

CANADA
DEPARTMENT OF MINES AND TECHNICAL SURVEYS
DOMINION OBSERVATORIES

PUBLICATIONS

OF THE

Dominion Observatory

OTTAWA

Volume XIV

Bibliography of Seismology

No. 8

Items 7418-7570

July to December, 1950

BY

W. G. MILNE

OTTAWA
EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
CONTROLLER OF STATIONERY

1951

This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PUBLICATIONS

Dominion Observatory

OTATA

Volume XIV

Bibliography of Seismology

No. 8

June 1958-1959

U.S. GOVERNMENT PRINTING OFFICE

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

PUBLICATIONS

Dominion Observatory

OTATA

Volume XIV

Bibliography of Seismology

No. 8

June 1918-1920

Price 10 Cents

Bibliography of Seismology

July to December, 1950

7418. AKIMA, T., "A Torsional Pendulum Low-pass Filter Applied to the Study of Earthquake Waves", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
7419. ALCOCK, E. D., "Prospecting for Reefs with the Seismograph", *World Oil*, Vol. 130, No. 5, pp. 74, 76, 78, 80, 91, 1950.
7420. ALIVERTI, G., and LOLAINI, L., "Sulla velocità di propagazione delle onde sismiche su brevi percorsi superficiali", *Revista Geofisica Applicata*, Vol. 11, 3-13, Rome, 1950.
- ALLEN, C. F., MILLER, Stephen W., and POULTER, Thos. C., "Seismic Measurements on the Taku Glacier". See No. 7519 of this list.
7421. ALTENBURG, K., "Dispersion longitudinaler Erdbebenwellen", *Experientia*, Vol. 5, No. 2, p. 68, Basle, 1949.
7422. ALTENBURG, Kurt, "Die Dispersion longitudinaler Raumwellen", *Gerlands Beiträge zur Geophysik*, Band 61, Heft 4, 240-249, 5 fig., bib., Leipzig, 1950.
7423. ANTUNES, M. T., "Les sismographes électromagnétiques en l'enregistrement conforme des mouvements du sol", *Boletim da Sociedade Portuguesa de Ciências Naturais*, Vol. 3, No. 1, Series 2, 66-84, 1 fig., 1 tab., Lisbon, 1950.
7424. ASADA, Toshi, and SUZUKI, Ziro,
(1) "On Microearthquakes Having Accompanied Aftershocks of the Fukui Earthquake of June 28, 1948", *Geophysical Notes*, Vol. 2, No. 16, 14 pp., Tokyo, 1949.
(2) "Observations of Microearthquakes in Sikoku District", *Ibid.*, No. 17.
7425. BENIOFF, H., GUTENBERG, B., and RICHTER, C. F., "Progress Report, Seismological Laboratory, California Institute of Technology, 1949", *Transactions, American Geophysical Union*, Vol. 31, No. 3, 463-467, Washington, June, 1950.
7426. BERNARD, P., "Enregistrements microsismiques à Nantes", *Annales de Géophysique*, Vol. 6, No. 3, 147-156, Paris, 1950.
7427. BIRCH, Francis, "Elasticity and Composition of the Earth's Interior" (abstract), *Science*, Vol. 112, No. 2912, p. 453, Washington, Oct. 20, 1950.
- BRAY, R. S., and GRAY, D. E., "Abstracting and Indexing Services of Physics Interest". See No. 7457 of this list.
- BROOKS, J. A., Jr., REDDING, V. L., and SLOTNICK, M. M., "Note on Well-shooting Data and Linear Increase in Velocity". See No. 7544 of this list.
7428. BUCHER, Walter H., "The Crust of the Earth", *Scientific American*, Vol. 182, No. 5, 32-41, 8 fig., New York, May, 1950.

7429. BULLARD, E. C., "The Transfer of Heat from the Core of the Earth", *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, Vol. 6, No. 1, 36-41, bib., London, March, 1950.
7430. BULLEN, K. E., "An Earth Model Based on a Compressibility-Pressure Hypothesis", *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, Vol. 6, No. 1, 50-59, bib., London, March, 1950.
7431. BUNGERS, Rolf, "Zur Methodik der Nahbebenbearbeitung", *Zeitschrift für Geophysik*, Vol. 15, No. 3-4, 160-167, Braunschweig, 1939.
7432. BUNGERS, Rolf, "Analyse eines mikroseismischen Sturmes", *Zeitschrift für Geophysik*, Vol. 17, No. 3-4, 114-133, Braunschweig, 1941.
7433. CADY, Wallace, M., "Classification of Geotectonic Elements", *Transactions, American Geophysical Union*, Vol. 31, No. 5, 780-785, 2 fig., bib., Washington, Oct., 1950.
7434. CAGNIARD, L., "Réflexion et réfraction des ondes séismiques progressives", Gauthier-Villars, 250 pp., 69 fig., index. Price 500 francs. Paris, 1939.
7435. CALOI, P., "Due caratteristici tipi di microsismi", *Annali di Geofisica*, Vol. 3, No. 3, 303-314, 7 fig., bib., Rome, June, 1950.
7436. CALOI, P., MARCELLI, L., and PANNOCCHIA, G., "Ancora sulla velocità di propagazione delle onde superficiali per tragitti subatlantici. Tentativo di prospezione profonda del bacino Atlantico, mediante le curve di dispersione delle onde L", *Annali di Geofisica*, Vol. 3, No. 2, 214-222, 3 fig., bib., Rome, April, 1950.
7437. CANADIAN GEOPHYSICAL BULLETIN. "Canadian Geophysical Bulletin", Vol. 3, No. 4, 8 pp., Ottawa, 1949.
7438. CANADIAN GEOPHYSICAL BULLETIN. "Canadian Geophysical Bulletin", Vol. 4, No. 1, 40 pp., Ottawa, Jan.-Mar., 1950.
7439. CARDER, Dean S., "Seismic Investigations of Large Explosions", *Journal of the Coast and Geodetic Survey*, Vol. 1, 71-73, 5 fig., Washington, Jan., 1948.
7440. CAROME, Edward F., "An Electronic Vibration Meter", *Transactions, American Geophysical Union*, Vol. 31, No. 4, 529-530, Washington, Aug., 1950.
7441. CLARK, R. D. M., "Atmospheric Micro-oscillations", *Journal of Meteorology*, Vol. 7, No. 1, 70-75, New York, Feb., 1950.
7442. COULOMB, J., and MOLARD, P., "Ondes séismiques au fond de la mer des Antilles", *Annales des Géophysique*, Vol. 5, No. 3, 1-2, Paris, July-August-September, 1949.
7443. DARBYSHIRE, J., "Identification of Microseismic Activity with Sea Waves", *Proceedings of the Royal Society, Series A*, Vol. 202, No. 1070, 439-448, 6 fig., bib., London, Aug. 7, 1950.
7444. DESSAU, G., "Some Results of Geophysical Prospecting Conducted from the Geological Survey of India from 1945-1948", *Geophysics*, Vol. 15, No. 4, 704-731, 14 fig., 2 tab., bib., Menasha, Oct., 1950.

