1 | 36.9 |
| Pulkovo       | 70.7     | 22  | —      | —    | —       | —    | 38.1   | —    |
| Scoresby Sund | 72.7     | 357 | —      | —    | —       | —    | 29.1   | —    |
| Ekaterinburg  | 83.4     | 33  | —      | —    | e 23 47 | +46  | 29.1   | —    |
| Tashkent      | 86.3     | 49  | —      | —    | e 23 18 | -15  | e 43.1 | 55.8 |

No additional readings.

Aug. 3d. 11h. 44m. 39s. Epicentre 2°-0S. 14°-0W.

(as at 7h.).

A = +.970, B = -.242, C = -.035; D = -.242, E = -.970;  
G = -.034, H = +.008, K = -.999.

|                   | $\Delta$ | Az. | P.                | O-C. | S.      | O-C. | L.     | M.   |
|-------------------|----------|-----|-------------------|------|---------|------|--------|------|
|                   | °        |     | m. s.             | s.   | m. s.   | s.   | m.     | m.   |
| Rio de Janeiro E. | 35.1     | 231 | e 6 50            | -24  | —       | —    | 14.8   | 20.4 |
| N.                | 35.1     | 231 | e 6 54            | -20  | —       | —    | 14.7   | 19.2 |
| San Fernando      | 39.1     | 10  | 7 45              | - 2  | 14 0    | + 7  | —      | 22.2 |
| Malaga            | 39.8     | 12  | 7 30              | -23  | 13 50   | -13  | 17.8   | —    |
| Granada           | 40.4     | 12  | 1 7 45            | -13  | 1 13 54 | -19  | 20.0   | 22.0 |
| Almeria           | 40.4     | 14  | 1 7 45            | -13  | 13 54   | -19  | 19.7   | 21.8 |
| Algiers           | 41.9     | 22  | 7 59              | -11  | 14 16   | -18  | 17.4   | 23.4 |
| Alicante          | 42.2     | 15  | e 8 19            | + 7  | e 14 27 | -11  | e 18.9 | 29.4 |
| Toledo N.E.       | 42.9     | 11  | e 8 4             | -13  | e 14 20 | -27  | e 17.4 | 23.7 |
| Cape Town         | 44.0     | 140 | —                 | —    | i 15 7  | + 5  | —      | —    |
| Tortosa N.        | 44.8     | 16  | 8 24              | - 8  | i 15 0  | -12  | e 20.4 | 28.2 |
| Entebbe           | 46.5     | 88  | —                 | —    | —       | —    | —      | 25.4 |
| Rocca di Papa     | 50.0     | 27  | 9 6               | - 1  | 16 21   | + 2  | 26.1   | 31.6 |
| Mompeli           | 50.1     | 29  | e 9 15            | + 7  | e 16 21 | + 1  | 27.4   | 32.4 |
| Moncalieri E.     | 50.8     | 20  | 9 8               | - 4  | 16 28   | - 1  | 24.6   | 28.0 |
|                   | 50.8     | 20  | e 9 10            | - 2  | 16 28   | - 1  | 26.9   | —    |
| Florence          | 51.5     | 24  | —                 | —    | —       | —    | —      | 28.4 |
| Besançon          | 52.3     | 18  | —                 | —    | —       | —    | e 27.4 | —    |
| Neuchâtel         | 52.4     | 20  | e 9 18            | - 4  | e 16 42 | - 7  | —      | —    |
| Paris             | 52.8     | 13  | 1 9 25            | 0    | e 16 51 | - 3  | 26.4   | 26.4 |
| Venice            | 52.9     | 25  | 9 21 <sup>?</sup> | - 4  | —       | —    | —      | —    |
| Sucre             | 52.9     | 248 | 9 23              | - 2  | i 16 48 | - 7  | 23.4   | 27.2 |
| Chur              | 53.0     | 20  | e 9 27            | + 1  | —       | —    | —      | —    |
| Zurich            | 53.2     | 20  | e 9 22            | - 5  | —       | —    | —      | —    |

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|                | $\Delta$ | Az. | P.      | O-C.             | S.       | O-C.             | L.     | M.   |
|----------------|----------|-----|---------|------------------|----------|------------------|--------|------|
|                | °        | °   | m. s.   | s.               | m. s.    | s.               | m.     | m.   |
| Ravensburg     | 53.9     | 20  | e 9 35  | + 3              | e 17 6   | - 2              | e 27.4 | 31.7 |
| Strasbourg     | 54.0     | 19  | i 9 33  | 0                | 17 7     | - 2              | e 27.4 | 32.1 |
| Innsbruck N.E. | 54.1     | 21  | e 9 27  | - 7              | —        | —                | —      | —    |
| Zagreb         | 54.7     | 26  | e 9 30  | - 7              | e 17 16  | - 1              | e 26.8 | 30.2 |
| Kew            | 54.7     | 10  | e 9 37  | —                | 0 17 18  | + 1              | 26.6   | 29.8 |
| Oxford N.      | 54.9     | 10  | i 9 40  | + 2              | i 17 12  | - 8              | e 23.4 | 36.4 |
| Uccle          | 55.1     | 14  | e 9 38  | - 2              | e 17 19  | - 3              | e 23.4 | 31.0 |
| La Paz         | 55.2     | 252 | i 9 35  | - 5              | i 17 28  | + 4              | 25.4   | 31.6 |
| Graz           | 55.5     | 25  | i 9 46  | + 3              | (17 21?) | - 7              | 17.4   | 30.6 |
| Feldberg N.    | 55.6     | 18  | i 10 0  | + 17             | e 17 45  | + 16             | —      | 34.4 |
| De Bilt        | 56.5     | 14  | i 9 52  | + 3              | 17 42    | + 2              | e 24.4 | 31.9 |
| Stonyhurst     | 56.7     | 9   | —       | —                | e 17 9   | - 33             | 29.4   | —    |
| Vienna         | 56.8     | 24  | 9 44    | - 7              | 17 44    | 0                | —      | 31.8 |
| Budapest       | 57.3     | 27  | e 10 1  | + 7              | —        | —                | e 30.7 | 35.8 |
| Edinburgh      | 58.6     | 8   | e 8 51  | - 72             | —        | —                | 28.4   | —    |
| Potsdam        | 59.0     | 20  | e 10 15 | + 10             | —        | —                | e 26.4 | 33.6 |
| Hamburg        | 59.1     | 16  | e 10 9  | + 3              | e 18 20  | + 8              | e 30.4 | 35.4 |
| Dyce           | 60.0     | 8   | i 10 18 | + 6              | 18 18    | - 5              | 30.4   | —    |
| Copenhagen     | 61.6     | 17  | e 10 25 | + 2              | 18 48    | + 5              | 28.4   | 32.6 |
| Lund           | 61.8     | 17  | 10 28   | + 4              | 18 57    | + 11             | —      | —    |
| Konigsberg     | 63.5     | 22  | e 9 33  | - 62             | e 19 44  | ?PS              | e 36.4 | 40.4 |
| Upsala E.      | 66.6     | 17  | —       | —                | e 19 43  | - 2              | —      | —    |
| Makeyevka      | 67.3     | 35  | i 11 7  | + 7              | 20 7     | + 13             | 31.8   | 40.0 |
| Georgetown Z.  | 70.7     | 314 | 11 23   | + 2              | 18 47    | - 107            | e 28.7 | 38.0 |
| Pulkovo        | 70.7     | 22  | 11 26   | + 5              | 20 37    | + 3              | 30.4   | 41.8 |
| Kucino         | 71.5     | 28  | 11 9    | - 18             | 20 25    | - 19             | 35.8   | 40.8 |
| Ottawa         | 72.1     | 320 | —       | —                | e 20 45  | 6                | 38.4   | —    |
| Toronto        | 73.9     | 317 | —       | —                | e 25 54  | ?SR <sub>1</sub> | e 34.4 | —    |
| Chicago E.     | 79.2     | 314 | —       | —                | 21 41    | - 33             | e 36.4 | —    |
| Florissant N.  | 80.7     | 310 | —       | —                | i 24 21? | ?                | 42.4   | 47.4 |
| Ekaterinburg   | 83.4     | 33  | 12 38   | 0                | —        | —                | e 26.4 | 52.0 |
| Tashkent       | 86.3     | 49  | 12 48   | - 7              | 23 22    | - 11             | e 41.4 | 55.8 |
| Victoria E.    | 104.2    | 320 | —       | —                | —        | —                | 47.6   | 55.0 |
| Zi-ka-wei Z.   | 128.8    | 50  | e 21 24 | ?PR <sub>1</sub> | e 34 18  | ?                | 76.9   | 82.5 |

Additional readings: San Fernando MN = +21.4m. Granada PR<sub>1</sub> = +10m.15s. = PR<sub>1</sub> + 11s. Almeria PR<sub>1</sub> = +9m.10s., MZ = +24.9m. Algiers PR<sub>1</sub> = +9m.40s., MN = +25.4m. Toledo eNE = +9m.44s. = PR<sub>1</sub> - 13s., MNW = +25.4m. Tortosa ME = +28.0m. Rocca di Papa eN = +9m.0s., iP = +9m.10s. Florence e = 11h.42m.15s. Zagreb eNE = +9m.41s. Oxford eN = +12m.32s. = PR<sub>1</sub> + 27s. Uccle eSR<sub>1</sub> = +21m.11s., MN = +32.5m. La Paz MN = +28.0m. Graz eS = +11m.48s. = PR<sub>1</sub> - 23s. De Bilt MN = +30.0m., MZ = +34.0m. Stonyhurst eSR<sub>1</sub> = +23m.24s. Dyce e = +13m.56s. Copenhagen PR<sub>1</sub> = +14m.10s., SR<sub>1</sub> = +25m.21s.? MNZ = +30.0m. Konigsberg eP<sub>1</sub>e = +10m.39s. = P + 4s., e?N = +11m.32s., ePR<sub>1</sub>e = +11m.46s., eSE = +29m.30s., MN = +38.4m. Ottawa eN = +24m.57s., eL = +29.4m. Ekaterinburg PR<sub>1</sub> = +15m.54s., PS = +23m.46s. Tashkent eSR<sub>1</sub> = +28m.57s., S is given as S<sub>0</sub>P<sub>0</sub>S.

Aug. 3d. 23h. 10m. 24s. Epicentre 44° 0'N. 10° 0'E.

A = +.708, B = +.125, C = +.695; D = +.174, E = -.985;  
G = +.684, H = +.121, K = -.719.

|               | $\Delta$ | Az. | P.      | O-C. | S.     | O-C. | M.  |
|---------------|----------|-----|---------|------|--------|------|-----|
|               | °        | °   | m. s.   | s.   | m. s.  | s.   | m.  |
| Florence      | 0.9      | 104 | e 0 14  | 0    | —      | —    | 0.6 |
| Moncalieri Z. | 1.9      | 302 | e 0 29  | 0    | 1 5    | + 12 | —   |
| Venice        | 2.2      | 49  | 0 54    | + 20 | —      | —    | —   |
| Chur          | 2.9      | 353 | e 0 48  | + 3  | i 1 25 | + 5  | —   |
| Rocca di Papa | 3.0      | 139 | 0 49    | + 2  | —      | —    | 2.2 |
| Zurich        | 3.5      | 344 | e 0 55  | 0    | e 1 38 | + 1  | —   |
| Neuchatel     | 3.7      | 326 | i 0 58  | 0    | e 1 37 | - 5  | —   |
| Strasbourg    | 4.8      | 342 | e 1 36? | + 22 | —      | —    | —   |

Rocca di Papa eE = 23h.9m.17s., eN = 23h.9m.36s.

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Aug. 3d. Readings also at 0h. (near Tacubaya), 1h. (La Paz), 2h. (Yalta), 4h. (Phu-Lien), 5h. (Copenhagen, De Bilt, Irkutsk, Kucino, Makeyevka, Pulkovo, Tashkent, Zi-ka-wel, and near Tacubaya), 7h. (Nagoya and near Mizusawa), 8h. (Copenhagen, Pulkovo, Tashkent, and near Batavia), 9h. (near Port au Prince), 10h. (near Tacubaya), 13h. (Wellington and near Mizusawa), 14h. (La Paz), 16h. (near Tacubaya (2)), 18h. (Batavia, Manila, and near Mizusawa), 19h. (near Tacubaya), 21h. (Batavia, Manila, Florissant, Sucre, and La Paz), 23h. (Paris).

Aug. 4d. 4h. 20m. 25s. Epicentre 44°·6N. 9°·5E. (as on 1928 July 20d.).

A = +·702, B = +·118, C = +·702; D = +·165, E = -·986;  
G = +·692, H = +·116, K = -·712.

|               | $\Delta$ | Az. | P.      | O-C.  | S.       | O-C.   | L.      | M.  |
|---------------|----------|-----|---------|-------|----------|--------|---------|-----|
|               | °        | °   | m. s.   | s.    | m. s.    | s.     | m.      | m.  |
| Piacenza      | 0·5      | 15  | 0 5     | - 3   | —        | —      | —       | —   |
| Moncalieri    | 1·3      | 287 | 0 15    | - 5   | 0 43     | + 7    | —       | 2·6 |
|               | z.       | 1·3 | 287     | 0 20  | 0 44     | + 8    | —       | —   |
| Florence      | 1·5      | 123 | e 0 15  | - 8   | 0 37     | - 5    | —       | 0·8 |
| Venice        | 2·2      | 68  | e 0 50  | +16   | 1 14     | +14    | —       | 4·0 |
| Chur          | 2·2      | 1   | e 0 34  | 0     | 1 1 2    | + 2    | —       | —   |
| Zurich        | 2·8      | 347 | 1 0 42  | - 2   | 1 1 31   | +14    | —       | —   |
| Neuchatel     | 3·0      | 324 | e 0 44  | - 3   | e 1 50   | +27    | —       | —   |
| Innsbruck     | 3·0      | 25  | e 0 41  | - 6   | 1 1 29   | + 8    | —       | —   |
| Ravensburg    | 3·2      | 359 | e 0 51  | + 1   | 1 46     | +18    | —       | 1·8 |
| Besançon      | 3·6      | 319 | e 0 44  | -12   | 1 1 36   | - 3    | —       | —   |
| Rocca di Papa | 3·7      | 139 | 0 59    | + 1   | 1 2 0    | +15    | —       | 3·0 |
|               | E.       | 3·7 | 139     | 1 0   | + 2      | 1 1 57 | +15     | —   |
|               | N.       | 4·2 | 0       | e 1 7 | + 2      | e 2 3  | + 8     | 2·6 |
| Hohenheim     | 4·2      | 344 | e 1 15  | +10   | 1 1 51   | - 4    | i 2·3   | —   |
| Strasbourg    | 4·7      | 73  | 1 22    | + 9   | 1 43     | -26    | i 2·0   | —   |
| Zagreb        | 6·0      | 50  | e 2 26  | ?S    | (e 2 26) | -18    | (3·1)   | 4·6 |
| Vienna        | 6·4      | 12  | e 2 5   | +27   | e 2 57   | + 2    | e 3·4   | 3·9 |
| Jena          | 6·4      | 314 | e 2 44  | ?S    | (e 2 44) | -11    | (e 3·6) | 4·1 |
| Paris         | 7·1      | 332 | e 2 35? | +47   | —        | —      | —       | —   |
| Uccle         | 8·0      | 340 | —       | —     | e 3 35?  | - 2    | —       | —   |
| De Bilt       | 9·0      | 2   | —       | —     | e 4 23   | +20    | —       | —   |
| Hamburg       | 9·5      | 320 | —       | —     | e 4 29   | +13    | e 6·8   | —   |
| Kew           | 11·3     | 8   | —       | —     | —        | —      | 5·6     | —   |
| Copenhagen    | 11·3     | 11  | —       | —     | —        | —      | 6·3     | —   |
| Lund          | —        | —   | —       | —     | —        | —      | —       | —   |

Additional readings and notes: Chur IP\* = +36s. Zurich IP = +50s.  
Neuchatel eP = +57s. Innsbruck ? = +1m.19s., iS\*NE = +1m.36s.  
Ravensburg PR<sub>1</sub> = +1m.3s., PR<sub>2</sub> = +1m.14s. Rocca di Papa eP = +49s.  
Zagreb iNW = +2m.5s., iL is given as iNW also. Hohenheim PR<sub>1</sub> = +1m.20s., PR<sub>2</sub> = +1m.35s., S = +2m.17s., the reading entered as S is given simply as e. Strasbourg e = +1m.34s. Vienna and Paris give S as P and L as S.

Aug. 4d. 18h. 26m. 6s. Epicentre 16°·2N. 97°·2W.

(as on 1928 July 22d.).

A = -·120, B = -·953, C = +·279; D = -·992, E = +·125;  
G = -·035, H = -·277, K = -·960.

De Bilt gives epicentre 16°22'N. 97°48'W. but the evidence of the readings does not indicate any appreciable variation from this old position given by De Bilt for 1928 June 17d. and subsequent shocks.

|            | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.    | M.    |
|------------|----------|-----|--------|------|--------|------|-------|-------|
|            | °        | °   | m. s.  | s.   | m. s.  | s.   | m.    | m.    |
| Puebla     | 3·0      | 341 | (1 24) | +37  | —      | —    | (2·0) | —     |
| Vera Cruz  | 3·2      | 18  | (0 32) | -18  | (1 16) | -12  | (1·3) | (1·9) |
| Tacubaya   | 3·8      | 330 | 1 8    | + 9  | (1 50) | + 6  | 1·8   | 2·1   |
| Manzanillo | 7·4      | 293 | 2 24   | +32  | —      | —    | 3·9   | 4·4   |
| Merida     | 8·6      | 55  | (1 57) | -13  | (3 45) | - 8  | —     | (4·3) |
| Mazatlan   | 11·2     | 310 | (2 20) | -27  | (4 26) | -33  | (4·6) | (5·2) |
| Chihuahua  | 14·9     | 328 | 3 15   | -23  | 6 0    | -30  | 6·2   | 8·1   |

Continued on next page.

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|                 |      | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|-----------------|------|----------|-----|---------|------|---------|------|--------|------|
|                 |      | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Balboa Heights  | E.   | 18.6     | 111 | 4 42    | +18  | 8 30    | +37  | 8.5    | 8.7  |
|                 | N.   | 18.6     | 111 | 4 51    | +27  | 8 18    | +25  | 8.3    | 8.8  |
| Tucson          | E.   | 20.3     | 325 | 14 45   | 0    | 18 32   | +3   | i 10.5 | 10.9 |
|                 | N.   | 20.3     | 325 | 14 47   | +2   | 8 34    | +5   | i 10.7 | 11.4 |
| Port au Prince  |      | 23.8     | 81  | 15 33   | +7   | 19 27   | -13  | e 12.2 | 16.6 |
| Denver          |      | 24.5     | 345 | 5 24    | -9   | 19 35   | -19  | 11.9   | 12.9 |
| Chicago         | E.   | 26.9     | 16  | 15 18   | -39  | 19 59   | -40  | 13.9   | 18.7 |
|                 | N.   | 26.9     | 16  | 15 18   | -39  | 9 46    | -53  | 13.6   | 17.4 |
| Charlottesville | E.   | 27.3     | 34  | 16 2    | +1   | i 10 38 | -8   | 13.6   | —    |
|                 | N.   | 27.3     | 34  | 15 59   | -2   | i 10 40 | -6   | 12.9   | —    |
| Ann Arbor       |      | 28.5     | 21  | 16 18   | +5   | i 11 30 | +22  | e 15.1 | 22.9 |
| Georgetown      |      | 28.7     | 34  | 6 11    | -4   | 11 17   | +5   | e 13.3 | 19.5 |
| San Juan        |      | 29.7     | 81  | 6 27    | +2   | 11 2    | -27  | 14.4   | 19.5 |
| Lick            | E.   | 30.2     | 320 | e 6 18  | -12  | e 11 28 | -9   | e 14.2 | 15.2 |
| Berkeley        |      | 31.0     | 320 | 5 54?   | -44  | —       | —    | —      | —    |
| Toronto         | E.   | 31.3     | 26  | 16 28   | -13  | 11 52   | -4   | —      | 22.6 |
|                 | N.   | 31.3     | 26  | i 6 30  | -11  | i 11 48 | -8   | 15.4   | 24.5 |
| Ithaca          |      | 31.6     | 30  | 7 2     | +19  | 12 16   | +15  | —      | 27.8 |
| Harvard         |      | 34.2     | 36  | 16 58   | -9   | i 12 30 | -13  | e 16.2 | 23.7 |
| Ottawa          | E.   | 34.3     | 28  | i 6 58  | -9   | i 12 33 | -11  | e 16.5 | 21.9 |
|                 | N.   | 34.3     | 28  | i 6 58  | -9   | i 12 39 | -5   | e 16.5 | 24.7 |
| Spokane         |      | 35.6     | 337 | —       | —    | —       | —    | —      | 19.5 |
| Saskatoon       |      | 36.7     | 350 | 17 13   | -15  | i 12 59 | -21  | e 16.9 | 22.9 |
| Victoria        | E.   | 38.7     | 333 | 7 31    | -13  | 13 29   | -19  | 19.8   | 23.8 |
|                 | N.   | 38.7     | 333 | 7 31    | -13  | 13 31   | -17  | 18.7   | 20.5 |
| La Paz          | E.   | 43.5     | 139 | i 8 28  | +6   | i 14 52 | -3   | i 22.9 | 25.5 |
|                 | N.   | 43.5     | 139 | i 8 27  | +5   | i 14 55 | 0    | 21.2   | 25.0 |
| Sucre           |      | 47.2     | 139 | i 8 50  | +2   | i 15 44 | 0    | 22.9   | 28.1 |
| Sitka           | E.   | 49.9     | 335 | e 9 1   | -5   | e 16 15 | -3   | e 24.6 | 28.4 |
|                 | N.   | 49.9     | 335 | e 9 6   | 0    | e 16 16 | -2   | e 24.1 | 28.2 |
| Santiago        |      | 55.7     | 155 | e 10 8  | +24  | e 18 8  | +38  | 27.5   | —    |
| Honolulu T.H.   | E.   | 57.3     | 288 | i 10 1  | +7   | i 17 44 | -6   | 25.6   | 28.7 |
|                 | N.   | 57.3     | 288 | e 9 54  | 0    | i 17 44 | -6   | 25.9   | 29.3 |
| La Plata        |      | 63.2     | 145 | i 10 43 | +10  | i 19 12 | +9   | 32.9   | —    |
| Azores          |      | 65.6     | 58  | 10 48   | -1   | 15 24   | ?PR  | —      | 35.4 |
| Rio de Janeiro  |      | 65.7     | 127 | i 10 54 | +5   | i 19 44 | +11  | 32.1   | 33.4 |
| Reykjavik       |      | 69.0     | 27  | 11 24   | +13  | e 20 38 | +24  | 34.2   | 45.9 |
| Scoresby Sund   |      | 69.9     | 20  | —       | —    | —       | —    | 34.9   | 46.3 |
| Edinburgh       |      | 78.9     | 35  | 12 18   | +6   | 22 10   | -1   | 36.9   | 51.4 |
| Dyce            |      | 79.1     | 34  | i 12 21 | +7   | 22 28   | +15  | 37.4   | 43.4 |
| Bidston         |      | 79.4     | 38  | 12 22   | +7   | 22 39   | +23  | 32.4   | 49.5 |
| Apia            |      | 79.6     | 254 | —       | —    | —       | —    | 36.1   | 39.2 |
| Stonyhurst      |      | 79.8     | 38  | i 12 22 | +4   | i 22 37 | +16  | 37.9   | 50.9 |
| Oxford          | N.   | 80.9     | 40  | i 12 28 | +4   | 22 41   | +7   | e 33.9 | 47.6 |
| San Fernando    |      | 81.2     | 55  | i 12 34 | +8   | i 22 50 | +13  | 37.9   | 43.4 |
| Kew             |      | 81.6     | 40  | i 12 31 | +3   | i 22 59 | +17  | 38.1   | 45.6 |
| Bergen          |      | 82.0     | 29  | 12 42   | +12  | 23 7    | +21  | 28.9   | 44.9 |
| Toledo          | N.E. | 82.1     | 51  | i 12 33 | +2   | i 23 3  | +16  | e 35.4 | 44.8 |
| Malaga          |      | 82.5     | 54  | 12 36   | +3   | 23 2    | +10  | 27.9   | 45.6 |
| Granada         |      | 83.1     | 54  | i 12 39 | +2   | i 23 9  | +11  | 30.2   | 41.5 |
| Almeria         |      | 84.1     | 54  | i 12 45 | +2   | i 23 15 | +6   | 35.3   | 47.9 |
| Paris           |      | 84.1     | 41  | i 12 51 | +8   | i 23 14 | +5   | 39.9   | 47.9 |
| Bagnères        |      | 84.4     | 47  | e 12 51 | +7   | e 23 19 | +7   | 38.9   | 48.4 |
| De Bilt         |      | 84.6     | 37  | i 12 47 | +1   | 23 22   | +7   | e 39.9 | 51.6 |
| Uccle           |      | 84.6     | 39  | 12 45   | -1   | i 23 27 | +12  | e 36.9 | 50.0 |
| Alicante        |      | 85.1     | 51  | i 12 54 | +5   | i 23 26 | +6   | e 34.5 | 51.2 |
| Tortosa         | E.   | 85.2     | 49  | 12 49   | 0    | 23 32   | +11  | —      | 50.4 |
|                 | N.   | 85.2     | 49  | 12 50   | +1   | 23 33   | +12  | 39.0   | 55.6 |
| Barcelona       |      | 86.1     | 48  | 12 59   | +5   | 23 32   | +1   | e 37.0 | 50.0 |
| Besançon        |      | 86.8     | 42  | e 12 58 | 0    | e 23 42 | +3   | 36.9   | 53.9 |
| Hamburg         |      | 86.8     | 35  | i 12 55 | -3   | e 23 38 | -1   | e 40.9 | 54.9 |
| Copenhagen      |      | 87.2     | 32  | i 12 58 | -2   | i 23 43 | 0    | 40.9   | 47.3 |
| Feldberg        | E.   | 87.2     | 39  | e 12 4  | -56  | e 23 0  | -43  | e 41.9 | 49.5 |
| Grenoble        |      | 87.3     | 44  | i 13 8  | +7   | 23 59   | +15  | 38.9   | 51.2 |
| Neuchatel       |      | 87.4     | 43  | i 13 0  | -1   | e 23 41 | -4   | —      | —    |
| Strasbourg      |      | 87.4     | 40  | i 13 0  | -1   | i 23 46 | +1   | e 38.9 | 53.7 |
| Lund            |      | 87.6     | 32  | 13 1    | -2   | 23 17   | [+4] | 39.9   | —    |
| Upsala          |      | 87.8     | 27  | e 13 1  | -3   | 23 30   | -20  | e 39.9 | 52.8 |
| Algiers         |      | 88.3     | 51  | 13 5    | -2   | 23 42   | -13  | 36.9   | 45.9 |
| Hohenheim       |      | 88.3     | 39  | e 13 8  | +1   | 23 54   | -1   | 42.9   | 54.0 |
| Zurich          |      | 88.4     | 42  | 13 4    | -3   | e 23 42 | -14  | —      | —    |
| Moncalieri      |      | 88.7     | 44  | 13 5    | -4   | 23 48   | -12  | 40.9   | 54.4 |

Continued on next page.

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|               |      | $\Delta$ | Az. | P.      | O-C.             | S.       | O-C.             | L.     | M.    |
|---------------|------|----------|-----|---------|------------------|----------|------------------|--------|-------|
|               |      | .        | .   | m. s.   | s.               | m. s.    | s.               | m.     | m.    |
| Jena          | E.   | 88.8     | 37  | i 13 11 | + 2              | e 23 54  | - 7              | e 34.9 | 59.4  |
|               | N.   | 88.8     | 37  | i 13 24 | +15              | e 23 43  | -18              | e 34.9 | 56.2  |
|               | Z.   | 88.8     | 37  | i 13 6  | - 3              | —        | —                | e 40.9 | 59.9  |
| Ravensburg    |      | 88.8     | 40  | 13 11   | + 2              | 23 47    | -14              | e 40.9 | 57.0  |
| Potsdam       |      | 89.0     | 35  | i 13 13 | + 3              | 23 52    | -11              | e 35.9 | 49.9  |
| Chur          |      | 89.2     | 42  | i 13 13 | + 2              | i 23 27  | [+ 4]            | e 45.5 | —     |
| Suva          |      | 89.9     | 251 | e 13 24 | + 9              | i 23 54  | - 9              | e 42.4 | —     |
| Innsbruck     | N.E. | 90.2     | 40  | 12 54?  | -23              | —        | —                | 38.9   | —     |
| Hel싱fors      |      | 90.7     | 25  | e 14 14 | +54              | i 25 6   | +45              | e 41.9 | —     |
| Florence      |      | 91.5     | 44  | e 13 18 | - 6              | 23 52    | [+15]            | 43.9   | 48.9  |
| Venice        |      | 91.6     | 40  | e 13 19 | - 6              | i 23 54  | [+16]            | 46.9   | 53.8  |
| Konigsberg    |      | 91.7     | 31  | e 13 12 | -13              | e 23 54  | [+16]            | 39.9   | 54.9  |
| Laibach       |      | 92.6     | 40  | e 13 30 | 0                | i 24 4   | [+20]            | e 38.2 | 52.3  |
| Vienna        |      | 92.7     | 37  | i 13 30 | - 1              | 24 5     | [+21]            | i 41.9 | 60.4  |
| Graz          |      | 92.8     | 38  | i 12 50 | -41              | i 23 48  | [+ 3]            | 37.9   | 51.9  |
| Pulkovo       |      | 93.0     | 24  | i 13 24 | - 8              | 23 53    | [+ 7]            | 38.9   | 56.0  |
| Rocca di Papa | E.   | 93.3     | 45  | e 13 26 | - 8              | e 24 38  | -10              | e 46.2 | —     |
|               | N.   | 93.3     | 45  | e 13 31 | - 3              | e 24 20  | -28              | e 46.2 | 64.8  |
| Zagreb        |      | 93.6     | 40  | e 13 29 | - 7              | i 24 12  | [+22]            | e 45.6 | 50.6  |
| Budapest      |      | 94.7     | 37  | 13 40   | - 2              | 24 14    | [+19]            | e 43.2 | 57.4  |
| Pompeii       |      | 95.0     | 45  | e 13 44 | + 1              | e 24 4   | [+ 7]            | 50.9   | 55.9  |
| Lemberg       | E.   | 96.2     | 35  | e 13 36 | -14              | e 31 0   | ?                | e 46.5 | 55.7  |
|               | N.   | 96.2     | 35  | e 13 30 | -20              | e 29 18  | ?                | e 46.9 | 60.7  |
| Belgrade      | E.   | 96.8     | 40  | e 13 50 | - 3              | e 24 14  | [+ 7]            | e 49.4 | 64.1  |
|               | N.   | 96.8     | 40  | e 13 47 | - 6              | e 24 53  | ?Z               | e 51.8 | 57.1  |
| Ootomari      |      | 97.3     | 325 | e 23 23 | ?                | 31 45    | ?SR <sub>1</sub> | 45.4   | 53.3  |
| Kucino        |      | 98.5     | 35  | 13 30   | -33              | 23 48    | [-28]            | 44.9   | 51.9  |
| Wellington    | E.   | 99.2     | 230 | 13 22   | -44              | i 24 30  | [+10]            | 45.5   | 47.4  |
|               | N.   | 99.2     | 230 | 12 36   | ?                | i 24 25  | [+ 5]            | 144.6  | 50.9  |
| Christchurch  |      | 101.2    | 228 | 17 52   | [+ 1]            | —        | —                | 49.6   | 57.2  |
| Mizusawa      | N.   | 102.4    | 317 | —       | —                | 42 51    | ?                | 51.8   | —     |
| Makeyevka     |      | 104.3    | 29  | i 14 17 | -14              | i 25 4   | [+20]            | 36.9   | 67.6  |
| Sebastopol    |      | 104.5    | 35  | e 18 44 | ?PR <sub>1</sub> | —        | —                | —      | —     |
| Ekaterinburg  |      | 104.6    | 13  | 14 16   | -16              | —        | —                | —      | 73.5  |
| Simferopol    |      | 104.6    | 35  | e 18 44 | ?PR <sub>1</sub> | —        | —                | e 63.9 | —     |
| Yalta         |      | 104.9    | 34  | e 18 37 | ?PR <sub>1</sub> | —        | —                | e 63.9 | —     |
| Theodosia     |      | 105.1    | 33  | e 18 41 | ?PR <sub>1</sub> | —        | —                | 66.9   | —     |
| Kobe          | E.   | 108.9    | 316 | —       | —                | —        | —                | —      | 77.7  |
| Irkutsk       |      | 109.0    | 346 | e 14 34 | -19              | —        | —                | 56.9   | 63.0  |
| Helwan        |      | 112.3    | 46  | e 14 59 | - 9              | 29 13    | ?PS              | —      | 75.0  |
| Hukuoka       | E.   | 112.6    | 318 | —       | —                | —        | —                | —      | 73.8  |
| Ksara         |      | 112.9    | 40  | 18 30   | [- 1]            | —        | —                | 54.2   | 65.2  |
| Nagasaki      |      | 113.6    | 318 | e 19 9  | ?PR <sub>1</sub> | e 27 24  | -35              | —      | 74.6  |
| Riverview     |      | 116.7    | 240 | e 20 6  | ?PR <sub>1</sub> | i 25 54  | [+19]            | e 53.3 | 54.3  |
| Sydney        | E.   | 116.7    | 240 | —       | —                | 25 36    | [+ 1]            | 58.5   | 60.6  |
| Zi-ka-wei     | Z.   | 119.7    | 322 | i 20 16 | ?PR <sub>1</sub> | 30 54    | ?PS              | 73.1   | 85.5  |
| Cape Town     |      | 120.0    | 120 | (20 30) | ?PR <sub>1</sub> | —        | —                | —      | 68.2  |
| Tashkent      |      | 121.1    | 11  | e 15 31 | -17              | —        | —                | 62.9   | 78.4  |
| Melbourne     |      | 121.7    | 234 | e 20 46 | ?PR <sub>1</sub> | i 30 29  | ?PS              | e 56.3 | 57.4  |
| Taihoku       | E.   | 124.1    | 317 | —       | —                | e 34 54? | ?                | —      | —     |
| Adelaide      |      | 127.0    | 239 | —       | —                | e 31 2   | ?                | 54.2   | 84.0  |
| Entebbe       |      | 127.7    | 77  | 21 14   | ?PR <sub>1</sub> | —        | —                | 64.4   | 72.4  |
| Hong Kong     |      | 130.7    | 320 | 21 30   | ?PR <sub>1</sub> | —        | —                | —      | 73.4  |
| Manila        |      | 131.3    | 307 | e 21 32 | ?PR <sub>1</sub> | i 34 54  | ?                | e 65.1 | —     |
| Dehra Dun     |      | 133.2    | 5   | 24 57   | ?PR <sub>2</sub> | 30 9     | ?                | 35.4   | 90.4  |
| Phu-Lien      |      | 136.3    | 326 | e 22 3  | ?PR <sub>1</sub> | e 34 24  | ?                | 62.9   | 83.5  |
| Bombay        |      | 143.5    | 15  | 19 43   | [- 3]            | 33 9     | ?                | 69.2   | 92.6  |
| Hyderabad     |      | 146.1    | 7   | 20 12   | [+22]            | 32 40    | ?                | 57.2   | 82.0  |
| Tananarive    |      | 146.3    | 98  | i 19 56 | [+ 6]            | —        | —                | 69.2   | 87.3  |
| Kodakanal     | E.   | 153.0    | 12  | 23 36   | ?PR <sub>1</sub> | —        | —                | 87.2   | 115.1 |
| Batavia       |      | 154.4    | 290 | i 19 0  | [-51]            | —        | —                | 89.9   | 111.9 |
| Colombo       |      | 156.7    | 7   | 20 15   | [+11]            | —        | —                | 75.3   | 98.8  |

Additional readings and notes : Puebla, Vera Cruz, and Mazatlan readings have been *diminished* by 1m. Merida readings have been *increased* by 2m. Tucson eSR<sub>1</sub>N = +10m.3s. Port au Prince MNW = +16.1m. Denver i = +6m.10s., iSR<sub>1</sub> = +10m.39s. Chicago iN = +9m.17s., eE = +10m.30s. Charlottesville iN = +6m.34s. Ann Arbor eSR<sub>1</sub> = +13m.18s., MN = +19.3m.; T<sub>0</sub> = 18h.25m.36s. Georgetown PEN = +6m.13s., PR<sub>1</sub>N = +6m.58s., PR<sub>1</sub>E = +6m.59s., PR<sub>2</sub>E = +7m.22s., PR<sub>2</sub>N = +7m.23s., MN = +13.5m. San Juan LN = +14.0m., MN = +20.9m. Toronto iPR<sub>1</sub>N = +7m.24s., iPR<sub>2</sub>N = +7m.46s.; T<sub>0</sub> = 18h.25m.57s. Ithaca e = +8m.13s.

Continued on next page.

=PR<sub>1</sub>+13s. Harvard iSR<sub>1</sub> = +14m.32s., iSR<sub>2</sub> = +15m.28s., i = +22m.30s.; T<sub>0</sub> = 18h.26m.5s. Ottawa iPR<sub>2</sub>N = +8m.14s. = PR<sub>1</sub> + 1s., iE = +8m.24s. = PR<sub>1</sub> - 8s.; T<sub>0</sub> = 18h.26m.1s. Saskatoon ePR<sub>2</sub>N = +8m.24s. = PR<sub>1</sub> - 19s., i = +15m.34s. = SR<sub>1</sub> - 2s., MN = +24.1m.; T<sub>0</sub> = 18h.26m.2s. La Paz iPZ = +8m.26s. = P + 4s., PR<sub>2</sub>N = +10m.4s., PR<sub>2</sub>E = +10m.17s. = PR<sub>1</sub> + 13s., iE = +13m.2s., iSE = +13m.55s. = S - 0s., SR<sub>2</sub>N = +18m.12s., SR<sub>2</sub>E = +18m.19s., iN = +20m.4s. Sucre i = +8m.55s., PR<sub>1</sub> = +10m.26s., PR<sub>2</sub> = +11m.0s., i = +15m.57s. and +17m.5s., iSR<sub>1</sub> = +18m.43s. Sitka ePR<sub>2</sub>N = +11m.2s., ePR<sub>1</sub>E = +11m.5s., SR<sub>2</sub>N = +19m.22s., eSR<sub>2</sub>N = +20m.28s., eSR<sub>2</sub>E = +21m.15s. Honolulu T.H. iPR<sub>2</sub>E = +14m.52s., eSR<sub>2</sub>N = +24m.4s. Rio de Janeiro iSN = +19m.46s. Reykjavik PR<sub>1</sub>? = +13m.59s., PR<sub>2</sub>? = +15m.47s., i = +22m.5s. = Σ + 23s. Scoresby Sund MN = +43.9m., MZ = +46.8m. Edinburgh PR<sub>1</sub> = +15m.16s., PR<sub>2</sub> = +17m.18s. Dyce SR<sub>2</sub> = +33m.9s. Apia e = +8m.32s., SR<sub>1</sub> = +27m.11s.; T<sub>0</sub> = 18h.25m.54s. Stonyhurst iPR<sub>1</sub> = +15m.26s., PR<sub>1</sub> = +17m.25s., SR<sub>2</sub> = +32m.16s. Oxford PR<sub>2</sub>N = +16m.11s., SR<sub>2</sub>N = +28m.19s. San Fernando PR<sub>1</sub> = +16m.2s., SR<sub>1</sub> = +27m.50s., SR<sub>2</sub> = +32m.0s., MN = +40.8m. Kew iPEN = +12m.32s., iPR<sub>1</sub> = +15m.42s., iE = +23m.16s. = Σ + 13s., PSZ = +23m.57s., SR<sub>2</sub>N = +27m.35s., SR<sub>2</sub>E = +32m.56s., iN = +34m.10s. = SR<sub>2</sub> + 2s., eN = +35m.42s., LZ = +40.9m., MZ = +45.7m., MN = +46.8m. Bergen PR<sub>1</sub> = +15m.54s. Toledo MNW = +44.7m. Malaga MZ = +46.0m., MN = +46.2m. Granada PR<sub>1</sub> = +16m.4s., i = +23m.46s. = PS - 1s., and +24m.18s. Almeria iPR<sub>1</sub> = +16m.0s., MN = +42.6m. Paris PR<sub>1</sub> = +16m.10s., MN = +52.9m. Bagnères ePR<sub>1</sub> = +16m.13s., ePS = +24m.17s. De Bilt iPR<sub>1</sub> = +16m.4s., eSR<sub>1</sub> = +28m.56s., MN = +48.2m. Uccle PR<sub>1</sub> = +16m.2s., SR<sub>1</sub> = +29m.1s., MZ = +47.6m., MN = +57.6m. Alicante MN = +46.2m. Barcelona PS = +24m.41s., MN = +48.6m. Besançon ePR<sub>1</sub> = +16m.21s., PS = +24m.47s. Hamburg iPR<sub>1</sub>Z = +16m.22s., SN = +23m.51s., ePSZ = +24m.36s., eSR<sub>2</sub>N = +29m.31s., eSR<sub>2</sub>E = +32m.24s., MNZ = +48.9m. Copenhagen eZ = +15m.49s., iPR<sub>1</sub> = +16m.26s., PR<sub>2</sub> = +18m.19s., eEN = +20m.0s. = PR<sub>2</sub> - 12s., eE = +22m.50s., eN = +23m.12s. = [S] + 2s., iEN = eZ + 24m.0s., PS = +24m.52s., eE = +29m.9s., SR<sub>2</sub> = +29m.43s., SR<sub>2</sub>E = +33m.28s., MZ = +47.6m., MN = +51.5m. Feldberg ePR<sub>1</sub>E = +15m.26s., eS<sub>2</sub>P<sub>2</sub>S<sub>2</sub>E = +22m.49s., eE = +23m.15s. = [S] + 5s., ePSE = +23m.51s., eSR<sub>2</sub>E = +29m.27s. Grenoble PS = +24m.59s., SR<sub>1</sub> = +29m.54s. Strasbourg iPR<sub>1</sub> = +16m.24s., PR<sub>1</sub> = +17m.52s., iPS = +24m.47s., iSR<sub>1</sub> = +29m.44s., MZ = +54.0m. Upsala PR<sub>1</sub> = +16m.29s., MN = +50.7m. Hohenheim PR<sub>1</sub> = +16m.34s., PR<sub>2</sub> = +13m.54s., eSR<sub>1</sub> = +29m.54s. Moncalieri MN = +56.9m. Jena IZ = +14m.1s., ePR<sub>1</sub>E = +16m.33s., ePR<sub>2</sub>Z = +16m.36s., ePSEN = +24m.54s. Ravensburg PR<sub>1</sub> = +16m.43s., MN = +50.2m. Potsdam i = +16m.36s. = PR<sub>1</sub> - 24s., MN = +56.9m. Suva iSR<sub>2</sub>N = +30m.24s.; T<sub>0</sub>N = 18h.26m.42s. Königsberg eZ = +13m.19s. iPR<sub>2</sub>N = +16m.55s., iPR<sub>2</sub>E = +16m.56s., iPR<sub>2</sub>Z = +16m.57s., eZ = +17m.9s., eE = +17m.31s. and +18m.1s., iE = +24m.54s., PS?N = +24m.58s. and +25m.27s., iE = +25m.37s., eN = +26m.42s., iSR<sub>2</sub>N = +30m.40s., eSR<sub>2</sub>N = +33m.54s. ?, eLZ = +43.9m., MNZ = +53.9m.; T<sub>0</sub> = 18h.26m.50s. Laibach e = +14m.26s., i = +17m.8s. = PR<sub>1</sub> - 16s. Vienna PR<sub>1</sub> = +17m.7s., PR<sub>2</sub> = +19m.44s., PS = +25m.12s., PPS = +25m.57s., SR<sub>2</sub> = +35m.5s., iE = +36m.56s. Graz iPR<sub>1</sub> = +17m.9s., iPS = +25m.7s., i = +25m.57s., MN = +55.7m. Pukovo iPR<sub>1</sub> = +17m.11s., iPPS = +25m.55s. = PS + 12s. Rocca di Papa iPN = +13m.35s., iS = +24m.50s. and +25m.12s. Zagreb i = +13m.35s., e = +17m.17s., eNE = +19m.6s. and +20m.24s., eNW = +21m.17s., i = +24m.23s. and +25m.14s., iNW = +26m.4s., e = +34m.18s. Budapest MN = +54.6m. Belgrade eE = +15m.53s. and +16m.39s. Kucino PR<sub>1</sub> = +17m.24s., PPS = +26m.24s. Wellington PR<sub>2</sub>E = +18m.0s., iSR<sub>2</sub>E = +32m.28s., iSR<sub>2</sub>E = +36m.10s.; T<sub>0</sub>E = 18h.26m.8s. Christchurch PR<sub>1</sub> = +24m.34s. = [S] + 4s.; all readings are given for 19h. Mizusawa LE = +52.3m. Makeyevka iPS = +27m.49s. Ekaterinburg PR<sub>2</sub> = +18m.38s., PS = +27m.46s. Kobe MN = +76.8m. Irkutsk iPR<sub>1</sub> = +19m.1s., PS = +28m.33s., SR<sub>1</sub> = +34m.25s. Helwan PR<sub>1</sub> = +19m.81s. Kasra PR<sub>1</sub> = +19m.39s., PR<sub>2</sub>N = +22m.21s., PR<sub>2</sub>E = +24m.39s., PR<sub>2</sub>N = +25m.33s. = [S] + 11s., PS? = +29m.18s. and +29m.20s., PPS = +30m.14s., SR<sub>2</sub>E = +35m.18s., SR<sub>2</sub>N = +44m.1s.; T<sub>0</sub> = 18h.25m.51s. Riverview ePR<sub>1</sub> = +25m.10s., IZ = +25m.24s., iS<sub>2</sub>P<sub>2</sub>C<sub>2</sub>S = +27m.3s., iPS = +29m.50s. and +29m.58s., PPS = +31m.16s. and +32m.14s., SR<sub>2</sub> = +36m.39s., PPSS = +36m.44s., ePSSS = +40m.32s., eSR<sub>2</sub> = +40m.54s., eL<sub>2</sub> = +47.9m., MN = +59.6m. Sydney L = +29m.54s. Tashkent iPR<sub>1</sub> = +20m.30s., iPS = +30m.30s. Melbourne i = +25m.59s. = [S] + 9s. Adelaide i = +22m.43s., iSR<sub>1</sub> = +38m.4s. ?, MN = +65.6m. Phu-Lien MN = +85.0m. Tananarive eN = +22m.29s., PR<sub>1</sub>E = +23m.23s., PR<sub>2</sub>N = +26m.41s., S<sub>2</sub>P<sub>2</sub>C<sub>2</sub>S = +30m.16s., PR<sub>1</sub> = +31m.1s., PSE<sub>2</sub>C<sub>2</sub>S = +23m.50s., PPS = +36m.16s., PPS = +37m.44s., SR<sub>2</sub>N = +42m.10s., SPSE = +42m.21s., PPSS = +42m.56s., SR<sub>2</sub> = +47m.54s. ?, LN = +69.2m., MN = +87.4m. Batavia iN = +19m.32s., iE = +30m.28s., L = +47.7m.



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Aug. 4d. Readings also at 2h. (Copenhagen), 5h. (Florissant and near Tacubaya), 7h. (Kew, Uccle, Copenhagen, Lund, Zagreb, Tashkent, Ekaterinburg, Pulkovo, Kucino, Makeyevka, and near Ksara), 8h. (San Fernando), 11h. (near La Paz), 14h. (near Matuyama), 15h. (Santiago), 18h. and 19h. (3) (near Tacubaya), 20h. (near Tacubaya (2) and Vera Cruz), 21h. (near Tacubaya), 22h. (Edinburgh, Suva, and near Tacubaya (2)), 23h. (Ekaterinburg and Tashkent).

**Aug. 5d. 14h. 41m. 51s. Epicentre 16°·0N. 119°·0E.**  
(as on 1924 May 6d.)

A = -·466, B = +·841, C = +·276; D = +·875, E = +·485;  
G = -·134, H = +·241, K = -·961.

|               | $\Delta$ | Az.   | P.          | O-C.             | S.       | O-C.  | L.     | M.   |
|---------------|----------|-------|-------------|------------------|----------|-------|--------|------|
|               | °        | °     | m. s.       | m. s.            | m. s.    | m. s. | m.     | m.   |
| Manila        | 2.4      | 126   | i 0 35      | - 2              | (i 0 56) | -10   | i 0.9  | —    |
| Hong Kong     | 7.8      | 325   | 2 27        | +29              | —        | —     | —      | 4.7  |
| Taihoku       | N.       | 9.3   | e 2 25      | + 5              | —        | —     | —      | —    |
| Phu-Lien      | 12.7     | 294   | 3 21        | +12              | 5 59     | +22   | 6.4    | 9.1  |
| Zi-ka-wei     | Z.       | 15.3  | 8 13        | + 4              | i 6 47   | + 8   | 9.8    | 11.4 |
| Sumoto        | 23.2     | 35    | e 5 9       | -10              | (e 9 2)  | -27   | e 9.0  | —    |
| Kobe          | 23.6     | 35    | e 4 21      | -63              | (e 9 25) | -11   | e 9.4  | 10.1 |
| Osaka         | 23.8     | 35    | 4 25        | -61              | (9 0)    | -40   | 9.0    | 9.9  |
| Nagoya        | 25.0     | 37    | e 5 24      | -14              | —        | —     | —      | —    |
| Batavia       | 25.3     | 209   | i 4 29      | -72              | i 8 52   | -77   | —      | —    |
| Mizusawa      | E.       | 30.2  | 37 6 12     | -18              | 11 7     | -30   | —      | —    |
| Irkutsk       | 38.1     | 347   | 7 28        | -11              | 13 19    | -20   | 20.2   | —    |
| Kodalkanal    | E.       | 40.8  | 270 22 51   | PL               | —        | —     | (22.8) | —    |
| Bombay        | 44.0     | 282   | 10 33       | ?PR <sub>1</sub> | 14 53    | - 9   | 17.7   | —    |
| Tashkent      | 49.5     | 311   | 9 6         | + 2              | i 16 12  | - 1   | 55.8   | 62.4 |
| Ekaterinburg  | 59.5     | 328   | i 10 11     | + 2              | 18 23    | + 6   | 22.2   | 35.8 |
| Makeyevka     | 72.2     | 316   | 11 35       | + 4              | i 20 59  | + 7   | 33.2   | 47.8 |
| Ksara         | E.       | 75.3  | 302 11 56   | + 5              | 21 41    | +12   | —      | —    |
| Pulkovo       | 75.6     | 330   | i 11 53     | 0                | i 21 31  | - 2   | 38.2   | 46.2 |
| Konigsberg    | 81.7     | 324   | e 10 22     | -127             | e 22 39  | - 4   | —      | —    |
| Upsala        | 81.8     | 331   | —           | —                | e 22 38  | - 6   | —      | —    |
| Copenhagen    | 85.8     | 327   | 12 46       | - 6              | 23 11    | -17   | 43.2   | 54.2 |
| Vienna        | 86.2     | 320   | i 12 41     | -13              | 23 13    | -19   | e 46.6 | 53.6 |
| Zagreb        | 87.3     | 317   | e 12 56     | - 5              | e 23 18  | [+ 7] | e 43.2 | 57.2 |
| Hamburg       | 87.9     | 326   | e 12 58     | - 6              | e 23 25  | [+11] | e 47.2 | 55.2 |
| Scoresby Sund | 89.4     | 348   | 13 3        | - 9              | 23 33    | [+ 9] | 47.2   | 56.6 |
| Innsbruck     | 89.7     | 320   | 12 9?       | -65              | —        | —     | —      | —    |
| Feldberg      | N.       | 90.2  | 323         | —                | e 23 52  | -24   | e 46.2 | 51.4 |
| Rocca di Papa | E.       | 91.0  | 315 e 12 19 | -62              | i 23 47  | [+13] | e 37.2 | 37.8 |
|               | N.       | 91.0  | e 12 29     | -52              | i 24 18  | - 6   | —      | —    |
| Chur          | 91.1     | 320   | 14 0        | +38              | 23 30    | —     | —      | —    |
| De Bilt       | 91.2     | 326   | 13 14       | - 8              | e 24 14  | -12   | e 47.2 | 58.1 |
| Strasbourg    | 91.4     | 323   | 13 15       | - 8              | 24 15    | -13   | e 49.2 | 57.6 |
| Zurich        | 91.4     | 320   | e 13 10     | -13              | —        | —     | —      | —    |
| Dyce          | 92.2     | 332   | —           | —                | 24 24    | -13   | 67.9   | —    |
| Uccle         | 92.2     | 325   | e 13 16     | -12              | e 23 57  | [+16] | e 48.2 | —    |
| Neuchatel     | 92.6     | 320   | i 13 18     | -12              | —        | —     | —      | —    |
| Moncalleri    | 93.0     | 319   | e 12 35     | -57              | 24 14    | - 31  | 34.3   | —    |
| Edinburgh     | 93.3     | 331   | —           | —                | e 23 57  | [+ 9] | 51.2   | —    |
| Paris         | 93.8     | 325   | e 13 28     | - 9              | e 24 0   | [+ 9] | 51.2   | 58.2 |
| Kew           | 94.4     | 328   | e 13 27     | -13              | e 24 23  | -37   | 48.2   | 59.2 |
| Oxford        | N.       | 94.7  | 328         | —                | —        | —     | e 50.2 | 60.8 |
| Almeria       | 103.6    | 315   | —           | —                | —        | —     | —      | 64.1 |
| Granada       | 104.2    | 317   | e 14 0      | -31              | i 24 51  | [+ 7] | 58.2   | 61.6 |
| San Fernando  | E.       | 106.4 | 318         | —                | —        | —     | —      | 62.8 |
| Ottawa        | 117.2    | 11    | —           | —                | e 29 39  | +71   | e 53.2 | —    |
| Toronto       | 118.0    | 14    | —           | —                | 29 31    | +57   | —      | —    |
| Florissant    | N.Z.     | 119.0 | 25          | —                | e 30 9?  | ?PS   | e 85.2 | —    |
| Georgetown    | Z.       | 123.0 | 14 1 20 38  | ?PR <sub>1</sub> | —        | —     | e 52.5 | —    |
| La Paz        | 173.1    | 95    | i 20 16     | [ 0]             | —        | —     | —      | —    |

Additional readings and notes: Zi-ka-wei PN = +3m.47s. Kobe PR,N = +5m.16s., eS = +7m.14s.; true S is given as L. Osaka MN = +12.1m. Batavia i = +4m.31s. Mizusawa SN = +11m.5s. Konigsberg eN = +11m.54s., eE = +12m.40s., eSN = +22m.34s. Copenhagen MN = +49.4m. Zagreb e = +23m.36s. = S - 8s., eE = +24m.56s. Scoresby Sund PR<sub>1</sub> = +16m.9s.?, PPS = +25m.9s., SR<sub>1</sub> = +29m.9s.?, and +36m.9s.?, MN = +57.4m. Feldberg eN = +29m.59s., +37m.6s., and +38m.57s. Rocca di Papa eSZ = +23m.35s., eSN = +23m.37s. De Bilt eE = +23m.45s. = [S] + 10s., MN = +51.2m.; epicentre 15°·7N. 119°·0E. Strasbourg PR<sub>1</sub> = +16m.57s. Kaw eS<sub>1</sub>P<sub>1</sub>S = +24m.3s. = [S] + 9s. Granada e = +18m.39s. = PR<sub>1</sub> - 3s., and +28m.17s. San Fernando MN = +65.6m. Ottawa e = +36m.9s. ? = SR<sub>1</sub> - 3s. Georgetown eZ = +7m.55s.

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Aug. 5d. Readings also at 0h. (Pulkovo), 1h. (Rocca di Papa, Zurich, near Chur, and Neuchatel), 2h. (near Tacubaya (3)), 3h. (near Ksara), 4h. (near Tacubaya), 5h. (Ekaterinburg, Tashkent, Rocca di Papa, and near Tacubaya), 6h. (Zagreb and near Granada), 7h. (Tucson, near Tacubaya (3), and near Vera Cruz), 11h. (Graz), 12h. (near Chur), 13h. (Rocca di Papa, Stonyhurst, Tucson, near Tacubaya, and Vera Cruz), 14h. (Stonyhurst, Tashkent, and near Tananarive), 15h. (near Nagoya, Osaka, Kobe, Sumoto, and near Tucson), 19h. (Copenhagen, Ekaterinburg, Tashkent, Florissant and near Tucson), 21h. (near La Paz and near Tacubaya), 22h. (Mizusawa), 23h. (near Algiers).

Aug. 6d. Readings at 2h., 5h., 9h., and 10h. (near Tacubaya), 12h. (La Paz and Sucre), 14h. (Suva and near Sumoto), 15h. and 16h. (near Tacubaya), 18h. (Bombay, Copenhagen, De Bilt, Ekaterinburg, Irkutsk, Pulkovo, Simferopol, Tashkent, and near Yalta), 19h. (Vienna), 20h. (Tucson, near Tacubaya, and Vera Cruz), 21h. (Tortosa and near Tacubaya), 23h. (Tortosa).

Aug. 7d. Readings at 0h. (Ekaterinburg), 1h. (Suva and Tashkent), 2h. (Apia), 3h. (Tashkent and near Tacubaya), 4h. (Ekaterinburg, Irkutsk, Manila, and Tashkent), 5h. (Copenhagen and Feldberg), 7h. and 9h. (near Tacubaya), 11h. (Phu-Lien), 12h. (near Algiers (2)), 13h. (near Phu-Lien), 14h. (La Paz), 16h. (Feldberg, Sucre, and near La Paz), 18h. (Wellington), 19h. (near Sumoto), 20h. (Scoresby Sund), 21h. (Apia), 23h. (near Tacubaya).

Aug. 8d. 2h. 15m. 3s. Epicentre 34° 0S. 57° 0E. (as on 1928 March 27d.).

A = +.452, B = +.695, C = -.559; D = +.839, E = -.545;  
G = -.305, H = -.469, K = -.829.

|               | $\Delta$ | Az. | P.       | O-C.  | S.      | O-C.             | L.     | M.   |
|---------------|----------|-----|----------|-------|---------|------------------|--------|------|
|               | °        | °   | m. s.    | s.    | m. s.   | s.               | m.     | m.   |
| Tananarive    | 17.3     | 329 | i 4 23   | +14   | e 7 29  | + 4              | 7.6    | 8.9  |
| Entebbe       | 41.1     | 321 | 7 57?    | - 7   |         |                  |        |      |
| Bombay        | 55.0     | 19  | 17 21    | ?S    | (17 21) | 0                | 26.3   | 29.1 |
| Ksara         | E. 70.6  | 341 |          |       |         |                  | e 39.6 |      |
| Tashkent      | 76.1     | 10  | i 12 0   | + 4   | i 21 38 | 0                | 37.0   | 43.4 |
| Makeyevka     | 83.8     | 349 | i 12 45  | + 4   | 23 15   | + 8              | 41.0   | 50.8 |
| Wellington    | E. 85.5  | 139 |          |       |         |                  | e 42.8 |      |
| Zi-ka-wei     | Z. 89.0  | 50  | e 13 7   | - 3   |         |                  | 47.1   | 48.8 |
| Vienna        | Z. 89.8  | 335 | 13 13    | - 2   |         |                  |        |      |
| Almeria       | 89.8     | 318 |          |       |         |                  | e 47.2 | 53.7 |
| Granada       | 90.8     | 317 | i 13 19  | - 1   | i 17 7  | ?PR <sub>1</sub> | e 47.0 | 55.6 |
| Ekaterinburg  | 90.9     | 3   | 13 15    | - 6   | 23 54   | [+21]            | 27.0   | 53.8 |
| Tortosa       | N. 91.1  | 321 |          |       |         |                  | e 48.0 | 53.2 |
| San Fernando  | 91.8     | 315 |          |       |         |                  |        | 58.8 |
| Strasbourg    | 93.5     | 330 | e 13 31  | - 4   |         |                  | e 48.0 |      |
| Feldberg      | N. 94.5  | 331 |          |       |         |                  | e 53.8 | 62.4 |
| Irkutsk       | 95.6     | 27  | 13 36    | -11   | 24 20   | [+20]            | 51.0   | 53.8 |
| Paris         | 95.9     | 329 |          |       |         |                  | e 57.0 |      |
| Pulkovo       | 96.3     | 348 | i 13 41  | -10   | 24 18   | [+14]            | 52.0   | 60.8 |
| Uccle         | 96.6     | 330 |          |       |         |                  | e 51.0 |      |
| De Bilt       | 97.3     | 332 |          |       |         |                  | e 54.0 |      |
| Copenhagen    | 97.4     | 338 | e 13 51  | - 5   |         |                  | 53.0   | 58.8 |
| Kew           | 99.1     | 328 |          |       |         |                  | e 55.0 |      |
| Scoresby Sund | 118.3    | 338 |          |       |         |                  |        | 66.0 |
| Georgetown    | Z. 143.1 | 291 | i 19 48  | [+ 3] | i 23 7  | ?PR <sub>1</sub> | e 73.6 | 83.6 |
| Chicago       | R. 151.2 | 296 |          |       |         |                  | e 86.0 |      |
| Florissant    | 153.4    | 290 | i 17 57? | ?     |         |                  | e 95.0 |      |

Additional readings: Tananarive SR<sub>1</sub> = +8m.15a. Bombay eS = +22m.23s.  
Ksara e = +40m.54s. and +42m.56s. Wellington eLN = +41.0m. Feldberg eN = +26m.9s. = PS + 7s., and +30m.45s. Irkutsk PR<sub>1</sub> = +16m.56s.  
Pulkovo ePFS = +26m.56s. Copenhagen eNZ = +17m.57s. = PR<sub>1</sub> + 1s.

Aug. 8d. Readings also at 4h. (Makeyevka and Tashkent), 5h. (near Sumoto), 6h. (Ksara), 7h. (Ekaterinburg, Entebbe, and Tashkent), 9h. (Zagreb and near Mostar), 10h. (near Tacubaya), 15h. (Simferopol, Yalta, and Chicago), 16h. (near Nagasaki), 17h. (Chicago), 20h. (Sucre, and near La Paz).

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Aug. 9d. Readings at 1h. (near Tashkent), 3h. (near Mazatlan), 4h. (Scoresby Sund), 5h. (Georgetown, Suva, and Wellington), 6h. (Tucson, near Lick (2), and Berkeley), 8h. (near Almeria and Granada), 10h. (Florissant and Tucson), 12h. (near Tananarive), 13h. (near Osaka, Kobe, and Nagoya, and near La Paz), 18h. (La Paz, and Manila).

**Aug. 10d. 15h. 33m. 37s. Epicentre 36°5N. 70°5E.**

(as on 1928 Jan. 21d.).

A = +.268, B = +.758, C = +.595; D = +.943, E = -.334;  
G = +.199, H = +.561, K = -.804.