7445. DEZSO, Csomor, "Ungarischer Erdbebenkatalog für das Jahr 1948", *Az Országos Földrenghésvizsgáló Intézet Kiadványai*, Series B, Budapest, 1949.
7446. DiFILIPPO, D., "Sulla rappresentazione in superficie della natura dinamica di una scossa con ipocentro profondo", *Annali di Geofisica*, Vol. 3, No. 3, 379-391, 11 fig., 2 tab., bib., Rome, June, 1950.
7447. DiFILIPPO, Domenico, "Sulla rappresentazione in superficie della natura dinamica di una scossa all'ipocentro", *Annali di Geofisica*, Vol. 3, No. 2, 263-279, 12 fig., 3 tab., bib., Rome, April, 1950.
7448. DiFILIPPO, D., and MARCELLI, L., "Magnitudo ed energia dei terremoti in Italia", *Annali di Geofisica*, Vol. 3, No. 3, 337-348, 4 fig., 4 tab., bib., Rome, June, 1950.
7449. DUDLEY, R. W., "Public Relations in Geophysical Prospecting", *Drilling*, 3 pp., Tulsa, Mar., 1950.
7450. EWING, Maurice, "Seismic Measurements in the Atlantic Ocean" (abstract), *Science*, Vol. 112, No. 2912, p. 452, Washington, Oct. 20, 1950.
- EWING, Maurice, and PRESS, Frank, "Propagation of Explosive Sound in a Liquid Layer Overlying a Semi-infinite Elastic Solid". See No. 7520 of this list.
- EWING, Maurice, TOLSTOY, Ivan, and PRESS, Frank, "The Airy Phase of Shallow-focus Submarine Earthquakes". See No. 7521 of this list.
7451. EWING, Maurice, WORZEL, J. L., HERSEY, J. B., PRESS, Frank, and HAMILTON, G. R., "Seismic Refraction Measurements in the Atlantic Ocean Basin", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 233-242, Berkeley, July, 1950.
7452. EWING, Maurice, WORZEL, J. L., STEENLAND, N. C., and PRESS, Frank, "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain", *Bulletin, Geological Society of America*, Vol. 61, No. 9, 877-892, 2 fig., 6 pl., New York, September, 1950.
7453. FESTA, C., and SANTANGELO, M., "Un metodo per la determinazione dell'eta' della terra", *Annali di Geofisica*, Vol. 3, No. 2, 251-261, 1 tab., bib., Rome, April, 1950.
7454. FINCH, R. H., and MACDONALD, Gordon A., "The June 1950 Eruption of Mauna Loa", *Volcano Letter*, No. 508, 12 pp., 6 fig., Honolulu, April-June, 1950.
7455. FORTSCH, O., "Ableitung des von der Frequenz unabhängigen Absorptionskoeffizienten aus Maschinenschwingungen", *Zeitschrift für Geophysik*, Vol. 16, No. 1-2, 57-84, 11 fig., 5 tab., bib., Göttingen, 1940.
7456. GIORGI, M., and ROSINI, E., "Sulla natura delle cause che generano i microsismi", *Annali di Geofisica*, Vol. 3, No. 2, 213, 13 fig., bib., Rome, April, 1950.
7457. GRAY, D. E., and BRAY, R. S., "Abstracting and Indexing Services of Physics Interest", *American Journal of Physics*, Vol. 18, No. 5, 274-299, New York, May, 1950.
7458. GREEN, C. H., "The Relationship of Research and Field Operations in Seismic Exploration", *Quarterly of the Colorado School of Mines*, Vol. 45, No. 4A, pp. 1-9, Denver, 1950.

7459. GUTENBERG, B., and RICHTER, C. F., "Seismicity of the Earth", Princeton University Press, 277 pp., 34 maps, 154 pages of tables. Price \$10.00. Princeton, 1949.

In their most recent publication on the seismicity of the earth Drs. Gutenberg and Richter have included work that is of interest to every seismologist. Principally they deal with the depth and distribution of the earthquakes throughout the earth. The tables listing these various earthquakes divide the earth into sections and the seismicity of each section is separately discussed. In addition to the valuable data in the tables the book contains sections on the magnitude scale, energy of earthquakes, mechanism of earthquakes, and other related subjects.

- GUTENBERG, B., RICHTER, C. F., and BENIOFF, H., "Progress Report, Seismological Laboratory, California Institute of Technology, 1949". See No. 7425 of this list.

7460. HAALCK, H.,

- 1) "Über die Grobe de Elastizitätskonstanten und die Fortpflanzungsgeschwindigkeit der elastischen Raumwellen im Innern des Erdkerns", *Zeitschrift für Geophysik*, Vol. 18, No. 1-2, 27-33, Braunschweig, 1943.
- 2) "Zur Kuhn-Rittmannschen Theorie über die Beschaffenheit des Erdinnern", *Ibid.*, 33-41.

7461. HAALCK, H., "Das Gleichgewicht der Kräfte im Innern des Erdkerns und die sich daraus ergebenden Folgerungen", *Zeitschrift für Geophysik*, Vol. 17, No. 3-4, 135-146, Braunschweig, 1941.

7462. HAENO, S., SHIRATO, C., and IIDA, K., "Seismic Prospecting on a Sea Bottom Over the Coal Field in Fukuoka Prefecture", *Geophysical Exploration*, Vol. 2, No. 1, 24-26, Tokyo, March, 1949.

A review by Henry H. Nogami appears on page 742 of Vol. 15, No. 4 of *Geophysics* (Menasha, Oct., 1950).

7463. HAGIWARA, T., RIKITAKE, T., KASAHARA, K., and YAMADA, J.,

- (1) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part II", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 35-38, Tokyo, 1949.
- (2) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part III", *Ibid.*, 39-44.

- HAMILTON, G. R., EWING, Maurice, WORZEL, J. L., HERSEY, J. B., and PRESS, Frank, "Seismic Refraction Measurements in the Atlantic Ocean Basin". See No. 7451 of this list.

7464. HARTWIG, E.,

- 1) "Über die Eintauchtiefe von Rayleigh-Wellen", *Zeitschrift für Geophysik*, Vol. 18, No. 3-4, 150-163, Braunschweig, 1943.
- 2) "Zur Theorie der Rayleigh-Wellen", *Ibid.*, 164-179.

7465. HARDTWIG, E., "Über die Wellenausbreitung in einem visko-elastischen Medium", *Zeitschrift für Geophysik*, Vol. 18, No. 1-2, 1-20, Braunschweig, 1943.

- HAYASHI, M., INABA, F., KATO, Y., UTASHIRO, S., SHOJI, R., and OSSAKA, J., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake". See No. 7487 of this list.
7466. HAYES, R. C., "Wave Periods in New Zealand Earthquakes", *Department of Scientific and Industrial Research, Technical Paper No. 6*, 3 pp., 3 fig., Wellington, 1950.
7467. HEDSTROM, H., and KOLLERT, R., "Seismic Sounding of Shallow Depths", *Tellus*, Vol. 1, No. 4, 24-36, Stockholm, Nov., 1949.
- A review by Dart Wantland appears on p. 737 of Vol. 15, No. 4, of *Geophysics* (Menasha, Oct., 1950).
7468. HEINRICH, ROSS R., "Seismicity of the Earth and Associated Phenomena" (review), *Science*, Vol. 111, No. 2886, p. 437, New York, April 21, 1950.
7469. HEISKANEN, W., "On the Figure and Structure of the Earth", *Annales Academiae Scientiarum Fennicae*, Ser. A. Tom. LVII, No. 5, Helsinki, 1941.
- HERSEY, J. B., PRESS, Frank, HAMILTON, G. R., EWING, Maurice, and WORZEL, J. L., "Seismic Refraction Measurements in the Atlantic Ocean Basin". See No. 7451 of this list.
7470. HILLER, W., "Über die Bestimmung des Azimuts von Fernbeben aus Oberflächenwellen", *Gerlands Beiträge zur Geophysik*, Band 61, Heft 4, 221-231, 6 fig., Leipzig, 1950.
7471. HODGSON, E. A., "The Saint Lawrence Earthquake March 1, 1925", *Publications of the Dominion Observatory*, Vol. 7, No. 10, 365-436, 25 fig., 7 tab., Ottawa, 1950.
7472. HOMMA, S., "On the Behaviour of Seismic Sea Waves Around a Circular Island", *The Geophysical Magazine*, Vol. 21, No. 3, 199-208, Tokyo, March, 1950.
7473. HONNELL, Pierre M., "The Application of Feedback to an Electrical Transducer for Seismograph Testing", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 217-232, Berkeley, July, 1950.
7474. HONNELL, Pierre M., "The Absolute Calibration of a Brush Accelerometer and its Response to Square Waves of Displacement and Velocity", *Transactions, American Geophysical Union*, Vol. 31, No. 5, 690-695, 7 fig., bib., Washington, Oct., 1950.
7475. HUGHES, D. S., and JONES, H. J., "Variation of Elastic Moduli of Igneous Rocks with Pressure and Temperature", *Bulletin, Geological Society of America*, Vol. 61, 843-856, 8 fig., bib., New York, Aug., 1950.
- IIDA, K., HAENO, S., and SHIRATO, C., "Seismic Prospecting on a Sea Bottom Over the Coal Field in Fukuoka Prefecture". See No. 7462 of this list.
7476. IKEGAMI, R., "On the Vibrations of a Building Caused by Microseisms", *Bulletin, Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
7477. IKEGAMI, R., and KISHINOUE, F., "A Study of the Propagation of Microseismic Waves", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 75-80, Tokyo, 1949.