A depth of focus 0.035 has been assumed for the present shock, a modification of that adopted for this origin on 1927 April 24d., and previous dates.

|               | Corr.<br>for<br>Focus | Δ    | Az. | P.   |    | O-C.             |      | S. |                  | O-C.   |      | L.   | M. |
|---------------|-----------------------|------|-----|------|----|------------------|------|----|------------------|--------|------|------|----|
|               |                       |      |     | m.   | s. | m.               | s.   | m. | s.               | m.     | s.   |      |    |
| Tashkent      | +0-1                  | 4-9  | 350 | i 1  | 26 | + 9              | i 2  | 22 | + 5              | —      | —    | —    | —  |
| Dehra Dun     | -0-3                  | 8-8  | 133 | 2    | 32 | +23              | 4    | 2  | +12              | 5-0    | 5-1  | —    | —  |
| Bombay        | -1-2                  | 17-7 | 173 | 4    | 4  | + 5              | 7    | 18 | +11              | 8-9    | 11-8 | —    | —  |
| Hyderabad     | -1-4                  | 20-3 | 157 | 5    | 15 | +47              | 8    | 0  | 0                | 8-5    | 11-0 | —    | —  |
| Calcutta      | -1-5                  | 20-8 | 127 | 4    | 41 | + 8              | 8    | 13 | + 5              | —      | —    | —    | —  |
| N.            | -1-5                  | 20-8 | 127 | 4    | 33 | 0                | 8    | 9  | + 1              | —      | —    | —    | —  |
| Ekaterinburg  | -1-5                  | 21-4 | 345 | i 4  | 42 | + 2              | i 8  | 24 | + 3              | —      | —    | 11-5 | —  |
| Makeyevka     | -2-0                  | 26-4 | 306 | i 5  | 32 | 0                | 9    | 47 | - 5              | 11-4   | 12-1 | —    | —  |
| Theodosia     | -2-1                  | 27-7 | 299 | e 5  | 48 | + 4              | —    | —  | —                | —      | —    | —    | —  |
| Ksara         | -2-2                  | 28-3 | 275 | 5    | 51 | + 2              | 11   | 49 | 2SR <sub>1</sub> | 14-2   | —    | —    | —  |
| Irkutsk       | -2-2                  | 28-4 | 46  | i 5  | 44 | - 6              | 10   | 15 | -11              | 12-4   | —    | —    | —  |
| Yalta         | -2-2                  | 28-5 | 298 | 5    | 49 | - 2              | —    | —  | —                | —      | —    | —    | —  |
| Simferopol    | -2-2                  | 28-6 | 298 | 5    | 52 | 0                | —    | —  | —                | —      | —    | —    | —  |
| Sebastopol    | -2-2                  | 29-0 | 298 | e 5  | 53 | - 3              | —    | —  | —                | —      | —    | —    | —  |
| Kucino        | -2-2                  | 29-2 | 322 | i 5  | 59 | + 1              | —    | —  | —                | e 12-0 | —    | —    | —  |
| Colombo       | -2-4                  | 30-8 | 164 | 9    | 53 | —                | 12   | 33 | 2SR <sub>1</sub> | 17-5   | 18-0 | —    | —  |
| Pulkovo       | -2-6                  | 34-6 | 327 | i 6  | 42 | - 5              | i 11 | 54 | -14              | 14-4   | 15-9 | —    | —  |
| Phu-Lien      | -2-6                  | 35-1 | 110 | i 6  | 41 | -12              | —    | —  | —                | —      | —    | —    | —  |
| Konigsberg    | -2-8                  | 38-4 | 316 | i 7  | 17 | - 1              | e 12 | 57 | - 7              | e 16-0 | 16-3 | —    | —  |
| Budapest      | -2-8                  | 39-0 | 305 | 7    | 23 | —                | 8    | 48 | 2PR <sub>1</sub> | —      | —    | —    | —  |
| Upala         | -2-9                  | 40-7 | 323 | e 7  | 56 | +20              | e 16 | 24 | 2SR <sub>1</sub> | —      | —    | —    | —  |
| Vienna        | -2-9                  | 40-8 | 307 | i 7  | 34 | - 3              | 9    | 18 | 2PR <sub>1</sub> | —      | 17-9 | —    | —  |
| Zagreb        | -3-0                  | 41-3 | 301 | e 7  | 39 | - 1              | —    | —  | —                | —      | —    | —    | —  |
| Zi-ka-wei     | -3-0                  | 42-1 | 84  | e 7  | 39 | - 8              | 13   | 47 | - 6              | —      | 28-9 | —    | —  |
| Lund          | -3-1                  | 42-6 | 316 | 7    | 49 | - 2              | 13   | 58 | - 1              | —      | —    | —    | —  |
| Potsdam       | -3-1                  | 42-7 | 313 | i 7  | 50 | - 1              | —    | —  | —                | —      | —    | —    | —  |
| Copenhagen    | -3-1                  | 43-1 | 316 | 7    | 52 | - 3              | 14   | 3  | - 4              | —      | —    | —    | —  |
| Pompeii       | -3-1                  | 43-2 | 293 | e 7  | 48 | - 8              | —    | —  | —                | —      | —    | —    | —  |
| Naples        | -3-1                  | 43-4 | 293 | e 7  | 17 | -40              | —    | —  | —                | —      | —    | —    | —  |
| Jena          | -3-1                  | 43-7 | 310 | 7    | 59 | - 1              | —    | —  | —                | e 16-4 | 22-9 | —    | —  |
| Innsbruck     | -3-2                  | 44-2 | 305 | 7    | 23 | -40              | —    | —  | —                | —      | —    | —    | —  |
| Rocca di Papa | -3-2                  | 44-3 | 296 | i 8  | 2  | - 2              | —    | —  | —                | e 22-8 | 34-6 | —    | —  |
| Hamburg       | -3-2                  | 44-5 | 315 | i 8  | 3  | - 2              | —    | —  | —                | e 18-2 | 23-4 | —    | —  |
| Florence      | -3-2                  | 44-9 | 299 | e 7  | 59 | -10              | —    | —  | —                | —      | —    | —    | —  |
| Feldberg      | -3-2                  | 45-7 | 309 | e 8  | 11 | - 4              | e 14 | 41 | - 1              | e 19-6 | 31-1 | —    | —  |
| Zurich        | -3-3                  | 46-1 | 305 | i 8  | 16 | - 1              | —    | —  | —                | —      | —    | —    | —  |
| Strasbourg    | -3-3                  | 46-5 | 309 | i 8  | 20 | 0                | e 14 | 55 | + 4              | e 19-4 | —    | —    | —  |
| Moncalieri    | -3-3                  | 47-1 | 302 | e 8  | 14 | -10              | 13   | 37 | -82              | 18-0   | —    | —    | —  |
| Neuchatel     | -3-4                  | 47-3 | 305 | i 8  | 26 | + 1              | —    | —  | —                | —      | —    | —    | —  |
| De Bilt       | -3-4                  | 47-6 | 312 | i 8  | 28 | + 1              | 15   | 9  | + 4              | e 19-4 | 20-0 | —    | —  |
| Beaunçon      | -3-4                  | 47-8 | 305 | e 8  | 28 | - 1              | —    | —  | —                | —      | —    | —    | —  |
| Uccle         | -3-4                  | 48-2 | 310 | 8    | 33 | + 1              | e 15 | 18 | + 6              | e 19-4 | —    | —    | —  |
| Paris         | -3-5                  | 49-8 | 309 | i 8  | 43 | + 1              | e 14 | 23 | -69              | 21-4   | —    | —    | —  |
| Kew           | -3-6                  | 51-0 | 312 | 8    | 53 | + 3              | e 14 | 47 | -59              | 30-4   | —    | —    | —  |
| Oxford        | -3-7                  | 51-5 | 313 | —    | —  | —                | —    | —  | —                | —      | —    | —    | —  |
| Stonyhurst    | -3-7                  | 51-7 | 315 | i 8  | 58 | + 4              | e 16 | 40 | 2PS              | —      | 27-3 | —    | —  |
| Edinburgh     | -3-7                  | 51-8 | 318 | e 8  | 59 | + 4              | i 16 | 5  | +10              | —      | 31-4 | —    | —  |
| Algiers       | -3-8                  | 52-9 | 292 | 9    | 9  | + 8              | e 16 | 5  | - 2              | 24-9   | —    | —    | —  |
| Tortosa       | -3-8                  | 53-4 | 299 | 9    | 12 | + 8              | —    | —  | —                | —      | —    | —    | —  |
| Alicante      | -3-9                  | 55-0 | 296 | e 9  | 35 | +21              | —    | —  | —                | —      | —    | —    | —  |
| Scoresby Sund | -4-0                  | 56-7 | 338 | e 9  | 36 | +12              | e 17 | 13 | +21              | 26-4   | —    | —    | —  |
| Almeria       | -4-0                  | 56-9 | 296 | i 9  | 33 | + 8              | 17   | 12 | +17              | 29-0   | 33-2 | —    | —  |
| Toledo        | -4-0                  | 57-0 | 299 | 9    | 36 | +10              | —    | —  | —                | —      | —    | —    | —  |
| Granada       | -4-0                  | 57-6 | 295 | i 9  | 41 | +11              | e 17 | 28 | +24              | 29-4   | 31-7 | —    | —  |
| Malaga        | -4-0                  | 58-5 | 296 | 9    | 46 | +10              | 17   | 34 | +19              | 22-8   | —    | —    | —  |
| Georgetown    | -4-9                  | 98-9 | 336 | e 19 | 42 | 2PR <sub>1</sub> | e 23 | 58 | [-20]            | e 45-7 | —    | —    | —  |

For Notes see next page.

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NOTES TO AUG. 10d. 15h. 33m. 37s.

Additional readings: Kucino  $i = +7m.11s.$  Königsberg  $ePR_1 = +8m.17s., ePR_2 = +8m.50s., eSZ = +13m.0s., eE = +13m.14s., eLZ = +16.4m.;$  epi-centre  $38^{\circ}7'N, 70^{\circ}0'E.$  Copenhagen  $iEZ = +9m.9s., PR_1 = +9m.39s., iE = -eZ = +10m.49s., eE = +15m.23s., eE = iN = +17m.29s.$  Jena  $eZ = +9m.14s., iE = +9m.42s.,$  and  $+9m.44s.$  Rocca di Papa  $iPN = +8m.4s., PR_1 = +9m.42s., eL = +31.6m.$  Feldberg  $eN = +18m.11s.$  Strasbourg  $iPR_1 = +9m.25s., iPR_2 = +10m.13s., PR_3 = +11m.20s., e = +18m.45s. = SR_2 - 9s.$  De Bilt  $iPR_1Z = +9m.45s., iPR_2Z = +10m.24s., MZ = +19.8m.$  Uccle  $PR_1 = +10m.30s.$  Kew  $PR_1EZ = +10m.9s., eSR_1NZ = +17m.16s.,$  Stonyhurst  $? = +17m.28s.$  Scoresby Sund  $+18m.47s., SR_1 = +20m.47s., SR_2 = +22m.23s. ?$  Almeria  $PR_1 = +10m.49s.$  Granada  $i = +10m.56s., +13m.32s.,$  and  $+15m.4s.$

Aug. 10d. Readings also at 2h. (near Wellington), 5h. (Tashkent, Nagoya, near Kobe, near Tacubaya, and Vera Cruz), 7h. (near Tacubaya), 10h. (near Tashkent), 11h. and 12h. (near Tacubaya), 14h. (Feldberg, Helsingfors, and Hong Kong), 15h. (Feldberg), 21h. (Florissant), 23h. (Ekaterinburg, Ksara, Tashkent, and Makeyevka).

Aug. 11d. Readings at 3h. (Phu-Lien), 6h. (Nagoya), 7h. (Tashkent), 8h. (Batavia and Ekaterinburg), 10h. (Nagoya), 12h. (Chihuahua and near Manila), 13h. (Ekaterinburg, Pulkovo, and Tashkent).

Aug. 12d. 8h. 8m. 45s. Epicentre  $2^{\circ}1'N, 127^{\circ}8'E.$

(as on 1928 June 18d.).

$$A = -.612, B = +.790, C = +.037; \quad D = +.790, E = +.613; \\ G = -.022, H = +.029, K = -.999.$$

A depth of focus 0-030 has been assumed for this shock. The same depth was used with this epicentre on 1921 July 15d. 18h.

|               | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.    | O-C.       | S.    | O-C.      | L.               | M.     |
|---------------|-----------------------|----------|-----|-------|------------|-------|-----------|------------------|--------|
|               |                       |          |     | m. s. | $\delta S$ | m. s. |           | m.               | m.     |
| Amboina       | -0.1                  | 5.8      | 177 | i 2   | 49         | ?S    | (i 2 49)  | +13              | (3.7)  |
| Manila        | -0.8                  | 14.2     | 332 | i 3   | 15         | -3    | —         | —                | i 7.6  |
| Malabar       | -1.4                  | 22.2     | 245 | 4     | 48         | -3    | 8 42      | +2               | —      |
| Batavia       | -1.4                  | 22.5     | 248 | i 4   | 48         | -6    | 8 24      | -22              | 13.2   |
| Taihoku       | E. -1.5               | 23.7     | 346 | e 5   | 21         | +14   | (9 20)    | +11              | 9.3    |
| Hong Kong     | -1.5                  | 24.1     | 328 | 5     | 15         | +3    | (9 23)    | +6               | 9.4    |
| Phu-Lien      | -1.8                  | 27.8     | 314 | 5     | 46         | -2    | 10 14     | -8               | —      |
| Zi-ka-wei     | Z. -2.0               | 29.7     | 349 | e 6   | 10         | +5    | i 11 46   | ?SR <sub>1</sub> | —      |
| Nagasaki      | -2.0                  | 30.7     | 3   | e 6   | 28         | +13   | e 11 50   | +38              | —      |
| Sumoto        | -2.2                  | 32.9     | 11  | i 6   | 36         | +1    | (e 11 48) | +2               | e 11.8 |
| Kobe          | -2.2                  | 33.3     | 11  | e 6   | 40         | +1    | —         | —                | —      |
| Perth         | -2.3                  | 35.9     | 197 | (i 7  | 0)         | -1    | (13 0)    | +26              | 14.6   |
| Adelaide      | -2.4                  | 38.4     | 165 | —     | —          | —     | i 12 35   | -35              | 16.4   |
| Mizusawa      | E. -2.5               | 39.0     | 16  | 7     | 30         | +4    | 13 21     | +4               | 18.0   |
|               | N. -2.5               | 39.0     | 16  | 7     | 34         | +8    | 13 20     | +3               | —      |
| Riverview     | -2.6                  | 42.1     | 150 | e 7   | 42         | -9    | i 13 52   | -7               | e 23.2 |
| Melbourne     | -2.7                  | 43.0     | 160 | i 7   | 43         | -14   | i 13 55   | -16              | —      |
| Calcutta      | E. -2.7               | 43.3     | 301 | 8     | 15         | +15   | 14 39     | +24              | —      |
|               | N. -2.7               | 43.3     | 301 | 8     | 11         | +11   | 14 17     | +2               | —      |
| Colombo       | -3.0                  | 48.0     | 277 | 8     | 27         | -6    | 15 17     | +2               | —      |
| Kodalkanal    | E. -3.1               | 50.6     | 281 | 8     | 15         | -36   | —         | +9               | 22.2   |
| Dehra Dun     | -3.4                  | 54.8     | 307 | 9     | 9          | -7    | 16 45     | +9               | 23.8   |
| Bombay        | -3.5                  | 56.3     | 292 | 9     | 35         | +10   | 17 11     | +17              | 28.3   |
| Wellington    | E. -3.6               | 60.9     | 142 | i 10  | 4          | +10   | 19 1      | ?PS              | 32.4   |
|               | N. -3.6               | 60.9     | 142 | i 10  | 6          | +12   | i 19 1    | ?PS              | e 30.5 |
| Honolulu T.H. | E. -3.9               | 74.8     | 69  | i 11  | 41         | +19   | —         | —                | 41.2   |
|               | N. -3.9               | 74.8     | 69  | i 11  | 42         | +20   | i 21 10   | +33              | —      |
| Ekaterinburg  | -3.9                  | 75.9     | 329 | i 11  | 39         | +9    | i 21 9    | +19              | 34.2   |
| Tanarive      | -4.0                  | 81.5     | 250 | —     | —          | —     | i 22 5    | +10              | 46.6   |
| Kucino        | -4.2                  | 88.2     | 326 | 12    | 52         | +10   | 23 7      | -1               | 42.0   |

Continued on next page.

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|               | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.    |     | O-C.             | S.   |      | O-C.             | L.     | M.   |
|---------------|-----------------------|----------|-----|-------|-----|------------------|------|------|------------------|--------|------|
|               |                       |          |     | m.    | s.  |                  | m.   | s.   |                  |        |      |
| Makeyevka     | -4.2                  | 88.3     | 319 | 12    | 46  | + 3              | 23   | 18   | + 9              | 43.8   | 53.4 |
| Theodosia     | -4.2                  | 90.2     | 316 | i 12  | 57  | + 4              | 23   | 16   | [-13]            | —      | —    |
| Ksara         | -4.2                  | 90.4     | 304 | e 12  | 57  | + 3              | 23   | 13   | [-17]            | 40.1   | —    |
| Simferopol    | -4.2                  | 91.1     | 315 | —     | —   | —                | e 23 | 16   | [-19]            | —      | —    |
| Yalta         | -4.2                  | 91.1     | 315 | e 13  | 1   | + 3              | 23   | 17   | [-18]            | —      | —    |
| Sebastopol    | -4.2                  | 91.6     | 315 | e 13  | 1   | 0                | 23   | 20   | [-18]            | —      | —    |
| Pulkovo       | -4.2                  | 91.9     | 330 | i 13  | 4   | + 1              | i 23 | 51   | + 2              | 42.2   | 49.8 |
| Entebbe       | -4.3                  | 95.3     | 272 | —     | —   | —                | —    | —    | —                | 21.2   | —    |
| Upsala        | -4.4                  | 98.1     | 332 | —     | —   | —                | e 23 | 39   | [-35]            | e 52.2 | —    |
| Konigsberg    | -4.4                  | 98.1     | 326 | e 14  | 47  | +71              | e 24 | 37   | -16              | e 41.2 | 56.2 |
|               | -4.4                  | 98.1     | 326 | e 14  | 15? | +39              | e 24 | 38   | -15              | e 46.2 | 53.2 |
|               | -4.4                  | 98.1     | 326 | —     | —   | —                | e 24 | 58   | + 5              | —      | 55.2 |
| Victoria      | -4.4                  | 100.8    | 40  | 17    | 18  | ?PR <sub>1</sub> | 25   | 18   | - 2              | 42.4   | 42.9 |
| Lund          | -4.4                  | 101.7    | 330 | 17    | 57  | [+ 6]            | 24   | 13   | [-19]            | —      | —    |
| Copenhagen    | -4.4                  | 102.2    | 330 | 14    | 3   | + 4              | i 24 | 18   | [-17]            | 45.2   | 63.2 |
| Vienna        | -4.4                  | 102.4    | 321 | e 15  | 29  | +89              | 24   | 21   | [-15]            | —      | 58.2 |
| Zagreb        | -4.5                  | 103.4    | 319 | e 13  | 52  | -13              | e 23 | 59   | [-41]            | e 52.3 | —    |
| Hamburg       | -4.5                  | 104.3    | 327 | e 17  | 51  | [-11]            | i 24 | 26   | [-18]            | e 52.2 | 61.2 |
| Scoresby Sund | -4.5                  | 104.6    | 350 | e 14  | 21  | +10              | 24   | 30   | [-15]            | 51.2   | —    |
| Pompeii       | -4.5                  | 105.9    | 314 | e 18  | 35  | ?PR <sub>1</sub> | e 23 | 25   | ?                | —      | —    |
| Venice        | -4.5                  | 106.0    | 319 | e 18  | 9?  | [+ 1]            | —    | —    | —                | —      | —    |
| Naples        | -4.5                  | 106.1    | 314 | e 18  | 34  | ?PR <sub>1</sub> | e 25 | 15   | [+23]            | —      | —    |
| Feldberg      | -4.5                  | 106.6    | 325 | e 19  | 15  | ?PR <sub>1</sub> | e 25 | 47   | ?E               | e 41.0 | 58.2 |
| Rocca di Papa | -4.5                  | 106.9    | 315 | i 19  | 27  | ?PR <sub>1</sub> | e 24 | 36   | [-20]            | —      | 33.8 |
| De Bilt       | -4.6                  | 107.6    | 326 | e 14  | 58  | +33              | e 24 | 43   | [-16]            | e 55.2 | 63.4 |
| Strasbourg    | -4.6                  | 107.6    | 322 | e 14  | 15? | -10              | i 18 | 47   | ?PR <sub>1</sub> | e 57.2 | —    |
| Uedle         | -4.6                  | 108.6    | 325 | e 14  | 15? | -15              | —    | —    | —                | —      | —    |
| Moncalieri    | -4.6                  | 109.1    | 320 | (e 14 | 31) | - 1              | (24  | 54)  | [-12]            | (42.9) | —    |
| Edinburgh     | -4.6                  | 109.7    | 334 | e 19  | 39  | ?                | —    | —    | —                | 51.2   | 67.2 |
| Stonyhurst    | -4.6                  | 110.5    | 330 | —     | —   | —                | e 24 | 52   | [-20]            | 58.2   | —    |
| Paris         | -4.6                  | 110.6    | 325 | e 18  | 9   | [-15]            | (28  | 15?) | +83              | 28.2   | 65.2 |
| Kew           | -4.6                  | 110.8    | 328 | e 15  | 3   | +23              | e 24 | 54   | [-19]            | 51.2   | —    |
| Oxford        | -4.6                  | 111.1    | 329 | —     | —   | —                | e 24 | 55   | [-19]            | e 60.4 | —    |
| Alicante      | -4.8                  | 117.6    | 315 | e 19  | 59  | ?PR <sub>1</sub> | (29  | 43)  | ?PS              | 29.7   | —    |
| Toledo        | -4.8                  | 119.2    | 318 | e 18  | 35  | [-15]            | e 25 | 22   | [-21]            | —      | —    |
| Almeria       | -4.8                  | 119.5    | 315 | e 19  | 42  | ?PR <sub>1</sub> | —    | —    | —                | 64.3   | 70.5 |
| Granada       | -4.8                  | 120.0    | 314 | e 18  | 32  | [-20]            | —    | —    | —                | 63.2   | 69.8 |
| Florissant    | —                     | 126.1    | 36  | i 17  | 15? | ?                | —    | —    | —                | —      | —    |
| Ottawa        | —                     | 128.1    | 20  | e 21  | 39  | ?PR <sub>1</sub> | —    | —    | —                | 68.2   | —    |
| Toronto       | —                     | 128.2    | 24  | e 22  | 19  | ?PR <sub>1</sub> | —    | —    | —                | 68.9   | —    |
| Georgetown    | —                     | 133.0    | 26  | i 19  | 9   | [-16]            | —    | —    | —                | e 64.4 | 79.5 |
| La Plata      | —                     | 146.8    | 170 | (19   | 33) | [-18]            | —    | —    | —                | 19.6   | —    |
| La Paz        | —                     | 158.8    | 134 | i 19  | 54  | [-13]            | i 27 | 30   | ?E               | 39.2   | 45.5 |
| Sucre         | —                     | 158.8    | 144 | i 19  | 57  | [-10]            | i 30 | 49   | ?E               | 44.2   | 53.2 |

Additional readings and notes: Amboina gives S as P and L as S. Manila MN = +7.7m. Malabar i = +9m.13s. = SR<sub>1</sub> - 7s., and +15m.54s. Batavia iP = +4m.50s., iZ = +4m.52s., i = +4m.55s., iZ = +7m.52s., +8m.49s., iN = +8m.51s., Zi-ka-wei iPZ = +6m.42s., SN = +11m.48s. Kobe PR<sub>1</sub>N = +7m.7s., PR<sub>1</sub>N = +8m.10s. Perth gives P as S and S as another L. Adelaide i = +8m.23s. = PR<sub>1</sub> - 21s., iSR<sub>1</sub> = +15m.15s. Riverview iP = +7m.46s., iPR<sub>1</sub> = +9m.21s., P<sub>1</sub>P = +9m.32s., P<sub>1</sub>S = +13m.34s., iSR<sub>1</sub> = +17m.14s., and +17m.49s., SR<sub>1</sub> = +18m.5s., iSR<sub>1</sub> = +18m.26s., +20m.23s., and +22m.37s., MN = +25.6m.; T<sub>1</sub> = 8h.8m.26s.; epicentre 0° 0', 126° 0'E. Melbourne i = +17m.0s. = SR<sub>1</sub> + 8s. Wellington PR<sub>1</sub>E = +14m.21s.; T<sub>1</sub>E = 8h.7m.46s.; T<sub>1</sub>N = 8h.7m.49s. Honolulu T.H. eN = +18m.10s. Tananarive iE = +22m.37s. = S - 4s., eN = +22m.39s., and +22m.56s. = E - 6s., eE = +22m.54s. Kucino PR<sub>1</sub> = +16m.25s., PS = +24m.1s. Ksara PR<sub>1</sub>E = +16m.36s., PR<sub>1</sub>E = +17m.50s., SR<sub>1</sub>E = +35m.19s., MN = +48.1m.; T<sub>1</sub> = 8h.9m.30s. Pulkovo S<sub>1</sub>P<sub>1</sub>S = +23m.20s. = [S] - 19s. Konigsberg ePR<sub>1</sub>E? = +17m.37s., eN = +18m.15s.?, eE = +18m.31s., eZ = +18m.33s., and +21m.48s. = PR<sub>1</sub> + 22s., iEN = +23m.55s. = [S] - 19s., eE = +24m.25s., eE = +25m.37s., and +27m.11s., eN = +28m.3s., eZ = +28m.33s., eSR<sub>1</sub>E = +30m.45s., eSR<sub>1</sub>N = +31m.45s., eE = +32m.29s., eN = +33m.27s. Victoria SE = +25m.48s. Copenhagen PR<sub>1</sub> = +18m.1s., eEN = +25m.0s. = E - 24s., eE = +27m.21s. = PS - 8s., and +28m.51s., SR<sub>1</sub> = +32m.40s., MN = +56.0m. Zagreb e = +24m.20s. and +32m.55s. Scoresby Sund ePE = +14m.51s. eP' = +18m.9s. = [P] + 6s., ePR<sub>1</sub>N = +18m.44s., eE = +19m.9s., eS<sub>1</sub>C<sub>1</sub>P<sub>1</sub>SE = +25m.15s., ePSN = +27m.15s.?, SR<sub>1</sub> = +33m.9s., SR<sub>1</sub> = +36m.39s., eE = +43m.15s.?, Feldberg eN = +33m.31s. = SR<sub>1</sub> + 27s., and +37m.57s. = SR<sub>1</sub> + 5s. Rocca di Papa eN = +17m.27s., eE = +17m.45s. = [P] - 16s., iSEN = +24m.40s. De Bilt e = +18m.45s. = PR<sub>1</sub> - 19s., MN = +58.6m.,

Continued on next page.

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MZ = +67.8m. Moncalieri readings have been *increased* by 6m. Kew  
 ePR<sub>1</sub>Z = +19m.9s., ePSZ = +28m.21s., eSR<sub>1</sub>N = +34m.39s. Oxford  
 iN = +28m.25s. = PS - 45s. Toledo eNE = +30m.15s. = PS - 21s.  
 Granada I = +19m.39s., +20m.20s. = PR<sub>1</sub> - 4s., and +22m.45s. Florissant  
 iZ = +18m.45s. and +19m.15s. ? Ottawa eE? = +38m.15s. ? = SR<sub>1</sub> - 12s.,  
 eLE = +52.2m. Toronto eN = +38m.25s. = SR<sub>1</sub> - 3s., LE = +79.2m.  
 Georgetown iZ = +22m.5s. = PR<sub>1</sub> + 15s., and +34m.23s. La Paz SN? =  
 +30m.48s. = Z - 14s.

Aug. 12d. Readings also at 1h. (Tashkent), 3h. (Sucre and near La Paz), 4h. (near Tacubaya), 5h. (Hyderabad and Sydney), 6h. (Taihoku and near Tacubaya), 7h. (Uccle), 10h. (San Fernando, Tucson, near Vera Cruz, and Tacubaya), 11h. (Ekaterinburg, Pulkovo, and near Tashkent (2)), 12h. (Florissant, Ottawa, Toronto, Ekaterinburg, and near Tashkent), 13h. (Batavia, Wellington, and near Tashkent), 14h. (Azores, Batavia, and Malabar), 15h. (Manila and Moncalieri), 16h. (Copenhagen, Ekaterinburg, Pulkovo, and Tashkent), 17h. (near Tashkent, near Chur, Neuchatel, and Zurich), 20h. (Strasbourg and near Tashkent).

Aug. 13d. Readings at 0h. (Tashkent, Sucre, and La Paz), 1h. (Ekaterinburg), 2h. (Pulkovo and Suva), 3h. (Florissant, Victoria, Honolulu T.H., La Paz, Sucre, and Scoresby Sund), 4h. (Baku, Copenhagen, Ekaterinburg, Irkutsk, Pulkovo, and Granada), 5h. (Baku, Ekaterinburg, Malabar, and Wellington), 9h. (La Paz), 13h. (near Santiago), 17h. (near Sumoto), 19h. (near Mostar), 22h. (Copenhagen, De Bilt, Ekaterinburg, Florissant, Granada, Makeyevka, and Pulkovo), 23h. (Tashkent).

Aug. 14d. 0h. 9m. 9s. Epicentre 27°·6N. 57°·8E. (as on 1928 April 30d.).

A = +.472, B = +.750, C = +.463; D = +.846, E = -.533;  
 G = +.247, H = +.392, K = -.886.

|              | Δ       | Az. | P.     | O-C.             | S.      | O-C. | L.     | M.   |
|--------------|---------|-----|--------|------------------|---------|------|--------|------|
|              | °       | °   | m. s.  | s.               | m. s.   | s.   | m.     | m.   |
| Baku         | 14.4    | 335 | e 3 37 | + 5              | e 6 16  | - 2  | 10.4   | 13.6 |
| Tashkent     | 16.6    | 32  | 3 57   | - 3              | 1 7 12  | + 3  | e 8.4  | 11.8 |
| Ksara        | E. 19.8 | 294 | 8 16   | ?S               | (8 16)  | - 3  | (10.9) | —    |
| Ekaterinburg | 29.3    | 3   | e 6 1  | -20              | e 11 32 | +10  | —      | —    |
| Pulkovo      | 37.3    | 337 | e 8 36 | ?PR <sub>1</sub> | —       | —    | 21.8   | —    |
| Irkutsk      | 42.3    | 41  | —      | —                | —       | —    | 25.8   | —    |
| Copenhagen   | 42.9    | 325 | —      | —                | —       | —    | —      | 26.8 |

Additional readings and notes: Baku e = +8m.38s. Ksara gives S as P and L as S, also LE = +12.3m. and +14.3m. Only the readings for the first three stations are given with definite phase.

Aug. 14d. 8h. 26m. 12s. Epicentre 36°·5N. 139°·5E. (as on 1928 Feb. 11d.).

A = -.611, B = +.522, C = +.595.

|          | Δ      | Az. | P.     | O-C. | S.       | O-C. | L.  | M.  |
|----------|--------|-----|--------|------|----------|------|-----|-----|
|          | °      | °   | m. s.  | s.   | m. s.    | s.   | m.  | m.  |
| Nagoya   | 2.5    | 238 | e 0 34 | - 5  | (1 5)    | - 4  | 1.1 | 1.4 |
| Mizusawa | E. 2.9 | 26  | 0 45   | 0    | 1 24     | + 4  | —   | —   |
| Osaka    | 3.8    | 242 | 0 57   | - 2  | —        | —    | 1.9 | 2.9 |
| Kobe     | N. 4.0 | 244 | e 1 55 | ?S   | (e 1 55) | + 5  | —   | —   |

Nagoya gives also S = +52s., MN = +1.5m.

Aug. 14d. Readings also at 5h. (Budapest, Copenhagen, and near Tacubaya (2)), 20h. and 21h. (near Sumoto).

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Aug. 15d. 0h. 48m. 10s. Epicentre 26°·3S. 70°·0W. (given by La Paz).

A = +·307, B = -·842, C = -·443 ; D = -·940, E = -·342 ;  
G = -·152, H = +·416, K = -·896.

|          | Δ    | Az. | P.     | O-C. | S.     | O-C. | L.  | M.  |
|----------|------|-----|--------|------|--------|------|-----|-----|
|          | °    | °   | m. s.  | s.   | m. s.  | s.   | m.  | m.  |
| Sucre    | 8·5  | 32  | i 2 0  | - 9  | i 3 28 | - 22 | 3·8 | 4·1 |
| La Paz   | 10·0 | 10  | 2 32   | + 2  | i 4 33 | + 4  | 5·1 | 5·6 |
| La Plata | 13·4 | 133 | e 3 26 | + 8  | e 5 56 | + 3  | 6·6 | —   |

La Paz gives also i = +4m.3s.

Aug. 15d. 12h. 5m. 36s. Epicentre 35°·0N. 26°·0E. (as on 1928 June 14d.)

A = +·736, B = +·359, C = +·574 ; D = +·438, E = -·899 ;  
G = +·516, H = +·251, K = -·819.

|              | Δ       | Az. | P.       | O-C. | S.       | O-C. | L.       | M.   |
|--------------|---------|-----|----------|------|----------|------|----------|------|
|              | °       | °   | s. s.    | s.   | m. s.    | s.   | m.       | m.   |
| Ksara        | E. 8·3  | 95  | e 2 13   | + 7  | 3 45     | 0    | 4·0      | —    |
| Zagreb       | 13·2    | 328 | —        | —    | e 5 47   | - 2  | e 7·2    | —    |
| Makeyevka    | 15·8    | 31  | —        | —    | (e 6 54) | + 4  | e 6·9    | —    |
| Moncalieri   | 17·1    | 311 | (e 3 54) | - 12 | —        | —    | (9·2)    | —    |
| Strasbourg   | 19·1    | 321 | (e 4 24) | - 6  | (e 8 9)  | + 5  | (e 11·4) | —    |
| Feldberg     | N. 19·8 | 325 | —        | —    | e 8 33   | + 14 | —        | —    |
| Paris        | 22·1    | 316 | —        | —    | (e 9 17) | + 10 | e 9·3    | —    |
| Uccle        | 22·2    | 322 | —        | —    | e 9 15   | + 6  | e 11·4   | —    |
| Kucino       | 22·3    | 18  | —        | —    | e 9 12   | + 1  | e 12·1   | —    |
| Lund         | 22·4    | 341 | —        | —    | —        | —    | 12·4     | —    |
| De Bilt      | 22·6    | 325 | —        | —    | e 9 23   | + 6  | e 12·4   | —    |
| Copenhagen   | 22·7    | 340 | —        | —    | 9 12     | - 7  | 12·4     | 16·5 |
| Almeria      | 23·0    | 283 | e 5 11   | - 6  | —        | —    | —        | 22·6 |
| Granada      | 23·9    | 284 | e 6 29   | + 62 | —        | —    | e 17·4   | 18·7 |
| Pulkovo      | 24·9    | 5   | 5 37     | 0    | 9 55     | - 6  | 12·9     | 15·6 |
| Kew          | 25·0    | 319 | —        | —    | e 10 4   | + 1  | 13·4     | 14·4 |
| Ekaterinburg | 31·9    | 36  | —        | —    | e 11 46  | - 21 | —        | —    |
| Tashkent     | 34·2    | 66  | —        | —    | e 12 34  | - 9  | e 19·4   | 25·4 |

Additional readings and note : Moncalieri readings have been increased by 8m.  
Strasbourg readings have been increased by 10m. Copenhagen MN = +15·9m. Tashkent e = +17m.54s.

Aug. 15d. 15h. 38m. 36s. Epicentre 32°·5N. 42°·0W. (as on 1922 July 28d.)

A = +·627, B = -·564, C = +·537 ; D = -·669, E = -·743 ;  
G = +·399, H = -·360, K = -·843.

|               | Δ       | Az. | P.      | O-C.             | S.       | O-C.  | L.     | M.   |
|---------------|---------|-----|---------|------------------|----------|-------|--------|------|
|               | °       | °   | m. s.   | s.               | m. s.    | s.    | m.     | m.   |
| Georgetown    | Z. 29·0 | 293 | e 6 27  | + 9              | —        | —     | 14·6   | 16·6 |
| Ottawa        | 29·0    | 306 | e 5 48  | - 30             | e 11 24  | + 7   | e 14·4 | —    |
| San Fernando  | 29·6    | 72  | —       | —                | —        | —     | —      | 17·7 |
| Malaga        | 31·0    | 72  | e 7 42  | ?PR <sub>1</sub> | —        | —     | —      | —    |
| Toledo        | 31·2    | 66  | e 6 35  | - 5              | e 11 40  | - 14  | e 13·3 | —    |
| Toronto       | E. 31·2 | 304 | —       | —                | e 12 4   | + 10  | 16·4   | 17·4 |
| Granada       | 31·6    | 72  | i 6 39  | - 4              | e 11 29  | - 32  | 14·6   | 16·1 |
| Almeria       | 32·6    | 72  | e 6 42  | - 11             | —        | —     | 16·2   | 17·3 |
| Alicante      | 34·0    | 68  | e 6 52  | - 13             | e 11 58  | - 42  | 15·6   | —    |
| Tortosa       | N. 34·4 | 63  | —       | —                | 12 45    | - 1   | e 15·4 | 16·6 |
| Oxford        | N. 35·1 | 45  | —       | —                | e 12 51  | - 6   | —      | 18·5 |
| Stonyhurst    | 35·2    | 43  | e 7 36  | + 21             | e 13 24? | + 26  | —      | —    |
| Kew           | 35·6    | 46  | 7 18    | 0                | e 13 6   | + 2   | 17·9   | —    |
| Edinburgh     | 35·6    | 39  | —       | —                | e 12 24? | - 40  | —      | —    |
| Paris         | 36·8    | 50  | e 7 24? | - 4              | —        | —     | 17·4   | 18·4 |
| Uccle         | 38·3    | 48  | e 7 41  | + 1              | e 13 40  | - 2   | e 18·4 | —    |
| De Bilt       | 39·1    | 46  | e 7 49  | + 2              | 13 58    | + 5   | e 18·4 | 21·1 |
| Florianant    | 39·4    | 293 | 14 24?  | - 206            | 110 24?  | - 213 | 15·4   | 18·4 |
| Scoresby Sund | 39·6    | 10  | 8 24?   | + 33             | 14 18    | + 18  | 20·4   | —    |

Continued on next page.

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|               | $\Delta$   | Az.        | P.      | O-C. | S.      | O-C. | L.     | M.   |
|---------------|------------|------------|---------|------|---------|------|--------|------|
|               | $^{\circ}$ | $^{\circ}$ | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Moncalieri    | E. 40.0    | 58         | e 5 39  | -136 | 12 46   | -81  | 20.3   | —    |
| Strasbourg    | 40.2       | 51         | 7 54    | —    | e 14 9  | -1   | e 19.4 | —    |
| Rocca di Papa | E. 43.8    | 61         | e 8 50  | +26  | —       | —    | —      | —    |
| Copenhagen    | 43.9       | 41         | 8 30    | +5   | e 15 10 | +9   | 22.4   | 23.9 |
| Pulkovo       | 53.6       | 37         | 9 52    | +22  | e 16 49 | -15  | 27.4   | 32.1 |
| La Paz        | 55.0       | 211        | 9 39    | 0    | —       | —    | —      | —    |
| Victoria      | 61.0       | 312        | 19 4    | ?S   | (19 4)  | +28  | 33.2   | 36.3 |
| Ekaterinburg  | 69.6       | 35         | e 11 29 | +14  | —       | —    | e 25.3 | —    |
| Baku          | 70.9       | 54         | e 11 43 | +21  | e 21 10 | +33  | 39.4   | —    |
| Tashkent      | 82.8       | 45         | —       | —    | e 22 51 | -4   | e 40.4 | 48.1 |

Additional readings: Toronto eE = +15m.47s. Granada PR<sub>1</sub> = +7m.41s.  
 De Bilt MZ = +21.5m., MN = +21.6m. Rocca di Papa eN = +9m.9s.  
 Copenhagen ePE = +8m.36s., SR<sub>1</sub> = +18m.36s. Tashkent I = +15m.44s.,  
 e = +15m.52s. = PR<sub>1</sub> - 21s.

Aug. 15d. 17h. 15m. 40s. Epicentre 28°-0S. 62°-0W.

A = +.415, B = -.780, C = -.469; D = -.883, E = -.469;  
 G = -.220, H = +.415, K = -.883.

A depth of focus 0.080 has been assumed. The origin is adapted from the position 26°-8S. 64°-6W. (given by La Paz and Sucre). See note.

|                | Corr.<br>for<br>Focus | $\Delta$   | Az.   | P.       | O-C.             | S.        | O-C.   | L.     | M.   |
|----------------|-----------------------|------------|-------|----------|------------------|-----------|--------|--------|------|
|                | $^{\circ}$            | $^{\circ}$ | m. s. | s.       | s.               | m. s.     | s.     | m.     | m.   |
| La Plata       | -0.1                  | 7.7        | 154   | i 1 56   | +1               | i 3 28    | +2     | —      | —    |
| Santiago       | -0.7                  | 9.2        | 232   | i 1 58   | -11              | i 2 28    | -82    | 3.5    | —    |
| Sucre          | -0.7                  | 9.4        | 341   | i 2 15   | +3               | i 5 1     | -5     | 4.1    | 4.3  |
| La Paz         | -1.6                  | 12.8       | 333   | i 2 52   | +5               | i 5 1     | +2     | i 5.2  | 5.4  |
| Rio de Janeiro | -2.7                  | 17.6       | 77    | e 3 44   | +4               | i 6 42    | +12    | 7.2    | —    |
| Georgetown     | Z. -8.3               | 68.3       | 349   | i 10 8   | -4               | i 18 24   | +1     | e 26.4 | 37.7 |
| Florissant     | -8.5                  | 71.8       | 338   | i 10 20? | -14              | i 19 20?  | +15    | —      | —    |
| Toronto        | -8.6                  | 73.4       | 348   | e 12 28  | ?                | e 19 7    | -16    | 30.6   | —    |
| Ottawa         | -8.7                  | 74.4       | 351   | e 12 46  | ?                | i 19 26   | -7     | e 28.3 | —    |
| Tucson         | -8.9                  | 76.1       | 320   | e 10 50  | -9               | i 19 39   | -13    | —      | —    |
| San Fernando   | -9.3                  | 83.0       | 43    | i 11 38  | -2               | i 21 3    | -7     | 30.8   | 32.6 |
| Malaga         | -9.4                  | 84.3       | 44    | i 12 35  | +47              | e 21 13   | -12    | —      | —    |
| Granada        | -9.4                  | 85.1       | 44    | i 11 39  | -14              | i 21 21   | -13    | 32.7   | 35.1 |
| Almeria        | -9.4                  | 85.7       | 45    | i 11 41  | -16              | i 21 9    | -32    | 30.8   | 34.8 |
| Toledo         | N.E. -9.5             | 86.6       | 41    | e 11 46  | -16              | i 21 17   | -33    | e 34.4 | —    |
| Alicante       | -9.6                  | 87.7       | 44    | e 11 52  | -16              | i 21 26   | -35    | e 32.8 | —    |
| Algiers        | -9.7                  | 89.0       | 47    | i 11 58  | -17              | e 21 57   | -18    | 31.3   | 36.3 |
| Tortosa        | -9.7                  | 89.9       | 43    | i 12 3   | -17              | e 21 36   | -49    | e 38.3 | —    |
| Victoria       | -9.8                  | 93.9       | 325   | —        | —                | (21 52)   | ?      | 21.9   | 26.5 |
| Oxford         | N. -9.8               | 95.7       | 34    | —        | —                | i 22 0    | -89    | —      | —    |
| Paris          | -9.8                  | 95.8       | 38    | e 12 31  | -22              | e 22 4    | -86    | 27.3   | 53.3 |
| Kew            | -9.8                  | 96.1       | 34    | i 12 28  | -27              | i 22 7    | -86    | 36.8   | —    |
| Moncalieri     | E. -9.8               | 96.6       | 43    | e 8 10   | ?                | i 21 10   | ?      | 32.8   | —    |
| Stonyhurst     | -9.8                  | 96.6       | 32    | e 11 57  | -61              | i 22 12   | -87    | —      | —    |
| Edinburgh      | -9.9                  | 97.5       | 29    | e 16 20? | ?PR <sub>1</sub> | i 22 14   | -94    | 38.3   | —    |
| Rocca di Papa  | -9.9                  | 97.9       | 47    | e 12 38  | -27              | i 22 22   | -90    | 33.9   | 38.5 |
| Uccle          | -9.9                  | 98.0       | 36    | e 12 39  | -27              | i 22 18   | -35    | e 30.3 | —    |
| Zurich         | -9.9                  | 98.4       | 41    | e 7 43   | ?                | —         | —      | —      | —    |
| Strasbourg     | -9.9                  | 98.5       | 39    | e 16 17  | ?PR <sub>1</sub> | —         | —      | e 37.3 | —    |
| Chur           | -9.9                  | 98.6       | 41    | e 12 43  | -26              | (e 22 22) | ?      | e 22.4 | —    |
| Pompeii        | -9.9                  | 98.6       | 49    | e 16 20  | ?PR <sub>1</sub> | —         | —      | —      | —    |
| Dyce           | -9.9                  | 98.9       | 28    | i 17 23  | ?PR <sub>1</sub> | i 23 20   | -43    | 33.8   | —    |
| De Bilt        | -9.9                  | 99.1       | 36    | e 12 45  | -26              | e 23 23   | -42    | —      | —    |
| Hamburg        | -9.9                  | 102.4      | 36    | e 18 21  | ?PR <sub>1</sub> | i 22 43   | ?      | —      | —    |
| Copenhagen     | -10.0                 | 104.7      | 35    | e 15 20  | ?                | e 23 42   | -81    | —      | —    |
| Lund           | -10.0                 | 105.0      | 35    | i 17 37  | ?PR <sub>1</sub> | e 22 53   | ?      | —      | —    |
| Konigsberg     | E. —                  | 108.5      | 38    | —        | —                | e 23 6    | [-118] | e 49.3 | —    |
| Kaara          | —                     | 111.2      | 62    | 18 40    | ?PR <sub>1</sub> | 23 20     | [-115] | 27.2   | —    |
| Helsingfors    | —                     | 112.5      | 33    | 23 21    | ?S               | (23 21)   | [-119] | 36.8   | —    |
| Sebastopol     | —                     | 113.0      | 50    | i 18 23  | [-8]             | —         | —      | —      | —    |
| Yalta          | —                     | 113.3      | 50    | i 18 40  | ?PR <sub>1</sub> | —         | —      | —      | —    |
| Simferopol     | —                     | 113.4      | 50    | e 18 20? | [-12]            | —         | —      | —      | —    |
| Theodosia      | —                     | 114.3      | 50    | i 18 49  | ?PR <sub>1</sub> | —         | —      | —      | —    |

Continued on next page.



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|              | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.   |     | O-C.             | S.   |    | O-C.             | L. | M.   |
|--------------|-----------------------|----------|-----|------|-----|------------------|------|----|------------------|----|------|
|              |                       |          |     | m.   | s.  |                  | m.   | s. |                  |    |      |
| Pulkovo      | —                     | 115-0    | 34  | e 13 | 57  | ?                | 24   | 43 | [-46]            | —  | —    |
| Makeyevka    | —                     | 116-8    | 47  | —    | —   | —                | 25   | 1  | [-34]            | —  | —    |
| Baku         | —                     | 123-7    | 58  | e 18 | 5   | [-57]            | 25   | 51 | [-5]             | —  | —    |
| Ekaterinburg | —                     | 131-2    | 37  | (20  | 33) | ?PR <sub>1</sub> | e 39 | 18 | ?SR <sub>1</sub> | —  | —    |
| Bombay       | —                     | 137-8    | 91  | e 22 | 20? | ?PR <sub>1</sub> | —    | —  | —                | —  | —    |
| Tashkent     | —                     | 138-3    | 57  | 18   | 16  | [-81]            | —    | —  | —                | —  | —    |
| Batavia      | —                     | 144-2    | 160 | i 17 | 43  | [-124]           | —    | —  | —                | —  | —    |
| Irkutsk      | —                     | 153-6    | 19  | 18   | 46  | [-75]            | —    | —  | —                | —  | —    |
| Manila       | —                     | 166-4    | 192 | e 24 | 20? | ?PR <sub>1</sub> | —    | —  | —                | —  | —    |
| Phu-Lien     | —                     | 167-4    | 122 | 25   | 20? | ?PR <sub>1</sub> | —    | —  | —                | —  | —    |
| Hong Kong    | —                     | 173-4    | 148 | —    | —   | —                | —    | —  | —                | —  | 45-0 |
| Zi-ka-wei    | —                     | 175-6    | 318 | e 19 | 14  | [-63]            | 24   | 38 | ?PR <sub>1</sub> | —  | —    |

Additional readings and notes: La Paz iE = +5m.7s., MN = +4.3m.; epicentre 26°-8S. 64°-6W. Rio de Janeiro eN = +3m.46s., LN = +7.3m. Georgetown ePE = +10m.6s., ePN = +10m.7s., iSEN = +18m.25s. Toronto iE = +19m.10s., +19m.43s., and +22m.54s., iN = +19m.13s., eN = +22m.47s. Ottawa eN = +22m.50s., eE = +23m.6s. Florissant iN = +22m.20s. ? San Fernando MN = +34.1m. Granada PR<sub>1</sub> = +13m.53s., PR<sub>2</sub> = +14m.59s., i = +16m.14s. Almeria PR<sub>1</sub> = +13m.55s., PR<sub>2</sub> = +15m.17s. Toledo iNW = +11m.53s. Algiers PR<sub>1</sub> = +14m.7s., MN = +35.3m. Oxford eN = +29m.40s. Kew eZ = +14m.41s., ePSN = +23m.4s., eSR<sub>1</sub>N = +27m.2s., eSR<sub>2</sub>N = +29m.48s. Rocca di Papa eE = +11m.49s., eN = +12m.30s., eE = +15m.16s. Strasbourg ePR<sub>1</sub>? = +23m.20s. ? De Bilt eZ = +14m.58s., i = +16m.57s., eEN = +22m.26s. and +30m.27s. Copenhagen e = +17m.31s., eEZ = +19m.35s., iE = eN = +22m.52s., eE = iN = +24m.12s., e = +25m.50s., eE = +29m.44s., eN = +31m.42s., eEN = +35m.20s. ? Konigsberg eN = +23m.45s., +29m.8s., and +31m.14s., eE = +24m.4s., +27m.20s., and +30m.8s. Helsingfors SR<sub>1</sub> = +33m.20s. Pulkovo PR<sub>1</sub> = +18m.36s., i = +23m.27s., PS = +27m.25s., i = +30m.17s., SR<sub>1</sub> = +33m.32s. Makeyevka PR<sub>1</sub> = +19m.4s., i = +23m.42s., S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +26m.0s., PS = +27m.58s. Baku PR<sub>1</sub> = +19m.53s., i = +24m.9s., S<sub>c</sub>P<sub>c</sub>SP = +30m.15s., SR<sub>1</sub> = +36m.2s. Tashkent PR<sub>1</sub> = +20m.45s., i = +24m.20s., S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +27m.5s., PS = +30m.37s. Batavia P = +17m.44s. Irkutsk S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +28m.44s., SR<sub>1</sub> = +41m.38s. Zi-ka-wei PR<sub>1</sub>Z = +20m.56s., SR<sub>1</sub>Z = +26m.58s.

NOTE TO THE SHOCK OF AUG. 15D. 17H.

If the epicentre 26°-8S. 64°-6W., as suggested by several observing stations, be adopted, the  $\Delta$ s for La Paz and Sucre obtained give a mean residual of +0°-8. As all the other stations give definite negative values it is impossible to compensate for the discrepancies by focal depth assumption.

When we adopt the epicentre 28°-0S. 62°-0W. we have for the residuals of the various stations or groups of stations, the following table:—

| No.            | Az. | Residuals   |             | Residuals<br>Corrected for<br>0-080 |
|----------------|-----|-------------|-------------|-------------------------------------|
|                |     | in $\Delta$ | uncorrected |                                     |
| Rio de Janeiro | 1   | 77          | - 2.1       | +0.5                                |
| La Plata       | 1   | 154         | 0.0         | 0.0                                 |
| Santiago       | 1   | 232         | - 1.4       | -0.7                                |
| Sucre          | 1   | 341         | - 0.7       | 0.0                                 |
| La Paz         | 1   | 333         | - 1.4       | +0.2                                |
| N. American    | 4   | 342         | - 9.5       | -0.8                                |
| European       | 8   | 44          | -11.9       | -2.4                                |

In the last group only stations of  $\Delta$  less than 90°-0 have been taken into consideration, but the more distant stations confirm the evidence of these in favour of a correction for yet greater focal depth.

Aug. 15d. Readings also at 4h. (Santiago), 8h. (Copenhagen, Ekaterinburg, Irkutsk, Ksara (3), Kucino, Pulkovo, and Tashkent), 9h. (near Tacubaya and Vera Cruz), 10h. (Granada, Irkutsk, Kucino, Pulkovo, and Tashkent), 12h. (Moncalleri), 17h. (Granada and La Paz), 18h. (near Taihoku), 23h. (Moncalleri).

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Aug. 16d. 3h. 49m. 6s. Epicentre 28°·5N. 140°·5E.

A = -·678, B = +·559, C = +·477 ; D = +·636, E = +·772 ;  
G = -·368, H = +·304, K = -·879.

A depth of focus 0·070 has been assumed, see the following note.

|          | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.    | M.  |
|----------|-----------------------|----------|-----|--------|------|--------|------|-------|-----|
|          | °                     | °        | °   | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Nagoya   | 0·0                   | 7·3      | 336 | e l 53 | + 2  | (3 16) | - 2  | 3·3   | —   |
| Osaka    | 0·0                   | 7·5      | 327 | l 50   | - 4  | (3 18) | - 6  | 3·3   | 4·2 |
| Sumoto   | 0·0                   | 7·5      | 322 | i l 53 | - 1  | (3 20) | - 4  | i 3·3 | —   |
| Kobe     | -0·1                  | 7·7      | 325 | i l 55 | 0    | (3 23) | - 3  | 3·4   | —   |
| Mizusawa | -0·9                  | 10·6     | 3   | 2 33   | + 7  | 4 31   | +10  | —     | —   |
| Irkutsk  | -4·9                  | 35·8     | 322 | e 6 21 | -16  | 11 23  | -27  | —     | —   |
| Pulkovo  | -7·3                  | 74·9     | 331 | 10 54  | - 8  | 19 52  | - 5  | —     | —   |

Additional readings: Osaka MN = +4·1m. Sumoto e = +7m.5s. Mizusawa PN = +2m.32s.

NOTE TO THE ABOVE SHOCK.

A shock with so little data does not usually warrant the assumption of a great focal depth. In the present case, however, we have seven stations from whose P and S (or L) T<sub>0</sub> is derived in complete mutual agreement. The corresponding  $\Delta$ s, however, cannot be reconciled. The following table gives the residuals in  $\Delta$  for the seven stations, on the basis of the epicentre adopted.

|          | $\Delta$ | Az. | O-C. | Corr. for<br>focus | Diff. |
|----------|----------|-----|------|--------------------|-------|
|          | °        | °   | °    | °                  | °     |
| Nagoya   | 7·3      | 336 | 0·0  | 0·0                | 0·0   |
| Osaka    | 7·5      | 327 | -0·2 | 0·0                | -0·2  |
| Sumoto   | 7·5      | 322 | 0·0  | 0·0                | 0·0   |
| Kobe     | 7·7      | 325 | -0·1 | -0·1               | 0·0   |
| Mizusawa | 10·6     | 3   | -0·5 | -0·9               | +0·4  |
| Irkutsk  | 35·8     | 322 | -6·5 | -4·9               | -1·6  |
| Pulkovo  | 74·9     | 331 | -8·0 | -8·0               | 0·0   |

Only in this way can any agreement be obtained between the close Japanese stations and Irkutsk and Pulkovo.

Aug. 16d. 7h. 36m. 12s. Epicentre 70°·0N. 128°·0E. (as on 1928 Feb. 3d.).

A = -·211, B = +·270, C = +·940 ; D = +·788, E = +·616 ;  
G = -·579, H = +·740, K = -·342.

|               | $\Delta$ | Az. | P.     | O-C.             | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|--------|------------------|---------|------|--------|------|
|               | °        | °   | m. s.  | s.               | m. s.   | s.   | m.     | m.   |
| Irkutsk       | 20·8     | 224 | 5 0    | + 9              | e 8 36  | - 4  | i 11·1 | —    |
| Ekaterinburg  | 30·8     | 280 | e 6 34 | - 2              | e 11 36 | -12  | —      | 17·5 |
| Pulkovo       | 35·0     | 305 | e 7 45 | + 7              | 13 24   | -14  | 18·8   | 21·6 |
| Scoresby Sund | 38·2     | 345 | —      | —                | 11 48?  | ?    | —      | —    |
| Kucino        | 39·1     | 295 | —      | —                | —       | —    | e 27·1 | —    |
| Tashkent      | 41·0     | 259 | i 8 3  | 0                | 14 24   | + 3  | e 17·2 | 25·8 |
| Upsala        | 41·2     | 314 | —      | —                | —       | ?    | e 21·8 | —    |
| Konigsberg    | 44·9     | 309 | —      | —                | e 17 48 | ?    | e 25·8 | 26·8 |
| Makeyevka     | 45·7     | 290 | —      | —                | e 15 24 | 0    | e 20·3 | 30·4 |
| Lund          | 46·0     | 315 | 19 48? | ?SR <sub>2</sub> | —       | —    | —      | 24·8 |
| Copenhagen    | 46·1     | 315 | —      | —                | e 15 27 | - 2  | 23·8   | 27·2 |
| Hong Kong     | 48·4     | 196 | —      | —                | —       | —    | —      | 28·0 |
| Baku          | 48·6     | 275 | —      | —                | 16 9    | + 8  | 25·8   | 33·2 |
| Hamburg       | 48·7     | 315 | —      | —                | —       | —    | e 22·8 | 28·8 |
| Edinburgh     | 49·4     | 325 | —      | —                | —       | —    | e 25·8 | —    |
| Phu-Lien      | 50·8     | 205 | —      | —                | —       | —    | —      | 24·8 |
| De Bilt       | 51·2     | 317 | —      | —                | —       | —    | e 24·8 | 30·1 |

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|            | $\Delta$ | Az.     | P.    | O-C. | S.    | O-C.     | L.               | M.     |      |
|------------|----------|---------|-------|------|-------|----------|------------------|--------|------|
|            | $\circ$  | $\circ$ | m. s. | s.   | m. s. | s.       | m.               | m.     |      |
| Feldberg   | N.       | 52.2    | 315   | —    | —     | e 21 6   | ?SR <sub>1</sub> | e 27.6 | 31.0 |
| Uccle      |          | 52.5    | 319   | —    | —     | e 16 48? | - 2              | e 25.8 | —    |
| Kew        |          | 53.0    | 321   | —    | —     | —        | —                | e 26.8 | —    |
| Graz       |          | 53.2    | 309   | —    | —     | —        | —                | e 27.8 | —    |
| Strasbourg |          | 53.9    | 315   | —    | —     | e 25 48? | ?                | e 30.8 | —    |
| Zagreb     |          | 54.3    | 307   | —    | —     | —        | —                | e 27.4 | —    |
| Paris      |          | 54.8    | 319   | —    | —     | —        | —                | e 29.8 | —    |
| Granada    |          | 67.3    | 320   | —    | —     | —        | —                | e 38.8 | 41.9 |
| Florissant | N.       | 67.7    | 30    | —    | —     | —        | —                | e 36.8 | —    |
| Georgetown | Z.       | 69.6    | 20    | —    | —     | —        | —                | e 33.9 | —    |

Additional readings: Kucino e = +29m.48s.      Konigsberg e = +18m.48s. =  
 SR<sub>1</sub> +20s., +20m.55s., and +22m.4s.      Makeyevka e = +18m.52s. =  
 SR<sub>1</sub> +8s.      Copenhagen +18m.48s. † = SR<sub>1</sub> -4s.      Baku e = +20m.29s.  
 Zagreb e = +26m.15s., +27m.23s., +29m.32s., and +30m.7s.      George-  
 town LZ = +42.2m.

Aug. 16d. 16h. 44m. 18s. Epicentre 40°0N. 143°5E. (as on 1928 July 31d.).

A = -616, B = +456, C = +643;      D = +595, E = +804;  
 G = -517, H = +382, K = -766.

|            | $\Delta$ | Az.     | P.    | O-C.    | S.    | O-C.    | L.  | M.     |      |
|------------|----------|---------|-------|---------|-------|---------|-----|--------|------|
|            | $\circ$  | $\circ$ | m. s. | s.      | m. s. | s.      | m.  | m.     |      |
| Mizusawa   | E.       | 2.0     | 245   | 0 39    | + 8   | 0 56    | + 1 | —      | —    |
|            | N.       | 2.0     | 245   | 0 36    | + 5   | 0 53    | - 2 | —      | —    |
| Nagoya     |          | 7.1     | 229   | e 1 52  | + 4   | —       | —   | e 3.7  | —    |
| Irkutsk    |          | 29.4    | 303   | —       | —     | —       | —   | 16.7   | —    |
| Tashkent   |          | 54.5    | 298   | i 9 32  | - 4   | i 17 15 | 0   | —      | 33.2 |
| Pulkovo    |          | 66.3    | 330   | e 10 52 | - 2   | —       | —   | —      | —    |
| Baku       |          | 67.7    | 305   | —       | —     | —       | —   | 34.7   | 42.9 |
| Copenhagen |          | 75.7    | 334   | —       | —     | —       | —   | 39.7   | —    |
| De Bilt    |          | 81.1    | 335   | —       | —     | —       | —   | e 47.7 | —    |
| Uccle      |          | 82.5    | 335   | —       | —     | —       | —   | e 47.7 | —    |

No additional readings.

Aug. 16d. Readings also at 11h. (Manila), 15h. (near Yalta and near Zagreb), 16h. (Feldberg, Rocca di Papa, Mizusawa, near Tucson, near Tacubaya, and Vera Cruz), 18h. (Honolulu T.H.), 22h. (near Tacubaya), 23h. (near Batavia, near Manila, near Simferopol, Theodosia, and Yalta).

Aug. 17d. Readings at 1h. (near Tashkent), 2h. (near Tacubaya and Vera Cruz), 7h. (Copenhagen, Ekaterinburg, Pulkovo, and Tashkent), 8h. (Florissant), 11h. (Taihoku), 14h. (near Sumoto), 16h. (Nagoya), 17h. (near Tacubaya), 19h. (Manila, Scoresby Sund, Zurich, near Chur, and Neuchatel), 20h. (near Merida and Tacubaya), 21h. (Lick).

Aug. 18d. Readings at 0h. (Suva, near Lick, and near Tacubaya), 1h. (Mizusawa, Sucre, and near La Paz), 2h. (Baku, Copenhagen, Ekaterinburg, Feldberg, Irkutsk, Pulkovo, and Tashkent), 5h. (Georgetown, Suva, Wellington, Sucre, and near La Paz), 6h. (Baku, Copenhagen, Ekaterinburg, Feldberg, Florissant, Granada, and Pulkovo), 8h. (near La Paz), 14h. (Mizusawa), 17h. (near Taihoku), 19h. (Phu-Lien and near Taihoku), 20h. (Copenhagen (2), Ekaterinburg, Irkutsk (2), Pulkovo, Tashkent(2), and near Taihoku (4)).

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Aug. 19d. 2h. 50m. 0s. Epicentre 46°·5N. 28°·3W. (as on 1926 Dec. 9d.).

A = +·606, B = -·326, C = +·725 ; D = -·474, E = -·880 ;  
G = +·639, H = -·344, K = -·688.

|                 | $\Delta$ | Az. | P.     | O-C. | S.        | O-C. | L.     | M.   |
|-----------------|----------|-----|--------|------|-----------|------|--------|------|
|                 | °        | °   | m. s.  | s.   | m. s.     | s.   | m.     | m.   |
| Stonyhurst      | 18·0     | 56  | —      | —    | —         | —    | e 9·0  | —    |
| Edinburgh       | 18·2     | 50  | —      | —    | —         | —    | e 9·0  | —    |
| Oxford          | N. 18·3  | 63  | 4 13   | - 8  | 7 58      | +11  | e 8·9  | 10·7 |
| Kew             | 18·9     | 64  | e 4 28 | 0    | e 8 1     | + 1  | 9·0    | 10·0 |
| San Fernando E. | 19·3     | 114 | —      | —    | —         | —    | —      | 11·6 |
| Paris           | 20·7     | 72  | e 5 0? | +11  | (8 0?)    | -38  | 8·0    | —    |
| Uccle           | 21·8     | 67  | e 5 0  | - 3  | e 8 59    | - 2  | e 10·4 | —    |
| De Bilt         | 22·3     | 63  | e 5 13 | + 4  | e 9 5     | - 6  | e 11·0 | 12·6 |
| Strasbourg      | 24·2     | 72  | e 5 24 | - 6  | (e 10 0?) | +12  | e 10·0 | —    |
| Scoresby Sund   | 24·2     | 5   | —      | —    | 10 0?     | +12  | —      | —    |
| Feldberg        | N. 24·4  | 68  | —      | —    | e 9 52    | 0    | —      | 12·5 |
| Copenhagen      | 26·7     | 55  | —      | —    | 10 24     | -11  | 13·5   | 15·8 |
| Ottawa          | 32·5     | 286 | —      | —    | e 12 12   | - 4  | e 17·4 | —    |
| Toronto         | 35·6     | 284 | —      | —    | —         | —    | 20·0   | —    |
| Georgetown Z.   | 36·0     | 276 | —      | —    | e 14 42   | +92  | e 20·0 | —    |
| Pulkovo         | 36·1     | 47  | e 6 0  | -83  | —         | —    | 17·0   | —    |
| Florissant      | 45·1     | 284 | —      | —    | —         | —    | e 34·0 | —    |
| Ekaterinburg    | 52·1     | 45  | e 9 26 | + 5  | e 16 47   | + 2  | —      | —    |
| Baku            | 54·7     | 66  | —      | —    | e 17 24   | + 7  | e 29·4 | —    |
| Tashkent        | 65·8     | 55  | —      | —    | e 23 6    | ?    | e 33·0 | 40·0 |

Additional readings : San Fernando MN = +9·9m. De Bilt MN = +12·4m.  
Florissant eLEZ = +43·0m.

Aug. 19d. 3h. 54m. 36s. Epicentre 30°·0N. 64°·0E. (as on 1914 Feb. 6d.).

A = +·380, B = +·778, C = +·500 ; D = +·899, E = -·438 ;  
G = +·219, H = +·449, K = -·866.

Very doubtful.

|               | $\Delta$ | Az. | P.     | O-C. | S.         | O-C.             | L.     | M.   |
|---------------|----------|-----|--------|------|------------|------------------|--------|------|
|               | °        | °   | m. s.  | s.   | m. s.      | s.               | m.     | m.   |
| Tashkent      | 12·1     | 19  | e 2 14 | -46  | i 4 54     | -27              | 14·5   | 19·9 |
| Bombay        | 13·7     | 142 | 2 34   | -48  | 6 23       | +22              | 8·6    | 9·0  |
| Baku          | 15·5     | 316 | e 3 57 | +11  | e 7 35     | +51              | e 11·8 | 15·1 |
| Calcutta      | E. 23·0  | 103 | 8 27   | ?S   | (8 27)     | -58              | (11·6) | —    |
|               | N. 23·0  | 103 | 8 20   | ?S   | (8 20)     | -65              | (12·0) | —    |
| Ksara         | E. 24·1  | 286 | e 5 32 | + 3  | 9 43       | - 3              | 12·6   | —    |
| Ekaterinburg  | 26·9     | 356 | e 4 51 | -66  | (e 11 24?) | +45              | e 11·4 | 21·2 |
| Pulkovo       | 37·4     | 334 | —      | —    | e 8 49     | ?PR <sub>1</sub> | 20·4   | 27·7 |
| Lund          | 43·8     | 321 | —      | —    | —          | —                | 26·4   | —    |
| Copenhagen    | 44·2     | 321 | —      | —    | 15 24?     | +19              | 26·4   | 34·1 |
| Feldberg      | N. 45·7  | 314 | —      | —    | e 15 30    | + 6              | e 29·4 | 32·7 |
| De Bilt       | 47·9     | 315 | —      | —    | —          | —                | e 31·4 | —    |
| Uccle         | 48·4     | 314 | —      | —    | —          | —                | e 30·4 | —    |
| Kew           | 51·3     | 315 | —      | —    | —          | —                | e 35·4 | —    |
| Edinburgh     | 53·0     | 320 | —      | —    | —          | —                | e 38·4 | —    |
| Scoresby Sund | 60·6     | 338 | —      | —    | —          | —                | 41·4   | —    |

Additional readings and note : Tashkent e = +6m.11s. Calcutta gives  
S as P and L as S. Copenhagen MN = +34·0m.

Aug. 19d. Readings also at 0h. (La Paz), 2h. (La Paz and Sucre), 4h. (Honolulu T.H., and near Tacubaya), 9h. (Santiago and near Port au Prince), 10h. (near Lick), 12h. (Ekaterinburg and Tashkent), 18h. (Suva and near Irkutsk), 19h. (Ksara (2) and Zi-ka-wei), 20h. (Zi-ka-wei), 22h. (near Batavia and Malabar), 23h. (near Tashkent).

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Aug. 20d. 1h. 56m. 3s. Epicentre 39°·5N. 157°·0E.

A = -·710, B = +·301, C = +·636 ; D = +·391, E = +·920 ;  
G = -·586, H = +·249, K = -·772.

|               |    | $\Delta$ | Az. | P.       | O-C. | S.       | O-C.  | L.     | M.   |
|---------------|----|----------|-----|----------|------|----------|-------|--------|------|
|               |    | °        | °   | m. s.    | s.   | m. s.    | s.    | m.     | m.   |
| Mizusawa      | E. | 12·3     | 274 | 3 35     | +32  | 4 54     | -32   | —      | —    |
| Zi-ka-wei     | Z. | 30·0     | 268 | e 6 31   | + 3  | 11 15    | -19   | 15·3   | —    |
| Irkutsk       |    | 37·9     | 309 | e 7 6    | -31  | 12 39    | -58   | 19·0   | 20·5 |
| Ekaterinburg  |    | 60·8     | 322 | e 10 49  | +31  | (17 57?) | -36   | 20·0   | 35·0 |
| Tashkent      |    | 63·7     | 304 | i 10 38  | + 2  | —        | —     | 28·8   | 36·4 |
| Scoresby Sund |    | 70·0     | 0   | —        | —    | 20 21    | - 5   | —      | —    |
| Pulkovo       |    | 71·5     | 335 | e 11 23  | - 4  | 20 33    | -11   | 34·0   | 43·2 |
| Baku          |    | 76·2     | 312 | e 12 0   | + 4  | e 21 52  | [- 6] | 39·0   | 45·6 |
| Makeyevka     |    | 77·1     | 324 | e 12 2   | 0    | e 21 55  | + 5   | 35·0   | 45·6 |
| Lund          |    | 80·0     | 340 | —        | —    | —        | —     | 40·0   | —    |
| Copenhagen    |    | 80·1     | 340 | e 12 22  | + 2  | e 21 45  | -39   | 37·0   | 45·6 |
| Florissant    |    | 80·3     | 47  | i 12 57? | +36  | i 21 57? | -30   | e 42·0 | —    |
| De Bilt       |    | 85·2     | 344 | e 12 53  | + 4  | —        | —     | e 37·0 | 50·2 |
| Vienna        | Z. | 85·6     | 335 | 12 52    | + 1  | —        | —     | —      | —    |
| Feldberg      | N. | 86·1     | 340 | —        | —    | e 22 56  | [- 7] | e 40·0 | 49·2 |
| Uccle         |    | 86·5     | 344 | —        | —    | —        | —     | e 45·0 | —    |
| Kew           |    | 86·8     | 348 | —        | —    | —        | —     | e 49·0 | —    |
| Georgetown    | Z. | 87·3     | 40  | —        | —    | —        | —     | e 45·8 | —    |
| Strasbourg    |    | 87·8     | 340 | —        | —    | —        | —     | e 54·0 | —    |
| Zurich        |    | 88·7     | 340 | e 13 10  | + 1  | —        | —     | —      | —    |
| Chur          |    | 88·9     | 340 | e 13 11  | + 1  | —        | —     | —      | —    |
| Neuchatel     |    | 89·4     | 340 | i 13 13  | + 1  | —        | —     | —      | —    |
| Rocca di Papa |    | 92·6     | 334 | i 13 33  | + 3  | —        | —     | e 46·2 | —    |
| Granada       |    | 101·2    | 345 | —        | —    | —        | —     | e 44·4 | 57·0 |
| Almeria       |    | 101·3    | 344 | —        | —    | —        | —     | —      | 58·6 |

Additional readings and note: Ekaterinburg e = +11m.15s.; the P is given as e simply. Tashkent e = +18m.28s. and +23m.23s. Copenhagen PS = +22m.45s., MN = +37·2m. De Bilt eLN = +44·0m., MZ = +51·3m. Georgetown eLZ = +61·0m. Rocca di Papa eN = +13m.9s., eL = +30m.57s.

Aug. 20d. 17h. 47m. 48s. Epicentre 16°·2N. 97°·2W. (as on Aug. 4d.).

A = -·120, B = -·953, C = +·279 ; D = -·992, E = +·125 ;  
G = -·035, H = -·277, K = -·960.

|             |    | $\Delta$ | Az. | P.     | O-C. | S.       | O-C.        | L.     | M.   |
|-------------|----|----------|-----|--------|------|----------|-------------|--------|------|
|             |    | °        | °   | m. s.  | s.   | m. s.    | s.          | m.     | m.   |
| Puebla      |    | 3·0      | 341 | 0 46   | - 1  | (1 26)   | + 3         | 1·4    | 1·5  |
| Vera Cruz   |    | 3·2      | 18  | 0 16   | -34  | (1 4)    | -24         | 1·1    | 1·3  |
| Tacubaya    |    | 3·8      | 330 | 1 5    | + 6  | (1° 50)  | + 6         | 1·8    | 2·2  |
| Guadalajara |    | 7·5      | 307 | —      | —    | —        | —           | 4·1    | 4·3  |
| Tucson      | E. | 20·3     | 325 | 4 40   | - 5  | 8 27     | - 2         | 10·7   | 11·1 |
|             | N. | 20·3     | 325 | 4 40   | - 5  | 8 33     | + 4         | 10·6   | 11·2 |
| Florissant  |    | 23·4     | 13  | i 7 42 | ?    | i 12 12? | ?L (i 12·2) | —      | —    |
| Chicago     |    | 26·9     | 16  | —      | —    | 10 48    | + 9         | e 14·2 | —    |
| Georgetown  | Z. | 28·7     | 34  | 6 14   | - 1  | 12 48    | +96         | e 18·9 | 29·5 |
| Toronto     | N. | 31·3     | 26  | —      | —    | e 12 27  | +31         | 24·9   | —    |
| Ottawa      |    | 34·3     | 28  | —      | —    | e 12 12? | -32         | 24·2   | —    |
| Victoria    | E. | 38·7     | 333 | 13 12  | ?S   | (13 12)  | -36         | 20·7   | 25·0 |
| Granada     |    | 83·1     | 34  | —      | —    | —        | —           | e 40·2 | 42·2 |
| Feldberg    | N. | 87·2     | 30  | —      | —    | —        | —           | e 51·0 | 53·7 |
| Copenhagen  | E. | 87·2     | 32  | —      | —    | e 23 48  | + 5         | —      | —    |
| Strasbourg  |    | 87·4     | 40  | —      | —    | —        | —           | e 53·2 | —    |
| Pulkovo     |    | 93·0     | 24  | —      | —    | e 22 49  | ?           | e 52·2 | —    |
| Baku        |    | 115·7    | 27  | —      | —    | —        | —           | e 52·7 | —    |
| Tashkent    |    | 121·1    | 11  | —      | —    | —        | —           | e 55·2 | 78·5 |

Additional readings: Chicago eLENf = +17·7m. Georgetown PR<sub>1</sub>Z = +7m.55s., PR<sub>2</sub>Z = +8m.45s., SR<sub>1</sub>Z = +15m.49s., LZ = +21·6m. Toronto LE = +22·4m. Victoria LN = +20·2m.

Aug. 20d. Readings also at 2h. (near Tacubaya), 5h. (Sucre and near La Paz), 6h. (Sucre and La Paz), 8h. (Manila), 9h. (near Almeria), 16h. (near Sumoto), 18h. (La Paz), 22h. (near Batavia and Malabar).

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Aug. 21d. 19h. 1m. 52s. Epicentre 35°·5N. 59°·0E.

A = +·419, B = +·698, C = +·581; D = +·857, E = -·515;  
G = +·299, H = +·498, K = -·814.

|               | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|--------|------|---------|------|--------|------|
|               | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Baku          | 8·7      | 307 | i 2 22 | +10  | i 4 28  | +32  | 5·5    | 7·9  |
| Tashkent      | 9·9      | 51  | 1 47   | -42  | i 4 25  | -1   | 6·7    | —    |
| Dehra Dun     | 16·7     | 103 | 7 35   | ?S   | (7 35)  | +24  | 10·8   | 12·4 |
| Makeyevka     | 19·9     | 315 | i 4 47 | +7   | i 8 40  | +19  | 11·3   | 13·9 |
| Bombay        | 20·6     | 140 | 5 16   | +28  | 9 16    | +40  | e 11·6 | 15·3 |
| Yalta         | 20·9     | 303 | e 4 59 | +7   | —       | —    | —      | —    |
| Simferopol    | 21·1     | 304 | e 5 0  | +6   | e 8 49  | +3   | —      | —    |
| Sebastopol    | 21·4     | 303 | e 5 4  | +6   | 9 1     | +8   | —      | —    |
| Kucino        | 24·8     | 351 | 5 32   | -4   | e 10 14 | +15  | 18·6   | 20·7 |
| Kodaikanal    | E. 30·3  | 142 | 19 20  | ?L   | —       | —    | (19·3) | —    |
| Pulkovo       | 30·5     | 332 | i 6 29 | -4   | 11 41   | -2   | 16·1   | 22·5 |
| Irkutsk       | 35·9     | 49  | —      | —    | e 12 59 | -10  | 20·1   | —    |
| Rocca di Papa | Z. 36·3  | 294 | e 7 7  | -17  | —       | —    | 24·1   | —    |
| Lund          | 36·9     | 319 | 7 8?   | -21  | —       | —    | 20·1   | 25·6 |
| Copenhagen    | 37·3     | 319 | e 7 29 | -3   | e 13 15 | -13  | e 25·1 | 28·1 |
| Hamburg       | 38·4     | 314 | e 7 39 | -2   | —       | —    | e 23·2 | 27·8 |
| Feldberg      | N. 39·0  | 309 | —      | —    | e 14 14 | +22  | e 25·1 | —    |
| Strasbourg    | 39·5     | 306 | —      | —    | —       | —    | e 24·1 | —    |
| De Bilt       | 40·7     | 311 | e 8 2  | +1   | —       | —    | e 24·1 | 28·9 |
| Uccle         | 41·6     | 309 | —      | —    | —       | —    | e 24·1 | —    |
| Kew           | 44·5     | 310 | —      | —    | —       | —    | e 28·1 | —    |
| Oxford        | N. 45·1  | 310 | —      | —    | —       | —    | i 28·0 | 32·1 |
| Edinburgh     | 46·1     | 317 | —      | —    | —       | —    | e 33·1 | —    |
| Zi-ka-wei     | Z. 51·4  | 77  | —      | —    | e 16 46 | +10  | —      | 35·1 |
| Florissant    | 100·5    | 336 | —      | —    | —       | —    | e 57·1 | 60·1 |

Additional readings: Dehra Dun S = +9m.35s. Irkutsk e = +15m.29s. =  
SR<sub>1</sub> +11s., +17m.41s., and +18m.5s. Rocca di Papa eE = +7m.9s.,  
eN = +7m.19s. Copenhagen MN = +28·6m. Hamburg eZ = +9m.4s.  
De Bilt eZ = +8m.38s., MZ = +27·5m.

Aug. 21d. 23h. 40m. 22s. Epicentre 43°·1N. 0°·3E.

(Bagnères de Bigorre, as on 1927 Jan. 7d.)

A = +·731, B = +·004, C = +·683.

|            | $\Delta$ | P.      | O-C. | S.     | O-C. | L.    |
|------------|----------|---------|------|--------|------|-------|
|            | °        | m. s.   | s.   | m. s.  | s.   | m.    |
| Bagnères   | 0·0      | -i 0 11 | -11  | —      | —    | —     |
| Barcelona  | 2·1      | e 0 34  | +1   | (0 58) | 0    | 1·0   |
| Tortosa    | 2·2      | 0 34    | 0    | 1 1    | +1   | —     |
| Neuchatel  | 6·1      | i 1 49  | +16  | —      | —    | e 3·2 |
| Strasbourg | 7·5      | —       | —    | —      | —    | e 4·1 |
| Uccle      | 8·2      | —       | —    | —      | —    | 4·6   |
| De Bilt    | 9·6      | —       | —    | —      | —    | e 6·1 |

No additional readings.

Aug. 21d. Readings also at 2h. (near Tashkent), 8h. (Copenhagen, Feldberg, and Zagreb), 10h. (Tananarive), 11h. (Apia and near Lick), 12h. (near Mizusawa), 16h. (near Vera Cruz).

Aug. 22d. 0h. 4m. 32s. Epicentre 46°·5N. 6°·5E.

A = +·684, B = +·078, C = +·725; D = +·113, E = -·994;  
G = +·721, H = +·082, K = -·688.

|            | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.  | M. |
|------------|----------|-----|--------|------|---------|------|-----|----|
|            | °        | °   | m. s.  | s.   | m. s.   | s.   | m.  | m. |
| Neuchatel  | 0·6      | 31  | i 0 4  | -5   | i 0 11  | -6   | —   | —  |
| Besançon   | 0·8      | 335 | 0 12   | 0    | —       | —    | —   | —  |
| Zurich     | 1·7      | 59  | i 0 27 | +1   | i 0 46  | -2   | —   | —  |
| Chur       | 2·1      | 80  | i 0 35 | +2   | i 1 3   | +5   | —   | —  |
| Strasbourg | 2·2      | 22  | e 1 1  | ?S   | (e 1 1) | +1   | —   | —  |
| Uccle      | 4·6      | 343 | —      | —    | —       | —    | 2·5 | —  |

Besançon gives also i = +16s.

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Aug. 22d. 1h. 30m. 33s. Epicentre 33°·8N. 129°·5E.

A = -·529, B = +·641, C = +·556; D = +·772, E = +·636;  
G = -·354, H = +·429, K = -·831.

|            | Δ    | Az.  | P.     | O-C. | S.      | O-C. | L.      | M.   |
|------------|------|------|--------|------|---------|------|---------|------|
|            | °    | °    | m. s.  | s.   | m. s.   | s.   | m.      | m.   |
| Hukuoka    | 0·8  | 106  | 0 16   | + 4  | 0 29    | + 7  | —       | 0·5  |
| Nagasaki   | 1·1  | 163  | 1 0 16 | - 1  | 1 0 27  | - 4  | —       | 0·5  |
| Matuyama   | 2·7  | 89   | 1 1 44 | +62  | —       | —    | (1 1·7) | 2·2  |
| Sumoto     | 4·5  | 82   | 1 1 10 | 0    | (1 2 6) | + 2  | i 2·1   | 2·2  |
| Kobe       | 4·7  | 78   | 1 1 3  | 0    | (2 9)   | 0    | 2·2     | 2·5  |
| Osaka      | 5·0  | 78   | 1 1 5  | - 2  | (2 22)  | + 5  | 2·4     | 3·2  |
| Zi-ka-wei  | z.   | 7·3  | 255    | —    | e 3 25  | + 7  | e 4·0   | —    |
| Tashkent   | 47·4 | 297  | —      | —    | —       | —    | e 24·4  | 30·0 |
| Baku       | 61·7 | 302  | —      | —    | —       | —    | e 34·0  | —    |
| Pulkovo    | 65·6 | 327  | —      | —    | —       | —    | e 33·4  | —    |
| Copenhagen | 75·7 | 329  | —      | —    | —       | —    | 41·4    | —    |
| Feldberg   | N.   | 81·2 | 325    | —    | —       | —    | e 44·2  | 46·4 |

Additional readings: Sumoto S = +1m.32s. Osaka MN = +3·3m. Zi-ka-wei eN = +4m.15s.

Aug. 22d. 6h. 16m. 15s. Epicentre 35°·5S. 99°·5W.

A = -·134, B = -·803, C = -·581; D = -·986, E = +·165;  
G = +·096, H = +·573, K = -·814.

|                   | Δ     | Az.  | P.     | O-C. | S.       | O-C.             | L.     | M.   |
|-------------------|-------|------|--------|------|----------|------------------|--------|------|
|                   | °     | °    | m. s.  | s.   | m. s.    | s.               | m.     | m.   |
| La Paz            | 33·7  | 65   | 7 0    | - 2  | i 12 31  | - 5              | 15·8   | 19·0 |
| Sucre             | 34·4  | 70   | e 7 12 | + 4  | —        | —                | 15·4   | 18·0 |
| Rio de Janeiro E. | 50·1  | 92   | —      | —    | —        | —                | e 23·8 | —    |
| Florissant E.     | 74·8  | 7    | —      | —    | (20 45?) | -39              | 20·8   | —    |
| Georgetown        | z.    | 77·3 | 18     | —    | —        | —                | e 38·7 | 43·1 |
| Toronto E.        | 81·2  | 14   | —      | —    | —        | —                | 37·8   | —    |
| Ottawa            | 83·7  | 16   | —      | —    | e 23 3   | - 3              | e 35·8 | —    |
| Scoresby Sund     | 119·2 | 21   | —      | —    | —        | —                | e 61·8 | —    |
| Kew               | 122·4 | 46   | —      | —    | —        | —                | e 60·8 | —    |
| De Bilt           | 125·8 | 46   | —      | —    | —        | —                | e 62·8 | —    |
| Copenhagen        | 130·9 | 41   | —      | —    | e 22 45  | ‡PR <sub>1</sub> | 63·8   | —    |
| Tashkent          | 169·5 | 53   | —      | —    | e 35 57  | ‡                | e 82·8 | 94·2 |

Additional readings: Toronto LN = +44·5m. Ottawa LN = +45·8m.  
Copenhagen +37m.45s. ? Tashkent e = +47m.21s.

Aug. 22d. Readings also at 1h. (Ekaterinburg, Taihoku, near Hukuoka (2), and Matuyama), 3h. (near Tacubaya (2)), 5h. (Ekaterinburg), 6h. (Ekaterinburg, Tashkent, near Keara, and near Taihoku), 7h. (Taihoku), 8h. (San Juan and near Tacubaya), 10h. and 12h. (2) (Tucson), 13h. (Taihoku, near Neuchatel, and Zurich), 15h. (Taihoku (2)), 16h. (near Tacubaya), 17h. (Mizusawa), 18h. (La Paz), 20h. (Zi-ka-wei, Irkutsk, Ekaterinburg, Tashkent, Baku, Makeyevka, Pulkovo, Copenhagen, Feldberg, Scoresby Sund, Ottawa, Toronto, Georgetown, Florissant, and Victoria), 21h. (near Tacubaya), 23h. (Taihoku (2) and near Mizusawa).

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Aug. 23d. 1h. 17m. 44s. Epicentre 50°·0N. 146°·0E.

A = -·533, B = +·359, C = +·766 ; D = +·559, E = +·829 ;  
G = -·635, H = +·428, K = -·643.

A depth of focus 0·070 has been assumed.

|               | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.   |     | O-C.  |      | S.  |     | O-C.   |      | L. | M. |
|---------------|-----------------------|----------|-----|------|-----|-------|------|-----|-----|--------|------|----|----|
|               |                       |          |     | m.   | s.  | s.    | m.   | s.  | s.  | m.     | s.   |    |    |
| Ootomari      | +1·2                  | 4·0      | 215 | 1    | 36  | +16   | 2    | 40  | +18 | 2·8    | 2·8  |    |    |
| Mizusawa      | -1·1                  | 11·4     | 199 | 2    | 42  | +8    | 4    | 47  | +10 |        |      |    |    |
| Nagoya        | -2·1                  | 16·2     | 208 | e 3  | 33  | +6    | (6   | 16) | +6  | 6·3    |      |    |    |
| Osaka         | -2·3                  | 17·2     | 211 | 3    | 41  | +3    | (6   | 28) | -2  | 6·5    | 7·7  |    |    |
| Kobe          | -2·3                  | 17·3     | 211 | i 3  | 38  | +1    | (i 6 | 32) | 0   | i 6·5  | 6·6  |    |    |
| Sumoto        | N. -2·4               | 17·7     | 211 | e 3  | 46  | +3    |      |     |     |        |      |    |    |
| Irkutsk       | -3·7                  | 25·9     | 291 | i 5  | 7   | 0     | 9    | 2   | -7  | 14·3   |      |    |    |
| Zi-ka-wei     | Z. -3·8               | 26·3     | 234 | e 7  | 38  | ?     |      |     |     |        |      |    |    |
| Manila        | -5·5                  | 40·9     | 220 |      |     |       | e 13 | 16? | +15 |        |      |    |    |
| Ekaterinburg  | -6·0                  | 48·0     | 314 | i 8  | 3   | -8    | i 14 | 19  | -16 |        |      |    |    |
| Tashkent      | -6·4                  | 52·0     | 291 | i 8  | 34  | -3    | i 15 | 16  | -6  | e 24·3 | 26·5 |    |    |
| Pulkovo       | -6·9                  | 58·6     | 328 | i 9  | 16  | -2    | e 16 | 40  | 0   | 23·8   | 24·2 |    |    |
| Scoresby Sund | -7·0                  | 59·2     | 356 |      |     |       |      |     | +1  |        |      |    |    |
| Baku          | -7·2                  | 63·7     | 302 | i 9  | 53  | +4    | i 17 | 53  | +13 | 25·5   | 26·5 |    |    |
| Makeyevka     | -7·3                  | 64·1     | 316 | e 9  | 56  | +5    | i 17 | 53  | +9  |        |      |    |    |
| Copenhagen    | -7·5                  | 67·4     | 334 | e 10 | 13  | +2    | e 18 | 28  | +6  |        |      |    |    |
| De Bilt       | -7·9                  | 72·6     | 336 | i 10 | 45  | +2    | e 19 | 26  | +5  | e 29·3 |      |    |    |
| Vienna        | Z. -7·9               | 72·6     | 328 | e 12 | 46  | +123  |      |     | +1  |        |      |    |    |
| Feldberg      | N. -7·9               | 73·4     | 333 | e 10 | 46  | -2    | e 19 | 32  | +1  | e 29·6 | 46·3 |    |    |
| Uccle         | -7·9                  | 74·0     | 336 |      |     |       | e 19 | 16? | -22 |        |      |    |    |
| Kew           | -8·0                  | 74·6     | 340 | e 10 | 56  | +1    | i 19 | 46  | +1  |        |      |    |    |
| Zagreb        | -8·0                  | 74·8     | 326 | e 10 | 56  | -1    | e 19 | 49  | +1  |        |      |    |    |
| Strasbourg    | -8·0                  | 75·1     | 333 | e 10 | 59  | 0     | e 19 | 55  | +4  |        |      |    |    |
| Innsbruck     | -8·0                  | 75·1     | 330 | i 12 | 16? | +77   |      |     |     |        |      |    |    |
| Zurich        | -8·0                  | 76·0     | 331 | i 11 | 1   | -3    |      |     |     |        |      |    |    |
| Chur          | -8·0                  | 76·1     | 331 | i 11 | 3   | -2    | e 20 | 2   | -1  |        |      |    |    |
| Neuchatel     | -8·1                  | 76·8     | 331 | i 11 | 6   | -3    | i 20 | 10  | 0   |        |      |    |    |
| Florissant    | E. -8·1               | 78·3     | 42  |      |     |       | i 19 | 16? | -72 |        |      |    |    |
| Moncalieri    | E. -8·1               | 78·4     | 331 | e 10 | 40  | -39   | 21   | 2   | +32 | 41·4   |      |    |    |
| Granada       | -8·6                  | 88·8     | 336 | e 10 | 36  | -104  |      |     |     | 36·8   |      |    |    |
| La Paz        | -                     | 136·9    | 53  | 18   | 30  | [-64] |      |     |     |        |      |    |    |

Additional readings and note : Mizusawa PN = +2m.41s. = P + 7s. Nagoya  
eP = +6m.2s. ; the P entered is given as an independent e reading. Osaka  
MN = +8·2m. Copenhagen ePR<sub>1</sub> = +12m.15s., ePSEN = +19m.14s.,  
eSR, EN = +21m.58s. De Bilt iZ = +12m.53s., eZ = +13m.38s.,  
PR<sub>1</sub> - 5s., eN = +19m.58s. Feldberg eN = +12m.55s., +20m.8s.,  
+27m.45s., and +28m.52s. Kew eZ = +13m.0s. Zagreb iNW =  
+10m.59s., eNE = +12m.3s., e = +12m.59s. Strasbourg ePR<sub>1</sub> ? =  
+13m.1s. Florissant eE = +22m.16s. ? = [S] - 5s. Granada  
PR = +14m.13s.

Aug. 23d. 3h. 53m. 25s. Epicentre 42°·0N. 74°·0E.

A = +·205, B = +·714, C = +·669 ; D = +·961, E = -·276 ;  
G = +·184, H = +·643, K = -·743.

|              | $\Delta$ | Az. | P.  |    | O-C. |      | S.  |     | O-C. |      | L.   | M. |
|--------------|----------|-----|-----|----|------|------|-----|-----|------|------|------|----|
|              |          |     | m.  | s. | s.   | m.   | s.  | s.  | m.   | s.   |      |    |
| Tashkent     | 3·6      | 261 | i 1 | 1  | +5   | i 1  | 49  | +10 |      |      | 2·2  |    |
| Dehra Dun    | 12·1     | 163 | 6   | 1  | ?L   | 7    | 49  | ?   |      | 8·7  | 8·9  |    |
| Ekaterinburg | 17·1     | 335 | i 4 | 10 | +4   | 7    | 15  | -5  |      |      | 10·0 |    |
| Baku         | 18·1     | 273 | e 4 | 21 | +3   | i 7  | 41  | -1  |      | 9·4  | 13·0 |    |
| Irkutsk      | 22·8     | 53  | 5   | 28 | +13  | 9    | 52  | +31 |      | 12·6 |      |    |
| Calcutta     | N. 22·9  | 144 | 9   | 35 | ?S   | (9   | 35) | +12 |      |      |      |    |
| Bombay       | 23·1     | 183 | 5   | 19 | +1   | 9    | 32  | +5  |      | 12·5 | 17·6 |    |
| Hyderabad    | 24·9     | 170 | 5   | 35 | -2   | 10   | 11  | +10 |      | 13·4 | 15·3 |    |
| Makeyevka    | 25·9     | 296 | 5   | 45 | -2   | i 10 | 21  | +1  |      | 13·7 | 18·0 |    |
| Yalta        | 28·8     | 289 | 5   | 57 | -19  |      |     |     |      |      |      |    |
| Sebastopol   | 29·2     | 289 | e 6 | 16 | -4   |      |     |     |      |      |      |    |
| Ksara        | E. 30·8  | 269 | e 6 | 32 | -4   | 11   | 30  | -18 |      | 13·8 |      |    |

Continued on next page.



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|               | $\Delta$ | Az. | P.       | O-C.             | S.        | O-C.             | L.       | M.   |
|---------------|----------|-----|----------|------------------|-----------|------------------|----------|------|
|               | °        | °   | m. s.    | s.               | m. s.     | s.               | m.       | m.   |
| Pulkovo       | 31-9     | 321 | 6 38     | 8                | 11 46     | -21              | 15-6     | 20-0 |
| Helsingfors   | 34-6     | 320 | e 13 47  | ?S               | (e 13 47) | +58              | (e 17-2) | —    |
| Phu-Lien      | 34-6     | 120 | —        | —                | —         | —                | 16-6     | —    |
| Konigsberg    | 36-7     | 310 | e 15 17  | ?SR <sub>1</sub> | —         | —                | e 22-3   | 23-8 |
| Upsala        | 38-2     | 320 | —        | —                | e 15 35?  | ?SR <sub>1</sub> | —        | 23-9 |
| Budapest      | 38-6     | 299 | —        | —                | e 16 5    | ?SR <sub>1</sub> | e 23-6   | —    |
| Zi-ka-wei     | 39-1     | 90  | e 7 45   | -2               | e 17 5    | ?SR <sub>1</sub> | 26-6     | 28-0 |
| Vienna        | z. 40-1  | 301 | e 6 48   | -68              | 16 46     | ?SR <sub>1</sub> | —        | 29-6 |
| Lund          | 40-8     | 313 | —        | —                | 14 5      | -13              | 20-6     | —    |
| Zagreb        | 41-0     | 297 | e 7 43   | -20              | —         | —                | e 23-8   | —    |
| Copenhagen    | 41-2     | 313 | e 7 59   | -6               | e 14 11   | -13              | —        | 25-8 |
| Potsdam       | 41-4     | 308 | e 17 47  | ?                | i 22 49   | ?L               | (i 22-8) | 27-6 |
| Jena          | N. 42-6  | 305 | e 18 23  | ?SR <sub>2</sub> | —         | —                | e 21-6   | 23-6 |
| Hamburg       | 43-0     | 309 | e 17 35? | ?SR <sub>1</sub> | —         | —                | —        | 25-6 |
| Rocca di Papa | 44-6     | 293 | i 8 29   | -1               | —         | —                | e 22-6   | 29-0 |
| Feldberg      | N. 44-7  | 305 | —        | —                | e 15 0    | -11              | e 23-5   | 25-4 |
| Chur          | 45-0     | 300 | e 8 27   | -6               | —         | —                | —        | —    |
| Zurich        | 45-4     | 300 | e 8 49   | +13              | —         | —                | —        | —    |
| Strasbourg    | 45-6     | 303 | e 18 36  | ?SR <sub>1</sub> | e 25 40   | ?L               | 30-6     | —    |
| De Bilt       | 46-1     | 309 | —        | —                | e 18 59   | ?SR <sub>1</sub> | e 23-6   | 29-7 |
| Neuchatel     | 46-6     | 300 | i 9 26   | +42              | —         | —                | —        | —    |
| Moncalieri    | E. 46-8  | 299 | 18 10    | ?                | 21 43     | ?L               | 26-8     | —    |
| Uccle         | 47-0     | 307 | e 17 35? | ?                | —         | —                | e 24-6   | —    |
| Paris         | 48-8     | 305 | —        | —                | —         | —                | e 19-6   | 30-6 |
| Dyce          | 48-8     | 317 | —        | —                | e 16 20   | +16              | 30-0     | —    |
| Manila        | E. 48-8  | 110 | —        | —                | —         | —                | —        | 31-6 |
| Kew           | 49-5     | 310 | e 19 53  | ?SR <sub>1</sub> | e 25 35   | ?L               | 27-6     | 28-0 |
| Edinburgh     | 49-6     | 315 | —        | —                | —         | —                | e 20-1   | —    |
| Stonyhurst    | 49-9     | 311 | —        | —                | e 16 27   | +9               | e 20-0   | 33-6 |
| Oxford        | N. 50-0  | 310 | —        | —                | —         | —                | e 23-9   | 29-4 |
| Scoresby Sund | 52-8     | 335 | 12 35?   | ?PR <sub>2</sub> | —         | —                | 30-6     | —    |
| Almeria       | 57-2     | 293 | —        | —                | —         | —                | —        | 36-8 |
| Granada       | 57-9     | 294 | —        | —                | —         | —                | e 31-6   | 34-9 |
| San Fernando  | E. 60-0  | 295 | —        | —                | —         | —                | —        | 40-5 |
| Georgetown    | z. 94-9  | 339 | e 30 4   | ?                | —         | —                | 67-1     | —    |
| Florissant    | E. 98-0  | 349 | —        | —                | —         | —                | e 43-6   | —    |

Additional readings and note: Calcutta PE = +9m.41s., SE = +13m.9s.  
Helsingfors L = +19-6m.; the L entered is given as eS ? Konigsberg  
e = +16m.9s. = SR<sub>2</sub> - 5s., +16m.23s. = SR<sub>2</sub> - 7s., +18m.39s., +19m.41s.,  
+21m.32s., and +22m.0s. Upsala MN = +20-7m. Zagreb  
e = +9m.25s. = PR<sub>1</sub> - 9s., +11m.43s., +13m.39s., +18m.42s., and  
+23m.12s. Copenhagen PR<sub>1</sub> = +9m.29s., SR<sub>1</sub> = +16m.47s., MN =  
+23-2m., MZ = +26-2m. Jena eE = +22m.35s., ME = +26-6m.  
Rocca di Papa eZ = +7m.15s., iPN = +8m.27s., e = +13m.15s. Feldberg  
eN = +18m.31s. = SR<sub>1</sub> + 7s. De Bilt MN = +26-4m., MZ = +29-8m.  
San Fernando MN = +39-8m. Georgetown eZ = +57m.57s.

Aug. 23d. 6h. 15m. 48s. Epicentre 36°-5N. 36°-0E.

A = +.650, B = +.472, C = +.595; D = +.588, E = -.809;  
G = +.481, H = +.350, K = -.804.

|               | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.     | M.   |
|---------------|----------|-----|--------|------|----------|------|--------|------|
|               | °        | °   | m. s.  | s.   | m. s.    | s.   | m.     | m.   |
| Ksara         | 2-7      | 182 | 1 13   | +31  | 2 17     | +63  | 3-5    | —    |
| Sebastopol    | 8-3      | 348 | e 2 4  | -2   | —        | —    | 4-2    | —    |
| Simferopol    | 8-5      | 351 | e 2 9  | 0    | —        | —    | e 4-1  | —    |
| Baku          | 11-5     | 66  | e 3 9  | +17  | e 5 39   | ?L   | 7-7    | 8-1  |
| Makeyevka     | 11-6     | 7   | 2 52   | -1   | 4 54     | -15  | 6-4    | 14-2 |
| Budapest      | 16-6     | 317 | 4 0    | 0    | —        | —    | —      | —    |
| Zagreb        | 17-6     | 308 | e 4 10 | -2   | e 7 24   | -7   | e 10-8 | —    |
| Vienna        | 18-5     | 315 | 4 27   | +4   | 12 13    | ?    | —      | —    |
| Rocca di Papa | 18-7     | 294 | 4 30   | +5   | (e 7 52) | -3   | e 7-9  | 13-8 |
| Kucino        | 19-3     | 3   | 4 48   | +15  | e 8 18   | +10  | —      | —    |
| Innsbruck     | 21-1     | 309 | 4 12?  | -42  | —        | —    | —      | —    |
| Chur          | 22-1     | 306 | e 5 6  | 0    | —        | —    | —      | —    |
| Moncalieri    | E. 22-9  | 301 | 4 58   | -18  | 9 20     | -3   | 14-0   | —    |
| Zurich        | 22-9     | 307 | e 5 18 | +2   | —        | —    | —      | —    |
| Pulkovo       | 23-5     | 353 | 5 20   | -3   | 9 27     | -8   | 13-2   | 16-2 |
| Strasbourg    | 23-8     | 310 | e 5 25 | -1   | e 9 41   | +1   | e 15-2 | —    |

Continued on next page.

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|               | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|--------|------|---------|------|--------|------|
|               | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Neuchatel     | 23.9     | 305 | e 5 22 | - 5  | —       | —    | —      | —    |
| Feldberg      | 24.0     | 313 | —      | —    | e 9 33  | -11  | e 13.8 | 15.9 |
| Helsingfors   | 24.6     | 347 | e 5 24 | -10  | e 9 48  | - 7  | —      | —    |
| Copenhagen    | 24.9     | 328 | —      | —    | e 9 54  | —    | 15.2   | 18.3 |
| Ekaterinburg  | 26.1     | 31  | e 5 48 | - 1  | e 10 14 | -10  | —      | —    |
| Tashkent      | 26.2     | 69  | 5 50   | 0    | 10 27   | + 1  | e 15.2 | 18.0 |
| De Bilt       | 26.7     | 315 | —      | —    | e 10 37 | + 2  | —      | —    |
| Uccle         | 26.7     | 312 | —      | —    | 10 12?  | -23  | —      | —    |
| Kew           | 29.6     | 312 | —      | —    | —       | —    | e 19.3 | —    |
| Almeria       | 30.5     | 283 | —      | —    | —       | —    | —      | 22.4 |
| Granada       | 31.4     | 284 | —      | —    | —       | —    | e 20.7 | 21.5 |
| Edinburgh     | 32.6     | 320 | —      | —    | —       | —    | —      | 22.2 |
| Scoresby Sund | 45.2     | 337 | —      | —    | 14 12?  | -66  | —      | —    |

Additional readings : Baku e = +6m.28s. Rocca di Papa PN = +4m.32s.,  
 ILE = +8.0m.

Aug. 23d. Readings also at 0h. (Wellington), 1h. (near Nagasaki (2) ), 3h. (Yalta), 6h. (Baku, Ekaterinburg, Tashkent (2)), Sebastopol, near Simferopol and Yalta, also near Lick), 9h. (near Manila), 12h. (near Wellington), 16h. and 18h. (Taihoku), 19h. (near Lick), 21h. (La Paz), 23h. (Tashkent).

**Aug. 24d. 9h. 44m. 0s. Epicentre 34°3N. 1°3E.**

A = +.826, B = +.019, C = +.564; D = +.023, E = -1.000;  
 G = +.563, H = +.013, K = -.826.

|               | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.      | M.   |
|---------------|----------|-----|--------|------|----------|------|---------|------|
|               | °        | °   | m. s.  | s.   | m. s.    | s.   | m.      | m.   |
| Algiers       | 2.9      | 29  | i 0 55 | +10  | 1 28     | + 8  | —       | 2.3  |
| Almeria       | 3.9      | 311 | e 1 11 | +10  | —        | —    | —       | 4.6  |
| Alicante      | 4.3      | 340 | e 1 6  | + 5  | i 2 21   | +23  | (i 2.4) | 3.2  |
| Granada       | 4.9      | 307 | e 1 21 | + 2  | i 2 12   | - 2  | —       | 3.6  |
| Malaga        | 5.3      | 299 | e 1 20 | - 2  | e 2 24   | - 1  | —       | 5.4  |
| San Fernando  | 6.5      | 291 | 2 10   | +31  | i 3 0    | + 3  | —       | 5.5  |
| Tortosa       | 6.5      | 355 | 1 35   | - 4  | 3 1      | + 4  | 3.4     | 5.0  |
| Toledo        | 7.0      | 324 | e 1 38 | - 3  | i 2 56   | -14  | i 3.3   | 3.6  |
| Barcelona     | 7.2      | 5   | e 1 46 | - 3  | (e 3 12) | - 3  | e 3.2   | 4.0  |
| Bagnères      | 8.8      | 355 | e 2 28 | +15  | e 3 40   | -18  | 5.0     | 5.5  |
| Grenoble      | 11.4     | 16  | —      | —    | —        | —    | e 4.0   | 6.0  |
| Rocca di Papa | 11.6     | 47  | e 3 2  | + 9  | e 5 11   | + 2  | 6.0     | 7.5  |
| Moncalieri    | 11.7     | 23  | e 2 24 | -31  | 5 17     | + 5  | —       | 9.8  |
| Naples        | 12.1     | 54  | e 4 23 | +83  | —        | —    | —       | 13.0 |
| Florence      | 12.2     | 36  | e 2 10 | -52  | e 5 30   | + 6  | 7.4     | 9.3  |
| Pompeii       | 12.3     | 54  | e 3 0  | - 3  | e 7 0    | —    | e 10.0  | —    |
| Besaçon       | 13.4     | 14  | —      | —    | —        | —    | e 7.0   | —    |
| Neuchatel     | 13.4     | 17  | i 3 31 | +13  | e 7 6    | —    | (e 7.1) | —    |
| Chur          | 13.9     | 24  | e 3 15 | -10  | i 6 12   | + 6  | —       | —    |
| Venice        | 14.0     | 34  | 3 17   | - 9  | 8 0      | —    | (8.0)   | —    |
| Zurich        | 14.1     | 21  | i 3 30 | + 3  | e 7 26   | —    | (e 7.4) | —    |
| Paris         | 14.5     | 3   | e 3 31 | - 2  | —        | —    | 7.0     | 7.0  |
| Ravensburg    | 14.9     | 22  | 3 34   | - 4  | e 6 30   | 0    | 7.9     | 9.0  |
| Strasbourg    | 15.0     | 17  | e 3 45 | + 6  | e 6 29   | - 3  | 8.0     | 8.2  |
| Zagreb        | 16.0     | 40  | 4 0?   | + 8  | e 7 15   | +20  | e 9.9   | 12.3 |
| Uccle         | 16.6     | 7   | e 3 57 | - 3  | e 7 11   | +16  | e 8.2   | 11.1 |
| Graz          | 16.6     | 36  | e 4 5  | + 5  | e 7 9    | - 6  | e 7.4   | 8.7  |
| Feldberg      | 16.7     | 16  | 14 1   | 0    | e 6 51   | -20  | 10.0    | 12.8 |
| Kew           | 17.2     | 357 | e 4 5  | - 2  | e 7 20   | - 2  | e 7.5   | 8.9  |
| Oxford        | 17.6     | 355 | e 3 54 | -18  | 17 19    | -12  | 8.2     | 9.1  |
| De Bilt       | 18.0     | 8   | e 4 25 | + 8  | e 7 49   | + 9  | 8.1     | 12.4 |
| Vienna        | 18.0     | 34  | 14 19  | + 2  | 10 53    | —    | (10.9)  | —    |
| Jena          | 18.2     | 21  | e 4 18 | - 1  | e 8 3    | +19  | e 8.9   | 10.2 |
| Budapest      | 18.2     | 21  | e 4 19 | 0    | e 7 55   | +11  | e 9.0   | 11.2 |
| Bidston       | 18.7     | 40  | e 4 30 | + 5  | —        | —    | —       | 13.5 |
| Stonyhurst    | 19.4     | 352 | —      | —    | 8 10     | 0    | 9.2     | 12.3 |
|               | 19.7     | 354 | 3 45   | -52  | 7 8      | -69  | 9.9     | 9.6  |

Continued on next page.

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|               | $\Delta$ | Az. | P.      | O-C.             | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------------------|---------|------|--------|------|
|               | °        | °   | m. s.   | s.               | m. s.   | s.   | m.     | m.   |
| Potsdam       | 19.9     | 23  | e 4 36  | - 4              | —       | —    | —      | 12.9 |
| Hamburg       | 20.2     | 15  | e 4 44  | + 1              | e 8 26  | - 1  | e 10.7 | 12.0 |
| Edinburgh     | 21.8     | 353 | —       | —                | e 8 45  | -16  | i 11.4 | 12.3 |
| Copenhagen    | 22.7     | 16  | e 5 9   | - 4              | e 9 17  | - 5  | 12.0   | 14.0 |
| Lund          | 22.9     | 17  | 5 12    | - 4              | 9 22    | - 6  | —      | —    |
| Dyce          | 23.0     | 355 | 5 33    | +16              | 9 22    | - 3  | —      | 14.9 |
| Konigsberg    | 24.5     | 27  | e 5 12  | -21              | i 9 55  | + 1  | e 13.6 | 16.6 |
| Upsala        | 27.7     | 18  | —       | —                | e 10 0? | -54  | —      | —    |
| Ksara         | 28.5     | 81  | e 6 26  | +13              | 11 11   | + 3  | 13.8   | —    |
| Makeyevka     | 30.5     | 53  | —       | —                | e 11 26 | -17  | 16.3   | 20.8 |
| Pulkovo       | 31.7     | 29  | e 5 30  | -74              | —       | —    | 13.0   | 19.3 |
| Scoresby Sund | 38.3     | 348 | 8 54    | ?PR <sub>1</sub> | —       | —    | —      | —    |
| Baku          | 38.6     | 66  | e 7 48  | + 5              | e 13 27 | -19  | e 17.6 | —    |
| Entebbe       | 45.0     | 135 | —       | —                | —       | —    | —      | 26.0 |
| Ekaterinburg  | 45.4     | 42  | e 8 34  | - 2              | e 15 10 | -10  | —      | —    |
| Georgetown z. | 61.1     | 300 | e 10 24 | + 4              | —       | —    | e 30.2 | —    |
| Irkutsk       | 70.6     | 39  | 11 54   | +33              | e 20 48 | +15  | 39.0   | 42.0 |

Additional readings: Algiers iSR<sub>1</sub> = +1m.37s. Alicante iP = +1m.12s.,  
 i = +1m.50s. and +2m.10s., MN = +4.2m. Granada iP = +1m.24s.,  
 i = +1m.25s., +1m.27s., and +1m.34s. Malaga MN = +4.2m. San  
 Fernando MN = +4.2m. Tortosa SE? = +2m.40s. Toledo PE =  
 +2m.2s., IZ = +2m.39s., MNW = +6.4m. Barcelona MN = +7.6m.  
 Strasbourg MZ = +9.9m., MN = +11.5m. Uccle MN = +10.3m. Feld-  
 berg ePE = +4m.0s., eN = +4m.57s., ME = +9.8m. Kew LZ =  
 +9.8m., MN = +10.6m., MZ = +10.7m. Oxford iN = +4m.8s. = P-4s.  
 De Bilt MNZ = +11.5m. Potsdam MN = +11.5m. Hamburg MZ =  
 +15.6m. Copenhagen ePEN = +5m.12s., eZ = +9m.20s., MN =  
 +14.1m., MZ = +16.2m. Konigsberg eZ = +6m.8s. and +6m.23s.  
 Ekaterinburg e = +10m.18s. = PR<sub>1</sub> - 8s.

Aug. 24d. 14h. 21m. 18s. Epicentre 40°·8N. 34°·2E., (given in the "Bulletin des Stations Sismiques regionales de la Crimée.")

A = +.625, B = +.427, C = +.653; D = +.564, E = -.826;  
 G = +.540, H = +.368, K = -.757.

|              | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|--------|------|---------|------|--------|------|
|              | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Yalta        | 3.7      | 359 | e 0 53 | - 5  | i 1 39  | - 3  | 1.8    | 1.9  |
| Sebastopol   | 3.9      | 351 | e 1 7  | + 6  | 1 52    | + 5  | 2.0    | 2.0  |
| Simferopol   | 4.1      | 1   | 0 58   | - 6  | 1 50    | - 3  | 2.0    | —    |
| Theodosia    | 4.3      | 10  | e 1 7  | 0    | 2 5     | + 7  | 2.2    | 2.4  |
| Ksara        | 7.0      | 189 | —      | —    | 3 23    | +13  | 4.8    | —    |
| Makeyevka    | 7.7      | 19  | —      | —    | i 3 34  | + 5  | 4.3    | 4.9  |
| Baku         | 11.8     | 87  | —      | —    | —       | —    | e 5.8  | —    |
| Budapest     | 12.8     | 307 | —      | —    | —       | —    | e 6.7  | —    |
| Kucino       | 15.2     | 7   | —      | —    | —       | —    | e 9.2  | —    |
| Pulkovo      | 19.1     | 354 | e 4 33 | + 3  | e 7 59  | - 5  | 10.7   | —    |
| Feldberg N.  | 20.3     | 306 | —      | —    | e 8 6   | -23  | —      | 12.4 |
| Copenhagen   | 20.7     | 323 | —      | —    | e 8.42  | + 4  | 11.7   | 14.6 |
| De Bilt N.   | 22.9     | 309 | —      | —    | —       | —    | e 11.7 | —    |
| Ekaterinburg | 23.4     | 38  | e 5 1  | -20  | e 9 20  | -13  | —      | —    |
| Tashkent     | 26.2     | 77  | —      | —    | e 10 28 | 0    | e 14.8 | 22.8 |

Additional readings: Theodosia MN = +2.2m. Baku e = +8m.1s., L =  
 +8.2m. Kucino e = +10m.12s.

Aug. 24d. 15h. 12m. 40s. Epicentre 40°·8N. 34°·2E. (as at 14h.).

|            | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.    | M.  |
|------------|----------|-----|--------|------|--------|------|-------|-----|
|            | °        | °   | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Yalta      | 3.7      | 359 | —      | —    | e 1 54 | +12  | —     | 2.9 |
| Simferopol | 4.1      | 1   | e 1 1  | - 3  | e 1 53 | - 0  | e 2.1 | —   |
| Theodosia  | 4.3      | 10  | —      | —    | 1 55   | - 3  | 2.2   | —   |
| Ksara E.   | 7.0      | 189 | e 1 31 | -15  | 3 44   | +34  | 5.0   | —   |
| Baku       | 11.8     | 87  | —      | —    | —      | —    | e 7.5 | —   |

Ksara gives LN = +4.8m.

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**Aug. 24d. 21h. 43m. 30s. Epicentre 16°-0S. 168°-0E.**

(as on 1926 June 3d.).

A = -·940, B = +·200, C = -·276; D = +·208, E = +·978;  
G = +·270, H = -·057, K = -·961.