- INABA, F., KATO, Y., UTASHIRO, S., SHOJI, R., OSSAKA, J., and HAYASHI, M., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake". See No. 7487 of this list.
7478. INGLADA ORS, Vicente, "Resultados de las recientes investigaciones sismologicas", *Revista Academia Ciencia Madrid*, Vol. 42, No. 2, 171-221, Madrid, 1948.
7479. ISTVÁN, Turi, "Budapesti Menetgorbe", *Az Országos Földrenghésvizsgáló Intézet Kiadványai*, Series C 8, 26 pp., Budapest, 1949.
7480. JEFFREYS, Harold, "Earthquakes and Mountains" (2nd Edition, revised), Methuen and Co., pp. 191, 6 plates, 9 figures, price: 12s 6d., London, 1950.
7481. JEFFREYS, Harold, "Remarks on the Paper of G. Schmerwitz on Central European Earthquakes", *Zeitschrift für Geophysik*, Vol. 15, No. 3-4, 168-175, Braunschweig, 1939.
- JONES, H. J., and HUGHES, D. S., "Variation of Elastic Moduli of Igneous Rocks with Pressure and Temperature". See No. 7475 of this list.
7482. KANAI, K., "Relation between the Earthquake Damage of Non-wooden Buildings and the Nature of the Ground", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
7483. KANAI, K., TANAKA, T., and SUZUKI, T., "Vibration Experiments with the Actual Buildings", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
- KASAHARA, K., YAMADA, J., HAGIWARA, T., and RIKITAKE, T.,
- (1) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part II".
 - (2) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part III".
- See No. 7463 of this list.
7484. KASUMOVIC, Marijan, "Srednja razina jadranskog mora i geodetska normalna nula trst", *Rad Geofizickog Zavoda u Zagrebu*, Serja 2, Broj 3, 22 pp., Zagreb, 1950.
7485. KATO, Yoshio, and SHOJI, Rikii, "Determination of the Underground Structure of the New Volcano of Mt. Showa by the Seismic Prospecting", *Geophysics*, Vol. 1, No. 1, 41-45, 7 fig., bib., Tokyo, 1949.
7486. KATO, Yoshio, SHOJI, Rikii, and NORTOMI, Kazuo, "The Report of the Prospecting of the Deep Underground Structure by the Seismic Method", *Geophysics*, Vol. 1, No. 2, 100-102, 4 fig., Tokyo, 1949.
7487. KATO, Yoshio, UTASHIRO, S., SHOJI, R., OSSAKA, J., HAYASHI, M., and INABA, F., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake", *Geophysics*, Vol. 2, No. 1, 53-57, 4 fig., 1 tab., Tokyo, 1950.
7488. KELLY, Sherwin F., "The Rise of Geophysics", *Canadian Mining Journal*, p. 47-53, Vol. 71, No. 7, July, 1950, Gardenvale, Que.
- KISHINOUE, F., and IKEGAMI, R., "A Study of the Propagation of Microseismic Waves". See No. 7477 of this list.

— KOLLERT, R., and HEDSTROM, H., "Seismic Sounding of Shallow Depths". See No. 7467 of this list.

7489. KRUMBACH, G., "Über ein Stationseismometer für optische Registrierung", *Zeitschrift für Geophysik*, Vol. 15, No. 1-2, 17-23, Göttingen, 1939.

7490. LAWSON, Andrew C., "Sea Bottom off the Coast of California", *Bulletin, Geological Society of America*, Vol. 61, No. 11, 1225-1242, 1 fig., bib., New York, Nov., 1950.

7491. LEET, L. DON, "Earth Waves", Harvard University Press, and John Wiley and Sons, Inc., 120 pp. Price \$3.00. New York, Jan., 1950.

Dr. Leet's latest book, No. 2 in a series of Harvard Monographs in Applied Science, deals entirely with the subject of seismology, both theoretical and applied. After the mathematical theory of seismographs is developed, the instruments themselves are discussed in some detail. The new Leet seismometer is explained together with other station and prospecting instruments. From the seismographs used the book proceeds to deal with the observed waves recorded. All the usual waves, P, S, and surface, are mentioned and an introduction is made to two newly observed waves. The mathematical theory in this section is stated in its final form. Illustrations and examples are used here and throughout the book to make the text very clear. An interesting section is included on the appearance of seismograms of earthquakes from various epicentral distances. The subject of microseisms is discussed in the final chapter.

Dr. Leet's book is a basic reference for seismologists who have had a general mathematical background and who wish to acquaint themselves with some more recent advances in the subject.

— LOLAINI, L., and ALIVERTI, G., "Sulla velocità di propagazione delle onde sismiche su brevi percorsi superficiali". See No. 7420 of this list.

7492. LONGUET-HIGGINS, M. S., "A Theory of the Origin of Microseisms", *Philosophical Transactions of the Royal Society of London*, Vol. 243, No. 857, 1-35, London, Sept. 27, 1950.

7493. LONGWELL, Chester R., "Review of 'Seismicity of the Earth and Associated Phenomena' by B. Gutenberg and C. F. Richter", *American Journal of Science*, Vol. 248, No. 10, 747-749, New York, Oct., 1950.

7494. LYNCH, Joseph J., "An Investigation of Two-second Microseisms Associated with Cold Fronts and a New Method for Tracking the Cold Front Centre", *Transactions, American Geophysical Union*, Vol. 31, No. 4, 525-528, 3 fig., bib., Washington, Aug., 1950.

— MACDONALD, Gordon A., and FINCH, R. H., "The June 1950 Eruption of Mauna Loa". See No. 7454 of this list.

7495. MACELWANE, James B., S.J., "Annual Survey of Geophysical Education 1949-1950", *Geophysics*, Vol. 15, No. 3, 487-490, Menasha, July, 1950.

— MARCELLI, L., and DIFILIPPO, D., "Magnitudo ed energia dei terremoti in Italia". See No. 7448 of this list.