A depth of focus 0·040 has been assumed, see the note at the end.

|                | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.   |     | O-C.            |         | S. |                 | O-C. |        | L.<br>m. | M.<br>m. |
|----------------|-----------------------|----------|-----|------|-----|-----------------|---------|----|-----------------|------|--------|----------|----------|
|                |                       |          |     | m.   | s.  | s.              | m.      | s. | s.              | m.   |        |          |          |
| Suva           | E. -0·5               | 10·1     | 103 | i 2  | 12  | -12             | i 4     | 18 | 0               |      |        | 5·2      |          |
|                | N. -0·5               | 10·1     | 103 | i 2  | 12  | -12             | i 4     | 24 | + 6             |      | i 5·9  | 8·9      |          |
| Apia           | -1·6                  | 19·7     | 86  | 4    | 30  | +12             | 7       | 29 | -13             |      | 8·6    | 9·5      |          |
| Riverview      | -2·0                  | 23·4     | 210 | i 5  | 5   | + 7             | i 9     | 12 | +19             |      | e 11·3 | 12·0     |          |
| Sydney         | E. -2·0               | 23·4     | 210 | 1    | 30  | ?               | (9 24)  |    | +31             |      | 9·4    | 12·0     |          |
| Wellington     | E. -2·2               | 26·0     | 168 |      |     |                 | 10      | 4  | +24             |      |        | 12·4     |          |
|                | N. -2·2               | 26·0     | 168 | i 5  | 35  | + 9             | i 10    | 49 | +69             |      | 12·5   | 17·9     |          |
| Melbourne      | -2·6                  | 29·8     | 218 | i 6  | 2   | + 2             |         |    |                 |      | 12·3   |          |          |
| Adelaide       | -2·8                  | 32·4     | 229 | i 6  | 24  | 0               | i 11    | 28 | + 1             |      | 14·0   | 17·5     |          |
| Perth          | -4·0                  | 49·8     | 241 | 8    | 5   | -34             | i 15    | 40 | +15             |      | 23·8   |          |          |
| Honolulu T.H.  | E. -4·0               | 50·1     | 43  | e 9  | 20  | +39             | i 15    | 32 | + 3             |      | 20·3   | 20·8     |          |
|                | N. -4·0               | 50·1     | 43  | e 9  | 23  | +42             | i 15    | 32 | + 3             |      | 20·2   | 21·0     |          |
| Manila         | E. -4·4               | 55·6     | 301 | e 9  | 15  | + 1             | i 13    | 53 | ?               |      | i 16·7 | 17·1     |          |
|                | N. -4·4               | 55·6     | 301 | e 9  | 15  | + 1             | i 13    | 47 | ?               |      | i 16·7 | 17·2     |          |
| Nagoya         | -4·6                  | 59·1     | 332 | e 8  | 42  | -54             |         |    |                 |      |        |          |          |
| Osaka          | -4·6                  | 59·4     | 329 | 9    | 41  | + 3             | (17 22) |    | + 3             |      | 17·4   | 18·6     |          |
| Kobe           | -4·6                  | 59·5     | 330 | i 9  | 39  | + 1             | 17      | 23 | + 3             |      |        |          |          |
| Malabar        | -4·6                  | 59·6     | 271 | i 9  | 49  | +10             | i 17    | 42 | +21             |      |        |          |          |
| Batavia        | -4·6                  | 60·6     | 271 | 9    | 37  | - 9             | i 17    | 31 | - 3             |      |        |          |          |
| Mizusawa       | E. -4·6               | 60·6     | 337 | 9    | 46  | 0               | i 17    | 36 | + 2             |      |        |          |          |
| Taihoku        | N. -4·6               | 61·1     | 313 | e 9  | 37  | -12             |         |    |                 |      |        |          |          |
| Zi-ka-wei      | -4·7                  | 65·0     | 317 | 10   | 11  | - 3             | 18      | 27 | 0               |      | 32·4   | 37·4     |          |
| Phu-Lien       | -4·9                  | 70·6     | 300 | 10   | 54  | + 5             | e 19    | 47 | +14             |      |        |          |          |
| Berkeley       | -5·3                  | 84·6     | 48  | e 13 | 11  | +56             | e 22    | 32 | +17             |      |        |          |          |
| Lick           | -5·3                  | 84·9     | 47  | e 12 | 19  | + 2             | e 23    | 45 | PS              |      |        |          |          |
| Irkutsk        | -5·4                  | 87·6     | 327 | i 12 | 26  | - 5             | i 22    | 32 | -16             |      | 41·5   |          |          |
| Victoria       | -5·4                  | 88·5     | 38  | 12   | 27  | -10             | (22 47) |    | -11             |      | 22·8   | 25·4     |          |
| Colombo        | -5·4                  | 90·2     | 277 | 12   | 46  | - 1             | 22      | 51 | [-38]           |      |        |          |          |
| Tucson         | -5·4                  | 91·3     | 55  | 12   | 52  | - 1             | 23      | 7  | [-29]           |      |        |          |          |
| Kodaikanal     | E. -5·5               | 93·4     | 279 | 23   | 48  | PS              | (23 48) |    | - 3             |      | 30·7   | 34·5     |          |
| Hyderabad      | -5·5                  | 94·3     | 288 | 13   | 6   | - 3             | 23      | 46 | -15             |      | 28·6   | 30·4     |          |
| Bombay         | -5·5                  | 99·8     | 287 | e 18 | 19  | PR <sub>1</sub> | 23      | 52 | [-31]           |      | 61·5   | 54·5     |          |
| Tashkent       | -5·7                  | 106·9    | 309 | i 13 | 59  | -17             |         |    |                 |      | e 47·5 | 54·5     |          |
| Florissant     | -5·7                  | 108·9    | 54  | i 13 | 30? | -56             | i 24    | 30 | [-36]           |      | 67·5   | 67·5     |          |
| Chicago        | E. -                  | 111·2    | 51  |      |     |                 | e 24    | 0  | [-75]           |      | e 51·0 | 54·5     |          |
| Tananarive     | E. -                  | 111·8    | 242 | e 19 | 58  | PR <sub>1</sub> | e 28    | 19 | +35             |      |        |          |          |
| Ekaterinburg   | -                     | 112·8    | 325 | e 14 | 18  | -52             | i 24    | 42 | [-39]           |      | 34·5   | 55·3     |          |
| Ann Arbor      | E. -                  | 114·1    | 49  |      |     |                 | e 24    | 54 | [-32]           |      | e 57·8 |          |          |
| La Paz         | -                     | 115·8    | 118 | e 18 | 56  | +161            | i 29    | 39 | PS              |      |        |          |          |
| Sacre          | -                     | 117·0    | 122 | 18   | 35  | [- 9]           | i 29    | 41 | PS              |      |        |          |          |
| Toronto        | E. -                  | 117·2    | 49  |      |     |                 | e 24    | 55 | [-42]           |      | 55·5   |          |          |
| Georgetown     | Z. -                  | 119·3    | 54  | 18   | 36  | [-15]           | e 29    | 13 | +29             |      | e 46·1 | 63·2     |          |
| Ottawa         | -                     | 119·7    | 45  | e 19 | 54  | PR <sub>1</sub> |         |    |                 |      | e 55·5 |          |          |
| Baku           | -                     | 121·6    | 308 | 18   | 40  | [-17]           |         |    |                 |      | 58·5   |          |          |
| Scoresby Sund  | -                     | 125·2    | 4   | 20   | 30  | PR <sub>1</sub> | 29      | 12 | -15             |      |        |          |          |
| Kucino         | -                     | 125·2    | 328 | 18   | 42  | [-24]           | 25      | 30 | [-29]           |      |        |          |          |
| Pulkovo        | -                     | 126·6    | 335 | i 18 | 45  | [-25]           |         |    |                 |      | 56·5   | 77·5     |          |
| Makeyevka      | -                     | 128·2    | 320 | i 18 | 50  | [-24]           |         |    |                 |      |        |          |          |
| Rio de Janeiro | N. -                  | 130·6    | 140 | e 21 | 13  | PR <sub>1</sub> |         |    |                 |      |        |          |          |
| Theodosia      | -                     | 131·0    | 317 | i 18 | 57  | [-24]           |         |    |                 |      |        |          |          |
| Upeala         | -                     | 131·2    | 340 | e 22 | 14  | PR <sub>1</sub> |         |    |                 |      |        |          |          |
| Simferopol     | -                     | 131·8    | 316 | e 18 | 58  | [-25]           |         |    |                 |      |        |          |          |
| Yalta          | -                     | 131·9    | 316 | i 18 | 59  | [-24]           |         |    |                 |      |        |          |          |
| Sebastopol     | -                     | 132·3    | 316 | i 19 | 0   | [-24]           |         |    |                 |      |        |          |          |
| Entebbe        | -                     | 133·3    | 255 | 22   | 30? | PR <sub>1</sub> |         |    |                 |      |        |          |          |
| Ksara          | -                     | 133·5    | 301 | 19   | 2   | [-24]           | 22      | 13 | PR <sub>1</sub> |      | 23·8   |          |          |
| Konigsberg     | -                     | 133·8    | 335 | e 19 | 1   | [-26]           |         |    |                 |      |        |          |          |
| Lund           | -                     | 135·9    | 340 | 19   | 4   | [-28]           | i 22    | 35 | PR <sub>1</sub> |      |        |          |          |
| Copenhagen     | -                     | 136·2    | 340 | e 19 | 3   | [-29]           |         |    |                 |      | e 43·9 | 65·5     |          |
| Dyce           | -                     | 138·1    | 352 | i 22 | 38  | PR <sub>1</sub> | i 28    | 30 | PR <sub>1</sub> |      |        |          |          |
| Hamburg        | Z. -                  | 138·7    | 340 | i 19 | 8   | [-29]           | i 22    | 26 | PR <sub>1</sub> |      |        |          |          |
| Budapest       | -                     | 139·4    | 328 | 19   | 3   | [-35]           | 22      | 46 | PR <sub>1</sub> |      |        |          |          |

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|               | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.    | O-C.            | S.               | O-C.                 | L.               | M.     |
|---------------|-----------------------|----------|-----|-------|-----------------|------------------|----------------------|------------------|--------|
|               | °                     | °        | °   | m. s. | s.              | m. s.            | s.                   | m.               | m.     |
| Edinburgh     | —                     | 139.6    | 352 | e 25  | 30 <sup>?</sup> | ?                | —                    | e 54.5           | —      |
| Jena          | z.                    | 140.3    | 336 | e 19  | 7               | [-33]            | —                    | —                | —      |
| Vienna        | —                     | 140.3    | 330 | e 19  | 0               | [-40]            | 22 48                | ?PR <sub>1</sub> | —      |
| De Bilt       | —                     | 141.4    | 343 | e 22  | 51              | ?PR <sub>1</sub> | —                    | —                | —      |
| Stonyhurst    | —                     | 141.5    | 351 | i 22  | 56              | ?PR <sub>1</sub> | —                    | —                | 73.5   |
| Feldberg      | n.                    | 142.1    | 338 | e 19  | 8               | [-35]            | —                    | —                | 72.8   |
| Zagreb        | —                     | 142.1    | 330 | e 20  | 30 <sup>?</sup> | ?                | e 23 30 <sup>?</sup> | ?PR <sub>1</sub> | —      |
| Uccle         | —                     | 142.8    | 343 | e 19  | 10              | [-35]            | i 22 53              | ?PR <sub>1</sub> | e 45.5 |
| Oxford        | n.                    | 143.2    | 350 | i 22  | 54              | ?PR <sub>1</sub> | —                    | —                | —      |
| Kew           | —                     | 143.4    | 348 | e 19  | 8               | [-38]            | e 22 54              | ?PR <sub>1</sub> | 52.5   |
| Strasbourg    | —                     | 143.7    | 338 | i 19  | 11              | [-35]            | —                    | —                | 32.5   |
| Venice        | —                     | 144.2    | 331 | i 19  | 14              | [-33]            | 20 7                 | ?                | —      |
| Zurich        | —                     | 144.3    | 335 | e 19  | 15              | [-32]            | —                    | —                | —      |
| Chur          | —                     | 144.4    | 334 | e 19  | 7               | [-40]            | 22 57                | ?PR <sub>1</sub> | —      |
| Paris         | —                     | 145.2    | 343 | e 19  | 18              | [-30]            | —                    | —                | 29.5   |
| Neuchatel     | —                     | 145.3    | 334 | i 19  | 17              | [-32]            | e 29 6               | ?PR <sub>1</sub> | 31.5   |
| Besançon      | —                     | 145.4    | 337 | i 19  | 19              | [-30]            | —                    | —                | —      |
| Florence      | —                     | 145.9    | 330 | i 19  | 20              | [-30]            | 22 46                | ?PR <sub>1</sub> | —      |
| Pompeii       | —                     | 146.3    | 322 | e 19  | 23              | [-27]            | e 20 30              | ?                | —      |
| Naples        | z.                    | 146.4    | 322 | e 19  | 13              | [-37]            | e 21 30              | ?                | —      |
| Moncalieri    | —                     | 146.6    | 334 | i 19  | 16              | [-35]            | 21 38                | ?                | 42.0   |
| Rocca di Papa | —                     | 146.7    | 328 | i 19  | 22              | [-29]            | e 22 54              | ?PR <sub>1</sub> | —      |
| Bagnères      | —                     | 151.0    | 341 | i 19  | 29              | [-28]            | —                    | —                | —      |
| Tortosa       | n.                    | 152.9    | 339 | i 19  | 27              | [-33]            | —                    | —                | e 46.5 |
| Algiers       | —                     | 155.3    | 330 | e 19  | 13              | [-49]            | 19 45                | ?                | e 51.1 |
| Alicante      | —                     | 155.5    | 338 | e 19  | 44              | [-19]            | —                    | —                | —      |
| Almeria       | —                     | 157.5    | 339 | e 19  | 36              | [-29]            | —                    | —                | 78.8   |
| Granada       | —                     | 157.5    | 342 | i 19  | 40              | [-25]            | —                    | —                | 61.5   |
| Malaga        | —                     | 158.2    | 343 | i 19  | 22              | [-44]            | —                    | —                | 79.0   |
| San Fernando  | —                     | 158.9    | 347 | 20    | 30              | ?                | 30 5                 | ?                | 43.6   |
|               |                       |          |     |       |                 |                  |                      |                  | 53.5   |

Additional readings: Apia P = +4m.34s.; T<sub>0</sub> = 21h.44m.8s. Riverview  
 iP = +5m.9s., iPR<sub>1</sub> = +5m.36s., PR<sub>2</sub> = +5m.47s., PR<sub>3</sub> = +5m.56s., and  
 +6m.8s., SR<sub>1</sub> = +10m.10s., SR<sub>2</sub> = +10m.30s., SR<sub>3</sub> = +10m.52s., MN =  
 +11.8m.; T<sub>0</sub> = 21h.43m.16s.; epicentre 14°55' 166°0'E. Sydney S =  
 +6m.30s., Wellington iPR<sub>1</sub>N = +6m.24s., iPR<sub>1</sub>E = +6m.32s.; T<sub>0</sub>N =  
 21h.42m.26s. Melbourne i = +6m.57s. and +9m.18s. Adelaide iPR =  
 +7m.7s., i = +7m.37s., MN = +16.0m. Perth ePR<sub>1</sub> = +11m.35s.,  
 iSR<sub>1</sub> = +19m.30s., iSR<sub>2</sub> = +20m.35s. Honolulu, T.H., iEN = +16m.47s.,  
 iE = +17m.30s. and +18m.7s. Osaka S = +14m.15s., MN = +19.6m.  
 Kobe PR<sub>1</sub>E = +10m.40s. Malabar i = +13m.36s., PR<sub>2</sub> + 6s., and  
 +17m.47s. Batavia iPZ = +9m.38s., iP = +9m.39s., iZ = +17m.50s.  
 Mizusawa PN = +9m.45s. Zi-ka-wei PR<sub>1</sub>Z = +10m.45s., iSZ =  
 +18m.33s., SR<sub>1</sub>Z = +19m.59s. = PS + 1s. Berkeley eN = +19m.56s.  
 Lick eN = +12m.25s. Irkutsk iPPS = +23m.59s. = Z + 16s., SR<sub>1</sub> =  
 +28m.46s. Tucson SE = +23m.11s., PSE = +23m.42s. = Z - 26s.,  
 PSN = +23m.46s. = Z - 22s. Tashkent PR<sub>1</sub> = +18m.20s., SR<sub>1</sub> =  
 +33m.15s., SR<sub>2</sub> = +37m.30s. Florissant iZ = +19m.30s.?, iE = +25m.30s.?  
 = Z - 35s. Chicago PR<sub>1</sub>E? = +18m.12s. = [P] - 13s., eE = +27m.30s. =  
 S - 9s. Tananarive eE = +21m.28s. and +25m.52s. = [S] + 35s. Ekaterin-  
 burg ScPcPcS = +25m.42s. Ann Arbor eE = +28m.48s. = S - 15s., and  
 +40m.30s. = SR<sub>1</sub> - 26s. Toronto eN = +28m.33s. = S + 5s., eE =  
 +29m.18s. and +35m.45s. = SR<sub>1</sub> - 27s., LN = +52.8m. Georgetown  
 iZ = +19m.51s., +20m.34s. = PR<sub>1</sub> + 15s., +32m.48s., and +33m.26s.  
 Ottawa e = +25m.12s. = PR<sub>1</sub> - 32s., eE = +26m.34s. = Z - 38s., e = +36m.0s.  
 = SR<sub>1</sub> - 43s., eN = +37m.9s., and +47m.36s., eLN = +51.5m., MN =  
 +54.5m. Baku PR<sub>1</sub> = +20m.7s., ScPcPcS = +26m.48s. Kucino  
 PR<sub>1</sub> = +20m.24s. Pulkovo PR<sub>1</sub> = +19m.37s. = [P] + 28s., PS = +30m.12s.  
 Makeyevka PR<sub>1</sub> = +20m.47s., ScPcPcS = +27m.27s. = PR<sub>1</sub> + 17s. Konigs-  
 berg eE = +21m.24s., eZ = +21m.34s., iZ = +22m.11s., i = +22m.27s., eE =  
 +23m.10s., eN = +28m.2s. = Z - 35s. Copenhagen eZ = +19m.49s.,  
 eNZ = +21m.36s., eZ = +22m.18s., eEN = +22m.30s., +23m.20s., and  
 +23m.14s., eE = +32m.30s., e = +33m.25s., and +34m.24s., eE =  
 +35m.45s., eEN = +39m.25s., eE = +41m.18s., MN = +73.9m. Jena  
 eE = +19m.18s., iZ = +20m.18s., and +22m.24s., iE = +22m.52s., iN =  
 +22m.53s., eN = +23m.42s. Vienna iPZ = +19m.12s., iE = +21m.38s.,  
 iEZ = +22m.5s., iEN = +28m.43s. De Bilt e = +23m.37s. Feldberg  
 iN = +22m.4s., +22m.40s., +23m.39s., eN = +25m.6s., +26m.47s.,  
 +28m.19s., +33m.7s., +35m.6s., and +40m.18s. Zagreb i = +27m.49s.,  
 e = +28m.54s. = PR - 18s., and +32m.7s. Kew eEN = +41m.30s. i =  
 SR<sub>1</sub> - 2s. Strasbourg i = +20m.0s., +22m.29s., and +23m.4s. Zurich  
 i = +19m.55s. Moncalieri iPZ = +19m.20s., SiE = +29m.55s. Rocca  
 di Papa iP = +19m.24s., PR<sub>1</sub>E = +20m.17s., PR<sub>1</sub>N = +20m.54s., eS?N =  
 +22m.42s. Bagnères i = +19m.47s. and +20m.28s. Almeria i =  
 +20m.7s., PR<sub>1</sub> = +23m.45s.

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NOTE TO THE SHOCK OF 24D. 21H.

The following table is an analysis of the evidence for deep focus as deduced from the principle observations made within 90° of the epicentre.

| Group.        | No. | Az. | Residuals in $\Delta$ |      |      |
|---------------|-----|-----|-----------------------|------|------|
|               |     |     | (1)                   | (2)  | (3)  |
| Honolulu T.H. | 1   | 43  | -3.8                  | +0.2 | -0.2 |
| America       | 4   | 47  | -5.4                  | -0.1 | -0.7 |
| Apia and Suva | 2   | 95  | -1.1                  | 0.0  | -0.1 |
| Wellington    | 1   | 168 | -1.3                  | +0.9 | +0.6 |
| Australia     | 3   | 227 | -2.3                  | +0.6 | +0.3 |
| India         | 3   | 281 | -6.0                  | -0.5 | -1.1 |
| Eastern Asia  | 4   | 287 | -4.2                  | +0.4 | -0.1 |
| Japan         | 4   | 328 | -4.5                  | +0.1 | -0.4 |

Residuals (1) are deduced directly from the  $T_0$  and epicentre adopted, (2) have been corrected for focal depth 0.040, and (3) for focal depth 0.035.

Aug. 24d. 23h. 18m. 10s. Epicentre 13°-0S. 136°-0E. (as on 1918 Dec. 28d.).

$$A = -.701, B = +.677, C = -.225; \quad D = +.695, E = +.719;$$

$$G = +.162, H = -.156, K = -.974.$$

|               | $\Delta$ | Az.   | P.      | O-C.  | S.      | O-C.  | L.     | M.   |
|---------------|----------|-------|---------|-------|---------|-------|--------|------|
|               | m. s.    | m. s. | m. s.   | m. s. | m. s.   | m. s. | m.     | m.   |
| Adelaide      | 22.1     | 174   | —       | —     | —       | —     | i 11.4 | 20.2 |
| Riverview     | 25.0     | 149   | e 5 35  | - 3   | e 10 36 | +33   | e 15.4 | 16.8 |
| Sydney        | 25.0     | 149   | 11 38   | ?S    | (11 38) | +95   | 15.8   | 17.9 |
| Melbourne     | 26.0     | 164   | —       | —     | —       | —     | —      | 7.7  |
| Manila        | 31.4     | 331   | e 9 14? | ?     | —       | —     | —      | 27.8 |
| Wellington    | 44.0     | 137   | —       | —     | —       | —     | 21.8   | —    |
| Phu-Lien      | 44.5     | 319   | 6 50?   | -100  | —       | —     | —      | —    |
| Zi-ka-wei     | 46.4     | 344   | 8 35    | - 8   | 15 23   | -10   | 21.2   | 25.2 |
| Irkutsk       | 70.8     | 340   | e 11 26 | + 4   | e 20 38 | + 2   | 36.8   | 38.8 |
| Tashkent      | 81.9     | 317   | —       | —     | e 22 50 | + 5   | e 41.8 | 53.1 |
| Ekaterinburg  | 83.0     | 329   | —       | —     | —       | —     | —      | 52.2 |
| Baku          | 95.4     | 311   | —       | —     | —       | —     | —      | 49.3 |
| Makeyevka     | 104.9    | 318   | —       | —     | —       | —     | —      | 55.8 |
| Kucino        | 105.2    | 325   | —       | —     | —       | —     | —      | 56.8 |
| Victoria      | E. 106.7 | 42    | —       | —     | —       | —     | —      | 43.8 |
| Pulkovo       | 109.1    | 330   | —       | —     | —       | —     | —      | 58.8 |
| Lund          | 118.9    | 328   | —       | —     | e 30 26 | ?PS   | 71.8   | —    |
| Copenhagen    | 119.3    | 328   | —       | —     | —       | —     | 60.8   | 72.6 |
| Scoresby Sund | N. 120.9 | 351   | —       | —     | —       | —     | 59.8   | —    |
| Feldberg      | 123.6    | 322   | —       | —     | —       | —     | —      | 66.3 |
| Florence      | 123.8    | 314   | —       | —     | —       | —     | e 69.6 | 72.8 |
| De Bilt       | 124.7    | 325   | —       | —     | —       | —     | e 64.8 | —    |
| Uccle         | 125.7    | 324   | —       | —     | —       | —     | e 64.8 | —    |
| Moncalieri    | E. 125.9 | 316   | —       | —     | e 49 19 | ?     | 70.0   | —    |
| Stonyhurst    | 127.7    | 350   | —       | —     | —       | —     | e 67.8 | 82.8 |
| Kew           | 127.9    | 327   | —       | —     | —       | —     | e 63.8 | —    |
| Florissant    | 131.7    | 49    | —       | —     | —       | —     | e 51.8 | —    |
| Granada       | 136.7    | 311   | —       | —     | —       | —     | e 81.8 | 85.8 |
| Georgetown    | Z. 141.0 | 41    | —       | —     | —       | —     | e 65.2 | 70.0 |

Additional readings: Adelaide eL = +16.9m. ? MN = +19.7m. Riverview eS? = +11m.14s., MN = +17.0m. Wellington eLE = +17m.29s. =SR, -41s. Ekaterinburg e = +2m.48s. and +11m.41s. Copenhagen MN = +67.9m.

Aug. 24d. Readings also at 0h. (Bombay), 2h. (Florissant and Georgetown), 5h. (Taihoku (2), La Paz, and Sucre), 6h. (Baku, Bombay, Copenhagen, Tashkent, Florissant, Zi-ka-wei, and near Calcutta), 7h. (Lick (2) and near Mizusawa), 9h. (Florissant, Suva, Wellington, near Almeria, and Granada), 10h. (near Algiers), 11h. (Ekaterinburg, Pulkovo, Tashkent, San Fernando, and near Baku), 12h. (near Algiers), 15h. (Makeyevka), 16h. (Ksara), 17h. (La Paz (2), Sucre, near Batavia, and Malabar), 19h. (Baku, Tashkent, Alicante, Toledo, near Almeria, and Granada), 22h. (Pulkovo), 23h. (near Tacubaya).

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1928

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Aug. 25d. 0h. 18m. 5s. Epicentre 40°·8N. 35°·8E. (as on 1918 Aug. 9d.).

A = +·614, B = +·443, C = +·653; D = +·585, E = -·811;  
G = +·530, H = +·382, K = -·757.

The " Bulletin des stations seismique regionales de la Crimée " gives epicentre 41°10'N. 36°12'E. The above is the nearest old epicentre.

|            | Δ      | Az. | P.     | O-C. | S.     | O-C. | L.    | M.  |
|------------|--------|-----|--------|------|--------|------|-------|-----|
|            | °      | °   | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Yalta      | 3·9    | 343 | e 1 2  | + 1  | 1 52   | + 5  | 2·0   | 2·9 |
| Sebastopol | 4·2    | 337 | e 1 2  | - 3  | 1 55   | + 0  | 2·0   | —   |
| Theodosia  | 4·3    | 355 | e 1 11 | + 4  | 2 0    | + 2  | 2·2   | —   |
| Simferopol | 4·3    | 344 | e 1 0  | - 7  | e 1 50 | - 8  | e 2·0 | —   |
| Ksara      | E. 6·9 | 179 | 1 54   | + 9  | 4 43   | +95  | 5·9   | —   |

No additional readings.

Aug. 25d. 1h. 48m. 12s. Epicentre 49°·0N. 144°·0E. (as on 1924 April 11d.).

A = -·531, B = +·386, C = +·755; D = +·588, E = +·809;  
G = -·611, H = +·444, K = -·656.

|               | Δ       | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|---------------|---------|-----|---------|------|---------|------|--------|------|
|               | °       | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Sikka         | 0·6     | 292 | —       | —    | —       | —    | 0·7    | 1·6  |
| Ootomari      | 2·4     | 200 | 1 1     | +24  | —       | —    | 1·7    | 2·5  |
| Mizusawa      | E. 10·1 | 193 | —       | —    | 4 47    | +15  | —      | —    |
| Osaka         | 15·6    | 207 | 4 39    | +62  | —       | —    | 7·7    | 10·4 |
| Zi-ka-wei     | Z. 24·5 | 232 | 5 29    | - 4  | e 9 49  | - 5  | —      | —    |
| Irkutsk       | 25·1    | 293 | 5 32    | - 7  | i 10 0  | - 5  | 12·8   | 15·5 |
| Phu-Lien      | 41·0    | 240 | —       | —    | —       | —    | 19·8   | —    |
| Ekaterinburg  | 47·7    | 314 | e 8 42  | -10  | e 15 36 | -14  | 18·8   | —    |
| Tashkent      | 51·1    | 291 | 19 14   | 0    | i 16 25 | - 7  | 25·8   | 30·8 |
| Kucino        | 58·6    | 321 | —       | —    | —       | —    | 32·0   | —    |
| Fulkovo       | 58·7    | 327 | —       | —    | —       | —    | e 32·8 | —    |
| Scoresby Sund | 60·1    | 355 | —       | —    | —       | —    | e 35·8 | —    |
| Baku          | 63·1    | 301 | e 10 41 | + 8  | e 19 9  | + 7  | 32·3   | 35·6 |
| Makoyevka     | 63·9    | 315 | —       | —    | —       | —    | 31·5   | 35·2 |
| Copenhagen    | 67·8    | 334 | —       | —    | —       | —    | 34·8   | 39·0 |
| De Bilt       | E. 73·1 | 335 | —       | —    | —       | —    | e 37·8 | —    |
| Feldberg      | N. 73·7 | 332 | —       | —    | —       | —    | e 39·0 | 42·0 |
| Uccle         | 74·4    | 335 | —       | —    | —       | —    | e 39·8 | —    |
| Kew           | 75·1    | 338 | —       | —    | —       | —    | e 41·8 | —    |
| Florence      | 78·5    | 329 | —       | —    | —       | —    | e 47·5 | 47·8 |
| Moncalieri    | 78·6    | 330 | —       | —    | —       | —    | 44·7   | —    |
| Rocca di Papa | 79·7    | 326 | e 12 46 | +29  | —       | —    | e 43·3 | 50·2 |

Additional readings: Tashkent e = +9m.22s., i = +11m.14s. = PR<sub>1</sub> - 13s.  
Copenhagen MN = +38·7m. De Bilt eLN = +40·8m. Moncalieri  
e = +31m.3s. = SR<sub>1</sub> - 15s. Rocca di Papa e = +38m.46s.

Aug. 25d. 7h. 3m. 5s. Epicentre 34°·7N. 134°·5E. (as on 1927 Aug. 12d.).

A = -·576, B = +·586, C = +·569;

|        | Δ   | Az. | P.    | O-C. | S.       | O-C. | L.    | M.  |
|--------|-----|-----|-------|------|----------|------|-------|-----|
|        | °   | °   | m. s. | s.   | m. s.    | s.   | m.    | m.  |
| Sumoto | 0·5 | 138 | i 0 5 | - 3  | (i 0 11) | - 3  | i 0·2 | 0·2 |
| Kobe   | 0·5 | 92  | i 0 9 | + 1  | (i 0 19) | + 5  | i 0·3 | 0·3 |
| Osaka  | 0·8 | 94  | 0 12  | 0    | (0 22)   | 0    | 0·4   | 0·6 |
| Nagoya | 2·0 | 77  | 0 49  | +18  | (0 53)   | - 2  | 0·9   | 0·9 |

No additional readings.

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25d. 21h. 9m. 10s. Epicentre 45°-9N. 15°-6E. (given by Belgrade).

A = +.670, B = +.187, C = +.718; D = +.269, E = -.963;  
G = +.692, H = +.193, K = -.696.

|              | $\Delta$ | Az. | P.      | O-C. | S.       | O-C. | L.     | M.   |
|--------------|----------|-----|---------|------|----------|------|--------|------|
|              | °        | °   | m. s.   | s.   | m. s.    | s.   | m.     | m.   |
| greb         | 0.3      | 111 | i 0 2   | - 3  | i 0 6    | - 2  | —      | 0.5  |
| az           | 1.2      | 355 | i 0 20  | + 2  | —        | —    | —      | 0.6  |
| nice         | 2.3      | 244 | i 0 38  | + 2  | 0 53     | -10  | 1.3    | 2.4  |
| enna         | 2.4      | 12  | 0 37    | + 0  | 1 18     | +12  | 1.5    | 2.5  |
| idapest      | 2.9      | 56  | 0 50?   | + 5  | —        | —    | 1.6    | —    |
| nsbruck      | 3.2      | 297 | 0 47    | - 3  | i 1 54   | +26  | —      | 2.2  |
| lgrade       | N. 3.6   | 106 | e 0 1   | -55  | 0 41     | -58  | i 0.8  | 1.2  |
| orence       | 3.7      | 237 | e 1 10  | +12  | 2 50     | +68  | —      | 3.3  |
| ur           | 4.3      | 284 | e 1 6   | - 1  | —        | —    | —      | —    |
| ivensburg    | 4.5      | 298 | 1 11    | + 1  | 2 19     | +15  | 2.6    | 2.8  |
| occa di Papa | 4.7      | 208 | e 1 19  | + 6  | e 1 48   | -21  | —      | 2.8  |
| urich        | 5.0      | 290 | e 1 15  | - 2  | 2 30     | +13  | —      | —    |
| impei        | E. 5.2   | 189 | e 2 45  | ?S   | (e 2 45) | +23  | —      | —    |
| aples        | 5.2      | 192 | e 2 43  | ?S   | (e 2 43) | +21  | —      | —    |
| oncalieri    | 5.6      | 264 | 1 56    | +29  | e 3 17   | +43  | —      | 4.4  |
| na           | 5.6      | 334 | e 1 32  | + 5  | e 2 31   | - 3  | e 2.9  | 3.3  |
| rasbourg     | 6.0      | 300 | e 1 53  | +21  | 3 13     | +29  | 3.7    | —    |
| uchatel      | 6.1      | 283 | 1 27    | - 6  | i 2 51   | + 5  | —      | —    |
| ldberg       | 6.4      | 315 | e 2 1   | +23  | i 3 25   | +30  | —      | 3.8  |
| tsdam        | 6.6      | 347 | —       | —    | i 3 26   | +26  | i 3.8  | 3.8  |
| esançon      | 6.7      | 285 | e 2 2   | +20  | e 3 49   | +47  | —      | —    |
| renoble      | 7.0      | 268 | e 2 50? | +64  | —        | —    | —      | —    |
| amburg       | 8.5      | 337 | —       | —    | e 3 46   | - 4  | i 4.8  | 5.5  |
| ccle         | 8.9      | 308 | e 2 50? | +35  | e 4 26   | +25  | e 4.8  | —    |
| e Bilt       | 9.2      | 316 | —       | —    | —        | —    | e 4.4  | 5.6  |
| aris         | 9.3      | 293 | —       | —    | —        | —    | e 4.8  | —    |
| und          | 9.9      | 352 | —       | —    | —        | —    | —      | —    |
| openhagen    | 10.0     | 349 | —       | —    | e 4 26   | - 3  | —      | —    |
| ew           | 11.8     | 304 | e 0 50? | ?    | —        | —    | —      | —    |
| ortosa       | N. 12.1  | 251 | —       | —    | —        | —    | e 6.3  | 6.8  |
| xford        | 12.5     | 304 | —       | —    | e 5 38   | + 6  | e 5.8  | 8.4  |
| tonyhurst    | 14.0     | 311 | —       | —    | —        | —    | e 6.8  | 7.3  |
| psala        | E. 14.0  | 4   | —       | —    | —        | —    | e 7.9  | —    |
| dinburgh     | 15.4     | 317 | —       | —    | —        | —    | e 7.7  | —    |
| lakeyevka    | 15.4     | 74  | —       | —    | —        | —    | e 8.8  | —    |
| yce          | 15.7     | 322 | —       | —    | —        | —    | 7.1    | 10.2 |
| lmeria       | 16.2     | 242 | —       | —    | —        | —    | 9.8    | —    |
| ulkovo       | 16.4     | 27  | i 3 46  | -11  | —        | —    | —      | 10.1 |
| ranada       | 16.7     | 245 | —       | —    | —        | —    | —      | 8.8  |
| ucino        | 17.1     | 47  | —       | —    | —        | —    | —      | 9.2  |
| katerinburg  | 29.5     | 52  | —       | —    | —        | —    | e 15.4 | 10.8 |
|              |          |     |         |      |          |      |        | 7.9  |
|              |          |     |         |      |          |      |        | —    |

Additional readings: Zagreb MNW = +0.2m. Graz iP = +21s. Vienna P = +46s., PR<sub>1</sub> = +49s., P<sub>2</sub>S = +1m.9s., PS = +1m.14s., PS<sub>2</sub> = +1m.18s., MN = +1.6m., MZ = +2.0m. Innsbruck iP = +53s., iPR<sub>1</sub> = +1m.1s., iP\*NE = +1m.5s., iPNE = +1m.16s., iNW = +1m.33s., iNE = +1m.39s., iS\* = +2m.9s. Ravensburg PR<sub>1</sub> = +1m.26s., PR<sub>2</sub> = +1m.41s. Rocca di Papa eZ = +1m.7s., ePZ = +1m.23s., eSZ = +1m.52s. Moncalieri MN = +4.2m. Jena e = +2m.26s., iE = +2m.43s. and +2m.49s. eLE = +3.0m. Neuchatel eP\* = +1m.30s., iP\* = +1m.49s. Feldberg eE = +2m.5s. and +2m.45s., eN = +3m.4s. Potsdam i = +2m.41s. Hamburg MN = +5.4m., MZ = +6.7m. De Bilt MZ = +6.4m. Copenhagen MN = +6.7m.

g. 25d. Readings also at 1h. (Neuchatel, Zurich, and Tacubaya), 2h. (Tashkent), 7h. (near Tacubaya), 8h. (Florissant and near Manila), 9h. and 11h. (near Tacubaya), 12h. (Zi-ka-wei, near Manila, and near Tacubaya), 16h. (La Plata, Rio de Janeiro, Feldberg, and Zagreb), 17h. (Copenhagen, De Bilt, Uccle, and Kew), 19h. (Zagreb and near Tacubaya), 20h. (Georgetown, La Paz, and Sucre), 21h. (Ekaterinburg, Tashkent, Copenhagen, De Bilt, Uccle, Konigsberg, Zagreb (2), Feldberg, and Hong Kong), 22h. (Florissant and near Zagreb), 23h. (Feldberg, Copenhagen, Hong Kong, and Zagreb (2)).



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Aug. 26d. 4h. 1m. 55s. Epicentre 19°0S. 173°0W. (as on 1927 Nov. 19d.).

A = -·939, B = -·115, C = -·326; D = -·122, E = +·993;  
G = +·323, H = +·040, K = -·946.

|               | $\Delta$ | Az. | P.      | O-C.             | S.      | O-C.             | L.      | M.   |
|---------------|----------|-----|---------|------------------|---------|------------------|---------|------|
|               | °        | °   | m. s.   | s.               | m. s.   | s.               | m.      | m.   |
| Apia          | 5·3      | 13  | 1 22    | 0                | —       | —                | 2·8     | 4·1  |
| Suva          | E. 8·2   | 275 | i 4 23  | ?L               | i 5 23  | ?                | (i 4·4) | —    |
| Wellington    | N. 24·6  | 202 | i 5 34  | 0                | —       | —                | i 15·2  | 15·6 |
| Christchurch  | 27·3     | 203 | 19 5    | ?                | 21 14   | ?                | 22·0    | —    |
| Melbourne     | 41·0     | 234 | —       | —                | i 16 37 | ?SR <sub>1</sub> | —       | 23·8 |
| Honolulu T.H. | 43·0     | 21  | —       | —                | —       | ?                | e 18·1  | 19·6 |
| Adelaide      | 45·5     | 240 | e 13 9  | ?                | i 17·58 | ?SR <sub>1</sub> | i 20·0  | 27·3 |
| Florissant    | 96·3     | 53  | —       | —                | e 23 5? | [-59]            | —       | 56·1 |
| Toronto       | 105·5    | 49  | —       | —                | —       | —                | —       | 48·1 |
| Georgetown    | Z. 106·3 | 53  | e 13 24 | -77              | e 30 10 | ?                | e 53·2  | 64·4 |
| Ottawa        | N. 108·4 | 47  | —       | —                | e 34 5? | ?SR <sub>1</sub> | e 45·1  | —    |
| Tashkent      | 123·0    | 308 | e 19 47 | [+46]            | —       | —                | e 67·1  | 71·7 |
| Scoresby Sund | 125·7    | 11  | —       | —                | —       | —                | —       | —    |
| Pulkovo       | 136·0    | 343 | e 22 47 | ?PR <sub>1</sub> | —       | —                | —       | —    |
| Baku          | 137·6    | 310 | —       | —                | —       | —                | —       | 61·6 |
| Makeyevka     | 141·6    | 326 | —       | —                | e 26 47 | [+17]            | e 78·5  | 90·9 |
| Edinburgh     | 142·3    | 11  | —       | —                | —       | —                | e 75·1  | —    |
| Copenhagen    | 143·1    | 354 | —       | —                | 40 5    | ?                | e 64·1  | —    |
| De Bilt       | 146·5    | 2   | e 19 41 | [-9]             | —       | —                | e 72·1  | 88·6 |
| Kew           | 147·1    | 10  | —       | —                | —       | —                | e 68·1  | —    |
| Uccle         | 148·1    | 4   | —       | —                | —       | —                | e 68·1  | —    |
| Feldberg      | N. 148·8 | 359 | e 33 9  | ?                | —       | —                | e 70·1  | —    |
| Strasbourg    | 150·4    | 359 | e 19 53 | [-3]             | —       | —                | —       | 75·1 |
| San Fernando  | F. 159·1 | 31  | —       | —                | —       | —                | —       | 88·2 |
| Granada       | 159·6    | 25  | i 22 15 | ?                | —       | —                | —       | 80·4 |

Additional readings: Apia MZ = +3·7m. Wellington eE = +8m.5s.?,  
ME = +16·2m. Honolulu T.H. eN = +18m.22s. Adelaide MN =  
+23·5m. Tashkent i = +20m.10s., e = +25m.5s. De Bilt eLN =  
+68·1m., MN = +80·6m. Strasbourg i = +74m.33s. San Fernando  
MN = +85·2m.

Aug. 26d. 18h. 11m. 20s. Epicentre 36°2N. 142°2E. (as on 1928 May 19d.).

A = -·638, B = +·495, C = +·591; D = +·613, E = +·790;  
G = -·467, H = +·362, K = -·807.

|              | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|--------|------|---------|------|--------|------|
|              | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Mizusawa     | 3·0      | 344 | 0 53   | + 6  | 1 22    | - 1  | —      | —    |
| Nagoya       | 4·4      | 258 | e 1 8  | 0    | 2 0     | - 1  | —      | 2·2  |
| Osaka        | 5·7      | 256 | e 1 24 | - 4  | (2 44)  | + 8  | 2·7    | 3·6  |
| Kobe         | 5·9      | 257 | e 1 40 | + 9  | (2 48)  | + 7  | 2·8    | 4·0  |
| Sumoto       | 6·2      | 255 | i 1 56 | +21  | (12 53) | + 4  | i 2·9  | 3·2  |
| Irkutsk      | 31·1     | 314 | e 6 7  | -32  | e 11 13 | -40  | 18·7   | —    |
| Tashkent     | 55·4     | 300 | 19 37  | - 5  | 17 14   | -12  | e 28·3 | 33·9 |
| Ekaterinburg | 56·0     | 320 | 9 43   | - 3  | 17 21   | -13  | —      | —    |
| Kucino       | 67·9     | 325 | —      | —    | —       | —    | —      | 34·6 |
| Pulkovo      | 69·0     | 330 | 11 12  | + 1  | —       | —    | —      | 38·7 |
| Baku         | 69·1     | 307 | 11 14  | + 2  | e 20 33 | +18  | —      | 35·8 |
| Makeyevka    | 72·2     | 319 | —      | —    | —       | —    | e 37·9 | 45·5 |
| Copenhagen   | 78·6     | 335 | —      | —    | —       | —    | —      | 39·7 |
| De Bilt      | 84·1     | 335 | —      | —    | —       | —    | e 44·7 | —    |
| Feldberg     | N. 84·5  | 333 | —      | —    | —       | —    | e 42·7 | —    |
| Uccle        | 85·5     | 335 | —      | —    | —       | —    | e 43·7 | —    |
| Kew          | 86·4     | 340 | —      | —    | —       | —    | e 52·7 | —    |

Additional readings: Nagoya P = +1m.14s., MN = +2·3m. Osaka MN =  
+3·5m. Kobe MN = +2·9m., MZ = +3·3m. Irkutsk e = +13m.43s.

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Aug. 26d. 22h. 11m. 0s. Epicentre 24°-0N. 121°-0E. (as on 1928 April 24d. .

A = -·470, B = +·783, C = +·407; D = +·857, E = +·515;  
G = -·210, H = +·349, K = -·914.

|              |    | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.  |
|--------------|----|----------|-----|---------|------|---------|------|--------|-----|
|              |    | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.  |
| Taihoku      | N. | 1·1      | 24  | 0 36    | +19  | —       | —    | 1·0    | 1·2 |
| Hong Kong    |    | 6·5      | 257 | 1 38    | -1   | —       | —    | —      | 4·3 |
| Manila       |    | 9·4      | 180 | e 2 24  | + 2  | —       | —    | i 5·7  | —   |
| Phu-Lien     |    | 13·7     | 259 | —       | —    | 6 0     | - 1  | —      | —   |
| Irkutsk      |    | 31·0     | 340 | —       | —    | e 11 37 | -14  | e 15·2 | —   |
| Ekaterinburg |    | 54·0     | 325 | —       | —    | e 17 12 | + 3  | e 27·5 | —   |
| Baku         |    | 60·7     | 306 | —       | —    | —       | —    | e 34·0 | —   |
| Makeyevka    |    | 67·8     | 315 | —       | —    | —       | —    | e 37·0 | —   |
| Pulkovo      |    | 69·8     | 328 | e 11 14 | - 2  | —       | —    | 41·0   | —   |
| Copenhagen   |    | 80·0     | 328 | —       | —    | —       | —    | 43·0   | —   |
| Feldberg     | N. | 84·9     | 325 | —       | —    | —       | —    | e 44·0 | —   |

Additional readings: Hong Kong MN = +3·5m. Irkutsk e = +17m.39s.,  
L = +20·3m.

Aug. 26d. 23h. 16m. 21s. Epicentre 28°-7N. 51°-9E. (as on 1928 April 15d.).

A = +·541, B = +·690, C = +·480; D = +·787, E = -·617;  
G = +·296, H = +·378, K = -·877.

|              |    | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.    | M.   |
|--------------|----|----------|-----|--------|------|---------|------|-------|------|
|              |    | °        | °   | m. s.  | s.   | m. s.   | s.   | m.    | m.   |
| Baku         |    | 11·8     | 353 | —      | —    | e 3 37  | -97  | e 5·1 | —    |
| Ksara        | E. | 14·6     | 295 | e 3 38 | + 4  | 6 15    | - 7  | 7·1   | —    |
| Tashkent     |    | 18·9     | 44  | e 3 27 | -61  | 7 54    | - 6  | e 9·6 | 12·3 |
| Makeyevka    |    | 22·1     | 335 | —      | —    | —       | —    | e 7·3 | —    |
| Ekaterinburg |    | 28·8     | 8   | —      | —    | e 11 23 | +10  | —     | —    |
| Copenhagen   |    | 38·9     | 325 | —      | —    | —       | —    | 18·6  | —    |

No additional readings. Only the P and S for Ksara and the S for Tashkent are given with phase.

Aug. 26d. Readings also at 0h. (near Mizusawa), 2h. (Hong Kong, Rio de Janeiro, La Paz, Sucre, and near Zagreb), 3h. (near Tacubaya), 4h. (Zagreb), 5h. (De Bilt, Kew, Manila, Makeyevka, Tashkent, Vienna, Rocca di Papa, Zagreb, near Batavia, Malabar, and near Tacubaya), 6h. (Copenhagen, Scoresby Sund, and Uccle), 7h. (near Tacubaya), 8h. (Mizusawa, Baku, Ekaterinburg, and Tashkent), 10h. and 11h. (Zagreb), 12h. (La Plata and near Zagreb), 13h. (Mizusawa, near Nagoya, and near Zagreb), 14h. (Taihoku), 15h. (near Tucson), 16h. (near Tacubaya), 17h. (Wellington), 18h. (Nagasaki and near Tacubaya), 20h. (Baku, Ksara, Tashkent, and Taihoku (6)), 21h. (Tashkent, Zagreb, Batavia, and near Malabar), 22h. (Florissant, Tucson, near Puebla, Vera Cruz, Tacubaya, and near Taihoku (5)), 23h. (Baku, Tashkent, Ksara, Taihoku, and Zagreb).

Aug. 27d. 3h. 37m. 54s. (I) } Epicentre 28°-7N. 51°-9E.  
4h. 19m. 57s. (II) } (as on Aug. 26d.).

A = +·541, B = +·690, C = +·480; D = +·787, E = -·617;  
G = +·296, H = +·378, K = -·877.

|              |    | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.     | M.   |
|--------------|----|----------|-----|--------|------|--------|------|--------|------|
|              |    | °        | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.   |
| I Baku       |    | 11·8     | 353 | —      | —    | e 3 54 | -80  | —      | —    |
| II Baku      |    | 11·8     | 353 | e 2 31 | -25  | e 3 57 | -77  | —      | 5·0  |
| I Ksara      | E. | 14·6     | 295 | e 3 43 | + 9  | 6 22   | 0    | 7·4    | —    |
| II Ksara     | E. | 14·6     | 295 | e 3 36 | + 2  | 6 14   | - 8  | 7·4    | —    |
| I Tashkent   |    | 18·9     | 44  | 4 28   | 0    | 17 57  | - 3  | e 10·0 | 12·8 |
| II Tashkent  |    | 18·9     | 44  | 4 30   | + 2  | 18 6   | + 6  | e 10·2 | 13·0 |
| I Makeyevka  |    | 22·1     | 335 | —      | —    | —      | —    | e 7·6  | —    |
| II Makeyevka |    | 22·1     | 335 | e 4 21 | -45  | e 7 47 | -80  | 10·1   | —    |
| I Kucino     |    | 28·8     | 344 | —      | —    | e 9 54 | -79  | —      | —    |
| II Kucino    |    | 28·8     | 344 | —      | —    | e 9 33 | -100 | —      | —    |

Continued on next page.

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|                | $\Delta$ | Az.     | P.     | O-C. | S.      | O-C. | L.   | M.   |
|----------------|----------|---------|--------|------|---------|------|------|------|
|                | $\circ$  | $\circ$ | m. s.  | s.   | m. s.   | s.   | m.   | m.   |
| I Ekaterinburg | 28.8     | 8       | —      | —    | e 10 26 | -47  | —    | —    |
| II             | 28.8     | 8       | e 6 45 | +29  | e 10 33 | -40  | —    | —    |
| I Pulkovo      | 34.3     | 341     | —      | —    | e 12 36 | -8   | —    | —    |
| II Florence    | 35.6     | 306     | 16 3   | ?    | —       | —    | 22.1 | 23.1 |
| I Copenhagen   | 38.9     | 325     | —      | —    | —       | —    | 16.0 | —    |
| II             | 38.9     | 325     | —      | —    | e 12 39 | -72  | —    | —    |
| II Irkutsk     | 45.0     | 43      | —      | —    | —       | —    | 21.0 | —    |

Additional readings and note : Tashkent I e = +10m.16s. Florence e = +11m.58s. Only the readings for Baku I, Ksara, and Tashkent are given with definite phase.

Aug. 27d. 17h. 58m. 48s. Epicentre 33°0N. 139°0E. (as on 1920 April 15d.)

A = -0.633, B = +0.550, C = +0.545; D = +0.656, E = +0.755;  
G = -0.411, H = +0.357, K = -0.839.

|             | $\Delta$ | Az.     | P.    | O-C. | S.     | O-C. | L.    | M.  |
|-------------|----------|---------|-------|------|--------|------|-------|-----|
|             | $\circ$  | $\circ$ | m. s. | s.   | m. s.  | s.   | m.    | m.  |
| Nagoya      | 2.8      | 321     | 10 55 | +11  | —      | —    | 1.6   | 1.6 |
| Osaka       | 3.4      | 299     | 1 0   | +7   | —      | —    | 2.0   | 2.1 |
| Kobe        | 3.6      | 298     | 0 57  | +1   | (1 40) | +1   | 1.7   | 1.7 |
| Sumoto E.   | 3.7      | 294     | 10 58 | 0    | (1 42) | 0    | i 1.7 | —   |
| Matuyama    | 5.3      | 281     | 10 38 | -44  | —      | —    | —     | 0.7 |
| Mizusawa E. | 6.3      | 15      | 1 37  | +1   | 2 51   | -1   | —     | —   |
| Nagasaki    | 7.7      | 271     | 1 41  | -16  | 3 0    | -29  | —     | —   |

Additional readings : Osaka MN = +2.0m. Kobe iPZ = +59s.

Aug. 27d. Readings also at 0h. (La Paz, Sucre, Ekaterinburg, Irkutsk, Tashkent, and near Taihoku (2)), 1h. (Taihoku), 2h. (near Sumoto), 3h. (Ksara), 4h. (Suva and Ksara), 5h. (Manila, 8h. (Sucre and near La Paz), 10h. (Manila), 12h. (Taihoku).

Aug. 28d. 1h. 39m. 30s. Epicentre 40°0N. 14°0E. (as on 1926 Aug. 23d.)

A = +0.743, B = +0.185, C = +0.643; D = +0.242, E = -0.970;  
G = +0.624, H = +0.155, K = -0.766.

|               | $\Delta$ | Az.     | P.     | O-C. | S.         | O-C. | L.     | M.   |
|---------------|----------|---------|--------|------|------------|------|--------|------|
|               | $\circ$  | $\circ$ | m. s.  | s.   | m. s.      | s.   | m.     | m.   |
| Pompeii       | 0.8      | 29      | e 0 20 | +8   | e 1 10     | -12  | —      | —    |
| Naples E.     | 0.9      | 14      | e 0 20 | +6   | e 1 20     | -5   | —      | —    |
| Rocca di Papa | 2.0      | 331     | e 0 47 | +16  | —          | —    | 1.9    | 2.7  |
| Venice        | 5.6      | 347     | 2 30?  | ?S   | (2 30?)    | -4   | —      | —    |
| Zagreb        | 6.0      | 13      | 2 22   | +50  | e 2 37     | -7   | e 3.9  | —    |
| Belgrade E.   | 6.8      | 42      | e 1 43 | -1   | e 3 1      | -4   | e 3.8  | —    |
| N.            | 6.8      | 42      | e 1 39 | -5   | e 2 53     | -12  | —      | —    |
| Moncalieri E. | 6.8      | 319     | —      | —    | —          | —    | 4.1    | —    |
| Innsbruck     | 7.5      | 346     | 2 30?  | +36  | —          | —    | —      | —    |
| Vienna Z.     | 8.4      | 11      | e 3 38 | ?S   | (e 3 38)   | -9   | —      | —    |
| Strasbourg    | 9.6      | 334     | —      | —    | —          | —    | e 6.5  | —    |
| Feldberg N.   | 10.9     | 341     | —      | —    | —          | —    | e 6.6  | —    |
| Uccle         | 12.7     | 331     | —      | —    | —          | —    | e 7.5  | —    |
| Almeria       | 13.1     | 261     | —      | —    | —          | —    | —      | 11.5 |
| De Bilt       | 13.5     | 336     | —      | —    | —          | —    | e 8.5  | 10.2 |
| Granada       | 14.0     | 264     | —      | —    | —          | —    | —      | 8.5  |
| Kew           | 15.1     | 324     | —      | —    | —          | —    | e 10.5 | —    |
| Copenhagen    | 15.7     | 356     | —      | —    | —          | —    | 8.5    | 11.6 |
| Makeyevka     | 19.0     | 57      | —      | —    | (8 18)     | +16  | 8.3    | —    |
| Pulkovo       | 22.1     | 22      | e 4 44 | -22  | e 8 35     | -32  | 10.5   | 14.5 |
| Kucino        | 22.3     | 37      | —      | —    | e 7 18     | -113 | e 10.1 | —    |
| Ekaterinburg  | 34.3     | 45      | e 6 28 | -39  | (e 11 30?) | -74  | e 11.5 | —    |
| Scoresby Sund | 35.6     | 340     | —      | —    | —          | —    | 20.5   | —    |

Additional readings : Rocca di Papa ePN = +49s., eP = +57s., N = +2m.15s.; L is given as E only. Zagreb eS = +3m.44s., eLNNW = +4.1m. Moncalieri eE = 1h.37m.40s. De Bilt MZ = +10.7m.

Original bulletins of the International Seismological Summary (ISS) have been obtained thanks to funding provided by the US National Science Foundation through grant EAR-9725140 (Villaseñor et al., 1997) and have been scanned and collected by SGA Storia Geofisica Ambiente (Bologna) thanks to funding provided by the Istituto Nazionale di Geofisica e Vulcanologia (Rome), in the frame of the EUROSEISMOS project.

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Ag. 28d. 8h. 23m. 40s. Epicentre 7°·0S. 147°·0E. (as on 1927 Oct. 31d.).

A = -·833, B = +·541, C = -·122; D = +·545, E = +·839;  
G = +·102, H = -·066, K = -·993.

|               | $\Delta$ | Az. | P.      | O-C.             | S.        | O-C.  | L.      | M.   |
|---------------|----------|-----|---------|------------------|-----------|-------|---------|------|
|               | °        | °   | m. s.   | s.               | m. s.     | s.    | m.      | m.   |
| Riverview     | 27·1     | 172 | e 5 53  | - 6              | i 11 7    | +24   | e 15·3  | 16·3 |
| Sydney        | E. 27·1  | 172 | 10 8    | ?S               | (10 8)    | -35   | e 15·7  | 17·0 |
| Adelaide      | 29·0     | 194 | —       | —                | —         | —     | e 17·0? | 19·0 |
| Melbourne     | 30·9     | 183 | —       | —                | —         | —     | i 15·2  | 19·3 |
| Manila        | 33·7     | 312 | e 7 6   | + 4              | (e 12 20) | -16   | e 12·3  | —    |
| Wellington    | E. 42·3  | 149 | —       | —                | i 14 40   | + 1   | —       | —    |
| Mzusawa       | E. 46·5  | 355 | 8 43    | - 1              | 15 19     | -16   | —       | —    |
| Irkutsk       | 69·5     | 335 | e 11 26 | +12              | —         | —     | e 35·3  | —    |
| Tashkent      | 85·6     | 314 | i 13 8  | +17              | i 20 20   | ?     | e 44·7  | 49·6 |
| Ekaterinburg  | 93·8     | 328 | e 13 34 | - 3              | e 23 43   | [- 8] | e 30·3  | 46·6 |
| Baku          | 99·9     | 311 | —       | —                | —         | —     | e 39·8  | —    |
| Pulkovo       | 109·2    | 332 | e 19 22 | ?PR <sub>1</sub> | —         | —     | e 56·3  | 63·0 |
| Scoresby Sund | 116·1    | 355 | —       | —                | 30 20?    | ?PS   | 54·3    | —    |
| Copenhagen    | 119·5    | 332 | —       | —                | —         | —     | e 56·3  | 73·1 |
| Florissant    | E. 119·5 | 49  | —       | —                | —         | —     | e 84·3  | —    |
| Feldberg      | N. 124·7 | 329 | —       | —                | —         | —     | e 87·3  | —    |
| De Bilt       | Z. 125·1 | 332 | —       | —                | —         | —     | e 69·3  | —    |
| Kew           | Z. 128·0 | 334 | —       | —                | —         | —     | e 70·3  | —    |
| Georgetown    | Z. 129·1 | 43  | —       | —                | —         | —     | e 68·2  | —    |
| La Paz        | 138·0    | 124 | 19 48   | [+12]            | e 23 31   | ?     | —       | —    |
| Siere         | 138·9    | 129 | 19 49   | [+11]            | —         | —     | —       | —    |
| San Fernando  | E. 141·7 | 323 | —       | —                | —         | —     | —       | 90·4 |

Additional readings: Riverview i = +11m.27s. and +12m.25s. Wellington  
N = +16m.20s. ? Irkutsk e = +39m.41s. San Fernando MN =  
+87·8m.

Ag. 28d. Readings also at 2h. (Tashkent (2)), 3h. (Ekaterinburg, near Amboina, and near Zagreb), 6h. (Florence), 10h. (Scoresby Sund), 21h. (La Paz).

Ag. 29d. 17h. 16m. 3s. Epicentre 23°·0N. 121°·7E. (as on 1927 Jan. 3d.).

A = -·484, B = +·783, C = +·391; D = +·851, E = +·526;  
G = -·205, H = +·332, K = -·921.

|               | $\Delta$ | Az. | P.      | O-C. | S.       | O-C.  | L.     | M.   |
|---------------|----------|-----|---------|------|----------|-------|--------|------|
|               | °        | °   | m. s.   | s.   | m. s.    | s.    | m.     | m.   |
| Taihoku       | Z. 1·9   | 359 | 0 43    | +14  | —        | —     | 1·2    | 1·3  |
| Hong Kong     | 7·0      | 266 | 1 45    | - 1  | —        | —     | —      | 4·4  |
| Zi-ka-wei     | E. 8·2   | 358 | 3 48    | ?S   | (3 48)   | + 6   | (4·4)  | —    |
| Manila        | 8·4      | 185 | e 2 59  | +52  | —        | —     | i 5·8  | —    |
| Phu-Lien      | 14·2     | 264 | —       | —    | 5 57?    | -16   | —      | —    |
| Irkutsk       | 32·2     | 341 | e 6 47  | - 3  | —        | —     | 17·0   | 20·4 |
| Ekaterinburg  | 55·2     | 326 | e 9 39  | - 1  | e 17 22  | - 2   | e 26·0 | —    |
| Baku          | 61·9     | 308 | e 9 58  | -26  | 18 51    | + 4   | 34·4   | —    |
| Kucino        | 67·7     | 324 | —       | —    | —        | —     | e 35·8 | —    |
| Makeyevka     | 69·0     | 316 | —       | —    | e 20 18  | + 4   | 38·4   | 45·4 |
| Pulkovo       | 71·0     | 330 | 11 24   | + 1  | e 20 38  | 0     | 38·0   | 43·6 |
| Lund          | 80·9     | 328 | —       | —    | —        | —     | 44·0   | —    |
| Copenhagen    | 81·3     | 328 | —       | —    | 22 34    | - 4   | 41·0   | 50·4 |
| Feldberg      | N. 86·1  | 324 | —       | —    | e 24 20  | ?PS   | e 45·4 | —    |
| De Bilt       | 86·8     | 326 | e 12 51 | - 7  | e 23 21  | -18   | e 47·0 | 48·6 |
| Strasbourg    | 87·4     | 321 | —       | —    | e 21 57? | ?     | 47·0   | —    |
| Rocca di Papa | 87·9     | 315 | —       | —    | —        | —     | e 56·2 | 69·6 |
| Uccle         | 88·0     | 325 | —       | —    | e 23 21  | [+ 6] | e 47·0 | —    |
| Edinburgh     | 88·4     | 331 | —       | —    | —        | —     | 46·0   | —    |
| Kew           | 89·9     | 328 | —       | —    | —        | —     | e 49·0 | —    |

Additional readings and note: Hong Kong MN = +3·6m. Zi-ka-wei gives  
S as P and L as S. Irkutsk e = +14m.31s. = SR<sub>1</sub>-3s. Copenhagen MN =  
+49·6m. De Bilt MN = +48·4m., MZ = +55·8m.

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Aug. 29d. Readings also at 2h. (Riverview, Sydney, Apia, Suva, Wellington, Melbourne, Pulkovo, Tashkent, Theodosia, Simferopol, Yalta, and Scoresby Sund), 3h. (Manila, Irkutsk, Baku, Makeyevka, Tashkent (2), Copenhagen, Feldberg, De Bilt, Uccle, Kew, Scoresby Sund, and Georgetown), 4h. (Florissant, Mizusawa, Granada, and San Fernando), 5h. (La Paz, Sucre, and Scoresby Sund), 7h. (Georgetown, Tucson, Merida, near Tacubaya, Vera Cruz, and near Lick), 8h. (Scoresby Sund, Florissant, and Tucson (2)), 10h. (Georgetown, Ottawa, Toronto, Florissant, Merida, Tacubaya, Scoresby Sund, Strasbourg, Feldberg, and Yalta), 12h. (Azores, and near Algiers), 14h. (Taihoku), 16h. (Sebastopol, Theodosia, Yalta, and near Simferopol), 17h. (5) and 18h. (2) (Taihoku), 19h. (near Hukuoka and Nagasaki), 21h. (Copenhagen, Ekaterinburg, Irkutsk, and Pulkovo).

Aug. 30d. 6h. 30m. 58s. Epicentre 23°·0N. 121°·7E. (as on 29d.).

|               | $\Delta$ | Az. | P.      | O-C.             | S.      | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------------------|---------|------|--------|------|
|               | °        | '   | m. s.   | s.               | m. s.   | s.   | m.     | m.   |
| Taihoku       | 1·9      | 359 | 0 45    | +16              | —       | —    | 1·2    | —    |
| Hong Kong     | 7·0      | 266 | 1 43    | -3               | —       | —    | —      | 3·7  |
| Zi-ka-wei     | 8·2      | 358 | 2 13    | +9               | 3 17    | -25  | —      | —    |
| Manila        | 8·4      | 185 | e 2 9   | +2               | i 5 59  | +132 | i 7·7  | 9·6  |
| Nagasaki      | 12·1     | 34  | 3 11    | +11              | 7 57    | ?    | —      | —    |
| Phu-Lien      | 14·2     | 264 | 3 2?    | -27              | —       | —    | —      | —    |
| Mizusawa      | E. 23·0  | 41  | 5 19    | +2               | 9 34    | +9   | 14·2   | —    |
| Irkutsk       | 32·2     | 341 | 6 34    | -16              | 11 50   | -21  | 18·0   | 20·4 |
| Kucino        | 67·7     | 324 | e 11 20 | +18              | e 20 14 | +16  | e 37·7 | 43·0 |
| Makeyevka     | 69·0     | 316 | 11 12   | +1               | 20 21   | +7   | 38·4   | 45·0 |
| Pulkovo       | 71·0     | 330 | i 11 26 | +3               | e 20 38 | 0    | 39·0   | 44·8 |
| Upsala        | 77·0     | 331 | —       | —                | —       | —    | —      | 48·0 |
| Konigsberg    | 77·5     | 325 | e 12 8  | +4               | e 21 56 | +1   | e 42·5 | 48·0 |
| Lund          | 80·9     | 328 | —       | —                | 22 32   | -2   | 41·0   | —    |
| Copenhagen    | 81·3     | 328 | e 12 25 | -2               | 22 36   | -2   | 43·0   | 51·0 |
| Vienna        | Z. 82·6  | 320 | 19 26   | ?PR <sub>2</sub> | —       | —    | —      | —    |
| Scoresby Sund | 83·1     | 350 | —       | —                | —       | —    | 47·0   | —    |
| Hamburg       | 83·6     | 326 | e 12 16 | -24              | —       | —    | —      | 52·0 |
| Zagreb        | 83·9     | 318 | e 12 40 | -1               | e 23 2? | -6   | —      | —    |
| Jena          | 84·1     | 324 | 12 2?   | -41              | —       | —    | —      | —    |
| Feldberg      | N. 86·1  | 324 | —       | —                | e 23 14 | -17  | e 47·0 | 50·7 |
| De Bilt       | 86·8     | 326 | 12 54   | -4               | e 23 22 | -17  | e 47·0 | 48·6 |
| Strasbourg    | 87·4     | 321 | i 12 56 | -5               | e 23 40 | -5   | 50·0   | —    |
| Uccle         | 88·0     | 325 | —       | —                | e 22 26 | -86  | e 47·0 | —    |
| Edinburgh     | 88·4     | 331 | —       | —                | e 24 47 | ?PS  | 47·0   | 56·0 |
| Kew           | 89·9     | 328 | e 13 7  | -8               | e 24 2  | -11  | 44·0   | —    |
| Paris         | 90·1     | 325 | —       | —                | —       | —    | e 47·0 | 58·0 |
| Florissant    | E. 111·5 | 26  | —       | —                | e 38 2? | ?    | e 59·0 | —    |

Additional readings: Manila iLN = +7·2m. Konigsberg eN = +12m.14s., eE = +23m.38s., eN = +31m.38s., eLN = +41·5m. Copenhagen MN = +44·8m. Zagreb e = +19m.40s. = PR<sub>2</sub> -9s. De Bilt MN = +49·4m., MZ = +62·6m. Strasbourg i = +19m.38s. Kew ePR<sub>2</sub>Z = +16m.40s., ePR<sub>2</sub>Z = +19m.33s., ePSEZ = +25m.2s., LZ = +52·0m. Paris L = +54·0m.

Aug. 30d. 10h. 54m. 15s. Epicentre 23°·0N. 121°·7E. (as at 6h.).

|              | $\Delta$ | Az. | P.      | O-C. | S.         | O-C. | L.     | M.   |
|--------------|----------|-----|---------|------|------------|------|--------|------|
|              | °        | '   | m. s.   | s.   | m. s.      | s.   | m.     | m.   |
| Taihoku      | 1·9      | 359 | 0 44    | +15  | —          | —    | 1·2    | 1·3  |
| Zi-ka-wei    | Z. 8·2   | 358 | —       | —    | e 3 52     | +10  | (4·7)  | 5·9  |
| Manila       | 8·4      | 185 | —       | —    | —          | —    | e 4·2  | —    |
| Phu-Lien     | 14·2     | 264 | —       | —    | 5 45?      | -28  | —      | —    |
| Irkutsk      | 32·2     | 341 | —       | —    | e 14 45    | ?    | 17·8   | 20·4 |
| Ekaterinburg | 55·2     | 326 | e 9 41  | +1   | (e 15 45?) | ?    | e 15·8 | —    |
| Pulkovo      | 71·0     | 330 | —       | —    | —          | —    | e 40·2 | —    |
| Copenhagen   | 81·3     | 328 | —       | —    | —          | —    | 41·8   | —    |
| Feldberg     | N. 86·1  | 324 | —       | —    | —          | —    | e 47·2 | —    |
| De Bilt      | Z. 86·8  | 326 | —       | —    | —          | —    | e 52·8 | —    |
| Strasbourg   | 87·4     | 321 | —       | —    | —          | —    | 47·8   | —    |
| Florence     | 87·8     | 319 | e 33 17 | ?    | —          | —    | —      | 38·7 |
| Kew          | Z. 89·9  | 328 | —       | —    | —          | —    | e 56·8 | —    |

Additional reading and note: Zi-ka-wei eE = +4m.16s.; true S is given as eZ and L as SZ,

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Aug. 30d. 12h. 12m. 20s. Epicentre 27°·0N. 96°·0E. (as on 1928 July 9d.).