- MARCELLI, L., PANNOCCHIA, G., and CALOI, P., "Ancora sulla velocita' di propagazione delle onde superficiali per tragitti subatlantici. Tentativo di prospezione profonda del bacino Atlantico, mediante le curve di dispersione delle onde L_Q ". See No. 7436 of this list.
7496. MARTNER, Samuel T., "Observations on Seismic Waves Reflected at the Core Boundary of the Earth", *Bulletin, Seismological Society of America*, Vol. 40, No. 2, 95-110, 10 fig., bib., Berkeley, April, 1950.
7497. MIHAILOVIC, J., "Les téléséismes de la peninsule Balkanique", *Annales Géologique de la Peninsule Balkanique*, Belgrad, 1950.
7498. MINAKAMI, T.,
- (1) "Recent Activities of Volcano Usu (III). Earthquakes at the Stage of Paroxysmal Eruption", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
 - (2) "Recent Activities of Volcano Usu (IV). Earthquakes Followed by the Birth and Development of Lava Dome", *Ibid.*
7499. MINTROP, Ludger, "Die Gliederung der Erdrinde und des Erdmantels nach seismischen Beobachtungen", *Mathematisch-Physikalische Klasse*, Vol. 2, Göttingen, 1947.
7500. MOKROVIC, Josip, "Potresi u Zagrebu", *Rad Geofizickog Zavoda u Zagrebu*, Serija 2, Broj 3, 22-27, Zagreb, 1950.
- MOLARD, P., and COULOMB, J., "Ondes séismiques au fond de la mer des Antilles". See No. 7442 of this list.
7501. MULLER-DEILE, G., "Einige Notizen über das rumanische Erdbeben vom 10. Novembre 1940", *Zeitschrift für Geophysik*, Vol. 17, No. 1-2, 33-39, Braunschweig, 1941.
7502. MURPHY, Leonard M., "United States Earthquakes 1947", *U.S. Department of Commerce*, No. 730, 62 pp., 16 fig., 5 tab., Washington, 1950.
7503. MURPHY, L. M., "Earthquake Notes", Vol. 21, No. 1-2, Washington, March-June, 1950.

The above periodical is the publication of the Eastern Section of the Seismological Society of America. The issue listed contains: Minutes of the Twenty-second Annual Meeting of the Eastern Section, Seismological Society of America, June 16-17, 1950; Membership Report; Treasurer's Report; Report of the Epicentre Committee; Report of Committee on Radio Communication of World-wide Teleseismic Messages; Abstracts of Papers Presented at the Twenty-second Annual Meeting as follows: Investigation of the T Phase by L. Don Leet, Daniel Linehan, S.J., and Philip Berger. The Western Washington Earthquake of April 13, 1950 by Otto W. Nuttli. An Amplifier for Oscillographic Recording of Microseisms by J. J. Lynch, S.J. A Professional Kit for the Amateur Seismologist by W. F. Sprengnether. Underground Vibrations by Edward J. Walter. Discussion of the Proposed Use of the T Phase in Tsunami Warning Systems by L. Don Leet. Fifty Years of Jesuit Seismology by Henry F. Birkenhauer, S.J. The Development and Use of Nomograms in Epicentre Location by Leslie F. Bailey. Seismic Investigations of the 5000-foot Level Homestake Mine, Lead, S. D.; Progress of Fordham University Two-second Microseism Research; Albert K. Ludy (Obituary); Epicentres.

7504. NASU, N., "Block Movement along the Seismic Fault", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 27-34, Tokyo, 1949.

7505. NASU, N., "Field Determination of the Elastic Property of Soil Layers", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.

7506. NATURE.

Articles of interest to seismologists have appeared in recent issues of Volume 164 of the above periodical (London, 1950), as follows:

- (1) "Earthquakes in New Zealand", No. 4186, p. 100, Jan. 21.
- (2) "Weekly Records of Earthquake Epicentres", No. 4192, p. 343, March 4.
- (3) "Earthquakes During October-December, 1949", No. 4195, pp. 479-480, March 25.

7507. NATURE.

In the above periodical (Vol. 166, London, 1950), there appears the following item of interest to seismologists:

- (1) "Seismological Observations of the Heligoland Explosion of April 18, 1947", No. 4215, p. 256, Aug. 12.

7508. NATURE.

Articles of interest to seismologists have appeared in recent issues of Vol. 166 of the above periodical (London, 1950), as follows:

- (1) "New Zealand Earthquakes During 1947-48 and July-December 1949", No. 4220, p. 472, Sept. 16.
- (2) "Earthquake Records at De Bilt, Netherlands", No. 4223, p. 590, Oct. 7, 1950.

7509. NEDELJKOVIĆ, Ružica L., "La séismicité du Banat", *Annales Géologique de la Peninsule Balkanique*, Belgrad, 1950.

7510. NEUMANN, Frank, "Seismology in the Coast and Geodetic Survey", *Journal of the Coast and Geodetic Survey*, No. 2, 13-21, 6 fig., Washington, April, 1949.

— NORTOMI, Kazuo, SHOJI, Rikii, and KATO, Yoshio, "The Report of the Prospecting of the Deep Underground Structure by the Seismic Method". See No. 7486 of this list.

7511. O'CONNELL, Daniel T., "The Babor Seismograph at City College", *The City College Vector*, Vol. 14, No. 2, 6 pp., 5 fig., 1 tab., New York, Jan., 1950.

7512. OGIWARA, Sekiji, and OKITA, Toshiichi, "Studies on Tsunami on the Pacific Coasts of Northern Honshu (1. The Model Experiment of Tsunami in Shizukawa Harbour)", *Geophysics*, Vol. 2, No. 1, 58-65, 10 fig., bib., Tokyo, 1950.

— OKITA, Toshiichi, and OGIWARA, Sekiji, "Studies on Tsunami on the Pacific Coasts of Northern Honshu (1. The Model Experiment of Tsunami in Shizukawa Harbour)". See No. 7512 of this list.

7513. OLIPHANT, Charles W., "Comparison of Field and Laboratory Measurements of Seismic Velocities in Sedimentary Rock", *Bulletin, Geological Society of America*, Vol. 61, 759-788, 10 fig., 3 pl., bib., New York, July, 1950.

7514. OMER, Guy C., Jr., "Volcanic Tremor (Part Two): The Theory of Volcanic Tremor", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 175-194, Berkeley, July, 1950.

7515. OMOTE, S.,

- (1) "On the Coda Waves of Earthquake Motions", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 49-56, Tokyo, 1949.
- (2) "Earthquake Damages in Yokohama City Due to the Great Kwanto Earthquake of September 1, 1923", *Ibid.*, 57-62.
- (3) "The Relation Between the Earthquake Damages and the Structure of the Ground on Yokohama", *Ibid.*, 63-68.

— OSSAKA, J., HAYASHI, M., INABA, F., KATO, Y., UTASHIRO, S., and SHOJI, R., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake". See No. 7487 of this list.

7516. OXFORD UNIVERSITY OBSERVATORY. "International Seismological Summary", Richmond, 1950.

The issues received during the last six months of 1950 are as follows:

- (1) "October, November, December, 1938", No. 1.
- (2) "October, November, December, 1938", No. 2.
- (3) "January, February, March, 1939".
- (4) "April, May, June, 1939".
- (5) "Catalogue of Epicentres for International Seismological Summary for 1938".

— PANNOCCHIA, G., CALOI, P., and MARCELLI, L., "Ancora sulla velocita' di propagazione delle onde superficiali per tragitti subatlantici. Tentativo di prospezione profonda del bacino Atlantico, mediante le curve di dispersione delle onde L_q ". See No. 7436 of this list.

7517. PARKER, Gerald G., and STRINGFIELD, V. T., "Effects of Earthquakes, Trains, Tides, Winds, and Atmospheric Pressure Changes on Water in the Geologic Formations of Southern Florida", *Economic Geology*, Vol. 45, No. 5, 441-460, 5 fig., 1 tab., bib., Lancaster, Aug., 1950.

7518. PORTLAND CEMENT ASSOCIATION. "Analysis of Small Reinforced Concrete Buildings for Earthquake Forces", Published by Portland Cement Association, 58 pp., 43 fig., 21 tab., Chicago, 1946.

7519. POULTER, Thos. C., ALLEN, C. F., and MILLER, Stephen W., "Seismic Measurements on the Taku Glacier", *Stanford Research Institute*, Stanford, 1949.

7520. PRESS, Frank, and EWING, Maurice, "Propagation of Explosive Sound in a Liquid Layer Overlying a Semi-infinite Elastic Solid", *Geophysics*, Vol. 15, No. 3, 426-446, Menasha, July, 1950.

7521. PRESS, Frank, EWING, Maurice, and TOLSTOY, Ivan, "The Airy Phase of Shallow-focus Submarine Earthquakes", *Bulletin, Seismological Society of America*, Vol. 40, No. 2, 111-148, 17 fig., 2 tab., bib., Berkeley, April, 1950.

- PRESS, Frank, EWING, Maurice, WORZEL, J. L., and STEENLAND, N. C., "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain". See No. 7452 of this list.
- PRESS, Frank, HAMILTON, G. R., EWING, Maurice, WORZEL, J. L., and HERSEY, J. B., "Seismic Refraction Measurements in the Atlantic Ocean Basin". See No. 7451 of this list.
7522. RABBITT, Mary C., SKITSKY, V. L., and VESSELOWSKY, S. T., "Geophysical Abstracts 140 January-March 1950", *Geological Survey Bulletin*, No. 976-A, Washington, 1950.
7523. RABBITT, Mary C., and VESSELOWSKY, S. T., "Geophysical Abstracts 141, April-June 1950", *Geological Survey Bulletin*, No. 976-B, Washington, 1950.
7524. RAMSEY, W. H., "On the Compressibility of the Earth", *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, Vol. 6, No. 1, 42-49, bib., London, March, 1950.
7525. RAMSPECK, A., "Reine Longitudinal- und Transverswellen im elastischhomogenen Halbraum", *Zeitschrift für Geophysik*, Vol. 18, No. 1-2, 21-26, Braunschweig, 1943.
7526. RAMSPECK, A., "Der Einfluß eines mit der Tiefe veränderlichen Elastizitätsmoduls auf den Weg elastischer Wellen im Boden", *Zeitschrift für Geophysik*, Vol. 15, No. 3-4, 148-159, Braunschweig, 1939.
- REDDING, V. L., SLOTNICK, M. M., and BROOKS, J. A. Jr., "Note on Well-shooting Data and Linear Increase in Velocity". See No. 7544 of this list.
7527. REGULA, Walter, "Untersuchungen elastischer Eigenschaften von Gesteinsstäben", *Zeitschrift für Geophysik*, Vol. 16, No. 1-2, 40-56, 7 fig., 5 tab., bib., Göttingen, 1940.
- RICHTER, C. F., BENIOFF, H., and GUTENBERG, B., "Progress Report, Seismological Laboratory, California Institute of Technology, 1949". See No. 7425 of this list.
- RICHTER, C. F., and GUTENBERG, B., "Seismicity of the Earth". See No. 7459 of this list.
- RIKITAKE, T., KASAHARA, K., YAMADA, J., and HAGIWARA, T.,
- (1) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part II".
 - (2) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part III". See No. 7463 of this list.
7528. ROBERTS, Elliot B., "A Seismic Sea Wave Warning System for the Pacific", *Journal of the Coast and Geodetic Survey*, No. 3, 74-79, 4 fig., Washington, April, 1950.
7529. ROBERTS, E. B., and ULRICH, F. P., "Seismological Activities of the U.S. Coast and Geodetic Survey in 1948", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 195-216, Berkeley, July, 1950.
- ROBERTSON, Florence, and VOLK, Joseph A., "The Electronic Seismograph". See No. 7566 of this list.