A = -·093, B = +·886, C = +·454; D = +·995, E = +·105;  
G = -·047, H = +·451, K = -·891.

|              |    | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----|----------|-----|--------|------|---------|------|--------|------|
|              |    | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Calcutta     | E. | 8·3      | 239 | 3 17   | +71  | 4 45    | +60  | 6·1    | —    |
|              | N. | 8·3      | 239 | 3 6    | +60  | 4 36    | +51  | 5·9    | —    |
| Phu-Lien     |    | 11·5     | 120 | 3 40?  | +48  | —       | —    | —      | —    |
| Zi-ka-wei    |    | 22·6     | 73  | e 5 7  | - 5  | e 9 19  | + 2  | —      | 14·6 |
| Irkutsk      |    | 26·0     | 12  | e 5 44 | - 4  | e 10 19 | - 3  | 14·7   | —    |
| Manila       |    | 26·4     | 113 | —      | —    | e 8 40? | ?    | —      | —    |
| Ekaterinburg |    | 38·9     | 330 | e 7 39 | - 6  | e 13 35 | -16  | —      | 25·6 |
| Baku         |    | 40·1     | 303 | e 7 49 | - 7  | e 13 54 | -14  | e 25·2 | —    |
| Makeyevka    |    | 49·2     | 313 | —      | —    | 16 3    | - 6  | 25·8   | 33·2 |
| Kucino       |    | 50·2     | 322 | e 9 22 | +14  | e 16 28 | + 7  | e 27·6 | 30·4 |
| Pulkovo      |    | 54·8     | 327 | 19 41  | + 3  | e 17 16 | - 3  | 27·7   | 33·0 |
| Lund         |    | 64·0     | 322 | —      | —    | —       | —    | 35·7   | —    |
| Copenhagen   |    | 64·4     | 322 | —      | —    | 19 34   | +16  | 34·7   | —    |
| Feldberg     | N. | 68·1     | 317 | —      | —    | e 20 16 | +13  | —      | 40·7 |
| Strasbourg   |    | 69·0     | 315 | —      | —    | —       | —    | 39·7   | —    |
| De Bilt      | E. | 69·5     | 319 | —      | —    | —       | —    | e 43·7 | 44·9 |
| Edinburgh    |    | 72·8     | 324 | —      | —    | —       | —    | 40·7   | —    |
| Kew          |    | 72·9     | 320 | —      | —    | —       | —    | e 43·7 | —    |

Additional readings: Irkutsk i = +10m.36s. Makeyevka SR<sub>1</sub> = +19m.53s.  
Feldberg eN = +24m.36s. De Bilt eLN = +38·7m., MN = +39·7m.,  
MZ = +45·1m.

Aug. 30d. 20h. 10m. 52s. Epicentre 48°·4N. 8°·9E.

A = +·656, B = +·103, C = +·748.

The origin and T<sub>0</sub> are taken from the paper by W. Hilber, "Die Herdform des Schwabischen Bebens am 30 August, 1928."

|            |  | $\Delta$ | Az. | P.     | O-C. | S.       | O-C. | L.  | M. |
|------------|--|----------|-----|--------|------|----------|------|-----|----|
|            |  | °        | °   | m. s.  | s.   | m. s.    | s.   | m.  | m. |
| Hohenheim  |  | 0·4      | 42  | 1 0 6  | + 7  | 0 12     | + 1  | 0·2 | —  |
| Ravensburg |  | 0·7      | 142 | 1 0 18 | + 7  | 1 0 22   | + 2  | —   | —  |
| Strasbourg |  | 0·8      | 284 | 1 0 15 | + 3  | 1 0 29   | + 7  | —   | —  |
| Zurich     |  | 1·1      | 192 | 1 0 18 | + 1  | 1 0 31   | —    | —   | —  |
| Chur       |  | 1·6      | 164 | e 0 29 | + 5  | 1 0 39   | - 6  | —   | —  |
| Neuchatel  |  | 2·0      | 223 | 1 0 34 | + 3  | 1 1 0    | + 5  | —   | —  |
| Besançon   |  | 2·3      | 239 | e 1 12 | ?S   | (e 1 12) | + 9  | —   | —  |

Hohenheim gives also i = +11s.

Aug. 30d. 21h. 58m. 51s. Epicentre 12°·0N. 95°·5W. (as on 1918 Nov. 16d.).

A = -·094, B = -·974, C = +·208; D = -·995, E = +·096;  
G = -·020, H = -·207, K = -·978.

|               |    | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|---------------|----|----------|-----|---------|------|---------|------|--------|------|
|               |    | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Tacubaya      |    | 8·2      | 334 | 2 4     | 0    | 3 39    | - 3  | 3·8    | —    |
| Tucson        |    | 24·7     | 328 | 5 35    | 0    | 13 10   | ?L   | (13·2) | 4·7? |
| Florissant    | Z. | 27·2     | 9   | e 5 9?  | -51  | —       | —    | —      | 17·8 |
| Georgetown    | Z. | 31·5     | 28  | —       | —    | —       | —    | e 18·8 | 21·5 |
| Toronto       |    | 34·4     | 21  | —       | —    | —       | —    | 21·3   | —    |
| Ottawa        |    | 37·4     | 23  | —       | —    | e 13 9? | -21  | e 20·2 | —    |
| Victoria      | E. | 43·2     | 333 | —       | —    | —       | —    | 24·2   | 26·9 |
| Scoresby Sund |    | 73·3     | 20  | —       | —    | —       | —    | 37·2   | —    |
| Kew           |    | 83·9     | 39  | e 12 39 | - 2  | —       | —    | 44·2   | —    |
| Uccle         |    | 86·8     | 39  | —       | —    | —       | —    | e 45·2 | —    |
| De Bilt       |    | 87·0     | 37  | —       | —    | —       | —    | e 45·2 | —    |
| Feldberg      | N. | 89·5     | 38  | e 13 2  | + 3  | e 23 29 | -12  | e 48·2 | —    |
| Strasbourg    |    | 89·6     | 39  | —       | —    | —       | —    | 50·2   | —    |
| Copenhagen    |    | 89·9     | 31  | —       | —    | e 23 57 | -16  | 45·2   | —    |
| Pulkovo       |    | 96·2     | 24  | —       | —    | —       | —    | e 52·2 | —    |
| Ekaterinburg  |    | 108·4    | 13  | —       | —    | —       | —    | 36·2   | —    |
| Baku          |    | 118·6    | 29  | —       | —    | —       | —    | e 65·4 | —    |
| Tashkent      |    | 124·9    | 14  | —       | —    | —       | —    | e 66·2 | 74·2 |

Additional readings: Tucson PN = +5m.46s. Georgetown eZ = +14m.14s.

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Aug. 30d. Readings also at 0h. (Baku, Copenhagen (2), Ekaterinburg, Makeyevka, Pulkovo, and Tucson (2)), 2h. (Taihoku), 3h. (Tucson, near Tacubaya, and Vera Cruz), 4h. (Colombo), 7h. (Manila), 9h. (Florence), 10h. (Feldberg, Sebastopol, Simferopol, and near Yalta), 11h. (Taihoku (2)), 12h. (Tucson, near Tacubaya, and Vera Cruz), 14h. and 15h. (2) (near Taihoku), 19h. (Bagnères, Copenhagen, Tortosa, and Taihoku), 22h. and 23h. (Taihoku).

Aug. 31d. 0h. 45m. 36s. Epicentre 23°·0N. 121°·7E. (as on 30d.).

|              | $\Delta$ | Az. | P.    | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|-------|------|---------|------|--------|------|
|              | °        | °   | m. s. | s.   | m. s.   | s.   | m.     | m.   |
| Taihoku      | E. 1·9   | 359 | 0 40  | +11  | —       | —    | 1·1    | 1·2  |
| Zi-ka-wei    | Z. 8·2   | 358 | —     | —    | e 3 43  | + 1  | —      | 5·9  |
| Manila       | 8·4      | 185 | —     | —    | e 3 24? | -23  | —      | —    |
| Irkutsk      | 32·2     | 341 | —     | —    | —       | —    | 18·4   | —    |
| Tashkent     | 47·2     | 308 | —     | —    | —       | —    | e 24·5 | 29·5 |
| Ekaterinburg | 55·2     | 326 | —     | —    | —       | —    | e 24·6 | —    |
| Pulkovo      | 71·0     | 330 | —     | —    | —       | —    | e 41·4 | —    |
| Copenhagen   | 81·3     | 328 | —     | —    | —       | —    | 44·4   | —    |
| Feldberg     | N. 86·1  | 324 | —     | —    | —       | —    | e 45·4 | —    |

Irkutsk gives also  $e = +14m.24s.$  ?

Aug. 31d. 5h. 14m. 24s. Epicentre 8°·0N. 37°·5W. (as on 1922 Nov. 20d.).

A = +·786, B = -·603, C = +·139; D = -·609, E = -·793;  
G = +·111, H = -·085, K = -·990.

|                   | $\Delta$ | Az. | P.      | O-C. | S.         | O-C.  | L.     | M.   |
|-------------------|----------|-----|---------|------|------------|-------|--------|------|
|                   | °        | °   | m. s.   | s.   | m. s.      | s.    | m.     | m.   |
| Rio de Janeiro N. | 31·4     | 190 | —       | —    | —          | —     | e 15·1 | 16·2 |
| Azores            | 31·6     | 18  | 14 18   | ?L   | —          | —     | (14·3) | 15·6 |
| Sucre             | 38·5     | 225 | 7 42    | 0    | e 13 44    | - 1   | 20·0   | 23·2 |
| La Paz            | 39·0     | 251 | 17 45   | - 1  | i 13 53    | + 1   | 20·6   | 23·2 |
| Granada           | 42·6     | 41  | 18 6    | - 9  | —          | —     | 23·1   | 24·8 |
| La Plata          | 47·0     | 204 | —       | —    | —          | —     | 24·0   | —    |
| Georgetown        | Z. 47·1  | 318 | —       | —    | e 16 3     | +21   | e 28·1 | —    |
| Kew               | 53·1     | 28  | —       | —    | e 16 59    | + 2   | 22·6   | —    |
| Edinburgh         | 55·0     | 23  | —       | —    | —          | —     | e 23·6 | —    |
| Uccle             | 55·0     | 32  | —       | —    | e 17 16    | - 5   | e 23·6 | —    |
| Strasbourg        | 55·6     | 36  | e 9 36? | - 7  | (e 17 36?) | + 7   | e 17·6 | —    |
| De Bilt           | 56·1     | 31  | e 9 52  | + 5  | e 17 41    | + 6   | e 24·6 | —    |
| Florissant        | E. 56·5  | 312 | —       | —    | e 16 36?   | - 64  | —      | —    |
| Feldberg          | N. 56·8  | 35  | —       | —    | e 17 41    | - 3   | —      | 25·6 |
| Copenhagen        | 61·7     | 30  | e 9 36? | -47  | e 18 54    | +10   | 26·6   | 33·5 |
| Pulkovo           | 72·0     | 29  | e 10 24 | -66  | e 21 24    | [- 3] | 33·6   | 41·9 |
| Makeyevka         | 74·4     | 42  | —       | —    | (e 21 18)  | - 1   | e 21·3 | —    |
| Baku              | 82·9     | 50  | —       | —    | e 22 56    | 0     | e 41·1 | —    |
| Ekaterinburg      | 87·7     | 33  | —       | —    | e 23 42    | - 7   | e 35·6 | —    |
| Tashkent          | 97·0     | 46  | —       | —    | e 26 6     | ?PS   | e 42·6 | 58·6 |

Additional readings: La Paz MN = +25·8m. Granada PR<sub>1</sub> = +9m.48s.  
Edinburgh L = +41·6m. Tashkent e = +30m.6s.

Aug. 31d. Readings also at 0h. (La Paz, La Plata, and Santiago), 1h. and 3h. (Taihoku), 9h. (Ekaterinburg, Baku, and Florissant), 10h. (Ekaterinburg, Tashkent, Baku, Georgetown, and Florissant), 11h. (Georgetown), 17h. (Ekaterinburg, Baku, Ksara, and Tashkent), 18h. (Ekaterinburg and Tashkent), 19h. (near Osaka), 22h. (De Bilt, Copenhagen (2), and Feldberg).

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**Sept. 1d. 6h. 8m. 52s. Epicentre 30°-0N. 71°-0E.**

(as on 1919 June 15d.).

A = +.282, B = +.819, C = +.500; D = +.946, E = -.326;  
G = +.163, H = +.473, K = -.866.

De Bilt gives Multan, N.W. India, for the origin.

|               |    | Δ    | Az. | P.    |    | O-C.             |       | S.    |                  | O-C.     |        | L.   |  | M. |  |
|---------------|----|------|-----|-------|----|------------------|-------|-------|------------------|----------|--------|------|--|----|--|
|               |    |      |     | m. s. | s. | m. s.            | s.    | m. s. | s.               | m. m.    | m. m.  |      |  |    |  |
| Dehra Dun     |    | 6.0  | 85  | 0     | 56 | -36              | 2     | 14    | -30              | 3.1      | 5.6    |      |  |    |  |
| Bombay        |    | 11.2 | 171 | 2     | 40 | -7               | 5     | 4     | +5               | 6.1      |        |      |  |    |  |
| Tashkent      |    | 11.4 | 354 | 4     | 6  | +76              | 16    | 15    | +71              | (6.2)    | 9.7    |      |  |    |  |
| Hyderabad     |    | 14.3 | 150 | 3     | 12 | -18              | 6     | 10    | -5               |          |        |      |  |    |  |
| Calcutta      | E. | 17.3 | 112 | 4     | 2  | -7               | 7     | 17    | -8               | 9.2      | 12.3   |      |  |    |  |
|               | N. | 17.3 | 112 | 4     | 3  | -6               | 6     | 43    | -42              | 8.6      |        |      |  |    |  |
| Baku          |    | 20.1 | 307 | 14    | 44 | +2               | 18    | 31    | +6               | 10.1     | 16.4   |      |  |    |  |
| Kodaikanal    |    | 20.7 | 161 | 8     | 26 | ?S               | (8    | 26)   | -12              | 10.8     | 11.8   |      |  |    |  |
| Colombo       |    | 24.5 | 158 | 5     | 26 | -7               | 9     | 56    | +2               | 12.4     | 14.8   |      |  |    |  |
| Ksara         | E. | 29.9 | 287 | e 15  | 55 | ?L               |       |       |                  | (e 15.9) |        |      |  |    |  |
| Makeyevka     |    | 31.0 | 318 | e 6   | 29 | -9               | e 12  | 49    | +58              | 16.5     | 26.8   |      |  |    |  |
| Theodosia     |    | 31.6 | 310 | e 6   | 48 | +5               |       |       |                  |          |        |      |  |    |  |
| Yalta         |    | 32.3 | 309 | e 5   | 48 | -63              |       |       |                  |          |        |      |  |    |  |
| Simferopol    |    | 32.5 | 309 | e 6   | 38 | -15              |       |       |                  |          |        |      |  |    |  |
| Sebastopol    |    | 32.8 | 309 | e 6   | 50 | -5               |       |       |                  |          |        |      |  |    |  |
| Irkutsk       |    | 33.0 | 39  | 7     | 2  | +6               | e 12  | 23    | -1               | 20.1     | 24.0   |      |  |    |  |
| Phu-Lien      |    | 33.3 | 100 | e 6   | 59 | 0                | e 12  | 28    | -1               | 16.1     | 24.2   |      |  |    |  |
| Kucino        |    | 34.8 | 328 |       |    |                  |       |       |                  | 18.5     | 26.1   |      |  |    |  |
| Hong Kong     |    | 39.3 | 92  | 6     | 33 | -76              | 14    | 0     | +4               | 21.2     | 26.8   |      |  |    |  |
| Lemberg       | E. | 40.2 | 313 | e 7   | 8  | -49              |       |       |                  |          | 26.2   |      |  |    |  |
| Belgrade      |    | 42.0 | 305 | e 9   | 8? | +57              |       |       |                  |          |        |      |  |    |  |
| Helsingfors   |    | 42.9 | 330 | 8     | 14 | -3               | 14    | 44    | -3               | 21.1     |        |      |  |    |  |
| Zi-ka-wei     | N. | 43.0 | 75  | e 8   | 28 | +10              | e 15  | 0     | +2               |          |        |      |  |    |  |
| Budapest      |    | 43.2 | 310 | e 8   | 22 | +2               | e 17  | 18    | ?SR <sub>1</sub> | 25.6     | 35.2   |      |  |    |  |
| Konigsberg    |    | 43.4 | 321 | e 8   | 26 | +5               | 1     | 14    | 50               | -4       | e 23.6 | 32.1 |  |    |  |
| Taihoku       | E. | 44.8 | 83  |       |    |                  |       |       |                  | 26.1     |        |      |  |    |  |
| Vienna        |    | 45.0 | 311 | 8     | 25 | -8               | 1     | 15    | 11               | -4       | e 29.1 | 34.1 |  |    |  |
| Zagreb        |    | 45.2 | 309 | e 8   | 24 | -10              | e 14  | 13    | -65              | e 26.5   | 35.3   |      |  |    |  |
| Graz          |    | 45.6 | 310 | e 8   | 37 | 0                | e 15  | 23    | +1               |          | 32.3   |      |  |    |  |
| Upsala        | E. | 46.2 | 327 | e 8   | 39 | -2               | e 15  | 28    | -3               |          | 32.6   |      |  |    |  |
| Entebbe       |    | 47.3 | 240 | 12    | 8? |                  |       |       |                  |          | 32.1   |      |  |    |  |
| Potsdam       |    | 47.4 | 317 | e 8   | 34 | -16              | 1     | 16    | 48               | +62      |        | 33.1 |  |    |  |
| Venice        |    | 47.7 | 306 | e 8   | 50 | -2               |       |       |                  |          |        |      |  |    |  |
| Lund          |    | 47.8 | 321 | e 8   | 56 | +4               | e 15  | 50    | 0                |          |        |      |  |    |  |
| Rocca di Papa |    | 47.8 | 301 | e 8   | 50 | -3               | e 15  | 41    | -10              | e 27.6   | 37.3   |      |  |    |  |
| Copenhagen    |    | 48.1 | 321 | e 8   | 55 | 0                | e 15  | 50    | -5               | 24.1     | 36.2   |      |  |    |  |
| Jena          | N. | 48.2 | 315 |       |    |                  | e 15  | 55    | -1               | e 23.1   | 25.6   |      |  |    |  |
|               | Z. | 48.2 | 315 |       |    |                  | 1     | 15    | 38               | -18      | e 31.1 | 34.6 |  |    |  |
| Manila        | E. | 48.3 | 98  | e 9   | 8  | +12              | e 17  | 31    | +93              | 1        | 29.1   | 37.4 |  |    |  |
|               | N. | 48.3 | 98  | e 9   | 8  | +12              | e 17  | 26    | +88              | i 29.2   | 32.2   |      |  |    |  |
| Florence      |    | 48.6 | 305 | 18    | 53 | -5               | 15    | 53    | -8               |          |        |      |  |    |  |
| Hamburg       |    | 49.4 | 319 | e 9   | 2  | -1               | 1     | 16    | 16               | +5       | e 25.5 | 37.0 |  |    |  |
| Chur          |    | 49.7 | 309 | e 9   | 8  | +3               |       |       |                  |          |        |      |  |    |  |
| Nagasaki      |    | 49.7 | 71  | 16    | 40 | ?S               | (16   | 40)   | +25              | 27.7     | 32.6   |      |  |    |  |
| Hukuoka       |    | 49.9 | 70  | e 16  | 23 | ?S               | (e 16 | 23)   | +5               | 28.2     |        |      |  |    |  |
| Batavia       |    | 49.9 | 132 | e 11  | 37 | ?PR <sub>1</sub> |       |       |                  | 32.0     |        |      |  |    |  |
| Feldberg      | N. | 50.2 | 314 | e 9   | 8  | 0                | e 16  | 20    | -1               |          | 30.6   |      |  |    |  |
| Zurich        |    | 50.3 | 310 | e 11  | 11 | ?PR <sub>1</sub> |       |       |                  |          |        |      |  |    |  |
| Strasbourg    |    | 50.8 | 310 | e 7   | 8  | -124             | e 16  | 8?    | -21              | 25.1     | 36.5   |      |  |    |  |
| Moncalieri    |    | 51.1 | 306 | e 9   | 17 | +3               | 16    | 23    | -9               | 23.4     | 32.0   |      |  |    |  |
| Neuchatel     |    | 51.4 | 309 | e 11  | 8? | ?PR <sub>1</sub> |       |       |                  |          |        |      |  |    |  |
| Besançon      |    | 52.0 | 310 | e 9   | 23 | +3               | 16    | 43    | -1               | e 27.1   |        |      |  |    |  |
| De Bilt       |    | 52.2 | 315 | e 9   | 23 | +2               | 16    | 53    | +7               | e 27.1   | 37.8   |      |  |    |  |
| Uocle         |    | 52.8 | 314 | e 9   | 27 | +2               | e 16  | 59    | +5               | e 26.1   | 39.2   |      |  |    |  |
| Sumoto        |    | 53.4 | 69  | 1     | 10 | 6                | +37   | 17    | 30               | +29      | 30.3   | 36.5 |  |    |  |
| Kobe          |    | 53.5 | 69  | 9     | 46 | +16              | 17    | 33    | +30              | 29.8     | 36.6   |      |  |    |  |
| Osaka         |    | 53.7 | 68  | 10    | 23 | +52              |       |       |                  | 19.5     | 39.1   |      |  |    |  |
| Tananarive    | E. | 53.9 | 209 |       |    |                  | e 17  | 1     | -7               | e 23.4   | 35.2   |      |  |    |  |
| Paris         |    | 54.2 | 311 | e 9   | 35 | +1               | e 17  | 17    | +6               | 30.1     | 23.1   |      |  |    |  |
| Nagoya        |    | 54.8 | 67  | e 9   | 56 | +18              |       |       |                  | e 32.4   |        |      |  |    |  |
| Kew           |    | 55.7 | 315 | e 9   | 47 | +3               | 17    | 35    | +5               | 29.1     | 39.7   |      |  |    |  |
| Algiers       |    | 56.0 | 298 | e 9   | 49 | +3               | 17    | 35    | +1               | 25.6     | 42.1   |      |  |    |  |
| Oxford        |    | 56.3 | 317 |       |    |                  | 17    | 46    | +8               | i 31.1   | 40.6   |      |  |    |  |
| Stonyhurst    |    | 56.7 | 318 | e 10  | 9  | +19              | e 17  | 54    | +12              | 32.3     | 40.8   |      |  |    |  |
| Edinburgh     |    | 56.9 | 320 | e 10  | 8? | +17              | 1     | 17    | 53               | +8       | 35.1   | 40.9 |  |    |  |
| Ootomari      |    | 56.9 | 53  |       |    |                  |       |       |                  | 33.9     | 39.0   |      |  |    |  |

Continued on next page.



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|                 | $\Delta$ | Az. | P.      | O-C.  | S.      | O-C.             | L.     | M.   |
|-----------------|----------|-----|---------|-------|---------|------------------|--------|------|
|                 | °        | °   | m. s.   | s.    | m. s.   | s.               | m.     | m.   |
| Tortosa         | 56.9     | 303 | e 9 56  | + 5   | —       | —                | e 33.1 | 42.9 |
| Bidston         | 57.1     | 317 | —       | —     | 17 50   | + 3              | 28.1   | 43.3 |
| Alicante        | 58.3     | 300 | —       | —     | e 14 43 | ?PR <sub>2</sub> | e 32.5 | —    |
| Almeria         | 60.1     | 299 | 10 14   | + 1   | —       | —                | 31.2   | 36.3 |
| Toledo          | 60.5     | 302 | e 10 16 | 0     | e 18 23 | - 7              | e 25.3 | 37.6 |
| Granada         | 61.0     | 299 | e 10 43 | +24   | i 19 21 | +45              | 37.1   | 43.1 |
| Malaga          | 61.7     | 299 | e 10 7  | -16   | 18 37   | - 7              | e 26.1 | —    |
| Scoresby Sund   | 62.9     | 359 | 10 50   | +19   | 19 25   | +25              | 33.1   | —    |
| San Fernando    | 63.2     | 299 | 19 8    | ?S    | (19 8)  | + 5              | 41.1   | 43.6 |
| Melbourne       | 96.8     | 132 | —       | —     | i 24 24 | [+17]            | e 45.9 | 59.9 |
| Ottawa          | 98.8     | 338 | —       | —     | e 24 32 | [+14]            | e 49.1 | —    |
| Riverview       | 99.0     | 125 | —       | —     | e 23 14 | ?L               | e 53.5 | 60.1 |
| Sydney          | 99.0     | 125 | —       | —     | 53 38   | ?                | 60.0   | 61.1 |
| Victoria        | E. 100.6 | 10  | 25 0    | ?S    | (25 0)  | [+33]            | 51.6   | 55.7 |
| Toronto         | 101.5    | 340 | —       | —     | e 24 45 | +14              | 53.1   | 60.7 |
| Ithaca          | 101.6    | 337 | —       | —     | —       | —                | 57.1   | —    |
| Ann Arbor       | E. 104.0 | 343 | —       | —     | —       | —                | e 57.8 | —    |
| Georgetown      | Z. 105.0 | 336 | e 14 38 | + 4   | i 28 21 | ?PS              | e 41.9 | 65.3 |
| Chicago         | E. 105.6 | 345 | —       | —     | i 25 8  | [+18]            | 52.3   | 67.9 |
| Charlottesville | E. 106.3 | 337 | —       | —     | —       | —                | e 54.1 | 61.6 |
| Florissant      | 109.0    | 345 | e 15 8? | +15   | e 24 8? | [-58]            | —      | 59.1 |
| Honolulu T.H.   | 110.5    | 48  | —       | —     | —       | —                | e 57.6 | 65.6 |
| Tucson          | N. 117.7 | 3   | —       | —     | —       | —                | 64.6   | —    |
| Sucre           | 139.0    | 275 | e 19 47 | [+ 9] | —       | —                | 80.0   | 89.3 |
| La Paz          | 140.4    | 281 | e 19 35 | [- 5] | —       | —                | 71.1   | 83.4 |

Additional readings: Ksara P' = +19m.33s., PR<sub>1</sub>E = +20m.18s., PR<sub>2</sub>E? = +23m.0s., PR<sub>1</sub>E = +25m.39s., PSE = +29m.23s., PPSE = +30m.29s., SR<sub>1</sub>E = +35m.21s., SR<sub>2</sub>E = +39m.33s. Phu-Lien MN = +21.5m. Lema-berg eN = +6m.50s., MN = +26.0m. Budapest MN = +33.6m. Konigsberg eSR<sub>1</sub> = +18m.14s., e = +20m.56s. and +22m.20s. Taihoku eE = +21m.8s.? Vienna iE = +11m.19s., iN = +12m.9s., iE = +13m.22s., iN = +20m.21s. Zagreb e = +8m.32s., +10m.18s. = PR<sub>1</sub> -6s., +11m.16s. PR<sub>2</sub> +0s., +22m.13s. and +29m.12s. Upsala MN = +27.9m. Rocca di Papa ePZ = +9m.29s., ePN = +9m.32s., S = +15m.45s., eLZ = +25.8m. Copenhagen PR<sub>1</sub> = +10m.55s., eSN = +15m.59s., eEN = +16m.56s., SR<sub>1</sub> = +19m.32s., SR<sub>2</sub> = +21m.8s., MN = +30.3m. Hamburg SR<sub>1</sub> = +20m.8s., MZ = +35.1m., MN = +36.5m. Feldberg eSR<sub>1</sub>N = +20m.7s., ME = +36.1m. Strasbourg eSR<sub>1</sub>? = +20m.8s.?, De Bilt MN = +32.8m. Uccle eSR<sub>1</sub> = +20m.40s., MN = +32.9m. Sumoto MN = +33.4m. Osaka MN = +34.8m. Tananarive eN = +16m.42s., +16m.55s., +19m.7s. = [S] -1s., +20m.46s., +22m.50s. = SR<sub>2</sub> -8s. and +25m.28s., eE = +18m.55s. = [S] -13s. and +22m.43s. = SR<sub>2</sub> -15s. Kew LZ = +31.6m., MZ = +39.8m. Algiers MN = +38.1m. Oxford i = +29m.0s. Stonyhurst ePR<sub>1</sub> = +14m.26s., SR<sub>1</sub> = +21m.54s., SR<sub>2</sub> = +24m.4s. Toledo MNW = +38.4m. Scoresby Sund +26m.20s. = SR<sub>1</sub> +10s. San Fernando S = +28m.38s., MN = +45.1m. Melbourne i = +26m.35s. = PS +7s. Ottawa eN = +27m.28s. Riverview MN = +61.3m. Victoria LN = +53.0m., MN = +66.0m. Georgetown eZ = +18m.58s. = PR<sub>1</sub> +12s. Chicago eE = +28m.8s. = PS +0s. and +28m.46s., eE = +36m.18s., +38m.18s., and +44m.10s., LN = +56.6m., MN = +61.3m. Charlottesville eLN = +53.1m., MN = +64.1m. La Paz P = +19m.45s., MN = +85.6m.

Sept. 1d. 23h. 53m. 42s. Epicentre 15°·2N. 95°·7W. (epicentre given by De Bilt).

A = -·096, B = -·960, C = +·262; D = -·995, E = +·099;  
G = -·026, H = -·261, K = -·965.

|                 | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.    |
|-----------------|----------|-----|--------|------|---------|------|--------|-------|
|                 | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.    |
| Vera Cruz       | 4.0      | 354 | (1 7)  | + 5  | —       | —    | (2.1)  | (2.2) |
| Tacubaya        | 5.3      | 322 | (1 18) | - 4  | (2 33)  | + 8  | (2.6)  | (3.6) |
| Merida          | 8.2      | 44  | (2 27) | +23  | (3 45)  | + 6  | (3.9)  | (5.4) |
| Guadalajara     | 9.2      | 307 | 2 20   | + 1  | 4 11?   | + 3  | 4.5    | 5.5   |
| Tucson          | 21.9     | 324 | i 5 40 | +36  | e 10 5  | +62  | 13.4   | 16.0  |
| St. Louis       | 23.9     | 11  | e 5 12 | -15  | e 9 33  | - 9  | e 16.8 | 19.3  |
| Florissant      | 24.1     | 10  | e 5 24 | - 5  | 19 42   | - 4  | —      | —     |
| Charlottesville | E. 27.4  | 30  | e 6 54 | +52  | 10 58   | +10  | 16.2   | 16.6  |
|                 | N. 27.4  | 30  | 6 28   | +26  | e 10 58 | +10  | 14.7   | 18.3  |
| Chicago         | E. 27.5  | 13  | —      | —    | 11 18   | +28  | 17.3   | —     |

Continued on next page.

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|               |    | $\Delta$ | Az. | P.      | O-C.  | S.       | O-C.  | L.     | M.   |
|---------------|----|----------|-----|---------|-------|----------|-------|--------|------|
|               |    | °        | °   | m. s.   | s.    | m. s.    | s.    | m.     | m.   |
| Georgetown    | Z. | 28.8     | 31  | e 6 18  | + 2   | e 10 56  | -17   | e 12.7 | 20.4 |
| Ann Arbor     | N. | 29.0     | 19  | —       | —     | e 10 48  | -29   | e 20.4 | —    |
| Toronto       |    | 31.7     | 24  | e 6 41  | - 3   | e 11 48  | -15   | 19.0   | 22.6 |
| Lick          |    | 31.9     | 320 | e 7 11  | +25   | —        | —     | e 22.0 | —    |
| Berkeley      |    | 32.6     | 320 | —       | —     | —        | —     | e 18.5 | —    |
| Harvard       |    | 34.4     | 34  | —       | —     | e 12 3   | -43   | e 17.2 | 22.2 |
| Ottawa        |    | 34.6     | 26  | e 7 6   | - 4   | e 12 31  | -18   | 16.2   | 19.3 |
| Victoria      | E. | 40.2     | 332 | 8 21    | +24   | e 14 46  | +36   | e 23.5 | 28.1 |
| La Paz        | E. | 41.8     | 139 | —       | —     | i 13 58  | -34   | 19.8   | 22.4 |
| Sucre         | N. | 41.8     | 139 | i 8 3   | - 6   | e 13 55  | -37   | 19.8   | 24.5 |
| Scoresby Sund |    | 45.5     | 139 | i 8 25  | -12   | 15 15    | - 6   | 22.2   | 25.8 |
| Edinburgh     |    | 70.3     | 20  | 11 38   | +19   | 20 48    | +18   | —      | —    |
| San Fernando  | E. | 78.9     | 35  | e 12 18 | + 6   | e 22 18  | + 7   | 39.3   | 47.3 |
| Kew           |    | 80.7     | 55  | —       | —     | —        | —     | —      | 53.9 |
| Granada       |    | 81.5     | 39  | e 12 33 | + 5   | e 22 37  | - 4   | 38.8   | 49.3 |
| Almeria       |    | 82.5     | 54  | 12 46   | +13   | i 23 44  | ?PS   | —      | 44.2 |
| Paris         |    | 83.5     | 53  | —       | —     | —        | —     | e 39.3 | 43.9 |
| De Bilt       |    | 83.9     | 41  | e 12 49 | + 8   | e 23 11  | + 3   | e 40.3 | 48.3 |
| Uccle         |    | 84.5     | 37  | 12 51   | + 6   | e 23 12  | - 2   | e 40.3 | 50.4 |
| Hamburg       |    | 84.5     | 40  | e 12 33 | -12   | e 23 8   | - 6   | e 39.3 | —    |
| Feldberg      | N. | 86.8     | 35  | e 13 6  | + 8   | e 23 30  | - 9   | e 39.3 | 51.3 |
| Copenhagen    |    | 87.1     | 38  | e 13 3  | + 3   | —        | —     | e 42.3 | 53.5 |
| Lund          |    | 87.2     | 31  | e 13 8  | + 8   | 23 37    | - 6   | 40.3   | 46.7 |
| Strasbourg    |    | 87.7     | 31  | —       | —     | 23 36    | -13   | 42.3   | —    |
| Potsdam       |    | 87.9     | 40  | e 13 1  | - 3   | e 23 34  | -17   | 33.3   | 53.8 |
| Konigsberg    | E. | 88.9     | 35  | —       | —     | —        | —     | 53.3   | —    |
| Rocca di Papa |    | 91.9     | 30  | —       | —     | e 24 18? | -16   | —      | 59.5 |
| Pulkovo       |    | 93.0     | 45  | e 13 31 | - 1   | e 23 11  | [-35] | —      | 30.2 |
| Zagreb        |    | 93.4     | 25  | 13 35   | + 1   | e 24 11  | [+23] | 45.3   | 56.7 |
| Kucino        |    | 93.5     | 40  | e 13 35 | 0     | e 24 9   | [+20] | e 47.3 | 59.3 |
| Wellington    | E. | 99.1     | 25  | —       | —     | i 26 12  | +25   | 49.5   | 56.9 |
| Makeyevka     |    | 99.6     | 230 | —       | —     | —        | —     | e 44.8 | —    |
| Ekaterinburg  |    | 104.4    | 30  | —       | —     | i 25 9   | [+24] | 47.0   | 64.4 |
| Baku          |    | 105.3    | 14  | —       | —     | e 25 18  | [+29] | 51.3   | 60.1 |
| Tashkent      |    | 115.9    | 29  | —       | —     | —        | —     | 54.3   | 65.7 |
| Bombay        |    | 121.8    | 13  | 19 19   | [+22] | 26 19    | [+28] | e 59.3 | 69.5 |
|               |    | 144.1    | 19  | —       | —     | —        | —     | e 88.3 | —    |

Additional readings and notes: Vera Cruz readings have been *increased* by 1m. Tacubaya readings have been *diminished* by 1m. Merida readings have been *diminished* by 4m. Florissant  $i = +10m.54s. = SR_1 + 14s.$  Charlottesville  $iN = +14m.18s.$  Chicago  $eE = +9m.38s.$  and  $+10m.38s.$  Ann Arbor  $eE = +14m.24s.$  Georgetown  $SR_1Z = +12m.1s.$  Toronto  $iN = +10m.24s., +12m.0s.,$  and  $+16m.18s.$  eN =  $+16m.30s.$  Harvard  $e = +15m.43s.$  +13m.21s.,  $iLN = +22.4m.; T_0 = 23h.53m.55s.$  +23.3m.;  $T_1 = 23h.53m.58s.$  Ottawa  $SR_2 = +14m.34s. = SR_1 - 16s., MN = +23.3m.; T_0 = 23h.53m.58s.$  Victoria  $SN = +14m.36s.; T_0 = 23h.53m.50s.$  Sucre  $SR_1 = +18m.27s.$  Scoresby Sund  $+25m.12s.$  Paris  $MN = +44.3m.$  De Bilt  $MZ = +50.5m.$  Copenhagen  $ePN = +13m.12s., PR_1 = +16m.30s., eE = +20m.24s., SR_1 = +29m.42s., MN = +48.5m., MZ = +52.9m.$  Rocca di Papa  $eE = +13m.35s., e = +16m.43s. = [P] - 36s.$  Pulkovo  $PR_1 = +17m.23s., PPS = +26m.1s.$  Zagreb  $e = +55m.42s.$  Kucino  $e = +28m.12s., +29m.48s.,$  and  $+37m.18s. = SR_2 + 4s.$  Makeyevka  $e = +17m.30s. = [P] - 32s., iScPcS = +25m.9s.$  Ekaterinburg  $e = +16m.26s.$  Baku  $PR_1 = +20m.17s., ScPcPcS = +27m.13s., PS = +29m.56s.$  Tashkent  $PR_1 = +20m.52s., ScPcPcS = +27m.43s., PS = +30m.18s., SR_1 = +37m.18s.$

Sept. 1d. Readings also at 1h. (near La Paz and Sucre), 7h. (Mizusawa, River-  
view, and near Apia), 8h. (Kew and Copenhagen), 9h. (Granada), 11h.  
(Baku, Copenhagen, Tucson, Ekaterinburg, Irkutsk, Kucino, De Bilt,  
Feldberg, and near Tashkent), 12h. (near Almeria and Granada), 19h.  
(Ekaterinburg, Irkutsk, and near Tashkent), 20h. (Ekaterinburg and  
Tashkent), 23h. (La Paz, Ekaterinburg, Feldberg, Pulkovo, and  
Tashkent).

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Sept. 2d. 16h. 56m. 51s. Epicentre 13°·8S. 171°·8W. (Apia, as on 1917 August 6d.).

A = -·961, B = -·139, C = -·239; D = -·143, E = +·990;  
G = +·236, H = +·034, K = -·971.

See note at end.

|               | $\Delta$ | Az. | P.      | O-C.             | S.        | O-C.  | L.     | M.   |
|---------------|----------|-----|---------|------------------|-----------|-------|--------|------|
|               | °        | °   | m. s.   | s.               | m. s.     | s.    | m.     | m.   |
| Apia          | 0·0      | —   | e 0 1   | + 1              | —         | —     | —      | 1·8  |
| Wellington    | E. 29·9  | 201 | —       | —                | (e 11 13) | -19   | e 11·2 | —    |
| Honolulu T.H. | 37·7     | 21  | —       | —                | —         | —     | e 17·1 | 21·2 |
| Melbourne     | 45·2     | 230 | —       | —                | —         | —     | 26·0   | 27·6 |
| Zi-ka-wei     | Z. 78·3  | 307 | e 12 7  | - 2              | —         | —     | —      | 48·7 |
| Florissant    | 92·1     | 50  | —       | —                | e 24 9?   | -27   | e 44·2 | 55·2 |
| Irkutsk       | 97·2     | 323 | e 18 9? | ?PR <sub>1</sub> | —         | —     | e 44·2 | —    |
| Georgetown    | Z. 102·3 | 53  | —       | —                | —         | —     | e 56·8 | —    |
| Tashkent      | 120·7    | 310 | —       | —                | e 29 33   | +38   | —      | 73·6 |
| Ekaterinburg  | 121·6    | 330 | e 20 48 | ?PR <sub>1</sub> | e 26 12   | [+22] | 47·2   | —    |
| Pulkovo       | 131·3    | 345 | e 21 51 | ?PR <sub>1</sub> | —         | —     | —      | —    |
| Baku          | 135·0    | 314 | —       | —                | —         | —     | e 66·2 | —    |
| Copenhagen    | 138·0    | 356 | e 23 9? | ?PR <sub>1</sub> | —         | —     | e 66·2 | 87·4 |
| De Bilt       | 141·6    | 3   | e 19 51 | [+ 9]            | e 42 0    | ?     | e 79·2 | —    |
| Kew           | 141·8    | 9   | e 19 44 | [+ 1]            | —         | —     | 79·2   | —    |
| Feldberg      | 143·6    | 0   | —       | —                | e 33 29   | ?     | —      | —    |
| Paris         | 144·7    | 6   | e 19 55 | [+ 7]            | —         | —     | 81·2   | —    |
| Strasbourg    | 145·3    | 1   | e 19 57 | [+ 8]            | —         | —     | 63·2   | —    |
| Granada       | 154·4    | 22  | i 19 53 | [- 8]            | —         | —     | 88·2   | 95·2 |

Additional readings: Melbourne e = +23m.19s. Irkutsk e = +34m.49s.  
Tashkent e = +25m.3s. and +26m.37s. Ekaterinburg e = +37m.45s.  
Copenhagen eE = +40m.9s.?

NOTE TO THE ABOVE SHOCK.

If we adopt the origin 14°·0S. 174°·0W. of 1928 Sept. 22d. and previous dates we have the following:—

|            | $\Delta$ | Az. | P.    | O-C. | S. |
|------------|----------|-----|-------|------|----|
|            | °        | °   | s.    | s.   | s. |
| Apia       | 2·2      | 86  | -33   | —    | —  |
| Wellington | 29·0     | 198 | —     | - 4  | —  |
| Zi-ka-wei  | 76·6     | 307 | + 8   | —    | —  |
| De Bilt    | 141·9    | 1   | [+ 9] | —    | —  |
| Kew        | 142·2    | 6   | [+ 1] | —    | —  |
| Paris      | 145·1    | 356 | [+ 7] | —    | —  |
| Strasbourg | 145·4    | 358 | [+ 8] | —    | —  |
| Granada    | 155·3    | 19  | [- 9] | —    | —  |

The Apia readings are incompatible with those of the more distant stations, and an epicentre very close to Apia is necessary to satisfy both groups of stations.

Sept. 2d. Readings also at 0h. (Puebla, Merida, Tacubaya, Vera Cruz, and Tucson), 1h. (Georgetown), 2h. (Rio de Janeiro), 3h. (La Paz and Sucre), 4h. (near Yalta), 8h. (Taihoku), 9h. (Christchurch and Wellington), 12h. (Baku, Tashkent, Sebastopol, Yalta, and near Taihoku), 14h. (near Malabar), 17h. (near Tacubaya), 18h. (Zagreb and Neuchatel), 19h. (Vienna), 21h. (Taihoku), 22h. (near Almeria and Granada), 23h. (La Paz).

Sept. 3d. 1h. 5m. 52s. Epicentre 8°·0S. 105°·0E. (as on 1923 May 15d.).

A = -·256, B = +·956, C = -·139; D = +·966, E = +·259;  
G = +·036, H = -·134, K = -·990.

|              | $\Delta$ | Az. | P.      | O-C. | S.      | O-C.  | M.   |
|--------------|----------|-----|---------|------|---------|-------|------|
|              | °        | °   | m. s.   | s.   | m. s.   | s.    | m.   |
| Batavia      | 2·6      | 45  | 0 45    | + 4  | i 1 22  | +10   | —    |
| Malabar      | 2·7      | 73  | i 0 29  | -13  | i 0 50  | -24   | —    |
| Zi-ka-wei    | 42·2     | 22  | e 7 28  | -44  | —       | —     | —    |
| Tashkent     | 59·2     | 330 | i 10 7  | + 1  | i 18 12 | - 1   | 34·0 |
| Baku         | 70·0     | 320 | —       | —    | i 20 39 | +13   | —    |
| Ekaterinburg | 74·2     | 337 | i 11 40 | - 3  | i 21 12 | - 4   | —    |
| Pulkovo      | 89·3     | 332 | 12 57   | -15  | 23 18   | [- 6] | —    |

Batavia gives also IPZ = +48s., iP = +49s.

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Sept. 3d. 4h. 1m. 54s. Epicentre 34°·5N. 122°·5W.

A = -·443, B = -·695, C = +·566; D = -·843, E = +·537;  
G = -·304, H = -·478, K = -·824.

|            |    | Δ    | Az. | P.     | O-C. | S.     | O-C. | L.     | M.  |
|------------|----|------|-----|--------|------|--------|------|--------|-----|
|            |    | °    | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.  |
| Lick       | E. | 3·0  | 13  | e 0 46 | - 1  | e 1 25 | + 2  | i 1·6  | —   |
| Berkeley   |    | 3·4  | 2   | 0 54   | + 1  | e 1 31 | - 3  | —      | —   |
| Tucson     |    | 10·0 | 100 | 2 36   | + 6  | 4 22   | - 7  | 5·5    | —   |
| Florissant |    | 26·0 | 71  | —      | —    | e 8 6? | ?    | —      | 9·1 |
| Georgetown | Z. | 36·3 | 70  | —      | —    | —      | —    | e 19·2 | —   |

Additional readings: Lick iPE = +49s., iE = +1m.41s., eE = +1m.59s., and +2m.14s. Berkeley eSZ = +1m.36s. = S + 2s. Tucson SN = +4m.27s. = S - 2s. Georgetown eZ = +17m.10s.

Sept. 3d. 5h. 40m. 51s. Epicentre 55°·0S. 24°·0W. (as on 1928 July 13d. 9h.).

A = +·524, B = -·233, C = -·819; D = -·407, E = -·914;  
G = -·748, H = +·333, K = -·574.

|                |    | Δ     | Az. | P.        | O-C.             | S.        | O-C.  | L.     | M.   |
|----------------|----|-------|-----|-----------|------------------|-----------|-------|--------|------|
|                |    | °     | °   | m. s.     | s.               | m. s.     | s.    | m.     | m.   |
| La Plata       |    | 30·8  | 297 | 6 22?     | -14              | (11 21)   | -27   | 11·4   | —    |
| Rio de Janeiro |    | 35·1  | 329 | 7 19      | + 5              | 12 50     | - 7   | 16·9   | —    |
| Sucre          |    | 47·6  | 303 | i 8 43    | - 8              | i 16 2    | +13   | 28·2   | —    |
| La Paz         |    | 51·2  | 302 | 9 15      | + 1              | i 16 32   | - 2   | —      | —    |
| Granada        |    | 93·8  | 16  | (i 14 12) | +35              | (e 24 45) | - 9   | 49·2   | 54·2 |
| Georgetown     | Z. | 104·3 | 320 | e 14 50   | +19              | —         | —     | 28·6   | —    |
| Strasbourg     |    | 106·9 | 22  | 19 9?     | ?PR <sub>1</sub> | —         | —     | —      | —    |
| Uccle          |    | 108·4 | 20  | —         | —                | e 27 9?   | - 5   | e 58·2 | —    |
| Feldberg       |    | 108·6 | 21  | —         | —                | e 26 22   | ?E    | —      | —    |
| Florissant     |    | 109·6 | 310 | —         | —                | e 25 9?   | [+ 1] | e 41·2 | —    |
| De Bilt        |    | 109·8 | 20  | e 19 35   | ?PR <sub>1</sub> | e 29 24   | ?PS   | e 59·2 | —    |
| Copenhagen     |    | 114·6 | 21  | 20 14     | ?PR <sub>1</sub> | e 30 6    | ?PS   | 59·2   | —    |
| Makeyevka      |    | 115·4 | 40  | —         | —                | —         | —     | e 23·8 | —    |
| Pulkovo        |    | 122·6 | 30  | (e 20 9?) | ?PR <sub>1</sub> | —         | —     | e 20·2 | —    |
| Tashkent       |    | 124·4 | 65  | e 18 21   | [-43]            | —         | —     | e 67·2 | 77·8 |
| Ekaterinburg   |    | 131·0 | 46  | e 19 35   | [+14]            | —         | —     | —      | —    |
| Zi-ka-wei      |    | 145·9 | 123 | e 19 55   | [+ 5]            | —         | —     | 49·2   | —    |
| Irkutsk        |    | 149·9 | 75  | e 24 9    | ?PR <sub>1</sub> | —         | —     | —      | —    |

Additional readings and note: La Plata S = +9m.24s.? Rio de Janeiro SE = +12m.52s. Sucre i = +19m.12s. = SR<sub>1</sub> - 8s. La Paz iSN = +16m.34s. Granada P and S have been diminished by 12m. Georgetown eLZ? = +17m.51s., LZ = +18m.37s. Florissant eEN = +34m.9s., eENZ = +38m.9s. Copenhagen eEN = +25m.9s.? = [S] - 19s. and +30m.9s.? = PS + 21s. Tashkent e = +20m.21s. = PR<sub>1</sub> - 31s., i = +21m.34s. and +37m.9s.? = SR<sub>1</sub> - 33s. Ekaterinburg e = +22m.7s. and +40m.42s.

Sept. 3d. Readings also at 4h. (near Mizusawa), 5h. (Nagoya), 9h. (San Fernando and Sucre), 10h. (Taihoku and near La Paz), 16h. (Alicante, near Ksara, and near Mizusawa), 18h. (La Paz), 21h. (Hong Kong, Phu-Lien, Ekaterinburg, Irkutsk, Pulkovo, near Manila (2), and near Taihoku), 22h. (Copenhagen, De Bilt, Uccle, and Kew), 23h. (near Kobe, Sumoto, and Matuyama).

Sept. 4d. Readings at 5h. (Spokane, Taihoku, and near Manila), 8h. (near Almeria and Granada), 11h. (Santiago and near Lick), 16h. (near Nagoya), 17h. (near Mizusawa and near Taihoku).

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Sept. 5d. 2h. 23m. 48s. Epicentre 22°·3N. 143°·2E. (as on 1928 May 1d.).

A = -·741, B = +·554, C = +·380 ; D = +·599, E = +·801 ;  
G = -·304, H = +·227, K = -·925.

|              | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|--------------|----------|-----|---------|------|---------|------|--------|------|
|              | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Manila       | 22·5     | 254 | e 5 12? | + 1  | —       | —    | —      | —    |
| Irkutsk      | 42·2     | 326 | e 8 12  | 0    | —       | —    | 22·2   | 27·3 |
| Ekaterinburg | 67·4     | 324 | —       | —    | e 19 53 | - 2  | 26·2   | —    |
| Baku         | 78·2     | 310 | e 12 5  | - 3  | e 22 4  | + 2  | 39·7   | —    |
| Pulkovo      | 81·6     | 332 | —       | —    | —       | —    | e 46·2 | —    |
| Makeyevka    | 83·1     | 320 | —       | —    | —       | —    | e 40·9 | 54·7 |
| Copenhagen   | 91·5     | 335 | —       | —    | —       | —    | e 48·2 | —    |
| De Bilt      | 97·0     | 336 | —       | —    | —       | —    | e 51·2 | —    |
| Feldberg     | N. 97·2  | 334 | —       | —    | —       | —    | e 49·8 | —    |
| Uccle        | 98·4     | 335 | —       | —    | —       | —    | e 52·2 | —    |
| Kew          | 99·5     | 340 | —       | —    | —       | —    | e 54·2 | —    |
| Granada      | 112·8    | 333 | —       | —    | —       | —    | 68·2   | 71·5 |

No additional readings.

Sept. 5d. Readings also at 0h. (Rocca di Papa), 5h. (Berkeley, Lick, Victoria, Tucson, St. Louis, Florissant, Chicago, and Georgetown), 7h. (Victoria), 8h. (Santiago), 13h. (La Paz), 14h. (Berkeley, Lick, Victoria, St. Louis, Florissant, Chicago, Georgetown, Ottawa, and Toronto), 15h. (Feldberg), 16h. (Matuyama), 18h. (La Paz (2), near Batavia, and Malabar), 19h. (Florissant), 20h. (Lick).

Sept. 6d. 6h. 28m. 30s. Epicentre 40°·0N. 143°·5E. (as on 1928 August 16d.).

A = -·616, B = +·456, C = +·643 ; D = +·595, E = +·804 ;  
G = -·517, H = +·382, K = -·766.

|               | $\Delta$ | Az. | P.      | O-C. | S.      | O-C.             | L.     | M.   |
|---------------|----------|-----|---------|------|---------|------------------|--------|------|
|               | °        | °   | m. s.   | s.   | m. s.   | s.               | m.     | m.   |
| Mizusawa      | E. 2·0   | 245 | 0 34    | + 3  | 0 56    | + 1              | —      | —    |
|               | N. 2·0   | 245 | 0 33    | + 2  | 0 55    | 0                | —      | —    |
| Nagoya        | 7·1      | 229 | e 1 42  | - 6  | (3 17)  | + 4              | 3·3    | 3·9  |
| Osaka         | 8·3      | 232 | 2 25    | +19  | —       | —                | 4·3    | 4·8  |
| Kobe          | 8·5      | 233 | e 2 22  | +13  | —       | —                | 4·1    | 5·2  |
| Sumoto        | 8·9      | 233 | 2 19    | + 4  | —       | —                | 4·3    | 4·8  |
| Hukuoka       | 12·3     | 242 | 0 57    | ?    | —       | —                | 6·4    | 8·4  |
| Nagasaki      | 13·1     | 241 | —       | —    | —       | —                | e 7·3  | 7·5  |
| Zi-ka-wei     | Z. 19·9  | 251 | e 4 29  | -11  | 8 25    | + 4              | —      | 13·2 |
| Irkutsk       | 29·4     | 308 | 6 8     | -14  | 11 5    | -19              | 15·5   | 18·8 |
| Manila        | E. 32·2  | 226 | —       | —    | —       | —                | e 14·5 | —    |
| Honolulu T.H. | N. 52·9  | 93  | —       | —    | —       | —                | e 24·5 | —    |
| Bombay        | 63·4     | 275 | 21 55   | ?    | 28 10   | ?                | e 35·2 | 40·4 |
| Kucino        | 65·5     | 324 | —       | —    | e 18 42 | -49              | 35·2   | 41·5 |
| Pulkovo       | 66·3     | 330 | 10 54   | 0    | e 19 44 | + 3              | 35·5   | 42·5 |
| Baku          | 67·7     | 305 | e 11 3  | + 1  | e 20 52 | [- 3]            | 36·4   | 39·0 |
| Scoresby Sund | 69·1     | 356 | —       | —    | 20 29   | +14              | 37·5   | —    |
| Makeyevka     | 70·1     | 317 | 11 19   | + 1  | e 20 29 | + 2              | 37·5   | 45·8 |
| Copenhagen    | 75·7     | 334 | e 11 48 | - 5  | e 21 35 | + 1              | 40·5   | 46·3 |
| Edinburgh     | 80·0     | 342 | —       | —    | —       | —                | e 44·5 | —    |
| De Bilt       | 81·1     | 335 | e 12 23 | - 3  | —       | —                | e 42·5 | 47·7 |
| Feldberg      | N. 81·6  | 333 | —       | —    | e 32 30 | ?SR <sub>2</sub> | e 43·2 | —    |
| Zagreb        | 82·2     | 326 | —       | —    | —       | —                | e 48·5 | 52·5 |
| Uccle         | 82·5     | 335 | —       | —    | —       | —                | e 45·5 | —    |
| Kew           | 83·2     | 339 | —       | —    | —       | —                | e 47·5 | —    |
| Strasbourg    | 83·2     | 332 | —       | —    | —       | —                | e 42·5 | —    |
| Paris         | 84·8     | 335 | —       | —    | —       | —                | e 44·5 | 54·5 |
| Rocca di Papa | 86·9     | 326 | —       | —    | —       | —                | e 49·4 | 56·7 |
| Ottawa        | 87·7     | 27  | —       | —    | —       | —                | e 52·5 | —    |
| Toronto       | 87·8     | 39  | —       | —    | —       | —                | 52·5   | —    |
| Georgetown    | Z. 92·8  | 31  | —       | —    | —       | —                | e 59·5 | —    |
| Granada       | 97·1     | 334 | —       | —    | —       | —                | e 54·5 | 58·5 |
| San Fernando  | E. 98·6  | 336 | —       | —    | —       | —                | —      | 64·5 |

Additional readings and note : Nagoya MN = +4·0m. Osaka MN = +5·0m.  
Kobe MN = +4·2m., MZ = +4·4m. Zi-ka-wei readings are given for 5h.  
Kucino e = +22m.48s. Copenhagen MNZ = +48·7m. De Bilt MN = +52·0m., MZ = +52·6m. San Fernando MN = +63·4m.

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Sept. 6d. Readings also at 0h. (near La Paz and Sucre), 4h. (Florissant, St. Louis, and Tucson), 5h. (Wellington and near Mizusawa), 6h. (Phu-Lien and Florissant), 7h. (Wellington), 8h. (Florissant, Suva, and near Apia), 9h. (Riverview, Melbourne, Perth, Victoria, Georgetown, La Paz, Sucre, Wellington, Irkutsk, Pulkovo, Honolulu T.H., Scoresby Sund, Strasbourg, Paris, Granada, and near Mizusawa (2)), 10h. (Bombay, Copenhagen, De Bilt, and Kew); 12h. (Wellington, Suva, Honolulu T.H., near Apia, and near Mizusawa), 13h. (Florissant), 16h. and 19h. (near Mizusawa), 20h. and 22h. (La Paz).

Sept. 7d. 2h. 49m. 20s. Epicentre 5°·58. 145°·0E. (as on 1926 Dec. 25d.).

A = -·815, B = +·571, C = -·096; D = +·574, E = +·819;  
G = +·078, H = -·055, K = -·995.

The depth of focus 0·020 has been retained.

|                | Corr.<br>for<br>Focus | Δ     | Az. | P.   |     | O-C.             |       | S.  |      | O-C.   |      | L. |  | M. |  |
|----------------|-----------------------|-------|-----|------|-----|------------------|-------|-----|------|--------|------|----|--|----|--|
|                |                       |       |     | m.   | s.  | s.               | m.    | s.  | m.   | s.     | m.   | m. |  |    |  |
| Riverview      | -1·3                  | 28·9  | 169 | e 5  | 52  | -12              | 10    | 45  | -7   | e 13·2 | 17·2 |    |  |    |  |
| Sydney         | -1·3                  | 28·9  | 169 | i 40 | ?   | ?                | 10    | 58  | +6   | i 16·7 | 17·4 |    |  |    |  |
| Adelaide       | -1·4                  | 30·0  | 190 | i 6  | 2   | -12              | i 10  | 51  | -19  | i 13·0 | 19·8 |    |  |    |  |
| Manila         | -1·4                  | 31·2  | 312 | e 5  | 8   | -78              |       |     |      | e 9·0  |      |    |  |    |  |
| Melbourne      | -1·5                  | 32·3  | 181 | i 10 | 34  | ?                | (i 11 | 17) | -31  | i 16·7 | 18·9 |    |  |    |  |
| Malabar        | -1·6                  | 37·2  | 268 | 7    | 25  | +7               | i 13  | 28  | +24  |        |      |    |  |    |  |
| Batavia        | -1·7                  | 37·9  | 270 | i 7  | 33  | +9               |       |     |      | 23·2   |      |    |  |    |  |
| Perth          | -1·7                  | 37·9  | 224 | e 5  | 52  | -92              | i 13  | 25  | +12  |        |      |    |  |    |  |
| Hong Kong      | E. -1·7               | 41·0  | 316 |      |     |                  |       |     |      |        | 15·0 |    |  |    |  |
| Osaka          | -1·7                  | 41·2  | 350 | 8    | 3   | +12              | (14   | 28) | +29  | i 14·5 | 15·7 |    |  |    |  |
| Wellington     | E. -1·9               | 44·6  | 148 |      |     |                  | i 13  | 58  | -46  | i 17·4 | 27·7 |    |  |    |  |
|                | N. -1·9               | 44·6  | 148 |      |     |                  | i 14  | 8   | -36  | 18·3   | 24·3 |    |  |    |  |
| Mizusawa       | E. -1·9               | 44·8  | 357 | 8    | 10  | -7               | 8     | 40  | ?    |        |      |    |  |    |  |
| Christchurch   | -1·9                  | 45·1  | 152 | (e 7 | 5)  | -75              | 13    | 5   | -106 | 23·6   | 30·7 |    |  |    |  |
| Honolulu T.H.  | E. -2·4               | 61·9  | 62  | 10   | 10  | +1               | 18    | 0   | -17  | 27·2   | 33·2 |    |  |    |  |
| Irkutsk        | -2·5                  | 67·3  | 335 |      |     |                  | e 19  | 27  | +4   | 33·7   |      |    |  |    |  |
| Bombay         | -2·6                  | 75·0  | 292 | 11   | 40  | +8               | e 21  | 15  | +20  | e 38·2 | 46·8 |    |  |    |  |
| Victoria       | E. -2·8               | 95·2  | 42  | 16   | 49  | ?PR <sub>1</sub> | 25    | 44  | +65  | 42·6   | 50·4 |    |  |    |  |
| Tananarive     | E. -2·8               | 95·2  | 250 |      |     |                  | e 37  | 37  | ?    | 49·5   | 54·8 |    |  |    |  |
| Baku           | -2·8                  | 97·4  | 311 | e 17 | 46  | ?PR <sub>1</sub> | e 27  | 3   | ?    | 45·2   | 58·4 |    |  |    |  |
| Makeyevka      |                       | 105·4 | 320 | 18   | 36  | ?PR <sub>1</sub> | 28    | 4   | ?PS  | 37·2   | 65·3 |    |  |    |  |
| Pulkovo        |                       | 107·0 | 333 | 18   | 30  | ?PR <sub>1</sub> | 27    | 57  | ?    | 52·7   | 63·1 |    |  |    |  |
| Konigsberg     | E. -                  | 114·8 | 328 |      |     |                  |       |     |      | e 67·7 |      |    |  |    |  |
| Lund           |                       | 117·0 | 332 |      |     |                  |       |     |      | 58·7   |      |    |  |    |  |
| Copenhagen     |                       | 117·3 | 332 | e 19 | 56  | ?PR <sub>1</sub> |       |     |      | 57·7   | 61·8 |    |  |    |  |
| Florissant     | Z. -                  | 120·1 | 47  | e 30 | 40? | ?PS              |       |     |      |        | 67·7 |    |  |    |  |
| Chicago        | E. -                  | 121·0 | 43  |      |     |                  |       |     |      | e 58·5 | 61·7 |    |  |    |  |
| Feldberg       | N. -                  | 122·4 | 328 | e 20 | 39  | ?PR <sub>1</sub> |       |     |      |        | 64·7 |    |  |    |  |
| De Bilt        |                       | 122·9 | 331 | e 20 | 26  | ?PR <sub>1</sub> |       |     |      | e 55·7 | 64·5 |    |  |    |  |
| Edinburgh      |                       | 123·6 | 338 |      |     |                  |       |     |      | e 53·7 |      |    |  |    |  |
| Strasbourg     |                       | 123·8 | 327 | e 19 | 40  | [+38]            | e 30  | 40? | ?PS  | 57·7   |      |    |  |    |  |
| Uccle          |                       | 124·1 | 331 | e 20 | 45  | ?PR <sub>1</sub> | e 31  | 6   | ?PS  | e 58·7 |      |    |  |    |  |
| Rocca di Papa  |                       | 124·3 | 319 | e 19 | 26  | [+22]            |       |     |      | e 67·0 |      |    |  |    |  |
| Toronto        | E. -                  | 125·5 | 38  |      |     |                  |       |     |      | 66·7   |      |    |  |    |  |
| Kew            |                       | 125·8 | 335 | e 20 | 57  | ?PR <sub>1</sub> |       |     |      | 59·7   | 73·7 |    |  |    |  |
| Oxford         |                       | 126·0 | 335 |      |     |                  |       |     |      | e 64·2 | 72·7 |    |  |    |  |
| Paris          |                       | 126·3 | 330 | e 21 | 3   | ?PR <sub>1</sub> | e 33  | 2   | ?    | 66·7   | 71·7 |    |  |    |  |
| Georgetown     | Z. -                  | 129·5 | 41  | e 19 | 5   | [-12]            |       |     |      | e 65·8 | 75·9 |    |  |    |  |
| Tortosa        | N. -                  | 132·5 | 323 |      |     |                  |       |     |      | e 63·7 | 77·8 |    |  |    |  |
| Granada        |                       | 137·3 | 323 | e 19 | 16  | [-19]            |       |     |      | e 69·9 | 81·4 |    |  |    |  |
| La Paz         |                       | 140·5 | 124 | 19   | 12  | [-28]            |       |     |      | 82·7   | 94·9 |    |  |    |  |
| Sucre          |                       | 141·4 | 130 | 19   | 8   | [-34]            |       |     |      | 83·7   | 92·8 |    |  |    |  |
| Rio de Janeiro | E. -                  | 150·5 | 164 |      |     |                  |       |     |      | e 76·9 |      |    |  |    |  |

Additional readings and notes: Riverview IS = +9m.34s., SR<sub>1</sub> = +12m.2s.,  
MZ = +17·8m., MN = +18·3m.; T<sub>1</sub> = 2h.49m.4s. Sydney readings have  
been diminished by 1h. Adelaide iPR<sub>1</sub> = +6m.40s., i = +12m.20s. = SR<sub>1</sub>  
-10s., MN = +19·6m. Melbourne IS = +15m.0s., true S is given as  
iPR<sub>1</sub>. Malabar i = +7m.31s. Batavia i = +8m.39s. = PR<sub>1</sub> + 3s. Perth  
eSR<sub>1</sub> = +17m.45s., eSR<sub>2</sub> = +19m.10s. Osaka S = +10m.45s., MN =  
+17·9m. Christchurch gives P as PR<sub>1</sub>. Honolulu T.H. eLN = +27·7m.,

Continued on next page.

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MN = +31.9m. Königsberg eZ = +48m.52s., eLN = +68.7m. Copenhagen eEN = +20m.4s. = PR<sub>1</sub>-2s., eEZ = +22m.28s., eEN = +25m.40s. ? = [S]<sub>1</sub>+3s., e = +29m.43s. = PS-33s., and +36m.21s. = SR<sub>1</sub>+3s., MN = +68.4m. Chicago eLN = +61.7m., MN = +65.7m. Feldberg eN = +30m.40s. = PS-28s., and +38m.47s. De Bilt eEN = +30m.58s. = PS-15s., MN = +65.1m. Toronto LN = +64.7m. Rocca di Papa eE = +21m.3s. = PR<sub>1</sub>+11s., e = +22m.20s. Paris MN = +74.7m. Georgetown iZ = +23m.42s., eZ = +31m.37s. and +43m.0s. Granada i = +21m.25s. and +25m.26s. La Paz PR<sub>1</sub>? = +22m.50s.

Sept. 7d. Readings also at 3h. (near Tacubaya and near Tananarive), 4h. (Edinburgh, Georgetown, Toronto, and near Taihoku), 5h. (Hong Kong, Taihoku, and Victoria), 8h. (near Mizusawa), 11h. (Simferopol and Yalta), 16h. (Mizusawa and Ottawa), 20h. (Manila), 21h. and 23h. (near Mizusawa).

Sept. 8d. Readings at 8h. (La Paz, Sucre, and near Tananarive), 9h. (Rio de Janeiro), 11h. (Mizusawa), 13h. (Santiago, La Paz, La Plata, Tashkent, and near Sumoto), 17h. (La Paz, Yalta, near Almeria, and near Lick), 20h. (near La Paz).

Sept. 9d. Readings at 2h. (La Paz (2), Georgetown, and near Granada), 3h. (La Paz), 4h. (Florissant and near Tashkent), 5h. (Tananarive), 8h. (Ekaterinburg and Tashkent), 12h. (De Bilt, Georgetown, Ekaterinburg, and Tashkent), 13h. (near Tashkent), 14h. (Ekaterinburg and Tashkent), 18h. (Mizusawa), 19h. (La Paz), 21h. (near Tananarive), 22h. (near Algiers), 23h. (near Mizusawa (2)).

Sept. 10d. 17h. 23m. 51s. Epicentre 32°·5N. 64°·0E.

A = +.370, B = +.758, C = +.537; D = +.899, E = -.438;  
G = +.236, H = +.483, K = -.843.

|              | Δ       | Az. | P.     | O-C. | S.     | O-C. | L.     | M.  |
|--------------|---------|-----|--------|------|--------|------|--------|-----|
|              | °       | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.  |
| Tashkent     | 9.8     | 24  | i 2 27 | 0    | i 4 24 | + 1  | e 4.5  | 6.9 |
| Baku         | 13.8    | 309 | —      | —    | —      | —    | e 7.1  | —   |
| Bombay       | 15.7    | 148 | —      | —    | e 6 9? | -39  | —      | —   |
| Ekaterinburg | 24.5    | 356 | e 5 34 | + 1  | e 9 19 | -35  | 12.6   | —   |
| Irkutsk      | 35.1    | 45  | —      | —    | —      | —    | e 17.1 | —   |
| Pulkovo      | 35.2    | 331 | e 7 12 | - 3  | —      | —    | 20.1   | —   |
| Copenhagen   | 42.3    | 320 | —      | —    | —      | —    | 24.1   | —   |
| Feldberg     | N. 44.1 | 311 | —      | —    | —      | —    | e 28.1 | —   |

Additional readings and note: Baku eL = +10.8m. Irkutsk eL = +19.1m.  
Only the readings for Tashkent are given with definite phase.

Sept. 10d. Readings also at 4h. (Simferopol, Yalta, Sucre, and near La Paz), 11h. (Manila, near Nagasaki (2), and near Tacubaya), 12h. (near Simferopol, Theodosia, and Yalta), 14h. (Florissant), 15h. (near Nagasaki), 20h. (Yalta and near Sebastopol), 21h. (Sucre, Phu-Lien, Melbourne, Riverview, Ekaterinburg, Tashkent, and near Lick), 22h. (Copenhagen), 23h. (near Batavia and Malabar).

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Sept. 11d. 0h. 37m. 0s. Epicentre 5°·7S. 151°·8E. (as on 1927 Sept. 19d.).

A = -·877, B = +·470, C = -·099; D = +·473, E = +·881;  
G = +·088, H = -·047, K = -·995.

|                | $\Delta$ | Az. | P.      | O-C.             | S.        | O-C.             | L.     | M.   |
|----------------|----------|-----|---------|------------------|-----------|------------------|--------|------|
|                | °        | °   | m. s.   | s.               | m. s.     | s.               | m.     | m.   |
| Riverview      | 28·2     | 181 | e 6 8   | - 2              | e 11 0    | - 3              | e 14·6 | 16·3 |
| Sydney         | 28·2     | 181 | 10 30   | ?S               | (10 30)   | - 33             | 15·8   | 17·3 |
| Adelaide       | 31·7     | 200 | —       | —                | i 13 29   | + 86             | —      | 19·4 |
| Melbourne      | 32·7     | 189 | —       | —                | i 12 12   | - 7              | i 17·0 | 21·1 |
| Manila         | 36·7     | 305 | e 7 23  | - 5              | (i 13 30) | + 10             | i 13·5 | —    |
| Wellington     | E. 41·1  | 153 | i 10 2  | ?PR <sub>2</sub> | i 14 2    | - 20             | e 19·6 | —    |
| Taihoku        | E. 42·5  | 319 | e 8 8   | - 7              | —         | —                | —      | —    |
| Nagasaki       | 43·7     | 334 | e 8 12  | - 12             | 10 1      | ?PR <sub>1</sub> | —      | 10·0 |
| Batavia        | 44·7     | 268 | e 8 0?  | - 31             | —         | —                | —      | —    |
| Hong Kong      | 46·3     | 309 | 8 40    | - 2              | 15 31     | - 1              | 22·6   | 24·2 |
| Zi-ka-wei      | Z. 46·9  | 324 | i 8 34  | - 12             | 15 26     | - 14             | 23·2   | —    |
| Phu-Lien       | 51·7     | 304 | i 9 20  | + 2              | e 16 53   | + 13             | —      | —    |
| Honolulu T.H.  | 56·3     | 59  | —       | —                | 17 18     | - 20             | 25·0   | —    |
| Inkuts         | 70·6     | 332 | i 11 20 | - 1              | 20 26     | - 7              | 31·0   | —    |
| Bombay         | 81·5     | 290 | e 12 33 | + 5              | 22 40     | - 1              | 42·2   | —    |
| Tashkent       | 88·2     | 314 | i 13 2  | - 4              | 23 39     | - 15             | e 37·0 | 50·4 |
| Lick           | E. 90·8  | 52  | i 26 3  | ?                | —         | —                | —      | —    |
| Victoria       | E. 90·8  | 41  | 23 31   | ?[S]             | (23 31)   | [- 2]            | 41·3   | 45·2 |
|                | N. 90·8  | 41  | 23 44   | ?[S]             | (23 44)   | [+ 11]           | 37·6   | —    |
| Ekaterinburg   | E. 95·4  | 327 | i 13 31 | - 14             | i 24 30   | ?Z               | 46·5   | 58·5 |
| Baku           | 102·7    | 311 | 14 9    | - 15             | —         | —                | 49·7   | 68·3 |
| Kucino         | 108·0    | 327 | —       | —                | 25 0      | [- 1]            | 52·0   | 63·2 |
| Pulkovo        | 110·3    | 333 | e 14 31 | - 28             | 25 9      | [- 2]            | 52·0   | 68·9 |
| Florissant     | 115·1    | 449 | e 18 0? | [- 38]           | e 30 0?   | ?PS              | —      | 57·0 |
| Scoresby Sund  | 115·1    | 358 | —       | —                | 29 23     | ?PS              | 53·0   | —    |
| Lund           | 120·2    | 335 | —       | —                | —         | —                | 59·0   | —    |
| Copenhagen     | 120·5    | 335 | e 18 59 | [+ 5]            | 26 22     | ?PR <sub>2</sub> | 59·0   | 67·3 |
| Toronto        | E. 121·3 | 40  | —       | —                | e 30 0?   | ?Z               | 58·0   | —    |
| Ottawa         | 122·8    | 37  | —       | —                | e 30 0?   | ?                | 60·0   | —    |
| Zagreb         | 124·6    | 324 | e 19 9  | [+ 4]            | —         | —                | 63·0   | —    |
| Georgetown     | Z. 124·9 | 45  | —       | —                | e 45 17   | ?                | e 66·4 | —    |
| Edinburgh      | 126·0    | 341 | —       | —                | —         | —                | e 66·0 | —    |
| Feldberg       | N. 126·0 | 332 | e 20 56 | ?PR <sub>1</sub> | —         | —                | —      | 68·0 |
| De Bilt        | 126·1    | 335 | e 19 9  | [+ 1]            | —         | —                | e 58·0 | 70·4 |
| Strasbourg     | 127·4    | 330 | (19 13) | [+ 1]            | —         | —                | 53·0   | —    |
| Uccle          | 127·4    | 332 | e 19 12 | [ 0]             | e 28 0?   | ?Z               | e 57·0 | —    |
| Kew            | 128·7    | 337 | e 19 15 | [ 0]             | e 28 33   | ?Z               | 63·0   | 70·0 |
| Oxford         | 128·8    | 338 | —       | —                | —         | —                | e 64·0 | 67·0 |
| Rocca di Papa  | 128·8    | 321 | 19 15   | [- 1]            | —         | —                | e 66·1 | —    |
| Paris          | 129·6    | 333 | e 21 20 | ?PR <sub>1</sub> | —         | —                | 66·0   | 76·0 |
| Moncalieri     | E. 129·8 | 327 | 21 34   | ?PR <sub>1</sub> | 33 38     | ?                | 43·8   | —    |
| La Paz         | 134·7    | 121 | 19 32   | [+ 3]            | —         | —                | —      | —    |
| Sucre          | 135·9    | 125 | 19 32   | [ 0]             | —         | —                | —      | —    |
| Tortosa        | N. 136·5 | 328 | —       | —                | e 23 12   | ?                | e 66·0 | 83·8 |
| Almeria        | 140·9    | 326 | i 19 41 | [ 0]             | —         | —                | e 68·7 | 72·5 |
| Granada        | 141·3    | 328 | —       | —                | —         | —                | 63·0   | 78·0 |
| Rio de Janeiro | N. 147·9 | 154 | —       | —                | —         | —                | e 72·3 | —    |

Additional readings and notes: Riverview S = +11m.30s., MN = +16·1m.  
Melbourne L = +20·0m. Wellington 1N = +5m.58s., and +10m.1s.,  
iE = +18m.32s., LN = +15·3m. Nagasaki readings are given as for  
a local shock. Hong Kong SR<sub>1</sub> = +18m.50s. Honolulu T.H. eLN =  
+24·0m. Lick 1E = +26m.5s. and +26m.7s. Ekaterinburg 1PR<sub>1</sub> =  
+17m.21s., 1SP<sub>1</sub>C<sub>1</sub>S = +24m.2s. Baku PR<sub>1</sub> = +18m.28s., S<sub>1</sub>C<sub>1</sub>P<sub>1</sub>S =  
+25m.14s., 1PPS = +27m.55s. Kucino PR<sub>1</sub> = +19m.0s., S = +26m.0s.,  
E + 0s., PS = +28m.0s. Pulkovo PR<sub>1</sub> = +19m.8s., PS = +28m.30s. Copen-  
hagen ePR<sub>1</sub> = +20m.22s., ePR<sub>2</sub>Z = +22m.48s., S<sub>1</sub>C<sub>1</sub>P<sub>1</sub>C<sub>1</sub>S = +27m.46s., PS =  
+30m.0s., S<sub>1</sub>C<sub>1</sub>P<sub>1</sub>SP = +30m.42s., SR<sub>1</sub> = +37m.0s., MN = +66·3m., MZ =  
+67·1m. Ottawa eN = +37m.0s. ? = SR<sub>1</sub> - 22s., eLN = +50·0m. Zagreb  
e = +20m.36s. = PR<sub>1</sub> - 18s., +25m.35s. = [S] - 23s., and +27m.47s. = E + 6s.  
Feldberg eN = +23m.54s., +28m.20s., +31m.0s., +33m.40s., and  
+38m.48s. De Bilt eZ = +21m.3s. = PR<sub>1</sub> - 2s., eLN = +64·0m., MZ =  
+72·7m., MN = +73·5m. Strasbourg PR<sub>1</sub> ? is used as [P], PR<sub>2</sub> ? =  
+21m.13s. = PR<sub>1</sub> + 1s., e = +31m.0s. ? Uccle ePR<sub>1</sub> = +22m.32s., e =  
+33m.0s. ? Kew eZ = +22m.58s. Rocca di Papa PEN = +19m.18s.,  
[P] + 2s., PR<sub>1</sub> = +21m.57s. Tortosa readings have been increased by 1h.  
Almeria PR<sub>1</sub> = +24m.0s.



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**Sept. 11d. 12h. 36m. 12s. Epicentre 43° 0N. 130° 0W.**

(as on 1926 June 5d.).

A = - .470, B = - .560, C = + .682 ; D = - .766, E = + .643 ;  
G = - .438, H = - .522, K = - .731.

|               |    | $\Delta$ | Az. | P.       | O-C.             | S.        | O-C.             | L.       | M.     |
|---------------|----|----------|-----|----------|------------------|-----------|------------------|----------|--------|
|               |    | °        | °   | m. s.    | s.               | m. s.     | s.               | m.       | m.     |
| Victoria      |    | 7.1      | 39  | 1 36     | -12              | (2 56)    | -17              | 2.9      | 3.9    |
| Berkeley      |    | 7.8      | 129 | i 2 12   | +14              | i 4 17    | +46              | —        | 6.4    |
| Lick          | E. | 8.5      | 129 | e 2 19   | +10              | e 4 9     | +19              | e 5.1    | —      |
|               | N. | 8.5      | 129 | e 2 18   | +9               | e 4 16    | +26              | e 5.7    | 8.7    |
| Spokane       |    | 9.9      | 58  | i 2 15   | -14              | i 5 15    | +49              | i 6.1    | 6.3    |
| Sitka         | E. | 14.4     | 348 | e 3 28   | -4               | e 6 34    | +16              | e 7.9    | 8.4    |
|               | N. | 14.4     | 348 | i 3 27   | -5               | e 6 33    | +15              | e 7.8    | 8.4    |
| Tucson        | E. | 18.5     | 119 | e 4 30   | +7               | i 8 6     | +15              | e 10.3   | 12.3   |
|               | N. | 18.5     | 119 | e 4 30   | +7               | i 8 4     | +13              | i 8.5    | 11.2   |
| Saskatoon     |    | 18.6     | 53  | (i 4 29) | +5               | (i 7 41)  | -12              | (e 8.9)  | (16.3) |
| Denver        |    | 19.0     | 91  | e 3 55   | -34              | e 7 30    | -32              | —        | 9.8    |
| Florissant    |    | 30.0     | 85  | e 6 30   | +2               | i 11 24   | -10              | 16.1     | 17.3   |
| Chicago       | E. | 31.0     | 79  | i 5 33   | -65              | i 10 27   | -84              | 16.3     | —      |
| Honolulu T.H. |    | 31.8     | 236 | —        | —                | i 12 17   | +2               | 13.8     | 17.6   |
| Ann Arbor     |    | 33.6     | 76  | i 6 54   | -7               | i 12 12   | -22              | e 15.5   | 20.3   |
| Tacubaya      |    | 34.9     | 125 | 7 3      | -9               | i 12 52   | -2               | 15.7     | 20.8   |
| Toronto       | E. | 36.2     | 72  | i 7 13   | -11              | e 12 38   | -35              | —        | 22.1   |
|               | N. | 36.2     | 72  | i 7 13   | -11              | i 12 48   | -25              | 15.4     | 22.0   |
| Ottawa        |    | 38.2     | 69  | —        | —                | —         | —                | e 23.8   | —      |
| Ithaca        |    | 38.6     | 73  | e 8 40   | ?PR <sub>1</sub> | 13 27     | -19              | e 19.4   | 23.5   |
| Georgetown z. |    | 39.5     | 78  | (i 7 54) | +3               | (i 14 43) | -16              | (e 23.3) | (32.2) |
| Harvard       |    | 42.4     | 70  | e 8 12   | -2               | e 14 23   | —                | e 20.1   | —      |
| Scoresby Sund |    | 55.4     | 24  | i 10 51  | +69              | 18 26     | +60              | 25.8     | —      |
| Reykjavik     |    | 59.0     | 30  | —        | —                | —         | —                | e 34.2   | 63.8   |
| Nagasa        |    | 68.8     | 300 | —        | —                | e 20 54   | [ - 9 ]          | —        | —      |
| Dyce          |    | 70.7     | 27  | —        | —                | e 20 32   | —                | 28.6     | 42.0   |
| Edinburgh     |    | 71.4     | 29  | e 16 0   | ?PR <sub>2</sub> | i 20 48   | +5               | 30.8     | 43.9   |
| Stonyhurst    |    | 73.3     | 30  | e 11 56  | +18              | e 21 9    | +3               | 33.8     | 39.4   |
| Bidston       |    | 73.4     | 30  | 21 12    | ?S               | (21 12)   | +5               | 34.0     | 45.0   |
| Upsala        | E. | 73.8     | 16  | —        | —                | e 21 14   | +2               | e 34.8   | —      |
| Irkutsk       |    | 73.9     | 330 | e 11 43  | +2               | —         | —                | 34.8     | 44.5   |
| Helsingfors   |    | 74.8     | 13  | —        | —                | 21 23     | -1               | 29.5     | —      |
| Oxford        |    | 75.4     | 30  | e 12 2   | +11              | i 21 38   | +8               | e 31.8   | 41.9   |
| Kew           |    | 75.9     | 30  | e 11 58  | +4               | e 21 37   | +1               | 33.8     | 44.3   |
| Pulkovo       |    | 76.0     | 10  | 11 56    | +1               | i 21 37   | +0               | 31.8     | 45.6   |
| Copenhagen    |    | 76.2     | 21  | 11 37    | -19              | e 21 43   | +4               | 39.8     | 42.1   |
| Lund          |    | 76.5     | 20  | —        | —                | e 21 45   | +2               | —        | —      |
| Hamburg       |    | 77.2     | 24  | e 12 4   | +2               | i 22 0    | +9               | e 31.8   | 47.8   |
| De Bilt       |    | 77.3     | 26  | 12 7     | +4               | e 21 54   | +2               | e 32.8   | 37.2   |
| Uccle         |    | 78.1     | 28  | e 12 7   | -1               | e 21 55   | -6               | e 32.8   | 38.2   |
| Konigsberg    |    | 79.0     | 17  | e 12 24  | +11              | e 22 7    | -5               | e 33.1   | 44.8   |
| Paris         |    | 79.2     | 30  | e 12 14  | 0                | i 22 17   | +3               | 31.8     | 43.8   |
| Potsdam       |    | 79.4     | 23  | —        | —                | —         | —                | 46.8     | —      |
| Feldberg      | N. | 80.0     | 26  | e 12 32  | +13              | e 22 15   | -8               | e 32.8   | 38.6   |
| Jena          |    | 80.4     | 25  | —        | —                | e 22 21   | -7               | e 32.7   | 49.3   |
| Kucino        |    | 80.7     | 7   | e 12 39  | +16              | 22 25     | -6               | e 40.8   | 51.0   |
| Zi-ka-wei     |    | 81.1     | 306 | e 12 38  | +12              | —         | —                | —        | 57.0   |
| Strasbourg    |    | 81.2     | 27  | e 12 17  | -9               | e 22 39   | +2               | e 31.8   | 50.0   |
| Puy de Dôme   |    | 81.8     | 32  | —        | —                | —         | —                | 47.8     | —      |
| La Paz        |    | 82.1     | 121 | 12 33    | +2               | 22 57     | +10              | 40.8     | 49.2   |
| Besançon      |    | 82.1     | 30  | —        | —                | —         | —                | e 41.8   | —      |
| Neuchatel     |    | 82.3     | 28  | —        | —                | —         | —                | e 30.8   | —      |
| Ravensburg    |    | 82.4     | 27  | e 12 48? | +16              | e 16 42   | ?                | e 33.8   | —      |
| Zurich        |    | 82.5     | 28  | e 12 29  | -4               | e 22 53   | +1               | —        | —      |
| Chur          |    | 83.2     | 28  | e 12 40  | +3               | e 22 57   | -2               | e 34.2   | —      |
| Toledo        |    | 83.9     | 40  | e 12 44  | +3               | e 23 5    | -3               | e 32.9   | 48.0   |
| Moncalieri    |    | 84.3     | 29  | 12 50    | +6               | 23 12     | +1               | 34.2     | 48.6   |
|               |    | 84.3     | 29  | 12 49    | +5               | 18 10     | ?PR <sub>3</sub> | 34.1     | 49.1   |
| Graz          |    | 84.9     | 23  | e 12 53  | +6               | e 23 35   | +17              | 36.8     | 52.1   |
| Tortosa       | E. | 85.1     | 35  | —        | —                | 23 11     | -9               | e 34.8   | 52.4   |
|               | N. | 85.1     | 35  | e 17 48? | ?                | 23 41     | +21              | e 35.8   | 51.8   |
| Venice        |    | 85.4     | 26  | e 12 23  | -27              | —         | —                | —        | —      |
| Budapest      |    | 85.5     | 20  | e 12 41  | -10              | 23 3      | -22              | 34.8     | 54.8   |
| Sucre         |    | 85.8     | 121 | 12 45    | -7               | i 23 36   | +8               | 42.8     | 59.9   |
| Granada       |    | 86.2     | 40  | e 12 52  | -2               | e 23 35   | +3               | 42.0     | 44.8   |

Continued on next page.

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|               | $\Delta$ | Az.  | P.       | O-C.             | S.      | O-C.   | L.     | M.    |
|---------------|----------|------|----------|------------------|---------|--------|--------|-------|
|               | °        | °    | m. s.    | s.               | m. s.   | s.     | m.     | m.    |
| Malaga        | 86.2     | 41   | e 10 34  | ?                | e 23 0  | [- 3]  | e 30.8 | —     |
| Zagreb        | 86.2     | 24   | e 12 57  | + 3              | e 23 7  | [+ 4]  | —      | 47.8  |
| Florence      | 86.5     | 27   | e 12 18  | -38              | 24 38   | IPS    | —      | —     |
| Alicante      | 86.6     | 38   | e 13 31  | +34              | e 24 1  | +24    | e 35.4 | —     |
| Almeria       | 87.0     | 40   | 12 40    | -19              | 23 31   | -10    | 41.2   | 49.2  |
| Belgrade      | 88.3     | 21   | e 12 48? | -19              | —       | —      | —      | —     |
| Rocca di Papa | 88.8     | 27   | e 12 19  | -50              | e 23 55 | -6     | e 39.6 | 58.7  |
| Algiers       | 89.5     | 35   | e 13 9   | -4               | 24 0    | -9     | 46.8   | 49.3  |
| Pompeii E.    | 90.3     | 26   | e 12 48? | -30              | —       | —      | 33.8   | 48.8  |
| Hong Kong     | 92.1     | 30.5 | 24 11    | ?S               | (24 11) | -25    | —      | 51.5  |
| Manila        | 93.4     | 29.4 | e 20 48? | ?                | —       | —      | —      | —     |
| Tashkent      | 93.9     | 34.7 | e 13 26  | -11              | e 23 56 | [+ 5]  | 42.0   | 52.5  |
| Baku          | 96.6     | 0    | e 14 2   | +10              | 25 11   | -11    | 43.0   | 62.9  |
| Phu-Lien      | 97.7     | 30.9 | —        | —                | 23 48?  | [- 23] | —      | —     |
| Wellington    | 97.9     | 22.0 | —        | —                | —       | —      | e 48.1 | —     |
| Ksara         | 102.1    | 13   | e 13 48? | -33              | —       | —      | 47.8   | —     |
| Sydney        | 105.2    | 23.8 | 47 36    | ?                | —       | —      | 54.3   | 58.8  |
| Melbourne     | 111.6    | 23.8 | —        | —                | —       | —      | e 52.2 | 63.4  |
| Bombay        | 114.6    | 33.6 | 20 24    | ?PR <sub>1</sub> | 31 49   | ?      | 56.9   | 69.4  |
| Tananarive    | 155.8    | 6    | —        | —                | —       | —      | e 85.9 | 102.4 |

Additional readings and notes: Berkeley ePE = +2m.13s., eN = +3m.26s., eE = +3m.46s., eZ = IN = +4m.2s., IZ = +4m.40s., eN = +4m.55s., IN = +5m.1s., eN = +5m.24s., MN = +8.0m. Sitka iSR<sub>1</sub>E = +7m.11s. Tucson iPEN = +4m.35s. Saskatoon iE = (+5m.23s.), eLN = (+8.6m), all readings have been increased by 4m.; T<sub>0</sub> = (12h.36m.42s.). Florissant PR<sub>1</sub> = +7m.18s., SR<sub>1</sub> = +13m.6s. Chicago iE = +9m.54s. Honolulu T.H. ePR<sub>1</sub>N = +8m.1s., ePR<sub>1</sub>E = +8m.6s., iSR<sub>1</sub>E = +12m.48s.? Ann Arbor ePR<sub>1</sub> = +7m.42s., eSR<sub>1</sub> = +13m.42s.; T<sub>0</sub> = 12h.36m.30s. Toronto iSR<sub>1</sub>N = +14m.28s.; T<sub>0</sub> = 12h.36m.35s. Georgetown PR<sub>1</sub>Z? = (+10m.35s.), PR<sub>1</sub>Z? = (+11m.51s.), SZ? = (+15m.35s.), PSZ? = (+16m.4s.), all readings have been increased by 7m.; true S is given as iZ. Harvard ePR<sub>1</sub> = +9m.45s.; T<sub>0</sub> = 12h.36m.34s. Scoresby Sund = +13m.18s. = PR<sub>1</sub> + 68s., +22m.30s. = SR<sub>1</sub> + 42s. Nagoya reading is given for 2h. Stonyhurst PR<sub>1</sub> = +16m.16s. Bidston S = +29m.26s. = SR<sub>1</sub> - 14s. Irkutsk PS = +21m.25s., SR<sub>1</sub> = +26m.8s. Oxford iSE = +22m.31s., e = +26m.15s. Kew iSE = +21m.44s., ePSN = +22m.17s., eSR<sub>1</sub>EN = +26m.27s., LZ = +39.8m., MN = +42.7m., MZ = +46.0m. Copenhagen e = +12m.12s., SR<sub>1</sub> = +30m.48s. = SR<sub>1</sub> + 15s., MN = +46.3m., MZ = +46.8m. Hamburg MN = +49.8m. De Bilt MN = +38.9m., MZ = +44.5m. Uccle MN = +38.9m. Konigsberg eN = +22m.36s., eE = +22m.51s.; T<sub>0</sub> = 12h.36m.20s. Jena MN = +49.2m. Kucino ePR<sub>1</sub> = +15m.25s., SR<sub>1</sub> = +27m.21s. Puy de Dôme e? = +34m.48s.? La Paz SR<sub>1</sub> = +28m.28s., MN = +56.9m. Toledo MNW = +48.7m. Moncalieri (first line) L = +38.7m., (second line), L = +43.4m. Sucre SR<sub>1</sub> = +28m.32s. Zagreb e = +15m.19s., +23m.28s., +34m.54s., and +36m.57s. eNE = +28m.21s., eNW = +39m.35s. Almeria PR<sub>1</sub> = +15m.15s., MNZ = +49.2m. Rocca di Papa eE = +12m.42s., eZ = +12m.58s., eS = +24m.19s. Tashkent iPS = +25m.59s., eSR<sub>1</sub> = +31m.9s. Baku iPR<sub>1</sub> = +17m.44s., PS = +26m.24s. Wellington eLN = +41.4m., iE = +45m.46s. Tananarive other readings at +89m.35s., +91m.36s., +92m.59s., +96m.14s., and +98m.56s.

Sept. 11d. Readings also at 0h. (Ekaterinburg, La Plata, La Paz, Sucre, and near Santiago), 1h. (Tashkent), 2h. (Manila), 4h. (Taihoku), 7h. (Tashkent), 10h. (near Taconbaya), 11h. (Rio de Janeiro and Victoria), 12h. (Chicago, Toronto, and Victoria), 13h. (near Spokane, near Batavia, and Malabar), 18h. (Reykjavik, Edinburgh, Feldberg, De Bilt, Uccle, Paris, and Strasbourg), 19h. (near Batavia), 21h. (Feldberg), 22h. (Feldberg and Scoresby Sund), 23h. (Ottawa, Baku, Irkutsk, and Tashkent).

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Sept. 12d. 1h. 19m. 0s. Epicentre 31°-0S. 179°-0E. (as on 1918 Nov. 28d.).

A = -0.857, B = +0.015, C = -0.515; D = +0.017, E = +1.000;  
G = +0.515, H = -0.009, K = -0.857.

|                   | $\Delta$ | Az. | P.      | O-C.             | S.        | O-C.             | L.     | M.   |
|-------------------|----------|-----|---------|------------------|-----------|------------------|--------|------|
|                   | o        | o   | m. s.   | s.               | m. s.     | s.               | m.     | m.   |
| Wellington        | 10.8     | 197 | i 3 25  | +44              | 5 16      | +26              | —      | 6.0  |
| Suva              | 12.9     | 357 | 4 6     | 9S               | (4 6)     | -96              | i 6.9  | 11.6 |
| Riverview         | 23.6     | 256 | i 5 45  | +21              | i 9 34    | -2               | e 11.3 | 14.3 |
| Sydney            | 23.6     | 256 | 1 0     | ?                | 6 36      | ?                | ?      | 11.9 |
| Melbourne         | 28.7     | 247 | i 7 49  | +94              | i 10 51   | -21              | i 13.4 | 13.7 |
| Adelaide          | 33.9     | 256 | —       | —                | i 12 14   | -25              | 15.3   | 15.7 |
| Perth             | 53.1     | 255 | —       | —                | e 16 45   | -12              | —      | —    |
| Honolulu T.H. E.  | 56.8     | 26  | e 9 42  | -9               | i 17 18   | -26              | 23.7   | 24.5 |
| N.                | 56.8     | 26  | i 9 55  | +4               | e 17 20   | -24              | 23.5   | 24.3 |
| Batavia           | 71.5     | 276 | 10 33   | -54              | i 19 19   | -35              | —      | —    |
| Manila            | 72.0     | 301 | e 11 40 | +10              | (i 20 32) | -18              | i 20.5 | —    |
| Hong Kong         | 81.9     | 302 | 12 31   | —                | +1        | —                | 25.3   | —    |
| Phu-Lien          | 86.6     | 296 | e 13 0  | +3               | e 23 0    | [-6]             | —      | —    |
| Berkeley N.       | 88.0     | 43  | —       | —                | e 23 13   | [-2]             | —      | —    |
| Lick              | 88.0     | 43  | e 12 59 | -6               | e 23 7    | [-8]             | —      | —    |
| Tucson            | 91.7     | 53  | —       | —                | i 23 44   | [+6]             | —      | —    |
| Victoria          | 94.6     | 35  | 17 27   | ?PR <sub>1</sub> | (23 27)   | [-28]            | 23.4   | 24.2 |
| La Plata          | 95.1     | 137 | 23 18   | ?[S]             | (23 18)   | [-40]            | —      | —    |
| La Paz            | 100.0    | 118 | 16 1    | ?                | i 23 58   | [-26]            | —      | —    |
| Sucre             | 100.6    | 120 | e 17 6  | ?                | 24 0      | [-27]            | —      | —    |
| Irkutsk           | 105.6    | 322 | e 14 23 | -14              | —         | —                | e 52.0 | —    |
| Florissant        | 109.3    | 56  | e 20 0  | ?                | —         | —                | 44.0   | —    |
| Chicago N.        | 112.4    | 54  | —       | —                | i 25 38   | [+18]            | 46.5   | —    |
| Rio de Janeiro E. | 112.6    | 138 | —       | —                | (e 28 30) | +39              | e 28.5 | —    |
| Bombay            | 113.1    | 279 | 19 36   | ?PR <sub>1</sub> | —         | —                | —      | —    |
| Toronto           | 118.7    | 53  | —       | —                | e 27 29   | ?Z               | 40.4   | —    |
| Georgetown Z.     | 119.0    | 60  | e 20 25 | ?PR <sub>1</sub> | e 29 32   | +50              | e 48.4 | —    |
| Ottawa            | 121.7    | 52  | —       | —                | e 28 0    | -62              | e 48.0 | —    |
| Tashkent          | 123.9    | 300 | e 18 30 | [-33]            | 25 10     | [-46]            | e 49.0 | 65.9 |
| Baku              | 138.2    | 296 | e 19 28 | [-8]             | —         | —                | e 58.0 | —    |
| Scoresby Sund     | 138.8    | 11  | 22 30   | ?PR <sub>1</sub> | —         | —                | —      | —    |
| Kucino            | 143.2    | 323 | i 19 0? | [-45]            | —         | —                | e 64.0 | —    |
| Pulkovo           | 144.5    | 333 | i 19 43 | [-4]             | —         | —                | 60.0   | —    |
| Theodosia         | 148.4    | 307 | i 19 59 | [+6]             | —         | —                | —      | —    |
| Ksara N.          | 148.9    | 285 | 20 3    | [+9]             | —         | —                | 61.6   | —    |
| Simferopol        | 149.3    | 307 | e 19 41 | [-14]            | —         | —                | —      | —    |
| Yalta             | 149.4    | 306 | e 19 52 | [-3]             | —         | —                | —      | —    |
| Sebastopol        | 149.8    | 307 | e 19 57 | [+1]             | —         | —                | —      | —    |
| Konigsberg N.     | 151.7    | 333 | e 19 57 | [-1]             | —         | —                | —      | —    |
| Lund              | 153.4    | 342 | 23 0?   | ?PR <sub>1</sub> | —         | —                | —      | —    |
| Copenhagen        | 153.5    | 343 | e 19 59 | [-1]             | 26 18     | [-25]            | 73.0   | 77.8 |
| Edinburgh         | 154.9    | 3   | e 24 0? | ?PR <sub>1</sub> | —         | —                | —      | —    |
| Hamburg Z.        | 156.1    | 344 | e 20 6  | [+3]             | i 24 13   | ?PR <sub>1</sub> | —      | —    |
| Stonyhurst        | 157.1    | 2   | —       | —                | e 31 12   | ?Z               | —      | —    |
| Jena N.           | 158.0    | 338 | e 20 6  | [-0]             | —         | —                | —      | —    |
| Vienna            | 158.3    | 327 | 20 5    | [-1]             | 30 35     | ?Z               | —      | —    |
| De Bilt           | 158.4    | 350 | i 20 5  | [-1]             | —         | —                | —      | —    |
| Feldberg N.       | 159.5    | 342 | e 20 16 | [+9]             | —         | —                | —      | —    |
| Kew               | 159.5    | 359 | e 20 7  | [-0]             | e 26 48   | [-2]             | 52.0   | —    |
| Uccle             | 159.8    | 350 | e 20 7  | [-1]             | —         | —                | —      | —    |
| Zagreb            | 160.2    | 323 | e 20 13 | [+5]             | e 30 33   | ?Z               | —      | —    |
| Strasbourg        | 161.2    | 342 | i 20 15 | [+6]             | —         | —                | 41.0   | —    |
| Paris             | 162.0    | 353 | e 19 51 | [-18]            | —         | —                | 38.0   | —    |
| Zurich            | 162.1    | 339 | e 21 0  | [+51]            | —         | —                | —      | —    |
| Chur              | 162.2    | 336 | e 20 10 | [+1]             | —         | —                | —      | —    |
| Neuchatel         | 162.9    | 341 | e 20 10 | [+0]             | e 30 55   | ?Z               | —      | —    |
| Florence          | 164.0    | 326 | e 21 0  | [+49]            | —         | —                | —      | —    |
| Moncalieri        | 164.4    | 337 | 21 14   | [+63]            | 30 36     | ?Z               | 42.5   | —    |
| Rocca di Papa     | 164.6    | 318 | e 19 49 | [-23]            | —         | —                | —      | 34.4 |
| Tortosa N.        | 170.1    | 354 | e 21 26 | [+71]            | 31 32     | ?Z               | e 50.0 | —    |
| Algiers           | 173.3    | 331 | —       | —                | 31 45     | ?Z               | 51.0   | —    |
| Granada           | 173.5    | 19  | i 22 53 | ?                | i 33 40   | ?                | —      | —    |
| Almeria           | 174.0    | 11  | 21 19   | [+63]            | —         | —                | 51.7   | 52.0 |

Additional readings: Riverview i = +6m.51s., +6m.56s., +7m.51s., +8m.32s.,  
MN = +15.1m.; T<sub>1</sub> = 1h.19m.52s. Melbourne i = +8m.42s. Adelaide  
e = +9m.37s., i = +14m.30s. = SR<sub>1</sub> - 4s., MN = +17.8m. Perth e =  
+19m.30s. = [S] + 29s. Batavia i = +10m.55s. Hong Kong SR<sub>1</sub> =  
+22m.14s. = [S] - 22s. Berkeley eE = +23m.14s. = [S] - 1s. Tucson

Continued on next page.

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eEN = +36m.16s. La Paz iSN = +23m.55s., iSR<sub>1</sub>? = +27m.17s. = PS + 12s.  
 Sucre P = +17m.59s. = [P] + 10s. Irkutsk PR<sub>1</sub> = +18m.49s., PR<sub>2</sub> = +21m.3s., PS = +27m.31s. Florissant iE = +25m.14s. = [S] + 7s., iZ = +25m.15s. = [S] + 8s., and +25m.55s. = Z - 12s., eN = +27m.40s. = S + 18s., iZ = +33m.43s., eE = +37m.45s., iZ? = +38m.0s. Chicago iE = +25m.42s., iN = +33m.40s., SR<sub>1</sub>N? = +38m.24s., LE = +64°0m. Toronto eEN = +36m.0s. = SR<sub>1</sub> - 31s. Georgetown eZ = +22m.31s. and +32m.46s. Ottawa e = +36m.38s., eN = +39m.42s. Tashkent PR<sub>1</sub> = +19m.54s. Baku PR<sub>1</sub> = +22m.32s., PPS = +35m.1s., SR<sub>1</sub> = +42m.12s. Kucino e = +24m.0s.? i = +28m.0s.? e = +31m.0s.?. Pulkovo iPR<sub>1</sub> = +23m.5s., ScPcPcS = +29m.10s. Ksara PR<sub>1</sub>N = +22m.14s., PR<sub>1</sub>N = +25m.9s., PR<sub>1</sub>N = +28m.59s., PSN = +32m.20s., PPSN = +33m.36s., SR<sub>1</sub>N = +39m.1s. SR<sub>2</sub>N = +44m.26s., SR<sub>2</sub>N = +48m.30s.; T<sub>0</sub> = 1h.19m.47s. Konigsberg eN = +23m.56s. = PR<sub>1</sub> + 8s., and +29m.49s., eE = +29m.51s. and +33m.1s., eN = +33m.58s. Copenhagen PE = +20m.11s., PEN = +20m.38s., eNZ = +22m.42s., PR<sub>1</sub> = +23m.58s., ePR<sub>2</sub>Z = +27m.30s., ScPcPcS = +29m.42s., ScPcSP = +33m.0s.?, PPS = +36m.0s.?, SR<sub>1</sub> = +45m.0s.?, eE = +64m.0s.?. Hamburg iZ = +20m.34s. Jena iN = +20m.46s. De Bilt iZ = +20m.45s., eZ = +21m.51s., iNZ = +23m.7s., +24m.24s. = PR<sub>1</sub> - 4s., and +26m.44s. = [S] - 5s., eN = +30m.34s. Feldberg iN = +20m.49s., and +24m.30s. = PR<sub>1</sub> - 5s., eN = +22m.12s., +26m.50s. = [S] + 0s., +30m.40s., +35m.59s., and +37m.8s. Kew iPR<sub>1</sub>E = +20m.48s., iPR<sub>2</sub>Z = +24m.28s. = PR<sub>1</sub> - 7s., ePSEZ = +30m.36s. Uccle i = +20m.50s., e = +23m.7s., and +24m.31s. = PR<sub>1</sub> - 5s., i = +30m.40s., e = +35m.0s.?. Zagreb e = +23m.14s., +24m.37s. = PR<sub>1</sub> - 3s., and +30m.45s. Strasbourg i = +20m.57s., PR<sub>1</sub> = +24m.38s., PR<sub>2</sub> = +30m.47s. Zurich e = +24m.43s. = PR<sub>1</sub> - 8s., and +29m.51s. Chur e = +20m.59s. Rocca di Papa e = +20m.2s. and +25m.6s. = PR<sub>1</sub> + 2s.

Sept. 12d. Readings also at 0h. (Batavia), 2h. (near Mizusawa and Nagoya), 7h., 9h., and 14h. (Florissant), 17h. and 20h. (Bidston), 23h. (Tashkent).

**Sept. 13d. 3h. 26m. 12s. Epicentre 3°2N. 127°5E.**

(as on 1928 June 1d.).

A = -608, B = +792, C = +056; D = +792, E = +609;  
 G = -034, H = +044, K = -998.

|               | Δ       | Az. | P.      | O-C.  | S.      | O-C.             | L.     | M.   |
|---------------|---------|-----|---------|-------|---------|------------------|--------|------|
|               | m.      | s.  | m. s.   | m. s. | m. s.   | m. s.            | m.     | m.   |
| Amboina       | 6.9     | 175 | 13 45   | +120  | 15 0    | +113             | —      | —    |
| Manila        | 13.1    | 331 | e 3 25  | +11   | 17 9    | +83              | i 8-6  | 9.8  |
| Malabar       | 22.5    | 242 | 5 1     | -10   | 18 51   | -24              | 12.3   | —    |
| Taihoku       | E. 22.6 | 346 | e 6 23  | +71   | —       | —                | —      | —    |
| Batavia       | 22.7    | 246 | 14 58   | -15   | 18 53   | -26              | 12.8   | —    |
| Hong Kong     | 23.1    | 327 | 5 19    | +1    | (9 31)  | +4               | 9.5    | 11.3 |
| Phu-Lien      | 26.9    | 313 | 5 48    | -9    | (10 18) | -21              | 10.3   | 12.8 |
| Zi-ka-wei     | Z. 28.6 | 349 | 6 14    | 0     | 11 13   | +3               | —      | 18.6 |
| Nagasaki      | 29.4    | 4   | e 6 21  | -1    | e 11 34 | +10              | e 15-6 | 16.3 |
| Sumoto        | N. 31.9 | 13  | e 3 48  | ?     | —       | —                | —      | —    |
| Kobe          | 32.2    | 13  | 16 51   | +1    | e 12 4  | -7               | e 16-1 | 18.0 |
| Osaka         | 32.3    | 13  | 7 21    | +30   | (11 21) | -52              | 11.3   | —    |
| Nagoya        | 33.1    | 15  | e 6 59  | +2    | —       | —                | —      | —    |
| Perth         | 36.9    | 196 | e 6 58  | -31   | i 12 48 | -34              | 17.9   | —    |
| Mizusawa      | 38.0    | 19  | 7 42    | +4    | 13 38   | 0                | —      | —    |
| Adelaide      | 39.6    | 166 | 17 34   | -17   | i 13 26 | -34              | 17.0?  | 26.7 |
| Calcutta      | E. 42.5 | 300 | 14 20   | ?S    | (14 20) | -22              | 23.8   | —    |
| Riverview     | 43.2    | 150 | e 8 10  | -10   | i 14 31 | -20              | e 22.0 | 25.8 |
| Sydney        | 43.2    | 150 | —       | —     | 10 18   | ?PR <sub>1</sub> | 26.3   | 27.1 |
| Melbourne     | 44.1    | 160 | —       | —     | e 14 33 | -30              | i 25.2 | 28.1 |
| Colombo       | 47.6    | 276 | 8 35    | -16   | 15 20   | -29              | 24.8   | 31.1 |
| Kodalkanal    | 50.2    | 280 | 14 42   | ?     | —       | —                | 35.4   | 36.4 |
| Irkutsk       | 52.7    | 344 | 19 31   | +7    | i 16 59 | +7               | 28.8   | 32.1 |
| Bombay        | E. 55.7 | 291 | 9 45    | +1    | 17 17   | -13              | 28.1   | 32.0 |
| Wellington    | N. 61.8 | 141 | i 10 30 | +6    | i 18 45 | -1               | e 28.2 | 40.8 |
|               | E. 61.8 | 141 | —       | —     | e 18 40 | -6               | 27.2   | 39.6 |
| Tashkent      | 64.4    | 315 | 1 10 48 | +7    | i 19 22 | +4               | 30.8   | 42.4 |
| Honolulu T.H. | 74.6    | 69  | —       | —     | i 21 48 | +27              | 35.3   | 36.3 |
| Baku          | 78.5    | 311 | e 12 14 | +4    | i 22 6  | 0                | —      | 52.2 |
| Tananarive    | E. 81.6 | 250 | e 12 14 | -14   | i 22 21 | -21              | e 39.5 | 41.2 |
|               | N. 81.6 | 250 | e 12 14 | -14   | 22 23   | -19              | e 37.9 | —    |

Continued on next page.

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|                | $\Delta$ | Az. | P.       | O-C.             | S.        | O-C.   | L.     | M.   |
|----------------|----------|-----|----------|------------------|-----------|--------|--------|------|
|                | s.       | o.  | m. s.    | s.               | m. s.     | s.     | m.     | m.   |
| Kucino         | 87-1     | 326 | 13 0     | 0                | 23 38     | - 4    | 46-3   | 52-1 |
| Theodosia      | 89-2     | 316 | i 13 12  | + 1              | —         | —      | —      | —    |
| Ksara          | 89-5     | 305 | 13 10    | 3                | 23 34     | -35    | 39-7   | —    |
| Simferopol     | 90-1     | 315 | e 12 53  | -24              | —         | —      | —      | —    |
| Yalta          | 90-1     | 315 | i 13 11  | - 6              | —         | —      | —      | —    |
| Sebastopol     | 90-5     | 315 | i 13 19  | 0                | —         | —      | —      | —    |
| Pulkovo        | 90-8     | 331 | i 13 15  | - 5              | i 24 6    | -16    | 43-8   | 55-3 |
| Helsingfors    | 93-4     | 331 | —        | —                | e 26 34   | ?      | 45-7   | —    |
| Entebbe        | 95-0     | 272 | —        | —                | 22 30     | ?      | —      | 51-8 |
| Konigsberg     | E. 97-0  | 326 | —        | —                | e 24 18   | [+ 10] | —      | 60-8 |
|                | N. 97-0  | 326 | e 14 36  | +42              | e 24 20   | [+12]  | e 41-2 | 61-8 |
| Upsala         | E. 97-0  | 332 | —        | —                | e 24 13   | [+ 5]  | e 53-8 | —    |
| Budapest       | 99-9     | 320 | e 14 8   | - 2              | e 24 35   | [+12]  | e 55-8 | —    |
| Victoria       | E. 100-1 | 40  | 24 44    | ?S               | (24 44)   | [+20]  | 45-4   | 48-6 |
| Lund           | 100-7    | 330 | —        | —                | 24 42     | [+15]  | 48-8   | —    |
| Copenhagen     | 101-1    | 330 | e 14 5   | -11              | i 24 39   | [+10]  | e 49-8 | 60-9 |
| Vienna         | 101-4    | 323 | e 14 5   | -12              | 24 41     | [+10]  | —      | 71-3 |
| Graz           | 102-4    | 321 | —        | —                | —         | —      | e 52-8 | —    |
| Zagreb         | 102-4    | 319 | e 14 11  | -11              | e 24 40   | [+ 4]  | e 54-3 | —    |
| Hamburg        | 103-2    | 328 | e 14 12  | -14              | e 24 54   | [+15]  | e 47-8 | 60-8 |
| Jena           | N. 103-4 | 325 | —        | —                | —         | —      | e 48-8 | —    |
| Scoresby Sund  | 103-5    | 351 | —        | —                | 28 6      | ?PS    | 57-8   | —    |
| Pompeii        | E. 105-0 | 315 | e 24 48  | ?[S]             | (e 24 48) | [+ 1]  | —      | —    |
| Feldberg       | N. 105-5 | 325 | e 19 0   | ?PR <sub>1</sub> | e 25 1    | [+11]  | e 48-8 | 59-8 |
| Rocca di Papa  | 106-0    | 316 | e 16 24  | ?                | e 25 0    | [+ 8]  | e 63-7 | 67-6 |
| De Bilt        | 106-5    | 328 | e 14 31  | -11              | e 25 6    | [+12]  | e 52-8 | 66-5 |
| Strasbourg     | 106-6    | 322 | e 14 31  | -11              | e 25 10   | [+15]  | 41-8   | —    |
| Zurich         | 106-6    | 322 | e 14 38  | - 4              | e 25 3    | [+ 8]  | —      | —    |
| Dyce           | 107-3    | 335 | —        | —                | e 25 16   | [+18]  | 46-1   | 63-7 |
| Uccle          | 107-6    | 326 | e 18 48? | ?PR <sub>1</sub> | e 25 8    | [+ 9]  | e 43-8 | 66-7 |
| Neuchatel      | 107-8    | 322 | e 14 34  | -13              | e 26 37   | -31    | —      | —    |
| Moncalieri     | 108-1    | 319 | e 18 30  | ?PR <sub>1</sub> | 28 11     | ?PS    | 59-7   | —    |
| Edinburgh      | 108-6    | 333 | e 19 48? | ?PR <sub>1</sub> | —         | —      | 48-8   | 63-8 |
| Stonyhurst     | 109-4    | 330 | e 14 14  | -41              | e 26 0    | [+52]  | 55-8   | 67-1 |
| Paris          | 109-5    | 323 | e 15 7   | +12              | e 28 39   | ?PS    | 54-8   | 61-8 |
| Kew            | 109-7    | 328 | e 14 48? | - 8              | e 25 25   | [+16]  | 52-8   | 67-0 |
| Oxford         | 110-1    | 329 | —        | —                | —         | —      | e 52-8 | 68-3 |
| Algiers        | 114-7    | 313 | —        | —                | 26 39     | [+71]  | e 47-8 | 75-8 |
| Tortosa        | N. 114-7 | 317 | e 20 48? | ?                | —         | —      | e 47-8 | —    |
| Almeria        | 118-6    | 315 | —        | —                | —         | —      | —      | 69-0 |
| Granada        | 119-3    | 315 | i 20 26  | ?                | —         | —      | 62-8   | 69-1 |
| San Fernando   | F. 121-5 | 315 | —        | —                | —         | —      | —      | 80-3 |
| Chicago        | 124-9    | 31  | 18 48    | [-18]            | —         | —      | 57-8   | 74-8 |
| Florissant     | Z. 125-4 | 35  | e 18 48? | [-19]            | —         | —      | 60-8   | —    |
| Ottawa         | N. 127-2 | 21  | e 21 24  | ?PR <sub>1</sub> | —         | —      | e 62-8 | —    |
| Toronto        | 127-3    | 24  | e 21 58  | ?                | —         | —      | 68-8   | —    |
| Georgetown     | Z. 132-2 | 26  | 18 58    | [-25]            | —         | —      | 67-0   | 77-5 |
| La Plata       | 147-9    | 170 | 19 53    | [ - 0]           | —         | —      | 85-0   | —    |
| Rio de Janeiro | 158-3    | 204 | e 20 43  | [+37]            | —         | —      | —      | —    |
| La Paz         | 159-6    | 132 | 20 18    | [+10]            | —         | —      | —      | —    |
| Sucre          | 159-9    | 143 | i 20 14  | [+ 6]            | —         | —      | 59-8   | —    |

Additional readings and notes: Malabar  $i = +5m.35s.$ . Batavia  $IZ = +4m.56s.$ ;  $T_s = 3h.25m.54s.$ , epicentre  $1^\circ 6'N. 128^\circ 4'E.$  Phu-Lien  $MN = +14.3m.$  Perth  $ePR_1 = +8m.48s.$ ,  $eSR_1 = +14m.28s.$  Mizusawa  $PN = +7m.43s.$  Riverview  $iSR_1 = +8m.50s.$ ,  $eSR_2 = +20m.6s.$ ,  $eSR_1 = +20m.32s.$ ,  $MN = +30.2m.$ ;  $T_s = 3h.26m.8s.$  Melbourne  $i = +17m.48s.$  SR<sub>1</sub> - 24s. Honolulu T.H.  $MN = +38.8m.$  Tananarive  $eEN = +23m.15s. = PS - 11s.$ ,  $eE = +27m.27s.$  Pulkovo  $S_2P_2S = +23m.42s.$  Konigsberg  $eN = +24m.30s.$ ,  $eZ = +26m.59s. = PS + 29s.$  and  $+29m.18s.$ ,  $eN = +32m.4s. = SR_1 + 4s.$  Victoria  $SE = +34m.14s.$  Copenhagen  $ePR, EZ = +18m.21s.$ ,  $eN = +18m.50s.$ ,  $eNZ = +24m.41s.$ ,  $ePSEN = +27m.7s.$ ,  $eSR_1E = +33m.0s.$ ,  $eLN = +48.8m.$ ,  $MN = +58.7m.$ ,  $MZ = +60.6m.$  Zagreb  $e = +16m.23s.$ ,  $+24m.51s.$ , and  $+27m.24s. = PS - 7s.$  Hamburg  $MN = +59.8m.$  Feldberg  $iN = +26m.20s.$  Rocca di Papa  $ePN = +18m.52s. = PR_1 + 0s.$  and  $+19m.17s.$ ,  $ePE = +19m.20s.$  De Bilt  $eLN = +54.8m.$ ,  $MN = +59.7m.$ ,  $MZ = +67.7m.$  Dyce  $ePR_1 = +19m.29s.$ ,  $i = +28m.39s. = PS - 16s.$ ,  $eZ = +29m.49s.$  Granada  $i = +22m.4s.$ ,  $+30m.9s.$  and  $+32m.31s.$ ,  $G = +47m.0s.$  San Fernando  $MN = +81.6m.$  Chicago

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PR<sub>1</sub>N = +20m.18s., PSN = +30m.18s., SR<sub>1</sub>E? = +37m.18s., eLN = +62.3m.  
 Florissant iZ = +20m.48s.? = PR<sub>1</sub> - 12s., eZ = +22m.48s.?, +23m.48s.?,  
 +25m.48s.? = [S] - 12s., +30m.48s.? and +31m.48s.?; all readings are  
 given only to the nearest minute. Ottawa e = +22m.38s. and +39m.12s.,  
 eLE = +59.8m. Toronto eE = +22m.48s. Georgetown PR<sub>1</sub>Z =  
 +22m.13s., PR<sub>2</sub>Z = +25m.25s., iZ = +32m.40s., and +34m.8s.

Sept. 13d. 19h. 3m. 20s. Epicentre 35° 0'N. 20° 0'E. (as on 1928 June 7d.).

A = +.770, B = +.280, C = +.574; D = +.342, E = -.940;  
 G = +.539, H = +.196, K = -.819.

|               | Δ    | Az. | P.    | O-C. | S.      | O-C. | L.     | M.   |
|---------------|------|-----|-------|------|---------|------|--------|------|
|               | °    | °   | m. s. | s.   | m. s.   | s.   | m.     | m.   |
| Rocca di Papa | 8.8  | 322 | 2 38  | +25  | —       | —    | e 4.9  | 7.0  |
| Zagreb        | 11.2 | 346 | 3 15  | +28  | —       | —    | e 6.9  | —    |
| Moncalieri    | 13.7 | 321 | e 3 7 | -15  | —       | —    | e 9.2  | —    |
| Strasbourg    | 16.3 | 330 | —     | —    | —       | —    | e 7.7  | —    |
| Feldberg      | 17.4 | 335 | —     | —    | —       | —    | e 9.7  | —    |
| Uccle         | 19.4 | 329 | —     | —    | —       | —    | 10.7   | —    |
| De Bilt       | 20.1 | 333 | —     | —    | —       | —    | e 11.7 | —    |
| Copenhagen    | 21.3 | 348 | —     | —    | 8 52    | + 2  | 11.7   | —    |
| Kew           | 22.0 | 325 | —     | —    | —       | —    | e 13.3 | —    |
| Baku          | 24.2 | 68  | —     | —    | e 9 45  | - 3  | —      | —    |
| Pulkovo       | 25.6 | 12  | 5 47  | + 3  | e 10 13 | - 1  | 13.7   | 17.1 |
| Ekaterinburg  | 34.9 | 39  | e 7 7 | - 5  | —       | —    | 13.2   | —    |
| Tashkent      | 38.8 | 66  | —     | —    | —       | —    | e 17.7 | 29.6 |

Additional readings: Rocca di Papa eZ = +1m.36s., eN = +2m.55s. Zagreb  
 eNW = +6m.17s., eNE = +6m.28s. Ekaterinburg e = +14m.45s. =  
 SR<sub>1</sub> - 11s.

Sept. 13d. Readings also at 2h. (Wellington), 4h. (near Wellington), 7h. (Apia),  
 8h. (Malabar), 10h. (Manila), 12h. (Ekaterinburg and near Tashkent),  
 19h. (Mizusawa), 20h. (Ekaterinburg and Tashkent), 21h. (Bombay,  
 Perth, Tashkent, and Ekaterinburg), 22h. (Baku, Copenhagen, Feldberg,  
 and Pulkovo).

Sept. 14d. 8h. 1m. 52s. Epicentre 22° 3'N. 46° 4'W.

A = +.538, B = -.670, C = +.379; D = -.724, E = -.690;  
 G = +.262, H = -.275, K = -.925.

|              | Δ    | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|--------------|------|-----|---------|------|---------|------|--------|------|
|              | °    | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| Ottawa       | 33.2 | 321 | —       | —    | e 12 32 | + 5  | e 14.1 | —    |
| Toronto      | 34.6 | 317 | —       | —    | 12 38   | - 11 | —      | —    |
| San Fernando | 37.5 | 60  | —       | —    | —       | —    | —      | 21.9 |
| Chicago      | 39.5 | 310 | —       | —    | e 12 48 | - 71 | 17.8   | —    |
| Granada      | 39.6 | 60  | 1 7 39  | - 12 | 13 46   | - 14 | 18.1   | 21.8 |
| Almeria      | 40.6 | 60  | 7 43    | - 17 | —       | —    | 25.8   | 29.7 |
| Florissant   | 40.8 | 305 | 1 8 8   | + 7  | i 14 16 | - 2  | e 20.1 | —    |
| La Paz       | 44.2 | 212 | 8 26    | - 1  | —       | —    | —      | —    |
| Kew          | 45.9 | 40  | e 8 31  | - 8  | e 15 14 | - 13 | 20.1   | 22.1 |
| Edinburgh    | 46.2 | 33  | —       | —    | —       | —    | e 19.1 | —    |
| Paris        | 46.7 | 44  | 1 8 38  | - 7  | —       | —    | 21.1   | 22.1 |
| Uccle        | 48.4 | 41  | e 8 50  | - 6  | —       | —    | —      | —    |
| De Bilt      | 49.2 | 40  | —       | —    | —       | —    | e 22.1 | —    |
| Moncalieri   | 49.3 | 50  | e 7 31  | - 91 | 14 32   | - 98 | 23.5   | —    |
| Strasbourg   | 50.0 | 45  | e 9 1   | - 6  | e 16 11 | - 8  | 23.1   | —    |
| Feldberg     | 50.8 | 44  | —       | —    | —       | —    | e 20.1 | —    |
| Copenhagen   | 54.6 | 37  | 9 38    | + 1  | 17 16   | 0    | e 25.1 | —    |
| Zagreb       | 55.2 | 49  | e 9 43  | + 3  | e 17 21 | - 3  | —      | —    |
| Pulkovo      | 64.2 | 34  | 10 46   | + 7  | 19 24   | + 9  | 30.1   | 35.8 |
| Victoria     | 65.0 | 315 | —       | —    | —       | —    | 35.2   | 36.8 |
| Kucino       | 68.7 | 38  | 11 17   | + 8  | 20 11   | + 1  | 32.7   | 37.1 |
| Ekaterinburg | 80.3 | 33  | i 12 23 | + 2  | 22 31   | + 4  | 33.1   | 39.8 |
| Baku         | 80.3 | 50  | e 12 25 | + 4  | e 22 33 | + 6  | e 37.1 | —    |
| Tashkent     | 92.9 | 44  | i 13 31 | + 9  | 24 35   | - 9  | e 41.1 | 53.4 |

Additional readings: San Fernando MN = +21.5m. Chicago SN1 =  
 +12m.56s., SR<sub>1</sub>N? = +15m.44s., eLN = +19.9m. Granada iP = +7m.41s.,  
 PR<sub>1</sub> = +9m.11s. Florissant iE = +10m.0s. and +17m.45s. Kew  
 LZ = +21.2m. Copenhagen eN = +23m.8s. = SR<sub>1</sub> - 4s. Tashkent  
 PR<sub>1</sub> = +17m.17s., S<sub>0</sub>P<sub>0</sub>S = +23m.58s. = [S] + 13s.