- ROSINI, E., and GIORGI, M., "Sulla natura delle cause che generano i microsismi". See No. 7456 of this list.
- RUPRECHT, I., and TRAPPE, Fr., "Die Anwendung der seismischen Reflexionsmethode zur suchung von Salzstocken in Harzvorland". See No. 7556 of this list.
7530. SAMMONS, Jack C., "Destructive Seismic Sea Waves in the Hawaiian Islands", *Journal of the Coast and Geodetic Survey*, No. 3, 65-73, 12 fig., Washington, April, 1950.
- SANTANGELO, M., and FESTA, C., "Un metodo per la determinazione dell'eta' della terra". See No. 7453 of this list.
7531. SATO, Y., "Boundary Conditions in the Problem of Generation of Elastic Waves", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 1-10, Tokyo, 1949.
- SATO, Y., and TAKAHASHI, T., "On the Theory of Elastic Waves in Granular Structure". See No. 7549 of this list.
7532. SCHMERWITZ, Gerhard, "Ausgleichung der P-Wellen-Einsatze des Bebens vom 11. Juni 1938 in Belgien", *Zeitschrift für Geophysik*, Vol. 16, No. 3-4, 119-125, bib., Göttingen, 1940.
7533. SCHMERWITZ, G., "Die Verwechslung des Koordinaten-Nullpunktes mit den Epizentralkoordinaten, die P. Caloi bei der Beurteilung meiner Nahbebenausgleichungen unterlaufen ist", *Zeitschrift für Geophysik*, Vol. 17, No. 1-2, 40-41, Braunschweig, 1941.
7534. SCHMIDT, O., "Über Kopfwellen in der Seismik", *Zeitschrift für Geophysik*, Vol. 15, No. 3-4, 141-147, Göttingen, 1939.
7535. SCIENCE NEWS LETTER.
- Articles of interest to Seismologists have appeared in recent issues of Vol. 57 of the above periodical (Washington, 1950), as follows:
- (1) "Discrepancy in Speed of Shock Waves Explained", No. 4, p. 57, Jan. 28.
 - (2) "Quake Effects Recorded by Equipment in New Building", No. 10, p. 159, March 11.
 - (3) "Prediction of Quakes more Remote than Ever", No. 15, p. 233, April 15.
7536. SEIGEL, Harry O., "A Theory of Fracture of Materials and its Application to Geology", *Transactions, American Geophysical Union*, Vol. 31, No. 4, 611-619, 3 fig., bib., Washington, Aug., 1950.
7537. SEMANATE, P. Alberto D., S.J., "Sismologia del Terremoto de Pelileo", *Casa de la Cultura Ecuatoriana*, 103 pp., 20 fig., 12 tab., Quito, 1950.
7538. SHIMOZURU, D., "Study on the Coefficient of Internal Friction of Materials used in Civil Engineerings and Architectural Structures", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, Tokyo, 1949.
- SHIRATO, C., IIDA, K., and HAENO, S., "Seismic Prospecting on a Sea Bottom Over the Coal Field in Fukuoka Prefecture". See No. 7462 of this list.

- SHOJI, Rikii, and KATO, Yoshio, "Determination of the Underground Structure of the New Volcano of Mt. Showa by the Seismic Prospecting". See No. 7485 of this list.
- SHOJI, Rikii, NORTOMI, Kazuo, and KATO, Yoshio, "The Report of the Prospecting of the Deep Underground Structure by the Seismic Method". See No. 7486 of this list.
- SHOJI, R., OSSAKA, J., HAYASHI, M., INABA, F., KATO, Y., and UTASHIRO, S., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake". See No. 7487 of this list.
7539. SIEBERG, A., "Neuere Untersuchungen der Reichsanstalt für Erdbebenforschung über bautechnische Erdbebensicherung", *Zeitschrift für Geophysik*, Vol. 17, No. 3-4, 84-102, Braunschweig, 1941.
7540. SIEBERG, A., "Arbeitsgebiete der Reichsanstalt für Erdbebenforschung in ihren Beziehungen zur Geologie und Bergbau", *Zeitschrift für Geophysik*, Vol. 15, No. 1-2, 7-17, Göttingen, 1939.
7541. SILGADO, F. E., "Datos Sismologicos del Peru, 1948", *Instituto Geologico del Peru*, Boletin 13, 39 p., Lima, 1949.
7542. SIMON, B., "Rapport sur l'activite de l'Institut National Seismologique de Hongrie", *Az Országos Földrendészvizsgáló Intézet Kiadványai*, Budapest, 1949.
7543. SI-TANG, Huang, "Bestimmung der Geschwindigkeit, Dämpfung und Absorption von Kompressions- und Scherwellen in Kautschuk", *Zeitschrift für Geophysik*, Vol. 16, No. 5-6, 213-233, Göttingen, 1940.
- SKITSKY, V. L., VESSELOWSKY, S. T., and RABBITT, Mary C., "Geophysical Abstracts 140 January-March, 1950". See No. 7522 of this list.
7544. SLOTNICK, M. M., BROOKS, J. A., Jr., and REDDING, V. L., "Note on Well-shooting Data and Linear Increase in Velocity", *Geophysics*, Vol. 15, No. 4, 663-666, 3 tab., 2 fig., bib., Menasha, Oct., 1950.
7545. SPICER, H. C., "Investigation of Bedrock Depths by Electrical-resistivity Methods in the Ripon-Fond du Lac Area, Wisconsin", *Geological Survey Circular 69*, 37 p., Washington, 1950.
- STEENLAND, N. C., PRESS, Frank, EWING, Maurice, and WORZEL, J. L., "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain". See No. 7451 of this list.
7546. STONELY, Robert, "The Effect of a Low-velocity Internal Stratum on Surface Elastic Waves", *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, Vol. 6, No. 1, 28-35, bib., London, March, 1950.
- STRINGFIELD, V. T., and PARKER, Gerald G., "Effects of Earthquakes, Trains, Tides, Winds, and Atmospheric Pressure Changes on Water in the Geologic Formation of Southern Florida". See No. 7517 of this list.
7547. SULKOWSKI, Eugene I., "The University of Pittsburg Pen-and-Ink Recording Seismograph", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 165-168, 3 fig., Berkeley, July, 1950.