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Sept. 14d. 21h. 10m. 58s. (i) } Epicentre 12°·3N. 121°·0E. (as on 1928 June 15d.).  
 21h. 14m. 18s. (ii) }

A = -·503, B = +·837, C = +·213; D = +·857, E = +·515;  
 G = -·110, H = +·183, K = -·977.

|                | $\Delta$ | Az. | P.      | O-C. | S.      | O-C. | L.     | M.   |
|----------------|----------|-----|---------|------|---------|------|--------|------|
|                | °        | °   | m. s.   | s.   | m. s.   | s.   | m.     | m.   |
| I Manila       | 2·3      | 0   | i 0 37  | + 1  | (10 55) | - 8  | i 0·9  | —    |
| II             | 2·3      | 0   | i 0 36  | 0    | (10 53) | -10  | i 0·9  | —    |
| I Irkutsk      | 42·2     | 347 | e 7 59  | -13  | e 13 19 | -79  | —      | —    |
| II             | 42·2     | 347 | e 7 57  | -15  | e 13 59 | -39  | 22·7   | —    |
| I Tashkent     | 53·5     | 315 | —       | —    | i 16 58 | - 5  | 29·0   | 37·7 |
| II             | 53·5     | 315 | (19 31) | + 1  | —       | —    | —      | —    |
| I Ekaterinburg | 63·7     | 329 | e 10 40 | + 4  | e 19 6  | - 3  | 32·0   | —    |
| II             | 63·7     | 329 | e 10 41 | + 5  | e 19 7  | - 2  | —      | —    |
| II Baku        | 67·7     | 310 | —       | —    | —       | —    | e 34·7 | —    |
| I Pulkovo      | 79·7     | 330 | i 12 18 | + 1  | —       | —    | —      | —    |
| II             | 79·7     | 330 | e 12 21 | + 4  | —       | —    | 43·7   | —    |

Additional readings and notes: P for shock I is the only reading given by Irkutsk with a definite phase. Tashkent I e = +8m.35s. and +10m.11s., P for shock II is given as iPR<sub>1</sub>.

Sept. 14d. Readings also at 0h. (Baku, Tashkent, near Manila, and Taihoku), 1h. (Ekaterinburg, Copenhagen, and Feldberg), 2h. (Melbourne and Wellington), 3h. (Tashkent), 4h. (Apia), 5h. (Tashkent, Ekaterinburg, and near Bombay), 6h. (Baku, Copenhagen, and Feldberg), 7h. (Yalta, Georgetown, and near Tacubaya), 11h. (Mizusawa), 15h. (Ottawa and Tucson), 18h. (Suva), 23h. (Feldberg).

Sept. 15d. 9h. 32m. 24s. Epicentre 5°·0S. 80°·0W. (as on 1923 Sept. 9d.).

A = +·173, B = -·981, C = -·087; D = -·985, E = -·174;  
 G = -·015, H = +·086, K = -·996.

|                | $\Delta$ | Az. | P.       | O-C.  | S.      | O-C.             | L.     | M.     |
|----------------|----------|-----|----------|-------|---------|------------------|--------|--------|
|                | °        | °   | m. s.    | s.    | m. s.   | s.               | m.     | m.     |
| La Paz         | 16·4     | 136 | i 3 55   | - 2   | i 7 6   | + 2              | 8·1    | 11·1   |
| Sucre          | 20·1     | 135 | i 4 43   | + 1   | i 8 21  | - 4              | 10·0   | 13·5   |
| Rio de Janeiro | 39·8     | 120 | (e 8 24) | +31   | (13 56) | - 7              | (19·1) | (20·3) |
| Granada        | 82·3     | 50  | i 12 35  | + 3   | —       | —                | 44·6   | 49·6   |
| Copenhagen     | 95·5     | 34  | —        | —     | 23 36?  | [-24]            | 51·6   | —      |
| Ekaterinburg   | 119·6    | 24  | —        | —     | e 40 13 | ?SR <sub>1</sub> | 52·6   | —      |
| Baku           | 122·9    | 43  | —        | —     | —       | —                | 64·6   | —      |
| Tashkent       | 134·5    | 33  | i 19 41  | [+12] | —       | —                | e 63·6 | 77·3   |

Additional readings and note: Rio de Janeiro ePE = (+8m.41s.), SN = (+14m.6s.); all readings have been diminished by 5m. Tashkent e = +20m.8s. and +23m.59s. =  $\Sigma$ +18s.

Sept. 15d. Readings also at 0h. (near Sumoto), 3h. (near Manila), 4h. (Mizusawa, Batavia, near Malabar, near Chur, Neuchatel, and Zurich), 11h. (near Sumoto), 12h. (Ekaterinburg and Tashkent), 19h. (Tanarive), 20h. (near Mizusawa),

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Sept. 16d. 2h. 58m. 6s. Epicentre 39°·3N. 18°·0E. (as on 1915 Aug. 11d.).

A = +·736, B = +·239, C = +·633; D = +·309, E = -·951;  
G = +·602, H = +·196, K = -·774.

|               |    | $\Delta$ | Az. | P.      | O-C. | S.     | O-C. | L.      | M.  |
|---------------|----|----------|-----|---------|------|--------|------|---------|-----|
|               |    | °        | °   | m. s.   | s.   | m. s.  | s.   | m.      | m.  |
| Pompeii       | E. | 3·1      | 301 | e 0 48  | - 1  | e 1 18 | - 8  | —       | 1·9 |
| Rocca di Papa |    | 4·7      | 303 | e 1 13  | 0    | e 2 16 | + 7  | —       | 2·7 |
| Zagreb        |    | 6·7      | 348 | 1 37    | - 5  | 2 57   | - 5  | 3·2     | 3·7 |
| Florence      |    | 6·8      | 314 | e-0 6   | ?    | —      | —    | —       | —   |
| Budapest      |    | 8·2      | 5   | e 4 35  | ?L   | —      | —    | (e 4·6) | —   |
| Moncalieri    |    | 9·5      | 310 | e 2 33  | +10  | —      | —    | 6·6     | —   |
| Chur          |    | 9·8      | 324 | i 2 16  | -11  | e 3 49 | -24  | —       | —   |
| Zurich        |    | 10·6     | 323 | e 2 37  | - 1  | —      | —    | —       | —   |
| Neuchatel     |    | 11·1     | 317 | e 2 33  | -13  | —      | —    | —       | —   |
| Strasbourg    |    | 11·8     | 325 | e 3 54? | +58  | —      | —    | e 5·9   | —   |
| Feldberg      | N. | 12·8     | 331 | —       | —    | —      | —    | e 6·9   | —   |
| Uccle         |    | 15·0     | 325 | —       | —    | —      | —    | 7·9     | —   |
| De Bilt       |    | 15·6     | 329 | —       | —    | —      | —    | e 8·9   | —   |
| Copenhagen    | E. | 16·8     | 349 | —       | —    | —      | —    | e 7·9   | —   |
| Kew           |    | 17·6     | 320 | —       | —    | —      | —    | e 9·9   | —   |
| Pulkovo       |    | 21·9     | 17  | e 4 48  | -16  | —      | —    | —       | —   |
| Baku          |    | 24·4     | 77  | —       | —    | —      | —    | e 16·9  | —   |
| Ekaterinburg  |    | 32·7     | 43  | —       | —    | —      | —    | 15·4    | —   |

Additional readings: Rocca di Papa i = +1m.20s., PR<sub>i</sub> = +1m.40s., also +1m.57s. Zagreb eNE = +1m.43s., +2m.10s., and +2m.40s.

Sept. 16d. Readings also at 3h. (La Paz), 4h. (Entebbe (2) ), 5h. (Entebbe and Taihoku), 7h. (near Tananarive), 8h. (near Tacubaya), 9h. (near La Paz, Sucre, and near Malabar), 10h. (Taihoku), 14h. (La Paz), 18h. (Hong Kong), 20h. (Hong Kong and near Sumoto), 22h. (La Paz).

Sept. 17d. Readings at 0h. (Taihoku), 1h. (near Lick), 2h. (Sebastopol and Yalta), 7h. (Simferopol and Yalta), 9h. (Ekaterinburg and Tashkent).

Sept. 18d. 8h. 7m. 50s. Epicentre 32°·5N. 53°·0E.

A = +·508, B = +·674, C = +·537; D = +·799, E = -·602;  
G = +·323, H = +·429, K = -·843.

|              |    | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.     | M.   |
|--------------|----|----------|-----|--------|------|--------|------|--------|------|
|              |    | °        | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.   |
| Baku         |    | 8·3      | 343 | —      | —    | e 3 37 | - 8  | e 4·8  | —    |
| Ksara        | E. | 14·4     | 280 | e 3 34 | + 2  | e 6 21 | + 3  | 7·6    | —    |
| Tashkent     |    | 15·7     | 52  | 3 43   | - 5  | e 7 23 | +35  | e 10·2 | 14·2 |
| Ekaterinburg |    | 24·9     | 10  | —      | —    | e 9 58 | - 3  | 14·7   | —    |
| Irkutsk      |    | 41·5     | 46  | —      | —    | —      | —    | e 22·7 | —    |

Additional readings: Tashkent e = +8m.18s., i = +10m.4s. Irkutsk eL = +27·2m.

Sept. 18d. 17h. 19m. 15s. Epicentre 0°·4S. 20°·W.

(as on 1921 April 27d.).

A = +·940, B = -·342, C = -·007; D = -·342, E = -·940;  
G = -·007, H = +·002, K = -1·000.

|                |  | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|----------------|--|----------|-----|--------|------|---------|------|--------|------|
|                |  | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Rio de Janeiro |  | 31·8     | 225 | —      | —    | —       | —    | e 13·4 | 24·1 |
| San Fernando   |  | 39·0     | 18  | 7 26   | -20  | i 13 48 | - 4  | 21·6   | 27·0 |
| Malaga         |  | 39·8     | 20  | e 7 36 | -17  | e 15 48 | +105 | 20·8   | 29·4 |
| Granada        |  | 40·5     | 20  | 1 7 42 | -17  | e 14 13 | - 1  | 18·7   | 27·4 |
| Almeria        |  | 40·7     | 22  | e 7 41 | -20  | 14 17   | 0    | 20·8   | 25·8 |
| Algiers        |  | 42·5     | 27  | e 8 6  | - 9  | 14 48   | + 6  | 20·8   | 25·8 |

Continued on next page.



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|               | $\Delta$ | Az. | P.       | O-C.             | S.       | O-C.             | L.     | M.   |
|---------------|----------|-----|----------|------------------|----------|------------------|--------|------|
|               | °        | °   | m. s.    | s.               | m. s.    | s.               | m.     | m.   |
| Alicante      | 42.7     | 23  | e 8 18   | + 2              | e 14 54  | +10              | e 17.9 | 28.3 |
| Toledo        | 42.8     | 19  | e 7 59   | -18              | i 14 45  | 0                | e 20.6 | 31.0 |
| Tortosa       | 45.1     | 22  | e 8 32   | - 2              | e 15 18  | + 2              | e 19.9 | 28.6 |
| Barcelona     | 46.0     | 23  | e 9 0    | +20              | e 15 38  | +10              | e 22.9 | 28.0 |
| Sucre         | 48.1     | 245 | e 8 45   | -10              | 15 41    | -14              | e 22.8 | 29.2 |
| Cape Town     | 49.1     | 137 | —        | —                | e 16 3   | - 4              | —      | 25.4 |
| La Paz        | 50.1     | 249 | 9 7      | - 1              | 16 17    | —                | 23.8   | 30.0 |
| Puy de Dôme   | 50.4     | 20  | i 8 12   | -57              | i 16 45  | +21              | 25.8   | —    |
| Grenoble      | 51.0     | 24  | e 8 45?  | -28              | e 16 45? | +14              | 21.8   | —    |
| Rocca di Papa | 51.5     | 31  | e 9 10   | - 7              | i 16 44  | + 6              | i 28.6 | 41.2 |
| Moncalieri    | 51.6     | 25  | e 9 23   | + 6              | i 16 50  | +11              | e 22.9 | 31.2 |
| Naples        | 51.6     | 33  | e 9 16   | - 1              | e 17 15  | +36              | 26.8   | 35.8 |
| Pompeii       | 51.7     | 33  | e 9 55   | +37              | 18 45    | [ - 4]           | 27.8   | 35.8 |
| Florence      | 52.3     | 29  | e 9 45   | +23              | 17 0     | +12              | 26.8   | 29.0 |
| Entebbe       | 52.5     | 89  | e 8 45?  | -38              | —        | —                | —      | 30.8 |
| Besançon      | 52.8     | 24  | e 9 39   | +14              | e 17 5   | +11              | 24.8   | —    |
| Paris         | 52.9     | 18  | e 9 38   | +13              | i 17 4   | + 9              | 25.8   | 25.8 |
| Neuchatel     | 52.9     | 24  | e 9 18   | - 7              | e 16 53  | - 2              | —      | —    |
| Chur          | 53.8     | 24  | e 9 32   | 0                | e 17 11  | + 5              | —      | —    |
| Zurich        | 53.9     | 24  | e 9 24   | - 8              | e 17 17  | + 9              | —      | —    |
| Venice        | 54.0     | 29  | e 9 38   | + 5              | e 15 10? | ?                | 31.8   | —    |
| Kew           | 54.5     | 15  | e 9 36   | 0                | e 17 29  | +14              | e 26.8 | 37.3 |
| Oxford        | 54.5     | 15  | —        | —                | i 17 25  | +10              | e 22.8 | 38.0 |
| Strasbourg    | 54.5     | 23  | e 9 29   | - 7              | e 17 24  | + 9              | 24.8   | 32.8 |
| Ravensburg    | 54.6     | 25  | e 9 55   | +18              | e 12 31  | ?PR <sub>1</sub> | e 16.4 | —    |
| Uocle         | 55.2     | 18  | e 9 57   | +17              | e 17 22  | - 2              | e 23.8 | 24.8 |
| Hohenheim     | 55.3     | 23  | e 10 3   | +22              | e 12 51  | ?PR <sub>2</sub> | e 29.8 | —    |
| Zagreb        | 55.3     | 30  | e 9 47   | + 6              | e 17 41  | +16              | e 32.3 | 41.2 |
| Feldberg      | 56.1     | 22  | e 10 3   | +16              | e 17 51  | +16              | e 25.0 | 37.2 |
| Stonyhurst    | 56.2     | 12  | —        | —                | —        | —                | —      | 38.8 |
| De Bilt       | 56.6     | 18  | e 10 7   | +17              | e 17 58  | +17              | e 23.8 | 25.7 |
| Graz          | 56.7     | 29  | e 10 11  | +21              | e 17 53  | +11              | 24.8   | 33.4 |
| Helwan        | 57.4     | 53  | e 9 55   | 0                | 18 8     | +17              | —      | 37.6 |
| Belgrade      | 57.7     | 35  | e 8 45?  | -72              | —        | —                | —      | —    |
| Vienna        | 57.9     | 28  | e 9 53   | - 5              | 18 7     | + 9              | e 28.8 | 40.8 |
| Jena          | 57.9     | 24  | e 10 8   | +10              | e 18 16  | +18              | e 25.0 | 30.2 |
| Edinburgh     | 57.9     | 11  | —        | —                | i 18 25  | +27              | 24.8   | 41.1 |
| Budapest      | 58.7     | 30  | e 10 15  | +12              | 18 22    | +15              | 27.8   | 39.2 |
| Dyce          | 59.4     | 11  | e 10 37  | +28              | 18 8     | + 8              | 25.0   | 44.6 |
| Hamburg       | 59.5     | 20  | e 10 4   | - 5              | —        | —                | e 23.8 | 37.8 |
| Potsdam       | 59.6     | 24  | e 10 46  | +37              | —        | —                | e 24.6 | 37.9 |
| Copenhagen    | 62.0     | 20  | e 10 46  | +21              | 19 5     | +17              | e 27.8 | 37.4 |
| Lund          | 62.3     | 20  | e 10 44  | +17              | 19 12    | +20              | —      | —    |
| Ksar          | 62.5     | 51  | e 10 22  | - 7              | 19 5     | +10              | 29.5   | 35.5 |
| Konigsberg    | 64.4     | 25  | —        | —                | —        | —                | e 26.0 | 29.8 |
| Georgetown    | 65.3     | 314 | e 13 45? | ?PR <sub>1</sub> | e 20 54  | [ +19]           | e 28.6 | —    |
| Yalta         | 65.7     | 40  | e 11 45  | +56              | —        | —                | —      | —    |
| Simferopol    | 65.8     | 40  | e 11 55  | +65              | —        | —                | —      | —    |
| Theodosia     | 66.5     | 39  | i 11 15  | +20              | —        | —                | —      | —    |
| Upsala        | 66.9     | 20  | —        | —                | —        | —                | e 27.8 | 46.6 |
| Ottawa        | 67.0     | 321 | e 13 27  | ?                | e 19 57  | + 7              | e 26.8 | —    |
| Tananarive    | 68.7     | 110 | —        | —                | e 20 31  | +21              | 32.8   | 35.5 |
|               | 68.7     | 110 | —        | —                | e 20 29  | +19              | 33.6   | 36.2 |
| Toronto       | 68.7     | 318 | —        | —                | e 20 15  | + 5              | 27.8   | —    |
| Pulkovo       | 71.6     | 25  | e 11 35  | + 8              | e 20 46  | + 1              | 30.8   | 37.4 |
| Kucino        | 72.9     | 30  | e 11 45  | +10              | e 21 15  | +14              | 34.4   | 49.4 |
| Chicago       | 73.8     | 315 | —        | —                | 21 27    | +15              | 35.2   | —    |
| Baku          | 78.0     | 48  | e 11 47  | -20              | e 21 57  | - 3              | 39.2   | 50.8 |
| Ekaterinburg  | 85.3     | 34  | —        | —                | 23 12    | -10              | 38.8   | 40.8 |
| Tashkent      | 89.7     | 49  | —        | —                | 1 24 3   | - 8              | e 38.2 | 57.4 |
| Bombay        | 92.8     | 71  | 24 39    | ?S               | (24 39)  | - 4              | 40.4   | 40.6 |
| Dehra Dun     | 97.1     | 60  | 37 0     | ?                | 44 36    | ?                | 50.7   | 57.1 |
| Kodakanal     | 97.4     | 80  | 41 15    | ?                | —        | —                | 53.2   | 55.6 |
| Hyderabad     | 98.1     | 72  | —        | —                | —        | —                | —      | 57.2 |
| Victoria      | 99.2     | 319 | 24 51    | ?S               | (24 51)  | [ +31]           | 46.8   | 53.8 |
|               | 99.2     | 319 | 25 41    | ?S               | (25 41)  | - 7              | 40.8   | —    |
| Colombo       | 99.8     | 83  | 16 6     | ?                | —        | —                | —      | 54.0 |
| Irkutsk       | 110.5    | 33  | —        | —                | —        | —                | e 52.8 | 71.6 |
| Phu-Lien      | 124.0    | 66  | —        | —                | —        | —                | —      | 93.8 |
| Zi-ka-wei     | 132.3    | 46  | e 22 2   | ?PR <sub>1</sub> | 34 34    | ?                | 70.2   | 78.7 |
| Wellington    | 136.2    | 195 | —        | —                | —        | —                | e 80.8 | —    |
| Manila        | 138.9    | 68  | e 23 56  | ?                | —        | —                | e 75.8 | 79.2 |

For Notes see next page.

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NOTES TO SEPT. 18d. 17h. 19m. 15s.

Additional readings : Rio de Janeiro MN = +24.4m. San Fernando MN = +26.6m. Granada 1 = +11m.57s. and +17m.7s. = SR<sub>1</sub> + 11s. Almeria PR<sub>1</sub> = +9m.32s., PR<sub>2</sub> = +11m.54s., MN = +28.3m. Algiers PR<sub>1</sub> = +9m.57s., MN = +29.8m. Alicante MN = +26.2m. Toledo INW = +17m.39s. = SR<sub>1</sub> - 17s., MNW = +30.0m. Tortosa SE = +15m.23s., ME = +30.8m. Barcelona MN = +30.3m. Sucre eP? = +8m.18s. La Paz SR<sub>1</sub> = +19m.45s., L = +24.8m., MN = +29.3m. Rocca di Papa eP = +9m.11s., PE = +9m.30s., PN = +9m.33s., eSN = +16m.22s., iS = +16m.55s. Moncalieri MN = +30.8m. Paris MN = +33.8m. Kew iSN = +17m.25s., eSR<sub>1</sub>N = +23m.25s. = SR<sub>2</sub> + 15s., eSR<sub>2</sub>NZ = +26m.21s., MZ = +37.4m., MN = +37.5m. Strasbourg ePR<sub>2</sub> = +13m.8s., ePS = +17m.51s., eSR<sub>1</sub> = +21m.14s., eSR<sub>2</sub> = +23m.27s., eSR<sub>2</sub> = +24m.11s., MZ = +35.8m., MN = +36.1m. Uccle e = +11m.57s. = PR<sub>1</sub> - 11s., i = +17m.36s., MN = +24.7m. Zagreb i = +10m.8s., e = +11m.31s. Feldberg ePR<sub>1</sub>N = +13m.16s. = PR<sub>2</sub> + 1s., eN = +21m.21s., ME = +37.4m. De Bilt MZ = +39.3m. Graz MN = +37.9m. Vienna PR<sub>2</sub> = +13m.32s., PS = +18m.15s., MN = +35.8m. Jena ePZ = +10m.11s., iZ = +10m.29s., eN = +13m.59s. = PR<sub>2</sub> - 12s., and +22m.4s. = SR<sub>1</sub> - 28s., eLN = +25.0m., MN = +29.6m., MZ = +35.6m. Budapest MN = +34.8m. Hamburg MZ = +39.6m., MN = +41.0m. Potsdam MN = +43.3m. Copenhagen eEZ = +11m.52s., ePR<sub>2</sub> = +14m.39s., iE = +19m.8s., eE = +21m.49s., eSR<sub>1</sub>NZ = +22m.45s.?, SR<sub>2</sub> = +25m.45s., eLZ = +32.8m., MNZ = +46.0m. Lund SR<sub>2</sub> = +26m.3s. Konigsberg eN = +27m.3s. Tananarive E = +21m.4s. = [S] + 1s., +24m.9s., +25m.7s., +26m.26s., +27m.43s., +28m.10s., and +30m.49s., N = +22m.16s., +28m.6s., +30m.7s., and +30m.55s. Chicago SR<sub>1</sub>E = +31m.3s. = SR<sub>2</sub> - 17s. Baku e = +13m.44s. Ekaterinburg ePR<sub>1</sub> = +16m.32s., PS = +24m.14s., SR<sub>1</sub> = +28m.28s. Tashkent iSR<sub>1</sub> = +30m.13s., iSR<sub>2</sub> = +33m.46s. Bombay S = +31m.17s. = SR<sub>1</sub> + 11s. Victoria SE = +32m.31s. = SR<sub>1</sub> + 3s. Irkutsk PR<sub>1</sub> = +19m.12s., PS = +29m.1s., SR<sub>1</sub> = +35m.3s.

Sept. 18d. 19h. 52m. 27s. Epicentre 13°-5N. 52°-0E.

A = +.599, B = +.766, C = +.233; D = +.788, E = -.616; G = +.144, H = +.184, K = -.972.

|               | Δ    | Az. | P.      | O-C.             | S.      | O-C.             | L.     | M.   |
|---------------|------|-----|---------|------------------|---------|------------------|--------|------|
|               | °    | °   | m. s.   | s.               | m. s.   | s.               | m.     | m.   |
| Bombay        | 20.8 | 72  | 4 57    | + 6              | 8 57    | +17              | 11.4   | 11.5 |
| Entebbe       | 23.5 | 237 | 5 26    | + 3              | 9 44    | + 9              | 12.6   | 16.9 |
| Ksara         | 25.1 | 327 | 5 34    | - 5              | 10 16   | +11              | 13.3   | 15.6 |
| Kodalkanal    | 25.1 | 95  | 10 27   | ?S               | (10 27) | +22              | 13.6   | 15.6 |
| Helwan        | 25.2 | 314 | e 5 33  | - 7              | 10 8    | + 1              | —      | 14.6 |
| Hyderabad     | 25.8 | 78  | 5 45    | - 1              | 10 15   | - 3              | 13.0   | 14.8 |
| Baku          | 27.0 | 357 | i 5 53  | - 5              | i 10 49 | + 8              | 14.0   | —    |
| Colombo       | 28.2 | 101 | 6 9     | - 1              | 13 4    | ?                | 17.2   | 18.3 |
| Dehra Dun     | 29.3 | 51  | 6 42    | +21              | (10 54) | -28              | 10.9   | 17.9 |
| Tashkent      | 31.6 | 26  | i 6 36  | - 7              | i 11 43 | -18              | —      | 21.4 |
| Tananarive    | 32.7 | 189 | e 6 43  | -11              | 11 55   | -24              | 15.7   | 22.4 |
| Yalta         | 34.5 | 339 | e 7 33  | +24              | —       | —                | —      | —    |
| Theodosia     | 34.5 | 340 | e 7 2   | - 7              | —       | —                | —      | —    |
| Simferopol    | 34.9 | 339 | e 7 1   | -11              | —       | —                | —      | —    |
| Sebastopol    | 34.9 | 338 | i 7 25  | +13              | —       | —                | —      | —    |
| Calcutta      | 35.6 | 70  | 8 15    | +57              | —       | —                | 19.2   | —    |
| Belgrade      | 41.2 | 326 | e 8 33? | +28              | —       | —                | —      | —    |
| Pompeii       | 42.5 | 319 | e 9 53  | ?PR <sub>1</sub> | —       | —                | —      | —    |
| Naples        | 42.8 | 319 | e 8 24  | + 7              | —       | —                | —      | 15.0 |
| Budapest      | 43.6 | 329 | 8 16    | - 7              | e 18 3  | ?SR <sub>2</sub> | e 21.0 | —    |
| Kucino        | 43.7 | 350 | e 8 9   | -15              | e 14 45 | -13              | 22.6   | 29.2 |
| Ekaterinburg  | 43.9 | 6   | 18 15   | -10              | 1 14 57 | - 4              | 19.6   | 29.2 |
| Rocca di Papa | 44.2 | 318 | 8 18    | - 9              | —       | —                | 29.5   | 33.8 |
| Zagreb        | 44.3 | 325 | 8 18    | -10              | 14 43   | -23              | e 22.8 | —    |
| Graz          | 45.3 | 326 | e 8 37  | + 2              | e 15 21 | + 2              | 22.6   | —    |
| Vienna        | 45.5 | 329 | i 8 28  | - 9              | 15 28   | + 7              | —      | —    |
| Florence      | 46.1 | 320 | e 6 3   | ?                | 14 33   | -56              | 25.6   | 29.7 |
| Venice        | 46.2 | 324 | e 9 11  | +30              | 14 45   | -46              | —      | —    |
| Konigsberg    | 48.0 | 337 | —       | —                | e 15 51 | - 3              | e 25.8 | 28.6 |
| Ohur          | 48.6 | 323 | e 8 52  | - 6              | —       | —                | —      | —    |
| Moncalieri    | 48.9 | 320 | 9 3     | + 4              | 15 56   | - 9              | 25.2   | 29.6 |
| Pulkovo       | 49.0 | 347 | i 8 53  | - 7              | 15 59   | - 7              | 23.6   | 32.2 |
| Ravensburg    | 49.1 | 324 | e 8 58  | - 3              | e 15 57 | -10              | e 33.6 | —    |

Continued on next page.

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|                |    | $\Delta$ | Az. | P.      | O-C.             | S.       | O-C.  | L.     | M.   |
|----------------|----|----------|-----|---------|------------------|----------|-------|--------|------|
|                |    | °        | °   | m. s.   | s.               | m. s.    | s.    | m.     | m.   |
| Algiers        |    | 49.4     | 309 | 9 1     | - 2              | 16 2     | - 9   | e 23.6 | 27.6 |
| Zurich         |    | 49.5     | 323 | e 8 59  | - 5              | -        | -     | -      | -    |
| Jena           | E. | 49.6     | 328 | e 11 3  | ?PR <sub>1</sub> | e 16 3   | - 1   | e 25.0 | 34.8 |
|                | N. | 49.6     | 328 | e 11 6  | ?PR <sub>1</sub> | e 16 11  | - 3   | e 25.0 | 32.0 |
| Potsdam        |    | 49.7     | 330 | e 8 51  | -14              | -        | -     | -      | 37.6 |
| Hohenheim      |    | 49.7     | 325 | -       | -                | -        | -     | e 40.6 | -    |
| Neuchatel      |    | 50.3     | 322 | 19 4    | - 5              | i 17 12  | +49   | -      | -    |
| Strasbourg     |    | 50.5     | 324 | 9 7     | - 3              | e 16 30  | + 5   | 27.6   | -    |
| Helsingfors    |    | 50.7     | 345 | e 9 11  | 0                | e 16 33? | + 6   | 28.6   | -    |
| Besançon       |    | 50.9     | 321 | e 9 10  | - 2              | e 16 23  | - 7   | e 27.6 | -    |
| Feldberg       | N. | 50.9     | 325 | e 9 14  | + 2              | e 16 25  | - 5   | e 26.0 | 30.4 |
| Lund           |    | 51.7     | 335 | -       | -                | 16 39    | - 1   | 25.6   | -    |
| Hamburg        |    | 51.9     | 330 | e 9 21  | + 2              | e 16 33? | -10   | e 26.6 | 37.6 |
| Copenhagen     |    | 52.0     | 335 | e 9 18  | - 2              | i 16 50  | + 6   | e 26.6 | 34.6 |
| Tortosa        |    | 52.4     | 313 | e 9 18  | - 4              | 16 46    | - 3   | 21.9   | 36.3 |
| Alicante       |    | 52.5     | 309 | e 9 26  | + 3              | e 16 54  | + 4   | e 22.1 | 38.0 |
| Phu-Lien       |    | 52.5     | 76  | e 9 26  | + 3              | e 16 38  | -12   | 23.6   | -    |
| Upsala         | E. | 52.8     | 340 | -       | -                | e 16 33? | -21   | -      | -    |
| Uccle          |    | 53.5     | 325 | e 9 29  | - 1              | e 17 0   | - 3   | e 24.6 | -    |
| Almeria        |    | 53.6     | 307 | e 9 43  | +13              | 17 17    | +13   | 26.6   | 35.4 |
| Paris          |    | 53.7     | 323 | e 9 32  | + 1              | e 17 4   | - 1   | 25.6   | 37.6 |
| De Bilt        |    | 53.7     | 326 | e 9 30  | - 1              | e 17 4   | - 1   | e 26.6 | 37.4 |
| Granada        |    | 54.6     | 307 | 19 45   | + 8              | e 17 33  | +17   | 26.6   | 34.6 |
| Malaga         |    | 55.2     | 307 | e 9 44  | + 4              | 17 28    | + 4   | 24.6   | -    |
| Toledo         |    | 55.4     | 309 | e 9 44  | + 2              | e 17 24  | - 2   | e 23.6 | 31.4 |
| Kew            |    | 56.4     | 324 | e 9 49  | + 1              | i 17 39  | 0     | 27.6   | 36.7 |
| San Fernando   |    | 56.6     | 306 | -       | -                | 17 42    | + 1   | -      | 40.4 |
| Irkutsk        |    | 56.8     | 36  | e 9 57  | + 6              | 17 51    | + 7   | 31.6   | 38.4 |
| Cape Town      |    | 57.1     | 215 | -       | -                | -        | -     | -      | 35.8 |
| Oxford         |    | 57.1     | 324 | -       | -                | e 17 44  | - 3   | i 33.6 | -    |
| Batavia        |    | 57.9     | 107 | 10 7    | + 9              | 18 6     | + 8   | -      | -    |
| Stonyhurst     |    | 58.5     | 325 | e 10 9  | + 7              | 18 9     | + 4   | -      | 36.0 |
| Dyce           |    | 59.7     | 330 | 10 20   | +10              | e 18 20  | + 1   | 27.2   | 43.1 |
| Edinburgh      |    | 59.7     | 328 | i 13 53 | ?PR <sub>2</sub> | -        | -     | 29.6   | -    |
| Zi-ka-wei      | Z. | 65.6     | 63  | e 10 56 | + 7              | e 19 50  | +18   | 38.4   | 40.9 |
| Manila         |    | 66.6     | 80  | e 11 10 | +15              | -        | -     | e 31.6 | -    |
| Scoresby Sund  |    | 72.0     | 341 | 11 39   | + 9              | 21 3     | +13   | 37.6   | -    |
| Rio de Janeiro | N. | 99.9     | 250 | -       | -                | -        | -     | e 50.6 | -    |
| Melbourne      |    | 100.6    | 127 | -       | -                | -        | -     | e 47.9 | 90.2 |
| Ottawa         |    | 104.6    | 324 | -       | -                | e 25 3   | [+18] | e 47.6 | -    |
| Toronto        | N. | 107.7    | 325 | -       | -                | -        | -     | 59.7   | -    |
| Chicago        | E. | 113.4    | 327 | -       | -                | -        | -     | e 62.6 | 75.6 |
| La Plata       |    | 113.9    | 236 | -       | -                | -        | -     | 53.2   | -    |
| Victoria       |    | 118.0    | 356 | 30 9    | ?                | 40 54    | ?     | 60.4   | 65.7 |
| La Paz         |    | 122.3    | 259 | -       | -                | -        | -     | 61.6   | 73.0 |

Additional readings and notes: Dehra Dun S = +8m.54s. Tananarive N = +7m.12s., +7m.43s., +9m.15s., and +13m.52s., E = +8m.19s., and +13m.45s., e = +15m.5s., SR<sub>1</sub> = +14m.5s., MN = +19.6m. Rocca di Papa ePE = +8m.23s., ePN = +8m.28s., eN = +10m.17s. = PR<sub>1</sub> + 5s., iE = +10m.52s. = PR<sub>1</sub> + 6s., e = +17m.34s. Zagreb e = +19m.57s. Graz e = +18m.54s. = SR<sub>1</sub> + 18s. Vienna PR<sub>1</sub> = +10m.24s., PR<sub>2</sub> = +10m.58s., SR<sub>1</sub> = +18m.57s. Konigsberg ePR<sub>1</sub>N = +10m.45s., ePSN = +16m.9s., iSR<sub>1</sub>N = +19m.34s., eN = +20m.9s. Jena eZ = +10m.57s., iZ = +11m.1s. Strasbourg ePR<sub>1</sub> = +11m.15s., ePR<sub>2</sub> = +12m.36s., eSR<sub>1</sub> = +20m.18s. Feldberg eN = +11m.14s. = PR<sub>1</sub> - 11s. Hamburg MN = +33.4m. Copenhagen iE = eN = +9m.23s., PR<sub>1</sub> = +11m.23s., eSNZ = +16m.43s., eSR<sub>1</sub> = +20m.36s., eLZ = +29.6m., MN = +34.0m., MZ = +36.6m. Tortosa ePN = +9m.28s., MN = +35.9m. Uccle ePR<sub>1</sub> = +12m.53s. = PR<sub>1</sub> + 7s., eSR<sub>1</sub> = +20m.38s. Almeria MN = +39.2m. Paris MN = +27.4m. De Bilt eSR<sub>1</sub> = +20m.58s., MN = +29.6m. Kew iPZ = +9m.55s., iPR<sub>2</sub> = +13m.19s., eSR<sub>1</sub>E = +22m.39s., eSR<sub>2</sub>N = +24m.6s., LZ = +29.6m., MN = +33.2m., MZ = +36.6m. San Fernando MN = +36.8m. Oxford i = +24m.17s. = SR<sub>2</sub> + 9s. Batavia e = +18m.52s. Stonyhurst PR<sub>1</sub> = +13m.43s., Dyce e = +14m.0s. = PR<sub>2</sub> + 0s. Ottawa e = +28m.43s. and +33m.33s. = SR<sub>1</sub> - 3s.

Sept. 18d. Readings also at 1h. (near Tashkent), 3h. (Sucre, La Paz, La Plata, Santiago, and Taihoku), 6h. (Wellington), 7h. (near Kobe and Sumoto), 10h. (near La Paz and near Tacubaya), 16h. (Taihoku), 22h. (Baku, Ekaterinburg, Tashkent, and De Bilt), 23h. (Florence).

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Sept. 19d. 2h. 45m. 51s. Epicentre 32°-0N. 117°-0W.

A = -385, B = -756, C = +530; D = -891, E = +454;  
G = -241, H = -472, K = -848.

|               |    | Δ    | Az. | P.     | O-C. | S.       | O-C. | L.     | M.  |
|---------------|----|------|-----|--------|------|----------|------|--------|-----|
|               |    | °    | °   | m. s.  | s.   | m. s.    | s.   | m.     | m.  |
| Tucson        |    | 5.2  | 86  | e 1 20 | 0    | 2 20     | -2   | 3.0    | 3.6 |
| Lick          | E. | 6.6  | 326 | e 1 37 | -4   | e 2 50   | -10  | e 3.2  | —   |
| Berkeley      | N. | 7.3  | 324 | e 3 12 | ?S   | (e 3 12) | -6   | e 4.1  | —   |
| Victoria      | E. | 17.1 | 346 | 7 20   | ?S   | (7 20)   | 0    | 9.4    | 9.9 |
| Toronto       |    | 31.6 | 58  | —      | —    | —        | —    | i 15.4 | —   |
| Georgetown    | Z. | 33.0 | 68  | —      | —    | —        | —    | 19.5   | —   |
| Ottawa        | N. | 34.4 | 55  | —      | —    | —        | —    | e 17.8 | —   |
| Scoresby Sund |    | 61.7 | 23  | —      | —    | —        | —    | 32.2   | —   |

Additional readings and notes: Tucson eEN = +1m.47s., eN = +2m.43s.,  
MN = +3.7m. Lick readings are given for 1h. Berkeley eZ = +3m.50s.  
and +4m.33s., eN = +10m.12s. Toronto LE = +31.2m. Ottawa  
LE = +20.2m.

Sept. 19d. 8h. 15m. 30s. Epicentre 27°-5N. 142°-0E. (as on 1928 May 14d.).

A = -699, B = +546, C = +462; D = +616, E = +788;  
G = -364, H = +284, K = -887.

|               |    | Δ     | Az. | P.       | O-C.             | S.       | O-C.             | L.     | M.   |
|---------------|----|-------|-----|----------|------------------|----------|------------------|--------|------|
|               |    | °     | °   | m. s.    | s.               | m. s.    | s.               | m.     | m.   |
| Nagoya        |    | 8.8   | 332 | e 2 8    | -5               | 3 22     | -36              | 4.1    | 4.2  |
| Osaka         |    | 9.1   | 324 | 2 27     | +9               | (3 42)   | -24              | 3.7    | 5.1  |
| Sumoto        |    | 9.1   | 320 | 2 20     | +2               | e 3 55   | -11              | —      | —    |
| Kobe          | N. | 9.3   | 323 | e 2 24   | +4               | (3 26)   | -44              | 3.4    | 4.3  |
| Mizusawa      | E. | 11.6  | 357 | 2 56     | +3               | 4 47     | -22              | —      | —    |
| Nagasaki      |    | 11.7  | 300 | e 2 55   | 0                | e 5 23   | +11              | —      | —    |
| Zi-ka-wei     | Z. | 18.3  | 287 | 4 25     | +4               | 7 49     | +2               | —      | 11.1 |
| Taihoku       | E. | 18.5  | 267 | e 4 20   | -3               | —        | —                | 4.6    | —    |
| Manila        |    | 23.4  | 241 | e 5 30   | +9               | (19 42)  | +9               | i 9.7  | —    |
| Hong Kong     |    | 25.7  | 265 | 5 53     | +8               | —        | —                | —      | 14.0 |
| Phu-Lien      |    | 32.9  | 266 | e 6 43   | -16              | 12 0     | -22              | 16.5   | —    |
| Irkutsk       |    | 37.4  | 322 | i 7 18   | -15              | i 13 4   | -26              | 19.5   | 23.1 |
| Honolulu T.H. | E. | 54.7  | 83  | —        | —                | e 17 24  | +7               | 25.5   | —    |
| Tashkent      |    | 59.8  | 305 | i 10 11  | 0                | i 18 16  | -5               | e 27.5 | 37.8 |
| Ekaterinburg  |    | 62.6  | 323 | i 10 31  | +2               | 18 54    | -2               | 29.5   | 37.2 |
| Baku          |    | 74.1  | 309 | 11 38    | -5               | 21 12    | -3               | 35.5   | 46.8 |
| Kucino        |    | 74.9  | 326 | 11 50    | +2               | 21 16    | -9               | 37.4   | 47.8 |
| Pulkovo       |    | 76.5  | 332 | i 11 57  | -1               | 21 38    | -5               | 41.5   | 49.2 |
| Scoresby Sund |    | 81.4  | 356 | 12 24    | +3               | 22 36    | -3               | 38.5   | —    |
| Theodosia     |    | 81.5  | 319 | e 12 31  | -3               | —        | —                | —      | —    |
| Simferopol    |    | 82.3  | 319 | e 12 30  | -2               | —        | —                | —      | —    |
| Yalta         |    | 82.5  | 319 | e 12 32  | -1               | —        | —                | —      | —    |
| Sebastopol    |    | 82.8  | 319 | e 12 56  | +21              | —        | —                | —      | —    |
| Lund          |    | 86.1  | 335 | —        | —                | 23 12    | -19              | 50.5   | —    |
| Copenhagen    |    | 86.4  | 335 | i 12 44  | -11              | e 23 20  | -14              | 43.5   | 49.4 |
| Vienna        |    | 90.0  | 328 | i 13 8   | -8               | —        | —                | —      | 53.5 |
| Edinburgh     |    | 91.5  | 342 | —        | —                | —        | —                | e 46.5 | —    |
| Zagreb        |    | 91.8  | 326 | e 13 16  | -10              | e 25 30? | ?PS              | —      | —    |
| De Bilt       |    | 91.9  | 335 | e 13 16  | -10              | e 24 30  | -4               | e 45.5 | 56.7 |
| Feldberg      | N. | 92.1  | 333 | e 22 30? | ?                | —        | —                | —      | 60.3 |
| Uccle         |    | 93.2  | 335 | 11 48    | ?                | e 24 6   | [+19]            | e 45.5 | —    |
| Strasbourg    |    | 93.6  | 332 | e 13 22  | -14              | e 24 30? | -22              | 44.5   | —    |
| Zurich        |    | 94.2  | 330 | 22 30?   | ?                | —        | —                | —      | —    |
| Kew           |    | 94.3  | 339 | —        | —                | —        | —                | e 49.5 | —    |
| Neuchatel     |    | 95.2  | 330 | e 13 20  | -24              | e 17 20  | ?PR <sub>1</sub> | —      | —    |
| Paris         |    | 95.5  | 335 | e 13 35  | -11              | e 17 22  | ?PR <sub>1</sub> | 51.5   | —    |
| Moncalieri    |    | 96.4  | 330 | —        | —                | —        | —                | e 41.1 | —    |
| Granada       |    | 107.7 | 334 | i 19 1   | ?PR <sub>1</sub> | —        | —                | 61.5   | 63.8 |
| Sucre         |    | 153.6 | 77  | 20 28    | [+27]            | —        | —                | —      | —    |

Additional readings: Nagoya P = +2m.20s. Osaka MN = +6.0m. Kobe  
MZ = +3.6m. Mizusawa SN = +4m.48s. Manila iLE = +9m.49s.  
Irkutsk i = +17m.40s. Copenhagen PR<sub>1</sub> = +16m.30s.?, iE = +23m.36s.  
De Bilt eLN = +43.5m., MN = +59.5m. Strasbourg iPR<sub>1</sub>? = +17m.7s.,  
ePS? = +25m.30s., Moncalieri L = +59.9m.

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Sept. 19d. Readings also at 4h. (near La Paz), 6h. (Hong Kong and Sucre), 11h. (Sucre), 13h. (Riverview and Wellington), 17h. (Florence), 21h. (near Tacubaya), 22h. (La Paz), 23h. (Tortosa and near Tacubaya).

Sept. 20d. 14h. 59m. 0s. Epicentre 25°·2N. 56°·8E. (as on 1924 Dec. 11d.).

A = +·495, B = +·757, C = +·426; D = +·837, E = -·548;  
G = +·233, H = +·356, K = -·905.

|              | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.     | M.   |
|--------------|----------|-----|--------|------|--------|------|--------|------|
|              | °        | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.   |
| Baku         | 16·2     | 341 | e 3 47 | - 8  | e 7 34 | +34  | e 10·2 | —    |
| Tashkent     | 19·1     | 30  | e 4 27 | - 3  | 8 2    | - 2  | e 9·0  | 11·8 |
| Ksara        | 20·1     | 301 | 4 46   | + 4  | (8 31) | + 6  | 13·0   | —    |
| Ekaterinburg | 31·7     | 5   | e 7 28 | +44  | e 12 0 | - 3  | 19·0   | —    |

Additional readings and notes: Ksara S is given as P of a second shock for which S = +11m.11s. Ekaterinburg e = +16m.11s. Only the readings for Tashkent and Ksara are given with definite phase.

Sept. 20d. Readings also at 0h. (Ekaterinburg and Tashkent), 6h. (Yalta), 8h. (Manila), 10h. (Bombay), 12h. (Suva), 20h. (Taihoku).

Sept. 21d. 2h. 5m. 30s. Epicentre 17°·5S. 62°·0W.

A = +·448, B = -·842, C = -·301; D = -·883, E = -·469;  
G = -·141, H = +·266, K = -·954.

|                | $\Delta$ | Az. | P.     | O-C. | S.     | O-C. | L.     | M.   |
|----------------|----------|-----|--------|------|--------|------|--------|------|
|                | °        | °   | m. s.  | s.   | m. s.  | s.   | m.     | m.   |
| Sucre          | 3·4      | 243 | 1 0 56 | + 3  | i 1 38 | + 4  | 1·7    | 1·8  |
| La Paz         | 6·0      | 279 | i 1 27 | - 5  | i 2 36 | - 8  | 4·2    | 5·2  |
| La Plata       | 17·7     | 169 | e 4 13 | 0    | —      | —    | 9·5    | —    |
| Río de Janeiro | N. 18·4  | 110 | e 4 35 | +13  | —      | —    | —      | —    |
| Ekaterinburg   | 122·2    | 33  | —      | —    | —      | —    | 69·5   | —    |
| Tashkent       | 132·1    | 50  | —      | —    | —      | —    | e 79·8 | 87·8 |

Tashkent gives also i = +81m.52s., e = +82m.35s., eL = +86·5m.

Sept. 21d. 13h. 27m. 0s. Epicentre 15°·5S. 70°·0W.

A = +·330, B = -·906, C = -·267; D = -·940, E = -·342;  
G = -·091, H = +·251, K = -·964.

A depth of focus 0·040 has been assumed.

|                | Corr. for Focus | $\Delta$ | Az. | P.      | O-C. | S.        | O-C. | L.     | M.   |
|----------------|-----------------|----------|-----|---------|------|-----------|------|--------|------|
|                |                 | °        | °   | m. s.   | s.   | m. s.     | s.   | m.     | m.   |
| La Paz         | +1·0            | 1·9      | 119 | i 0 57  | +12  | i 1 32    | +12  | 1·6    | 1·7  |
| Sucre          | 0·0             | 5·8      | 128 | i 1 39  | + 9  | i 2 40    | + 1  | 2·8    | 2·9  |
| La Plata       | -1·8            | 22·2     | 153 | 4 49    | + 3  | 8 38      | + 6  | 11·1   | —    |
| Río de Janeiro | E. -2·3         | 26·4     | 110 | e 5 30  | + 1  | 9 42      | - 4  | 11·2   | —    |
|                | N. -2·3         | 26·4     | 110 | e 5 25  | - 4  | 9 46      | 0    | 11·4   | —    |
| Georgetown     | Z. -4·4         | 54·8     | 354 | i 9 12  | + 3  | (e 16 14) | -10  | e 16·2 | 26·7 |
| Cincinnati     | Z. -4·5         | 56·3     | 348 | e 9 8   | -11  | (16 28)   | -13  | 16·5   | —    |
| Florisant      | -4·5            | 57·6     | 340 | i 9 24  | - 3  | i 16 54   | - 3  | —      | —    |
| Toronto        | N. -4·6         | 59·8     | 353 | i 9 40  | 0    | —         | —    | 34·3   | —    |
| Ottawa         | -4·6            | 61·1     | 356 | e 9 50  | + 1  | e 17 36   | - 4  | e 22·0 | —    |
| Lick           | -4·9            | 71·8     | 320 | e 11 3  | + 6  | e 20 3    | +14  | —      | —    |
| Berkeley       | -4·9            | 72·5     | 320 | e 11 3  | + 1  | e 19 47   | -10  | —      | —    |
| Victoria       | -5·1            | 79·5     | 328 | 21 27   | +S   | (21 27)   | + 8  | —      | 38·9 |
| Malaga         | -5·1            | 80·8     | 48  | 11 33   | -20  | 21 21     | -13  | —      | —    |
| Granada        | -5·2            | 81·6     | 48  | i 11 58 | + 1  | i 21 56   | +14  | e 38·0 | 40·0 |
| Almeria        | -5·2            | 82·4     | 48  | e 11 58 | - 4  | 21 56     | + 5  | —      | 40·5 |
| Toledo         | N.W. -5·2       | 82·6     | 45  | 12 4    | + 1  | 21 58     | + 5  | —      | —    |
| Alicante       | -5·3            | 84·3     | 47  | —       | —    | e 23 19   | +67  | —      | —    |
| Tortosa        | E. -5·3         | 86·1     | 45  | —       | —    | 22 23     | -10  | —      | —    |

Continued on next page.

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|               | Corr.<br>for<br>Focus | $\Delta$ | Az. | P.    |     | O-C.             |    | S.   | O-C. | L.    | M.     |
|---------------|-----------------------|----------|-----|-------|-----|------------------|----|------|------|-------|--------|
|               |                       |          |     | m. s. | s.  | m. s.            | s. |      |      |       |        |
| Kew           | -5.4                  | 90.0     | 36  | e 12  | 37  | -                | 9  |      |      | 38.0  |        |
| Edinburgh     | -5.4                  | 90.4     | 31  |       |     |                  |    | e 27 | 0?   | ?     |        |
| Paris         | -5.4                  | 90.6     | 40  | e 12  | 42  | -                | 7  |      |      | 45.0  |        |
| Scoresby Sund | -5.4                  | 92.0     | 15  | e 12  | 48  | -                | 9  | 23   | 0    | [-40] | 39.0   |
| Uccle         | -5.4                  | 92.4     | 39  | e 15  | 59  | ?                |    | e 23 | 0?   | [-42] |        |
| De Bilt       | -5.5                  | 93.3     | 38  | e 12  | 54  | -                | 10 | e 23 | 37   | -13   |        |
| Strasbourg    | -5.5                  | 93.6     | 40  | e 13  | 48  | +42              |    | e 24 | 56   | +63   | 33.0   |
| Rocca di Papa | -5.5                  | 94.9     | 49  | e 13  | 4   | -                | 8  | e 23 | 5    | [-51] | 42.7   |
| Copenhagen    | -5.6                  | 98.5     | 35  |       |     |                  |    | e 23 | 34   | [-42] | e 42.0 |
| Pulkovo       |                       | 108.5    | 31  |       |     |                  |    | i 24 | 17   | [-47] | 28.0   |
| Kucino        |                       | 112.8    | 35  | e 20  | 0?  | ?PR <sub>1</sub> |    | e 29 | 0?   | ?PS   |        |
| Baku          |                       | 122.6    | 50  | (20   | 14) | ?PR <sub>1</sub> |    |      |      |       |        |
| Ekaterinburg  |                       | 124.5    | 30  | i 18  | 40  | [-24]            |    | 25   | 14   | [-44] | 50.0   |
| Tashkent      |                       | 136.4    | 45  | i 19  | 3   | [-30]            |    |      |      |       | e 61.1 |
| Irkutsk       |                       | 142.9    | 5   | i 19  | 10  | [-35]            |    |      |      |       | 64.1   |

Additional readings: Georgetown eZ = +1m.43s. Cincinnati iZ = +8m.18s.  
 Florissant eZ = +10m.30s., iE = +18m.42s. Lick eN = +11m.5s., eE = +11m.24s.  
 Berkeley eZ = +21m.6s. = [S1] - 24s. Granada i = +13m.0s. and +15m.14s. = PR<sub>1</sub> - 6s. Kew ePR<sub>1</sub>Z = +16m.13s. Scoresby Sund +16m.24s. = PR<sub>1</sub> - 16s. Uccle e = +18m.28s. De Bilt ePR<sub>1</sub>Z = +16m.41s., eR = +22m.58s., eN = +25m.24s. = PS - 23s. Strasbourg i = +16m.41s. = PR<sub>1</sub> - 12s. Rocca di Papa eE = +13m.2s. Copenhagen ePR<sub>1</sub>EZ = +17m.21s., eS<sub>C</sub>P<sub>C</sub>SEN = +24m.24s., PS = +25m.48s., eSR<sub>1</sub>N = +31m.8s. Pulkovo iPR<sub>1</sub> = +18m.34s., PS = +27m.32s. Baku PS = +29m.47s., SR<sub>1</sub> = +37m.34s. Ekaterinburg PR<sub>1</sub> = +20m.24s., PS = +30m.24s. Tashkent iPR<sub>1</sub> = +21m.42s., P<sub>C</sub>P<sub>C</sub>S = +22m.11s., PS = +31m.48s. Irkutsk PR<sub>1</sub> = +22m.22s., S<sub>C</sub>P<sub>C</sub>P<sub>C</sub>S = +28m.52s.

Sept. 21d. Readings also at 7h. (near Amboina (2) ), 8h. (Lick, near Manila, near La Paz, and Sucre), 12h. (Simferopol, Sebastopol, Yalta, and near Theodosia), 13h. (La Paz, Sucre, and Uccle), 14h. (Simferopol, Sebastopol, and near Yalta), 18h. (Tortosa), 21h. (Baku, Ekaterinburg (2), and Tashkent (2) ), 22h. (Sucre).

Sept. 22d. 5h. 56m. 10s. Epicentre 14°0S. 174°0W. (as on 1927 July 3d.).

A = -0.965, B = -0.101, C = -0.242; D = -0.105, E = +0.995;  
 G = +0.241, H = +0.025, K = -0.970.

The most recently adopted epicentre near Apia.

|               |    | $\Delta$ | Az. | P.    |     | O-C.             |      | S.   | O-C.             | L.     | M.     |
|---------------|----|----------|-----|-------|-----|------------------|------|------|------------------|--------|--------|
|               |    |          |     | m. s. | s.  | m. s.            | s.   |      |                  |        |        |
| Apia          |    | 2.2      | 86  | i 0   | 34  | 0                |      |      |                  |        | 1.0    |
| Wellington    | E. | 29.0     | 198 |       |     |                  |      |      |                  | e 12.9 |        |
| Honolulu T.H. |    | 38.7     | 24  |       |     |                  |      |      |                  | 16.3   | 17.8   |
| Florissant    | E. | 93.9     | 50  |       |     |                  |      | i 24 | 3                | [-12]  | e 43.8 |
| Cincinnati    | Z. | 98.4     | 50  |       |     |                  |      |      |                  |        | 46.8   |
| Toronto       |    | 102.9    | 48  |       |     |                  |      |      |                  |        | 51.6   |
| Georgetown    | Z. | 104.1    | 51  |       |     |                  |      |      |                  |        | 46.8   |
| Ottawa        |    | 105.7    | 46  |       |     |                  |      | e 25 | 2                | [-11]  | e 43.8 |
| Tashkent      |    | 119.1    | 310 |       |     |                  |      | i 26 | 0                | [-17]  | e 56.3 |
| Ekaterinburg  |    | 120.6    | 329 |       |     |                  |      |      |                  |        | 71.8   |
| Scoresby Sund |    | 120.9    | 10  |       |     |                  |      |      |                  |        | 89.8   |
| Pulkovo       |    | 130.9    | 344 |       |     |                  |      | 26   | 34               | [-21]  | 69.8   |
| Kucino        |    | 131.5    | 335 |       |     |                  |      |      |                  |        | 66.8   |
| Baku          |    | 133.6    | 313 | i 23  | 4   | ?                |      |      |                  |        | 75.3   |
| Edinburgh     |    | 137.5    | 7   | 40    | 50? | ?SR <sub>1</sub> |      |      |                  |        | 69.9   |
| Copenhagen    |    | 138.0    | 353 | i 23  | 13  | ?                |      |      |                  |        | e 65.8 |
| De Bilt       |    | 141.9    | 1   | e 22  | 50  | ?PR <sub>1</sub> | e 41 | 32   | ?SR <sub>1</sub> | e 80.8 | 96.8   |
| Kew           |    | 142.2    | 6   | e 19  | 50? | [-7]             |      |      |                  |        | 71.8   |
| Uccle         |    | 143.2    | 3   |       |     |                  | e 40 | 50?  | ?SR <sub>1</sub> | e 78.8 |        |
| Feldberg      | N. | 143.8    | 356 | e 19  | 44  | [-3]             |      |      |                  |        | e 74.8 |
| Vienna        | Z. | 144.7    | 350 | i 19  | 46  | [-2]             |      |      |                  |        | 82.8   |
| Paris         |    | 145.1    | 356 | e 19  | 8   | [-40]            |      |      |                  |        |        |
| Strasbourg    |    | 145.4    | 358 | i 19  | 47  | [-2]             |      |      |                  |        | 81.8   |
| Granada       |    | 155.3    | 19  | e 19  | 55  | [-7]             |      |      |                  |        | 74.8   |

Additional readings: Wellington eLN = +13.1m. Honolulu T.H. LN = +16.4m. Florissant eE = +30m.25s. Ottawa e = +33m.50s. = SR<sub>1</sub> + 1s. Tashkent PR<sub>1</sub> = +20m.15s., PS = +30m.9s. Pulkovo PR<sub>1</sub> = +21m.42s., iP<sub>C</sub>P<sub>C</sub>S = +22m.48s. Copenhagen eN = +32m.50s.?, eR = +39m.50s.?, = SR<sub>1</sub> - 38s.

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Sept. 22d. 7h. 31m. 22s. Epicentre 13°0S. 165°5E.

A = -0.943, B = +0.244, C = -0.225; D = +0.250, E = +0.968;  
G = +0.218, H = -0.056, K = -0.974.

|               |    | $\Delta$ | Az. | P.       | O-C.             | S.       | O-C.             | L.     | M.     |
|---------------|----|----------|-----|----------|------------------|----------|------------------|--------|--------|
|               |    | °        | °   | m. s.    | s.               | m. s.    | s.               | m.     | m.     |
| Apia          |    | 22-1     | 95  | 5 0      | - 6              | 9 0      | - 7              | 11-6   | —      |
| Riverview     |    | 24-6     | 210 | i 5 32   | - 2              | e 9 55   | 0                | e 12-3 | 13-6   |
| Sydney        |    | 24-6     | 210 | (5 32)   | - 2              | (10 8)   | +13              | 13-0   | 14-8   |
| Wellington    | E. | 29-4     | 166 | 6 13     | - 9              | e 10 55  | -29              | i 14-2 | 16-7   |
|               | N. | 29-4     | 166 | i 6 5    | -17              | i 10 57  | -27              | i 14-6 | 17-6   |
| Melbourne     |    | 30-8     | 214 | i 6 25   | -11              | i 12 36  | +48              | —      | 16-9   |
| Christchurch  |    | 31-1     | 171 | —        | —                | —        | —                | 14-1   | 20-7   |
| Ambolna       |    | 38-0     | 281 | i 9 27   | +109             | i 15 13  | +95              | 28-3   | —      |
| Perth         |    | 49-1     | 239 | e 9 23   | +22              | i 16 3   | - 4              | 23-6   | 28-2   |
| Honolulu T.H. | E. | 49-7     | 46  | i 8 48   | -17              | e 16 4   | -11              | 21-3   | 25-3   |
|               | N. | 49-7     | 46  | i 8 45   | -20              | i 15 55  | -20              | —      | 25-0   |
| Manila        |    | 52-0     | 300 | e 9 15   | - 5              | i 16 38  | - 6              | i 25-1 | 34-4   |
| Nagoya        |    | 55-2     | 332 | e 9 37   | - 3              | 17 23    | - 1              | 41-2   | —      |
| Sumoto        |    | 55-5     | 329 | i 9 40   | - 3              | e 17 20  | - 8              | e 24-6 | —      |
| Osaka         |    | 55-6     | 330 | 9 42     | - 1              | 17 28    | - 1              | 23-5   | 27-5   |
| Kobe          |    | 55-7     | 330 | 9 44     | 0                | 17 25    | - 5              | e 23-8 | 27-6   |
| Mizusawa      | E. | 56-9     | 339 | 9 54     | + 3              | 17 39    | - 6              | 21-8   | —      |
|               | N. | 56-9     | 339 | 9 54     | + 3              | 17 37    | - 8              | 21-7   | —      |
| Nagasaki      |    | 57-0     | 325 | 9 55     | + 3              | 17 51    | + 5              | 21-9   | 32-9   |
| Malabar       |    | 57-2     | 271 | 10 1     | + 8              | 18 1     | +12              | —      | —      |
| Hukuoka       |    | 57-3     | 326 | 9 59     | + 5              | e 17 52  | + 2              | 24-4   | 32-1   |
| Taihoku       | N. | 57-3     | 313 | —        | —                | e 17 58  | + 8              | —      | —      |
| Batavia       |    | 58-1     | 272 | i 10 6   | + 6              | —        | —                | 27-6   | —      |
| Zi-ka-wei     | Z. | 61-2     | 319 | e 9 59   | -21              | 18 39    | + 1              | —      | —      |
|               |    | 61-2     | 319 | 10 13    | - 7              | 18 41    | + 3              | 29-5   | 36-0   |
| Hong Kong     |    | 61-4     | 305 | 10 25    | + 4              | (18 47)  | + 6              | 18-8   | 23-5   |
| Otomari       |    | 63-0     | 343 | (10 34)  | + 2              | (18 56)  | - 5              | (24-1) | (37-2) |
| Phu-Lien      |    | 67-0     | 299 | e 11 4   | + 6              | e 19 55  | + 5              | 31-6   | —      |
| Irkutsk       |    | 83-7     | 328 | i 12 31  | - 9              | 22 51    | -15              | 42-6   | 51-7   |
| Berkeley      |    | 84-4     | 49  | e 12 23  | -21              | e 23 15  | + 3              | e 42-6 | —      |
| Lick          | E. | 84-8     | 50  | e 12 59  | +12              | e 23 46  | +20              | e 39-1 | —      |
| Sitka         | N. | 85-2     | 28  | —        | —                | —        | —                | e 41-0 | 42-2   |
| Colombo       |    | 87-3     | 277 | 12 55    | - 6              | 23 25    | -19              | 20-3   | 29-8   |
| Victoria      | E. | 87-7     | 39  | 12 48    | -15              | 23 38    | -11              | 40-5   | 47-7   |
|               | N. | 87-7     | 39  | 12 58    | - 5              | 23 38    | -11              | 35-8   | 52-0   |
| Hyderabad     |    | 90-6     | 288 | 13 9     | -10              | 23 37    | [+ 5]            | 42-1   | 56-1   |
| Spokane       | N. | 91-1     | 41  | —        | —                | —        | —                | 37-6   | 46-6   |
| Tucson        | E. | 91-7     | 57  | e 14 4   | +39              | —        | —                | 42-2   | 45-3   |
|               | N. | 91-7     | 57  | e 14 52  | +87              | —        | —                | 42-3   | 46-1   |
| Bombay        |    | 96-6     | 288 | 13 45    | - 7              | 24 48    | ? E              | 49-0   | 75-8   |
| Denver        |    | 97-9     | 51  | —        | —                | —        | —                | —      | 45-6   |
| Tashkent      |    | 103-2    | 311 | e 14 1   | -25              | i 24 44  | [+ 5]            | —      | 72-8   |
| Ekaterinburg  |    | 109-0    | 325 | e 14 31  | -22              | —        | —                | 48-6   | 65-8   |
| Florissant    |    | 109-1    | 52  | e 14 19  | -34              | —        | —                | e 48-6 | 53-6   |
| Tananarive    | E. | 111-1    | 243 | —        | —                | e 25 5   | [- 9]            | 57-0   | 68-6   |
| Chicago       |    | 111-2    | 49  | e 18 39  | [+13]            | —        | —                | 52-9   | 58-4   |
| Cincinnati    |    | 113-6    | 51  | —        | —                | —        | —                | 47-1   | 54-8   |
| Ann Arbor     | E. | 114-1    | 48  | —        | —                | e 28 56  | +53              | 54-7   | 60-9   |
| La Plata      |    | 116-9    | 140 | —        | —                | —        | —                | 49-5   | —      |
| Toronto       |    | 117-1    | 46  | e 19 41  | ?PR <sub>1</sub> | —        | —                | 58-6   | 62-1   |
| Baku          |    | 117-8    | 309 | —        | —                | —        | —                | 56-3   | 88-8   |
| Ithaca        |    | 119-3    | 47  | —        | —                | e 36 38? | ?SR <sub>1</sub> | 57-6   | —      |
| La Paz        |    | 119-3    | 117 | e 13 5   | ?                | —        | —                | 49-6   | 59-1   |
| Ottawa        | N. | 119-3    | 44  | e 15 2   | -37              | —        | —                | e 58-0 | 63-6   |
| Georgetown    | Z. | 119-5    | 51  | i 20 7   | ?PR <sub>1</sub> | —        | —                | 58-7   | 64-7   |
| Sucre         |    | 120-6    | 121 | —        | —                | e 29 19  | +25              | 56-6   | 62-1   |
| Kucno         |    | 121-4    | 328 | —        | —                | —        | —                | e 52-6 | 76-2   |
| Scoresby Sund |    | 122-3    | 3   | 20 32    | ?PR <sub>1</sub> | 30 33    | ?PS              | 52-6   | —      |
| Pulkovo       |    | 122-9    | 335 | 18 57    | [- 4]            | —        | —                | 50-6   | 73-1   |
| Johannesburg  |    | 123-0    | 224 | —        | —                | —        | —                | 64-6   | —      |
| Harvard       | E. | 123-2    | 46  | —        | —                | —        | —                | e 61-0 | 66-1   |
| Helisingfors  |    | 124-7    | 337 | e 20 38? | ?PR <sub>1</sub> | e 30 27  | ?                | 54-6   | —      |
| Theodosia     |    | 127-1    | 317 | e 19 17  | [+ 6]            | —        | —                | —      | —      |
| Upsala        |    | 127-5    | 340 | e 22 26  | ?                | —        | —                | e 65-6 | 74-0   |
| Simferopol    |    | 128-0    | 316 | e 19 16  | [+ 2]            | —        | —                | e 62-6 | —      |
| Yalta         |    | 128-1    | 316 | e 19 24  | [+10]            | —        | —                | —      | —      |
| Sebastopol    |    | 128-5    | 316 | e 21 38  | ?PR <sub>1</sub> | —        | —                | —      | —      |
| Ksara         | E. | 129-9    | 302 | 19 27    | [+ 9]            | —        | —                | 62-6   | —      |

Continued on next page.

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|                   | $\Delta$ | Az. | P.        | O-C.             | S.      | O-C.             | L.     | M.   |
|-------------------|----------|-----|-----------|------------------|---------|------------------|--------|------|
|                   | °        |     | m. s.     | s.               | m. s.   | s.               | m.     | m.   |
| Konigsberg        | 130-1    | 334 | e 21 27   | ?PR <sub>1</sub> | —       | —                | e 69-6 | 73-6 |
| Entebbe           | 131-7    | 258 | 17 38?    | —                | —       | —                | —      | —    |
| Lund              | 132-2    | 339 | 21 46     | ?PR <sub>1</sub> | —       | —                | —      | —    |
| Copenhagen        | 132-5    | 340 | e 19 14   | [-10]            | —       | —                | 64-6   | 72-9 |
| Dyce              | 134-0    | 351 | —         | —                | —       | —                | 61-6   | 79-4 |
| Rio de Janeiro E. | 134-5    | 140 | e 21 56   | ?PR <sub>1</sub> | —       | —                | e 58-3 | 72-9 |
| N.                | 134-5    | 140 | e 21 58   | ?PR <sub>1</sub> | —       | —                | e 58-4 | 71-1 |
| Potsdam           | 134-9    | 335 | —         | —                | —       | —                | —      | 76-6 |
| Hamburg           | 135-0    | 340 | e 19 23   | [-7]             | —       | —                | e 60-6 | 82-6 |
| Budapest          | 135-6    | 326 | e 21 38?  | ?PR <sub>1</sub> | —       | —                | 78-1   | 91-6 |
| Edinburgh         | 136-2    | 350 | e 19 38?  | [+6]             | —       | —                | 43-6   | 80-1 |
| Belgrade          | 136-5    | 323 | e 18 38?  | [-55]            | —       | —                | —      | —    |
| Vienna            | 136-5    | 331 | e 19 29   | [-4]             | —       | —                | e 62-6 | 82-6 |
| Jena              | 136-6    | 336 | e 19 3    | [-30]            | —       | —                | 73-1   | 81-6 |
| Graz              | 137-7    | 330 | e 22 44   | ?PR <sub>1</sub> | e 40 44 | ?SR <sub>1</sub> | e 57-6 | 82-6 |
| De Bilt           | 137-9    | 340 | e 19 18   | [-18]            | —       | —                | e 65-6 | 96-6 |
| Zagreb            | 138-3    | 328 | e 19 38?  | [+1]             | —       | —                | e 63-1 | —    |
| Feldberg          | 138-4    | 337 | e 22 20   | ?PR <sub>1</sub> | e 32 22 | ?                | —      | 83-6 |
| Bidston           | 138-6    | 348 | 22 23     | ?PR <sub>1</sub> | —       | —                | 66-6   | 83-1 |
| Hohenheim         | 139-2    | 335 | e 22 30   | ?PR <sub>1</sub> | —       | —                | e 72-6 | —    |
| Uccle             | 139-2    | 341 | e 19 13   | [-25]            | —       | —                | —      | 73-6 |
| Oxford            | 139-8    | 347 | e 19 12   | [-27]            | —       | —                | —      | 84-4 |
| Ravensburg        | 139-8    | 334 | —         | —                | —       | —                | e 70-6 | —    |
| Kew               | 139-9    | 345 | e 19 22   | [-17]            | e 25 56 | ?PR <sub>2</sub> | 60-6   | 86-2 |
| Strasbourg        | 140-0    | 337 | 1 19 20   | [-19]            | —       | —                | 40-6   | 85-1 |
| Venice            | 140-4    | 329 | e 19 24   | [-16]            | —       | —                | —      | —    |
| Zurich            | 140-6    | 334 | e 19 36   | [-4]             | —       | —                | e 63-0 | —    |
| Chur              | 140-7    | 335 | e 19 43   | [+3]             | —       | —                | e 65-3 | —    |
| Paris             | 141-5    | 341 | e 19 28   | [-14]            | —       | —                | e 50-6 | 84-6 |
| Neuchatel         | 141-6    | 334 | e 19 30   | [-12]            | —       | —                | e 86-6 | —    |
| Besançon          | 141-7    | 337 | e 22 37   | ?PR <sub>1</sub> | —       | —                | e 73-6 | —    |
| Florence          | 142-1    | 327 | e 19 48   | [+5]             | —       | —                | —      | —    |
| Pompeii           | 142-4    | 322 | e 19 50   | [+6]             | e 33 30 | ?                | 74-6   | 81-6 |
| Rocca di Papa     | 142-8    | 325 | e 19 41   | [-4]             | —       | —                | e 71-0 | 86-8 |
| Moncalieri        | 142-9    | 334 | i 19 38   | [-7]             | 40 40   | ?SR <sub>1</sub> | 62-4   | 88-6 |
| Barcelona         | 148-1    | 335 | —         | —                | —       | —                | e 74-5 | 93-4 |
| Tortosa           | 149-2    | 338 | —         | —                | —       | —                | e 50-6 | 88-9 |
| Algiers           | 151-5    | 330 | 20 2      | [+4]             | e 33 50 | ?                | e 67-6 | 93-6 |
| Toledo            | 151-6    | 343 | e 19 55   | [-3]             | e 35 4  | ?                | —      | 97-0 |
| Alicante          | 151-8    | 336 | e 19 44   | [-15]            | —       | —                | —      | —    |
| Almeria           | 153-8    | 338 | e 19 49   | [-12]            | —       | —                | 67-8   | 87-7 |
| Granada           | 154-0    | 340 | 19 48     | [-13]            | —       | —                | 67-8   | 91-9 |
| Malaga            | 154-6    | 341 | (e 19 34) | [-28]            | e 19 34 | ?[P]             | e 33-2 | —    |

Additional readings and notes : Riverview iPR<sub>1</sub> = +6m.4s., iPR<sub>2</sub> = +6m.19s., P<sub>CP</sub> = +8m.49s., iS = +10m.0s. and +10m.5s., SR<sub>1</sub> = +10m.44s., SR<sub>2</sub> = +11m.5s., SR<sub>3</sub> = +11m.14s., MZ = +13-2m., MN = +14-0m.; T<sub>1</sub> = 7h.31m.13s.; epicentre 13°-08. 167°-0E. Sydney gives P as S and S as L, also P = 7h.29m.36s. Honolulu T.H. ePR<sub>1</sub>E = +10m.44s., ePR<sub>2</sub>N = +12m.0s., iSR<sub>1</sub>E = +20m.25s. Manila iPR<sub>1</sub>E = +11m.14s., iSR<sub>1</sub>E = +20m.40s., iSR<sub>2</sub>E = +21m.29s., iLN = +24-8m., MN = +33-6m. Osaka MN = +28-6m. Kobe MN = +28-7m., MZ = +31-6m. Batavia iZ = +10m.7s. Zi-ka-wei PR<sub>1</sub>Z = +11m.47s., PR<sub>2</sub>Z = +15m.25s. Hong Kong S? = +15m.18s. Ootomari readings have been diminished by 5m. Irkutsk PS = +23m.51s., SR<sub>1</sub> = +28m.38s. Berkeley eE? = +15m.45s., eN = +19m.27s. = PR<sub>1</sub>-9s., eZ = +24m.15s. = PS +16s., eN = +28m.39s., +32m.41s., and +34m.25s., eE = +34m.27s. and +38m.16s., eZ = +38m.15s., eEZ = +39m.15s., eEN = +40m.13s. Lick eE = +15m.45s. Sitka ePSN = +24m.21s., ePSE = +24m.23s., eSR<sub>1</sub>N = +35m.19s. = SR<sub>1</sub>-1s. Tucson ePSE = +25m.18s., eSR<sub>1</sub>E = +30m.30s., eSR<sub>2</sub>N = +30m.34s., eSR<sub>3</sub>N = +37m.10s. = SR<sub>1</sub>-24s. Tashkent iPR<sub>1</sub> = +18m.21s., PPS = +28m.29s. Ekaterinburg PR<sub>1</sub> = +18m.54s., S<sub>CP</sub>P<sub>CP</sub>S = +25m.54s., iPS = +28m.24s. Florissant ePE = +14m.22s., eP'E = +17m.38s. = [P]-41s., iPR<sub>1</sub>Z = +18m.44s., iPR<sub>1</sub>E = +18m.50s., iPSE = +28m.15s., iPSZ = +28m.18s., iSR<sub>1</sub>E = +33m.46s., iE = +34m.22s., iPR<sub>1</sub>'E = +37m.35s., iSR<sub>1</sub>E = +38m.44s., iSR<sub>2</sub>E = +47m.8s. Tananarive eE = +26m.29s. = E+9s., ePS = +28m.53s., eN = +29m.5s., SR<sub>1</sub> = +35m.20s., SR<sub>2</sub>N = +35m.32s., e = +42m.25s., +43m.38s. = SR<sub>2</sub>-1s., +49m.23s., and +53m.19s. LN = +57-7m., MN = +62-7m. Chicago iPSE = +28m.10s., eSR<sub>1</sub>E = +34m.4s. Ann Arbor e?E = +37m.50s. Toronto eE = +32m.26s., iE = +32m.30s. Baku PR<sub>1</sub> = +20m.11s., iPS = +29m.52s., iSR<sub>1</sub> = +36m.44s. La Paz SR<sub>1</sub> = +29m.43s. = PS-54s., MN = +63-8m.

Continued on next page.



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Ottawa  $PR_1N = +20m.6s.$ ,  $PS? = +29m.54s.$ ,  $SR_1? = +36m.38s.$ ,  $eN = +45m.38s.?$ ,  $eE = +50m.38s.?$ ,  $eLE? = +59.6m.$ ,  $ME = +69.1m.$ ;  $T_0 = 7h.30m.40s.$  Georgetown  $iZ = +30m.3s.$ ,  $+31m.42s.$ , and  $+37m.6s.$ ,  $eLZ = +45.6m.$  Kucino  $ePR_1 = +20m.47s.$ ,  $S_0P_0C_0S = +27m.45s.$ ,  $PS = +30m.38s.$  Pulkovo  $P = +15m.31s.$ ,  $PR_1 = +20m.18s.$ ,  $S_0P_0C_0S = +27m.26s.$  Uppsala  $MN = +74.6m.$  Ksara  $PR_1E? = +21m.41s.$ ,  $PR_2E = +27m.35s.$ ,  $PR_3E = +28m.47s.$ ,  $PSE = +32m.6s.$ ,  $PPSE = +33m.43s.$   $SR_1E = +37m.45s.$ ,  $SR_2E = +44m.39s.$ ;  $T_0 = 7h.31m.25s.$  Konigsberg  $eE = +22m.32s.$  and  $+24m.9s.$  Lund  $+22m.44s.$  Copenhagen  $PR_1 = +21m.42s.$ ,  $P_0C_0S = +22m.49s.$ ,  $eZ = +23m.2s.$ ,  $ePR_1EN = +24m.56s.$ ,  $eN = +30m.49s.$ ,  $ePPS = +34m.44s.$ ,  $SR_1 = +39m.38s.?$ ,  $SR_2 = +44m.38s.?$ ,  $eE = +52m.38s.?$ ,  $MZ = +82.1m.$  Dyce  $ePR_1 = +21m.56s.$  Potsdam  $MN = +79.6m.$  Hamburg  $iZ = +22m.2s.$ ,  $iEN = +22m.55s.$ ,  $eN = +35m.17s.$  and  $+39m.14s.$ ,  $MZ = +76.6m.$ ,  $MN = +77.6m.$  Vienna  $P' = +22m.4s. = PR_1 - 7s.$ ,  $iE = +23m.8s.$ ,  $PR_1 = +25m.51s. = PR_2 + 0s.$  Jena  $eZ = +22m.13s. = PR_1 + 1s.$ ,  $eN = +22m.8s. = PR_1 - 4s.$ ,  $+25m.58s. = PR_2 + 7s.$  and  $+63m.38s.$ ,  $eE = +62m.38s.$ ,  $MEN = +85.6m.$  De Bilt  $e = +22m.14s. = PR_1 - 7s.$ ,  $MZ = +78.7m.$ ,  $MN = +83.9m.$  Zagreb  $iNE = +19m.50s.$ ,  $eNW = +19m.58s.$ ,  $e = +22m.15s. = PR_1 - 9s.$ ,  $eNE = +23m.1s.$ ,  $+24m.55s.$ ,  $+27m.17s.$ , and  $+30m.10s.$ ,  $eNW = +28m.54s. = E - 9s.$ ,  $e = +31m.54s.$ ,  $+35m.51s.$ , and  $+36m.1s.$ ,  $eNW = +40m.8s.$ ,  $e = +45m.24s.$ , and  $+55m.28s.$  Hohenheim  $eN = +50m.38s.$ ; all readings have been diminished by 1h. Uccle  $ePR_1 = +22m.26s.$ ,  $MN = +88.0m.$  Oxford  $ePR_1 = +22m.28s.$ ,  $i = +23m.7s.$  and  $+25m.48s.$  Kew  $ePR_1Z = +22m.12s.$ ,  $eEN = +23m.10s.$ ,  $ePR_2N = +25m.20s.$ ,  $ePPSZ = +34m.46s.$ ,  $eSR_1EZ = +41m.20s.$ ,  $LZ = +66.6m.$ ,  $MN = +82.6m.$ ,  $MZ = +83.4m.$  Strasbourg  $iPR_1? = +22m.19s.$ ,  $MN = +84.1m.$ ,  $MZ = +92.5m.$  Chur  $eP' = +22m.46s. = PR_1 + 8s.$  Paris  $PR_1 = +22m.38s.$ ,  $MN = +85.6m.$  Neuchatel  $eP' = +22m.37s. = PR_1 - 7s.$ ,  $ePR_1 = +25m.24s.$  Florence  $eP = +21m.38s.$  Rocca di Papa  $e = +19m.43s.$ ,  $PE = +19m.58s.$ ,  $PN = +20m.3s.$ ,  $eLE = +45.2m.$  Barcelona  $MNW = +90.2m.$  Tortosa  $ME = +85.3m.$  Algiers  $MN = +77.6m.$  Toledo  $MNW = +82.6m.$  Almeria  $i = +20m.19s.$  Granada  $i = +19m.53s.$ ,  $PR_1 = +23m.37s.$ ,  $PR_2 = +27m.18s.$ ,  $i = +30m.40s. = PR_1 - 8s.$ ,  $PPP' = +33m.23s.$ ,  $PSS = +43m.24s. = SR_1 - 14s.$

Sept. 22d. 10h. 5m. 55s. Epicentre  $42^\circ 8'N$ .  $12^\circ 3'E$ . (as on 1926 Jan. 8d.).

$$A = +.717, B = +.156, C = +.679; \quad D = +.213, E = -.977; \\ G = +.664, H = +.145, K = -.734.$$

|           | $\Delta$ | Az.     | P.     | O-C. | S.     | O-C. | L.    | M.  |
|-----------|----------|---------|--------|------|--------|------|-------|-----|
|           | $\circ$  | $\circ$ | m. s.  | s.   | m. s.  | s.   | m.    | m.  |
| Florence  | 1.2      | 322     | e 0 21 | + 3  | —      | —    | —     | 0.6 |
| Zagreb    | 4.0      | 40      | —      | —    | —      | —    | e 2.3 | —   |
| Chur      | 4.5      | 334     | e 1 9  | - 1  | i 2 3  | - 1  | —     | —   |
| Zurich    | 5.2      | 332     | e 1 34 | + 14 | —      | —    | —     | —   |
| Neuchatel | 5.7      | 320     | e 1 31 | + 3  | e 2 33 | - 3  | —     | —   |

Zagreb gives also  $e = +2m.25s.$

Sept. 22d. 21h. 54m. 42s. Epicentre  $14^\circ 0'S$ .  $174^\circ 0'W$ . (as at 5h.).

|               | $\Delta$ | Az.     | P.      | O-C.             | S.      | O-C.             | L.     | M.   |
|---------------|----------|---------|---------|------------------|---------|------------------|--------|------|
|               | $\circ$  | $\circ$ | m. s.   | s.               | m. s.   | s.               | m.     | m.   |
| Apia          | 2.2      | 86      | 0 35    | + 1              | 0 58    | - 2              | —      | 3.1  |
| Honolulu T.H. | 38.7     | 24      | —       | —                | —       | —                | 15.6   | —    |
| Florissant    | r. 93.9  | 50      | e 13 13 | - 24             | e 18 8  | {PR <sub>1</sub> | —      | 41.3 |
| Irkutsk       | 96.1     | 322     | e 16 18 | ?                | e 24 24 | {+21}            | e 47.3 | —    |
| Georgetown    | z. 104.1 | 51      | e 18 36 | {PR <sub>1</sub> | e 40 48 | ?                | e 52.2 | —    |
| Tashkent      | 119.1    | 310     | 18 23   | [-27]            | i 26 6  | [+23]            | e 55.3 | 66.6 |
| Ekaterinburg  | 120.6    | 329     | e 22 35 | ?                | e 29 37 | +43              | 60.8   | —    |
| Pulkovo       | 130.9    | 344     | i 22 53 | {PR <sub>1</sub> | —       | —                | 68.3   | —    |
| Baku          | 133.6    | 313     | —       | —                | —       | —                | e 90.0 | —    |
| Copenhagen    | 138.0    | 353     | —       | —                | e 33 12 | ?                | 72.3   | —    |
| De Bilt       | 141.9    | 1       | —       | —                | —       | —                | e 83.3 | —    |
| Paris         | 145.1    | 356     | i 19 59 | [+11]            | —       | —                | 82.3   | —    |
| Granada       | 155.3    | 19      | —       | —                | —       | —                | 81.3   | 85.3 |

Additional readings and notes: Tashkent  $e = +27m.30s. = Z + 22s.$  Ekaterinburg  $e = +28m.9s.$ ,  $+39m.17s.$ , and  $+42m.19s. = SR_1 - 11s.$ ; readings have been diminished by 1h., if we further diminish the readings by 2m., the readings in P and S and the first two of these become respectively  $PR_1 + 7s.$ ,  $Z + 20s.$ ,  $[S] + 23s.$ , and  $SR_1 + 23s.$  Baku L has been diminished by 1h.

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Sept. 22d. Readings also at 0h. (near La Paz and Sucre), 1h. (Taihoku), 3h. (Irkutsk and near Tacubaya), 4h. (Ekaterinburg and Tashkent), 5h. (near La Paz), 6h. (Nagoya), 7h. (near Taihoku), 9h. (Tananarive), 10h. (Vienna, near Taihoku, and Zi-ka-wei), 11h. (near Batavia and Malabar), 12h. (near Lick), 13h. (near Hohenheim), 15h. (Florence), 17h. (near Tacubaya), 18h. (Zagreb), 21h. (Apia).

Sept. 23d. 6h. 54m. 48s. Epicentre 40°·0N. 147°·0E.

A = -·643, B = +·417, C = +·643; D = +·545, E = +·839;  
G = -·539, H = +·350, K = -·766.

Very uncertain determination.

|          |    | $\Delta$ | Az. | P.     | O-C. | S.      | O-C. | L.     | M.   |
|----------|----|----------|-----|--------|------|---------|------|--------|------|
|          |    | °        | °   | m. s.  | s.   | m. s.   | s.   | m.     | m.   |
| Mizusawa | F. | 4·6      | 260 | 1 10   | - 1  | 1 20    | -46  | —      | —    |
|          | N. | 4·6      | 260 | 1 11   | 0    | 1 18    | -48  | —      | —    |
| Nagoya   |    | 9·3      | 242 | e 1 14 | -66  | 2 15    | -115 | 2·7    | 4·0  |
| Osaka    |    | 10·6     | 244 | 2 58   | +20  | (4 31)  | -14  | 4·5    | 4·4  |
| Kobe     |    | 10·8     | 244 | 2 31   | -10  | (4 25)  | -25  | 4·4    | 4·6  |
| Sumoto   |    | 11·2     | 243 | 2 33   | -14  | (4 8)   | -51  | 4·1    | —    |
| Tashkent |    | 56·9     | 299 | —      | —    | e 17 54 | + 9  | e 25·7 | 30·6 |
| Baku     |    | 69·9     | 306 | —      | —    | —       | —    | e 36·9 | —    |

Additional readings: Nagoya MN = +3·8m. Kobe PR<sub>1</sub> = +2m.49s.

Sept. 23d. 13h. 40m. 33s. Epicentre 15°·4N. 94°·5W. (given by La Paz).

A = -·076, B = -·961, C = +·266; D = -·997, E = +·078;  
G = -·021, H = -·265, K = -·964.

|               |    | $\Delta$ | Az. | P.      | O-C. | S.      | O-C.  | L.     | M.    |
|---------------|----|----------|-----|---------|------|---------|-------|--------|-------|
|               |    | °        | °   | m. s.   | s.   | m. s.   | s.    | m.     | m.    |
| Vera Cruz     |    | 4·1      | 338 | (1 18)  | +14  | —       | —     | (2·2)  | (3·5) |
| Puebla        |    | 5·0      | 315 | (0 57)  | -20  | (2 7)   | -10   | (2·1)  | (2·5) |
| Tacubaya      |    | 6·0      | 312 | 2 4     | +32  | —       | —     | 3·5    | 4·1   |
| Merida        |    | 7·2      | 39  | (1 45)  | - 4  | (3 6)   | - 9   | (3·3)  | (3·9) |
| Tucson        |    | 22·5     | 321 | e 5 26  | +15  | 9 6     | - 9   | 12·6   | —     |
| Cincinnati    | Z. | 25·3     | 17  | —       | —    | —       | —     | i 12·4 | —     |
| Georgetown    | Z. | 28·0     | 30  | e 2 29  | ?    | 8 26    | ?     | e 12·3 | 20·8  |
| Toronto       | E. | 31·0     | 23  | —       | —    | —       | —     | 17·4   | —     |
| Ottawa        |    | 33·9     | 26  | —       | —    | —       | —     | e 19·0 | —     |
| Victoria      | E. | 40·6     | 330 | 18 20   | ?SR, | —       | —     | 23·3   | 26·4  |
| Scoresby Sund |    | 69·7     | 20  | —       | —    | —       | —     | 43·4   | —     |
| Edinburgh     |    | 78·0     | 36  | —       | —    | —       | —     | e 42·4 | —     |
| Kew           |    | 80·6     | 40  | —       | —    | —       | —     | e 42·4 | —     |
| Paris         |    | 83·0     | 41  | —       | —    | —       | —     | e 43·4 | —     |
| Uccle         |    | 83·5     | 40  | —       | —    | —       | —     | e 42·4 | —     |
| De Bilt       |    | 83·6     | 39  | e 12 43 | + 3  | —       | —     | e 41·4 | —     |
| Strasbourg    |    | 86·4     | 41  | —       | —    | —       | —     | e 44·4 | —     |
| Copenhagen    |    | 86·4     | 33  | —       | —    | e 23 21 | -13   | 45·4   | —     |
| Pulkovo       |    | 92·7     | 25  | —       | —    | e 23 51 | [+ 7] | 49·4   | —     |
| Kucino        |    | 98·4     | 26  | —       | —    | —       | —     | 47·4   | —     |
| Ekaterinburg  |    | 104·8    | 15  | —       | —    | e 25 1  | [+15] | 54·4   | —     |
| Irkutsk       |    | 110·4    | 349 | —       | —    | —       | —     | e 65·4 | —     |
| Baku          |    | 115·1    | 30  | —       | —    | —       | —     | e 59·0 | —     |
| Tashkent      |    | 121·3    | 15  | —       | —    | e 27 9  | ?Σ    | e 66·4 | 74·8  |

Additional readings and notes: Vera Cruz readings have been increased by 3m. Puebla and Merida readings have been increased by 1m. Tucson LN = +13·0m. Cincinnati LZ = +20·9m. Toronto LN = +20·4m. Ottawa eN? = +13m.27s. Tashkent e = +31m.27s.

Sept. 23d. Readings also at 2h. (La Paz, Nagoya, near Matuyama, and Sumoto), 3h. (near Nagoya), 5h. (near Tacubaya), 6h. (Kew and La Paz), 9h. (Taihoku), 13h. (Mizusawa and Taihoku), 15h. (Copenhagen), 16h. (Tucson), 17h. (Georgetown and near Tucson), 21h. (near Taihoku), 23h. (De Bilt, Copenhagen, Ekaterinburg, Baku, Irkutsk, Kucino, Pulkovo, and Tashkent),

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Sept. 24d. 9h. 12m. 25s. Epicentre 0°0 125°0E. (as on 1926 July 13d.).

A = -·574, B = +·819, C = ·000; D = +·819, E = +·574;  
G = ·000, H = ·000, K = -1·000.

|               | $\Delta$<br>° | Az.<br>° | P.<br>m. s. | O-C.<br>s. | S.<br>m. s. | O-C.<br>s.       | L.<br>m. | M.<br>m. |
|---------------|---------------|----------|-------------|------------|-------------|------------------|----------|----------|
| Amboina       | 4·8           | 139      | (d 1 10)    | - 4        | (2 12)      | + 1              | —        | —        |
| Manila        | 15·1          | 345      | e 3 48      | + 8        | —           | —                | i 5·3    | —        |
| Batavia       | 19·2          | 251      | i 4 35      | + 4        | i 7 30      | -36              | —        | —        |
| Phu-Lien      | 27·5          | 320      | e 5 53      | -10        | —           | —                | —        | —        |
| Perth         | 33·1          | 195      | 11 35       | ?S         | (11 35)     | -51              | —        | —        |
| Riverview     | 41·8          | 147      | —           | —          | e 17 23     | ?SR <sub>1</sub> | e 26·9   | 30·8     |
| Bombay        | 54·5          | 295      | 16 56       | ?S         | (16 56)     | -19              | 20·6     | —        |
| Irkutsk       | 55·1          | 345      | 9 33        | - 7        | 17 15       | - 7              | e 28·6   | —        |
| Tashkent      | 65·0          | 318      | i 10 44     | - 1        | 19 15       | -10              | e 29·1   | 39·4     |
| Ekaterinburg  | 76·3          | 330      | i 11 54     | - 3        | 21 33       | - 8              | e 32·6   | 45·9     |
| Baku          | 78·8          | 313      | 12 13       | + 1        | 22 10       | 0                | e 38·6   | —        |
| Kucino        | 88·4          | 326      | e 13 5      | - 2        | e 23 35     | [+17]            | e 45·0   | 61·2     |
| Theodosia     | 89·1          | 316      | e 13 3      | - 8        | —           | —                | —        | —        |
| Simferopol    | 90·6          | 315      | e 13 10     | - 9        | —           | —                | —        | —        |
| Yalta         | 90·6          | 315      | e 13 10     | - 9        | —           | —                | —        | —        |
| Sebastopol    | 91·0          | 315      | e 23 35     | ?[ S ]     | (e 23 35)   | [+ 1]            | —        | —        |
| Pulkovo       | 92·4          | 330      | 13 17       | -12        | 24 11       | -28              | 51·6     | 57·8     |
| Copenhagen    | 102·5         | 329      | —           | —          | e 24 35?    | [- 1]            | 49·6     | —        |
| Scoresby Sund | 106·3         | 350      | —           | —          | —           | —                | 59·6     | —        |
| De Bilt       | 107·8         | 326      | —           | —          | —           | —                | e 56·6   | —        |
| Paris         | 110·7         | 324      | —           | —          | —           | —                | e 64·6   | —        |
| Kew           | 111·1         | 327      | —           | —          | —           | —                | e 64·6   | —        |
| Sucre         | 158·5         | 153      | 20 13       | [+ 6]      | —           | —                | —        | —        |
| La Paz        | 159·0         | 142      | 20 19       | [+12]      | —           | —                | —        | —        |

Additional readings and note : Amboina readings have been *diminished* by 2m.  
Batavia i = +3m.49s. Riverview e = +20m.29s., MN = +30·3m. Bom-  
bay S = +19m.27s. = [S] + 15s. Pulkovo S<sub>c</sub>P<sub>c</sub>S = +23m.45s. = [S] + 3s.  
De Bilt eLZ = +65·6m. Kew eZ = 9h.10m.46s.

Sept. 24d. Readings also at 0h. (La Paz, Taihoku, and Victoria), 1h. (Apia, Georgetown, and near Tacubaya), 2h. (Ekaterinburg, Tashkent, near Chur, Neuchatel, and Zurich), 4h. (near Granada), 6h. and 7h. (Tucson), 8h. (Strasbourg, Taihoku, and near Tucson), 9h. (Copenhagen, Ekaterinburg, Kucino, Pulkovo, and near Wellington), 10h. (Nagoya), 19h. (La Paz), 23h. (Taihoku).

Sept. 25d. 4h. 58m. 27s. Epicentre 33°·5N. 131°·9E. (as on 1926 Jan. 30d.).

A = -·557, B = +·621, C = +·552; D = +·744, E = +·668;  
G = -·369, H = +·411, K = -·834.

K. Wadati in the Geophysical Magazine of Tokyo, Volume IV, No. 4, gives epicentre 33°·7N. 131°·9E.

|               | $\Delta$<br>° | Az.<br>° | P.<br>m. s. | O-C.<br>s. | S.<br>m. s. | O-C.<br>s. | L.<br>m. | M.<br>m. |
|---------------|---------------|----------|-------------|------------|-------------|------------|----------|----------|
| Matuyama      | 0·8           | 65       | 10 30       | +18        | —           | —          | —        | —        |
| Hukuoka       | 1·2           | 274      | 0 36        | +18        | 0 51        | +18        | —        | 0·9      |
| Nagasaki      | 1·9           | 245      | 0 46        | +17        | 1 4         | +11        | 1·1      | 1·3      |
| Sumoto        | 2·6           | 71       | 0 53        | +12        | —           | —          | 1·4      | 1·8      |
| Kobe          | 2·9           | 66       | 10 58       | +13        | —           | —          | 1·8      | 1·8      |
| Osaka         | 3·2           | 69       | 1 1         | +11        | —           | —          | 1·9      | 3·1      |
| Nagoya        | 4·5           | 67       | 11 21       | +11        | 12 6        | + 2        | 2·8      | 3·1      |
| Zi-ka-wei     | N. 9·2        | 258      | e 2 19      | 0          | —           | —          | —        | —        |
| Hong Kong     | N. 19·2       | 239      | 8 13        | ?S         | (8 13)      | + 7        | —        | —        |
| Manila        | N. 21·3       | 210      | —           | —          | —           | —          | —        | 9·0      |
| Phu-Lien      | N. 25·7       | 247      | —           | —          | 9 33?       | -43        | —        | —        |
| Irkutsk       | 27·2          | 322      | e 5 52      | - 8        | 10 31       | -14        | 16·6     | —        |
| Tashkent      | 49·3          | 300      | 18 56       | - 6        | i 15 58     | -12        | e 23·6   | 26·8     |
| Ekaterinburg  | 52·5          | 320      | —           | —          | e 16 55     | + 5        | e 49·0   | —        |
| Baku          | 63·5          | 305      | e 10 40     | + 5        | —           | —          | e 27·2   | —        |
| Kucino        | 64·9          | 325      | e 10 34     | -10        | —           | —          | e 34·8   | 42·0     |
| Pulkovo       | 66·9          | 329      | i 10 57     | 0          | i 19 45     | - 4        | 31·6     | —        |
| Scoresby Sund | 74·4          | 353      | —           | —          | 21 20       | + 1        | —        | —        |

Continued on next page.

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|               | $\Delta$ | Az. | P.      | O-C. | S.       | O-C. | L.     | M.   |
|---------------|----------|-----|---------|------|----------|------|--------|------|
|               |          |     | m. s.   | s.   | m. s.    | s.   | m.     | m.   |
| Copenhagen    | 77.0     | 330 | 11 58   | - 3  | e 21 42  | - 7  | 36.6   | —    |
| Feldberg      | N. 82.6  | 328 | —       | —    | —        | —    | e 44.6 | 47.2 |
| De Bilt       | 82.6     | 330 | —       | —    | e 22 41  | -12  | e 39.6 | —    |
| Uccle         | 83.9     | 330 | —       | —    | e 22 33? | -35  | e 42.6 | —    |
| Strasbourg    | 84.1     | 327 | e 12 37 | - 6  | e 22 59  | -10  | e 39.6 | —    |
| Kew           | 85.2     | 332 | —       | —    | —        | —    | e 46.6 | —    |
| Rocca di Papa | N. 86.4  | 320 | e 12 56 | + 1  | —        | —    | —      | —    |

Additional readings: Sumoto MZ = +1.8m., MN = +2.1m. Kobe iPZ = +59s., MN = +2.4m. Osaka MN = +3.2m. Nagoya S = +2m.18s., MZ = +2.6m. Ekaterinburg e = +28m.6s., and +33m.59s. Kucino e = +10m.50s., +20m.26s. = [S] -6s., and +30m.22s. Copenhagen eSR, EN = +26m.33s. ? Strasbourg ePR<sub>1</sub> = +15m.57s.

Sept. 25d. 8h. 2m. 30s. Epicentre 45°-3N. 153°-5E. (as on 1927 March 3d.).

A = -630, B = +314, C = +711; D = +446, E = +895;  
G = -636, H = +317, K = -703.

|               | $\Delta$  | Az. | P.       | O-C. | S.      | O-C.  | L.     | M.   |
|---------------|-----------|-----|----------|------|---------|-------|--------|------|
|               |           |     | m. s.    | s.   | m. s.   | s.    | m.     | m.   |
| Mizusawa      | E. 11.0   | 240 | —        | —    | 4 38    | -16   | —      | —    |
| Osaka         | 17.4      | 239 | 4 47     | +37  | (7 27)  | 0     | 7.5    | 10.2 |
| Kobe          | 17.6      | 239 | 4 12     | 0    | 7 37    | + 6   | e 10.5 | 12.8 |
| Irkutsk       | 32.5      | 300 | 6 38     | -15  | 12 0    | -16   | 18.5   | 22.5 |
| Hong Kong     | 39.4      | 245 | —        | —    | —       | —     | —      | 26.5 |
| Manila        | 41.2      | 233 | e 4 30?  | ?    | —       | —     | —      | —    |
| Phu-Lien      | 45.5      | 255 | —        | —    | 13 30?  | ?     | —      | —    |
| Honolulu T.H. | 46.1      | 103 | —        | —    | 15 24   | - 5   | 20.8   | 21.8 |
| Victoria      | E. 54.1   | 55  | 17 8     | ?S   | (17 8)  | - 2   | —      | 27.5 |
| Ekaterinburg  | 54.9      | 319 | 9 38     | 0    | i 17 19 | - 1   | 26.5   | 37.1 |
| Tashkent      | 58.6      | 300 | i 10 4   | + 1  | i 18 7  | + 1   | e 27.0 | 38.8 |
| Scoresby Sund | 64.2      | 358 | 10 43    | + 4  | 19 12   | - 3   | 33.5   | —    |
| Pulkovo       | 65.2      | 333 | i 10 47  | + 1  | i 19 31 | + 4   | 32.5   | 43.8 |
| Kucino        | 65.4      | 326 | 10 54    | + 7  | 19 30   | 0     | 32.7   | 44.4 |
| Upsala        | 68.9      | 338 | —        | —    | e 20 14 | + 1   | —      | —    |
| Bombay        | 70.2      | 279 | 11 23    | + 5  | 20 45   | +17   | 38.0   | 46.9 |
| Baku          | 70.5      | 310 | i 11 24  | + 4  | e 20 40 | + 8   | e 35.5 | 47.4 |
| Lund          | 73.6      | 338 | —        | —    | 21 12   | + 3   | 36.5   | —    |
| Copenhagen    | 73.8      | 339 | 11 43    | + 2  | 21 17   | + 5   | e 35.5 | 40.4 |
| Theodosia     | 74.4      | 321 | e 11 49  | + 4  | 21 27   | + 8   | —      | —    |
| Yalta         | 75.4      | 321 | e 10 30? | -81  | —       | —     | —      | —    |
| Hamburg       | 76.4      | 339 | e 11 57  | 0    | e 21 45 | + 3   | e 40.5 | 46.5 |
| Edinburgh     | 77.0      | 348 | e 12 31? | +30  | —       | —     | —      | —    |
| Florissant    | 78.3      | 46  | i 12 0   | - 9  | i 21 57 | - 7   | —      | —    |
| Jena          | 78.4      | 336 | (e 12 6) | - 3  | —       | —     | e 12.1 | —    |
| Stonyhurst    | N. 78.8   | 346 | e 12 27  | +15  | e 22 10 | 0     | —      | 52.5 |
| De Bilt       | 78.9      | 340 | 12 11    | - 1  | 22 12   | + 1   | e 39.5 | 45.6 |
| Budapest      | 79.1      | 330 | —        | —    | —       | —     | e 49.5 | —    |
| Toronto       | E. 79.4   | 36  | —        | —    | —       | —     | e 37.5 | —    |
| Ottawa        | 79.5      | 32  | —        | —    | e 22 12 | - 6   | e 35.5 | —    |
| Feldberg      | N. 79.8   | 339 | e 12 13  | - 5  | e 22 19 | - 2   | e 40.8 | 48.7 |
| Uccle         | 80.3      | 341 | e 12 18  | - 3  | —       | —     | e 39.5 | —    |
| Graz          | 80.5      | 333 | —        | —    | —       | —     | e 50.5 | —    |
| Kew           | 80.6      | 345 | i 12 20  | - 3  | e 22 29 | - 1   | 40.5   | 55.5 |
| Oxford        | 80.6      | 346 | i 12 22  | - 1  | i 22 32 | + 2   | e 41.5 | 57.5 |
| Zagreb        | 81.5      | 331 | e 11 15  | -73  | e 21 40 | -61   | e 45.0 | —    |
| Strasbourg    | 81.6      | 338 | i 12 25  | - 3  | 22 43   | + 1   | 37.5   | —    |
| Zurich        | 82.4      | 336 | e 12 29  | - 3  | e 22 48 | - 2   | —      | —    |
| Chur          | 82.6      | 336 | 12 31    | - 3  | e 23 22 | +29   | —      | —    |
| Paris         | 82.6      | 342 | i 12 32  | - 2  | e 22 50 | - 3   | 43.5   | 57.5 |
| Ksara         | E. 82.9   | 313 | 12 35    | 0    | —       | —     | 46.8   | 56.1 |
| Neuchatel     | 83.2      | 336 | e 12 34  | - 3  | e 22 54 | - 5   | —      | —    |
| Georgetown    | Z. 84.3   | 37  | i 12 40  | - 4  | —       | —     | e 42.9 | —    |
| Moncalleri    | 84.8      | 337 | 12 39    | - 8  | 22 56   | [+ 1] | 31.9   | —    |
| Florence      | 84.9      | 334 | 12 45    | - 2  | 22 0    | -78   | —      | —    |
| Rocca di Papa | 86.3      | 332 | 12 54    | - 1  | —       | —     | e 51.7 | 62.6 |
| Toledo        | N.E. 92.5 | 345 | —        | —    | —       | —     | e 50.6 | 64.2 |
| Almeria       | 95.0      | 341 | —        | —    | —       | —     | 51.4   | 55.2 |
| Granada       | 95.0      | 343 | e 9 7    | ?    | i 17 23 | ?[P]  | 50.5   | 66.0 |
| San Fernando  | E. 96.3   | 345 | —        | —    | —       | —     | —      | 56.8 |

For Notes see next page.

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NOTES TO SEPT. 25d. 8h. 2m. 30s.

Additional readings: Mizusawa SN = +4m.40s. Osaka MN = +8.1m.  
 Honolulu T.H. MN = +21.3m. Copenhagen ePR<sub>1</sub> = +14m.18s., ePSZ =  
 +21m.40s., SR<sub>1</sub> = +25m.30s., eLN = +37.5m., eLZ = +39.5m., MNZ =  
 +45.0m. Hamburg MN = +55.5m. De Bilt PR<sub>1</sub> = +15m.11s., eLN =  
 +41.5m., MZ = +55.9m., MN = +56.0m. Toronto eN = +43m.52s.  
 and +49m.50s., LE = +50.9m. Feldberg IN = +23m.3s. = PS - 1s.  
 Kew ePR<sub>2</sub>Z = +15m.26s., ePSZ = +23m.15s. Zagreb eNW = +12m.30s.?  
 e = +12m.57s., +14m.35s., +21m.54s., and +50m.0s. Strasbourg  
 PR<sub>1</sub> = +15m.34s., IPS = +23m.23s. Ksara PR<sub>4</sub>E = +16m.31s. =  
 PR<sub>1</sub> + 18s., PR<sub>2</sub>E = +18m.31s. = PR<sub>1</sub> + 18s., PR<sub>3</sub>E = +19m.48s. = PR<sub>2</sub> + 30s.,  
 PSE = +23m.2s., PPSE = +23m.58s., SR<sub>1</sub>E = +29m.9s., SR<sub>2</sub>E = +33m.46s.  
 Georgetown eZ? = +1m.52s., eZ = +5m.54s. Rocca di Papa e =  
 +11m.49s., eN = +11m.59s. Toledo MNW = +64.4m. San  
 Fernando MN = +56.7m.

Sept. 25d. 19h. 1m. 0s. Epicentre 34°·5N. 25°·0E. (as on 1927 Nov. 18d.).

A = +·747, B = +·348, C = +·566; D = +·423, E = -·906;  
 G = +·513, H = +·239, K = -·824.

|               | Δ  | Az.  | P.    | O-C.   | S.               | O-C.    | L.  | M.     |      |
|---------------|----|------|-------|--------|------------------|---------|-----|--------|------|
|               | °  | °    | m. s. | s.     | m. s.            | s.      | m.  | m.     |      |
| Ksara         | E. | 9·0  | 91    | e 2 20 | + 4              | 3 38    | -25 | 4·3    | —    |
| Rocca di Papa |    | 12·1 | 310   | —      | —                | —       | —   | e 6·1  | 9·1  |
| Zagreb        |    | 13·2 | 331   | e 3 33 | +17              | e 6 21  | +32 | e 7·2  | —    |
| Budapest      |    | 13·7 | 343   | —      | —                | —       | —   | e 7·0  | —    |
| Moncalieri    |    | 16·9 | 314   | —      | —                | —       | —   | e 9·4  | —    |
| Chur          |    | 17·0 | 321   | e 4 5  | 0                | e 7 16  | - 2 | —      | —    |
| Strasbourg    |    | 19·0 | 323   | e 5 0? | +31              | e 8 0?  | - 2 | 11·0   | —    |
| Feldberg      | N. | 19·8 | 327   | —      | —                | e 8 18  | - 1 | —      | —    |
| Baku          |    | 20·6 | 66    | e 5 20 | +32              | e 8 34  | - 2 | 14·1   | —    |
| Paris         |    | 21·9 | 318   | —      | —                | e 9 0?  | - 3 | 14·0   | —    |
| Uccle         |    | 22·1 | 324   | e 5 4  | - 2              | e 9 12  | + 5 | e 12·0 | —    |
| De Bilt       |    | 22·6 | 327   | —      | —                | e 9 20  | + 3 | e 12·0 | —    |
| Copenhagen    |    | 22·9 | 341   | —      | —                | 9 13    | -10 | 12·4   | 16·4 |
| Kucino        |    | 23·1 | 19    | —      | —                | —       | —   | 10·4   | 12·7 |
| Kew           |    | 24·9 | 321   | e 5 33 | - 4              | e 10 3  | + 2 | 12·0   | —    |
| Ekaterinburg  |    | 32·8 | 36    | e 6 37 | -18              | e 13 4  | +43 | 19·0   | 20·5 |
| Tashkent      |    | 35·2 | 65    | e 9 43 | ?PR <sub>1</sub> | i 11 22 | ?   | —      | 11·4 |
| Irkutsk       |    | 57·2 | 46    | —      | —                | —       | —   | e 27·0 | —    |

Additional readings: Rocca di Papa eS = +8m.23s. Moncalieri S? =  
 +10m.38s., L = +12.2m. Ekaterinburg e = +11m.48s. and +16m.43s.

Sept. 25d. Readings also at 1h. (De Bilt and Nagoya), 5h. (near Tacubaya), 7h. (Alicante), 8h. (Copenhagen), 17h. (near Santiago), 19h. (Copenhagen and Kew), 20h. (Manila and near Tashkent), 21h. (near La Paz).

Sept. 26d. Readings at 5h. (near Tashkent), 8h. (near Algiers), 9h. (near Tananarive), 11h. (near Tashkent), 15h. (Copenhagen, De Bilt, Zagreb, Naples, near Pompeii, and Rocca di Papa), 17h. (near Kobe and Sumoto), 21h. (near Tashkent).

Sept. 27d. 0h. 44m. 0s. Epicentre 11°·8N. 60°·5W.

(as on 1922 May 11d.).

A = +·482, B = -·852, C = +·204; D = -·870, E = -·492;  
 G = +·101, H = -·178, K = -·979.

|                | Δ  | Az.  | P.    | O-C.   | S.    | O-C.    | L.  | M.     |      |
|----------------|----|------|-------|--------|-------|---------|-----|--------|------|
|                | °  | °    | m. s. | s.     | m. s. | s.      | m.  | m.     |      |
| Balboa Heights | N. | 19·0 | 263   | e 4 38 | + 9   | —       | —   | —      | —    |
| La Paz         |    | 29·3 | 195   | 1 6 15 | - 6   | i 11 20 | - 2 | 13·8   | 16·1 |
| Georgetown     | Z. | 30·9 | 335   | 6 10   | -27   | 11 23   | -27 | e 15·2 | 19·2 |
| Sucre          |    | 31·2 | 189   | 1 6 15 | -25   | 11 28   | -26 | 13·4   | 18·1 |
| Ithaca         |    | 33·7 | 340   | 7 57   | +55   | 13 13   | +37 | 17·0   | —    |
| Cincinnati     |    | 34·7 | 328   | 7 0    | -11   | e 12 23 | -28 | 15·1   | 17·8 |
| Toronto        |    | 35·8 | 338   | 1 7 12 | - 8   | e 12 42 | -25 | 14·4   | 19·0 |

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|                | $\Delta$ | Az. | P.       | O-C.             | S.      | O-C.             | L.     | M.   |
|----------------|----------|-----|----------|------------------|---------|------------------|--------|------|
|                | °        | °   | m. s.    | s.               | m. s.   | s.               | m.     | m.   |
| Ottawa         | 36.0     | 343 | i 7 16   | - 6              | i 12 45 | -25              | e 16.6 | —    |
| Ann Arbor      | 36.6     | 331 | e 7 24   | - 3              | i 13 6  | -12              | 20.4   | —    |
| Florissant     | 37.9     | 322 | e 7 26   | -11              | i 12 13 | -84              | e 18.7 | 23.0 |
| Tacubaya       | 38.0     | 286 | 7 40     | + 2              | 13 30   | - 8              | —      | —    |
| Chicago        | E. 38.2  | 327 | i 7 2    | -38              | i 12 49 | -52              | 18.4   | 20.3 |
|                | N. 38.2  | 327 | i 7 3    | -37              | i 12 52 | -49              | 16.8   | 19.7 |
| Rio de Janeiro | 38.6     | 155 | e 7 30   | -13              | (13 19) | -27              | 13.3   | —    |
| La Plata       | 46.7     | 177 | 8 14     | -31              | 15 1    | -36              | 23.0   | —    |
| Tucson         | E. 50.4  | 304 | e 9 18   | + 9              | e 16 34 | +10              | —      | —    |
|                | N. 50.4  | 304 | e 9 16   | + 7              | e 16 27 | + 3              | —      | —    |
| San Fernando   | E. 54.5  | 54  | —        | —                | —       | —                | —      | 36.3 |
| Malaga         | 55.9     | 54  | e 9 44   | - 1              | e 17 32 | - 1              | —      | —    |
| Granada        | 56.7     | 54  | i 9 55   | + 5              | e 17 33 | - 0              | 24.5   | 26.8 |
| Toledo         | 56.9     | 50  | e 9 51   | 0                | e 17 45 | - 0              | e 25.8 | 31.5 |
| Almeria        | 57.6     | 54  | i 9 56   | 0                | 17 45   | - 9              | 24.0   | 28.4 |
| Alicante       | 59.3     | 52  | e 9 56   | -11              | e 17 52 | -23              | e 22.0 | —    |
| Lick           | E. 60.1  | 308 | e 10 21  | + 8              | e 18 32 | + 8              | —      | —    |
| Tortosa        | 60.5     | 50  | 10 18    | + 2              | 18 27   | - 3              | 25.1   | 26.9 |
| Berkeley       | Z. 60.6  | 309 | e 10 29  | +13              | —       | —                | —      | —    |
| Algiers        | 61.9     | 55  | 10 25    | + 1              | 18 43   | - 4              | 28.0   | 39.0 |
| Oxford         | N. 62.0  | 38  | 10 23    | - 2              | i 18 49 | + 1              | —      | 33.0 |
| Stonyhurst     | 62.0     | 36  | 10 29    | + 4              | 18 48   | + 0              | —      | 29.5 |
| Edinburgh      | 62.3     | 34  | e 10 30  | + 3              | i 18 55 | + 3              | 29.0   | 37.0 |
| Kew            | 62.4     | 38  | 10 27    | - 1              | e 18 51 | - 2              | 29.7   | 32.0 |
| Scoresby Sund  | 62.5     | 14  | 10 36    | + 7              | 19 10   | +15              | 28.0   | —    |
| Victoria       | E. 63.3  | 319 | 10 44    | +10              | 19 12   | + 7              | 31.2   | 43.9 |
|                | N. 63.3  | 319 | 10 50    | +16              | 19 17   | +12              | 30.5   | 35.2 |
| Paris          | 63.5     | 41  | e 10 36  | + 1              | e 18 59 | - 8              | 30.0   | 32.0 |
| Uccle          | 65.1     | 39  | 10 44    | - 2              | 19 23   | - 3              | e 27.0 | 31.0 |
| De Bilt        | 65.9     | 39  | 10 50    | 0                | 19 38   | + 2              | e 27.0 | 35.4 |
| Neuchatel      | 66.0     | 45  | e 10 51  | 0                | e 19 40 | + 3              | —      | —    |
| Strasbourg     | 66.9     | 42  | i 10 55  | - 2              | 19 51   | + 2              | 31.0   | —    |
| Zurich         | 67.3     | 45  | e 10 59  | - 1              | e 19 53 | - 1              | —      | —    |
| Feldberg       | N. 67.5  | 40  | —        | —                | e 19 58 | + 2              | —      | —    |
| Chur           | 67.8     | 45  | e 11 3   | 0                | e 20 2  | + 2              | —      | —    |
| Bergen         | 68.0     | 29  | e 11 0?  | - 4              | —       | —                | —      | —    |
| Florence       | 68.8     | 49  | 11 10    | 0                | 19 0    | -72              | —      | —    |
| Hamburg        | 69.0     | 38  | e 11 7   | - 4              | e 20 13 | - 1              | e 25.0 | 37.0 |
| Venice         | 69.6     | 46  | e 11 57? | +42              | —       | —                | —      | —    |
| Rocca di Papa  | 69.7     | 50  | e 11 16  | + 1              | e 20 24 | + 2              | —      | —    |
| Copenhagen     | 70.7     | 35  | e 11 12  | - 9              | 20 36   | + 2              | e 33.0 | 34.8 |
| Naples         | N. 70.8  | 51  | e 11 29  | + 7              | —       | —                | —      | —    |
| Pompeii        | E. 71.1  | 51  | e 11 18  | - 6              | —       | —                | —      | —    |
| Lund           | 71.2     | 35  | 11 25    | + 1              | 20 40   | - 0              | 33.0   | —    |
| Zagreb         | 72.2     | 46  | e 11 26  | - 5              | e 20 48 | - 4              | e 33.2 | —    |
| Budapest       | 74.3     | 44  | e 13 8   | +84              | —       | —                | —      | —    |
| Konigsberg     | 75.2     | 37  | —        | —                | e 21 58 | [+ 8]            | —      | 39.4 |
| Belgrade       | 75.4     | 46  | e 11 0?  | -51              | —       | —                | —      | —    |
| Pulkovo        | 80.3     | 30  | i 12 16  | - 5              | 22 20   | - 7              | 36.0   | 43.2 |
| Sebastopol     | 84.6     | 46  | e 12 44  | - 2              | —       | —                | —      | —    |
| Kucino         | 85.0     | 35  | 12 42    | - 6              | 23 36   | +17              | 37.3   | 45.8 |
| Simferopol     | 85.0     | 46  | e 12 40  | - 8              | —       | —                | —      | —    |
| Yalta          | 85.1     | 46  | e 12 46  | - 3              | —       | —                | —      | —    |
| Theodosia      | 85.8     | 45  | e 12 40  | -12              | —       | —                | —      | —    |
| Ksara          | E. 88.7  | 58  | 12 59    | -10              | 23 46   | [+26]            | 43.0   | —    |
| Baku           | 97.3     | 48  | e 13 46  | -10              | —       | —                | 45.0   | 58.0 |
| Tashkent       | 109.6    | 38  | e 15 30  | +35              | i 25 56 | [+48]            | e 51.0 | 62.4 |
| Irkutsk        | 114.6    | 10  | (19 31)  | ?PR <sub>1</sub> | ?       | ?                | —      | —    |
| Manila         | E. 153.6 | 357 | e 19 0?  | ?                | ?       | ?                | —      | —    |
| Batavia        | Z. 166.3 | 67  | i 19 16  | [-56]            | i 24 4  | ?PR <sub>1</sub> | —      | —    |

Additional readings and note : Port au Prince ( $\Delta = 13^\circ 2'$ ) gives 0h.45m. La Paz IPN = +6m.18s., iE = +13m.3s. Georgetown PR,Z = +6m.53s., IZ = +8m.9s. Cincinnati iEN = +8m.11s. = PR<sub>1</sub> - 8s. Toronto iSEN = +12m.50s., LN = +16.3m. and +18.3m.; T<sub>1</sub> = 0h.44m.25s. Ann Arbor eE = +8m.54s. = PR<sub>1</sub> + 12s., and +15m.48s. = SR, +14s., eLN? = +19.3m.; T<sub>1</sub> = 0h.44m.5s. Florissant iPNZ = +7m.28s., iZ = +8m.0s., and +8m.53s. = PR<sub>1</sub> - 4s., iE = +12m.6s., iSN = +12m.14s. Chicago iPR<sub>1</sub>E = +8m.36s. Rio de Janeiro PE = +7m.31s. Tucson ePR<sub>1</sub>E = +11m.13s., ePR<sub>1</sub>N = +11m.17s., ePR<sub>1</sub>E = +12m.51s., iE = +19m.2s., eSN = +22m.40s.; S is given simply as e. San Fernando MN = +37.7m. Toledo MNW = +31.8m. Lick eE = +10m.41s., +14m.5s. = PR<sub>1</sub> + 1s.

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and +19m.55s. = [S] + 0s. Tortosa ePN = +10m.27s. Berkeley eE = +10m.47s., eZ = +12m.53s. = PR<sub>1</sub>-9s., and +14m.9s. = PR<sub>2</sub>+0s., eE? = +20m.23s. Oxford iPN = +10m.47s., very sharp; the reading entered is doubtful. Kew eSR<sub>1</sub>E = +23m.1s., SR<sub>2</sub>N = +26m.15s.; epicentre 13°·0N. 58°·2W. Scoresby Sund +19m.41s. = PS + 15s., and +26m.24s. = SR<sub>1</sub>+22s. Uccle MN = +34·0m. De Bilt MN = +29·4m. Strasbourg iPS = +20m.26s. Hamburg eLNZ = +28·0m. Rocca di Papa ePE = +11m.17s., ePN = +11m.23s. Copenhagen ePR<sub>1</sub>E = +14m.6s., ePSE = +21m.0s., ePSN = +21m.13s., SR<sub>1</sub> = +24m.30s., SR<sub>2</sub> = +28m.0s.?, eLN = +32·0m., MN = +39·2m. Zagreb e = +21m.20s. = [S] - 8s. Königsberg eN = +17m.36s., e?Z = +23m.10s. Baku S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +24m.36s. Tashkent ePR<sub>1</sub> = +19m.30s., iS<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +26m.43s. Irkutsk S<sub>c</sub>P<sub>c</sub>P<sub>c</sub>S = +26m.47s., PS = +29m.6s. Batavia iPZ = +25m.25s. = PR<sub>1</sub>+11s.

Sept. 27d. Readings also 0h. (near Rocca di Papa), 4h. (Lick), 9h. (near Tananarive), 20h. (Manila).

Sept. 28d. Readings at 1h. (La Plata, near Santiago, and La Paz (2)), 5h. (near Manila and near Tananarive), 6h. (near Tananarive), 8h. (near Hukuoka, Nagasaki, and Matuyama), 19h. (Baku, Ekaterinburg, and near Tashkent).

Sept. 29d. 21h. 18m. 10s. Epicentre 36°·5N. 141°·5E. (as on 1927 Aug. 19d.)

A = -.629, B = +.500, C = +.595; D = +.623, E = +.783;  
G = -.466, H = +.370, K = -.804.

K. Wadati in a paper on "Shallow and Deep Earthquakes," in Geophysical Magazine of Tokyo, Vol. IV, No. 4, gives epicentre 36°·6N. 141°·5E. Focus shallow.

|              | Δ    | Az. | P.     | O-C. | S.       | O-C. | L.    | M.   |
|--------------|------|-----|--------|------|----------|------|-------|------|
|              | °    | °   | m. s.  | s.   | m. s.    | s.   | m.    | m.   |
| Mizusawa     | 2·6  | 354 | 0 43   | + 2  | 1 7      | - 5  | —     | —    |
| Nagoya       | 4·0  | 252 | 0 57   | - 5  | (1 41)   | - 9  | 1·7   | 2·0  |
| Osaka        | 5·3  | 252 | 1 32   | + 10 | —        | —    | 2·6   | 3·5  |
| Kobe         | 5·5  | 253 | e 1 58 | +33  | (e 1 58) | -33  | e 3·8 | —    |
| Tashkent     | 54·8 | 299 | —      | —    | —        | —    | —     | 33·5 |
| Ekaterinburg | 55·4 | 320 | —      | —    | —        | —    | 27·8  | —    |

Osaka gives also MN = +3·8m.

Sept. 29d. Readings also at 6h. (Suva), 8h. (Santiago), 11h. (Tashkent and near Tacubaya), 14h. (Manila), 15h. (Sebastopol, near Simferopol, Theodosia, and Yalta), 16h. (Taihoku, Tashkent, Sebastopol, near Simferopol, Theodosia and Yalta), 19h. (Ekaterinburg), 20h. (Tashkent).

Sept. 30d. Readings at 2h. (Taihoku), 8h. (Simferopol, Yalta, and Suva), 10h. (Suva), 13h. (Tananarive), 14h. (La Paz and near Sumoto), 16h. (Tucson, near Tacubaya, Puebla, and Vera Cruz, Nagoya, and near Mizusawa), 18h. (Santiago), 20h. (Taihoku).

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