- SUZUKI, T., KANAI, K., and TANAKA, T., "Vibration Experiments with the Actual Buildings". See No. 7483 of this list.
- SUZUKI, Ziro, and ASADA, Toshi,
- (1) "On Microearthquakes Having Accompanied Aftershocks of the Fukui Earthquake of June 28, 1948".
 - (2) "Observations of Microearthquakes in Sikoku District".
See No. 7424 of this list.
7548. SZILBER, M., and TURI, St., "Rapport microséismique de l'Institut National Séismologique de Hongrie", *Az Országos Földrengésvizsgáló Intézet Kiadványai*, Series A, Budapest, 1948.
7549. TAKAHASHI, T., and SATO, Y., "On the Theory of Elastic Waves in Granular Structure", *Bulletin, Earthquake Research Institute*, Vol. 27, No. 1-4, 11-16, Tokyo, 1949.
7550. TAMS, E., "Materialien zur Geschichte der Deutschen Erdbebenforschung bis zur Wende vom 19, zum 20 Jahrhundert", *Deutsche Akademie der Wissenschaften zu Berlin*, No. 2, Berlin, 1950.
7551. TAMS, E., "Zur Frage der regionalen Verkoppelung von Erdbeben", *Zeitschrift für Geophysik*, Vol. 17, No. 1-2, 18-32, Braunschweig, 1941.
- TANAKA, T., SUZUKI, T., and KANAI, K., "Vibration Experiments with the Actual Buildings". See No. 7483 of this list.
7552. TANNI, L., "On the Isostatic Structure of the Earth's Crust in the Carpathian Countries and the Related Phenomena", *Annales Academiae Scientiarum Fennicae*, Ser. A., III. Geologica-Geographica, 4, 100 pp., Helsinki, 1942.
- TATEL, H. E., and TUVE, M. A., "Coherent Seismic Wave Patterns" (abstract). See No. 7559 of this list.
7553. THYSSEN, St. v., "Drehwaageregistrierungen unter gleichzeitiger Einwirkung elastischer Wellen", *Zeitschrift für Geophysik*, Vol. 16, No. 5-6, 210-213, Göttingen, 1940.
7554. TILLOTSON, Ernest, "Earthquake Geography", *Nature*, Vol. 165, No. 4205, p. 867, London, June 3, 1950.
- The above article is a review of the book, "Seismicity of the Earth", by Gutenberg and Richter which is listed as No. 7459 of this *Bibliography*.
7555. TILLOTSON, Ernest, "Earthquakes", *Endeavour*, Vol. 9, No. 34, London, April, 1950.
- TOLSTOY, Ivan, PRESS, Frank, and EWING, Maurice, "The Airy Phase of Shallow-focus Submarine Earthquakes". See No. 7521 of this list.
7556. TRAPPE, Fr., and RUPRECHT, I., "Die Anwendung der seismischen Reflexionsmethode zur suchung von Salzstocken im Harzvorland", *Zeitschrift für Geophysik*, Vol. 15, No. 1-2, 37-40, Göttingen, 1939.

7557. TSUBOI, Chuji,
(1) "On Seismic Activities", *Geophysical Notes*, Vol. 3, No. 4, 22 pp., 15 fig., 8 tab., bib., Tokyo, 1949.
(2) "Thickness of the Isostatic Earth's Crust in Various Parts of the United States of America", *Ibid.*, No. 5, 38 pp.
(3) "Dependence of the Isostatic Depth on the Horizontal Scale of the Topographies to be Compensated", *Ibid.*, No. 6, 4 pp.
(4) "Is the Condition $\Sigma(\text{Isostatic Anomaly})^2 = \text{a Minimum}$ a Good Criterion for Determining the Thickness of the Isostatic Earth's Crust", *Ibid.*, No. 7, 9 pp.
7558. TSUYA, H., et al, "The Fukui Earthquake of June 28, 1950", *Report of the Special Committee for the Study of the Fukui Earthquake*, 197 pp., 108 fig., 44 tab., 1 map, Tokyo, 1950.
- TURI, St., and SZILBER, M., "Rapport microsismique de l'Institut National Séismologique de Hongrie". See No. 7548 of this list.
7559. TUVE, M. A., and TATEL, H. E., "Coherent Seismic Wave Patterns" (abstract), *Science*, Vol. 112, No. 2912, p. 452, Washington, Oct. 20, 1950.
- ULRICH, F. P., and ROBERTS, E. B., "Seismological Activities of the U.S. Coast and Geodetic Survey in 1948". See No. 7529 of this list.
7560. URSELL, F., "On the Theoretical Form of Ocean Swell on a Rotating Earth", *Monthly Notices of the Royal Astronomical Society, Geophysical Supplement*, Vol. 6, No. 1, 1-8, bib., London, March, 1950.
- UTASHIRO, S., SHOJI, R., OSSAKA, J., HAYASHI, M., INABA, F., and KATO, Y., "On the Changes of the Earth-current and the Earth's Magnetic Field Accompanying the Fukui Earthquake". See No. 7487 of this list.
7561. UZELAC, Miroslava D., "Le caractère séismique de la région de Srem", *Annales Géologique de la Peninsule Balkanique*, Belgrad, 1950.
7562. VALLE, Emilio, "Contributo allo studio delle onde di Love", *Annali di Geofisica*, Vol. 3, No. 2, 231-251, 6 fig., bib., Rome, April, 1950.
7563. VESANEN, Eijo,
(1) "On Alaskan Earthquakes", *Annales Academie Scientiarum Fennicae*, No. 14, 7 fig., 9 tab., bib., Helsinki, 1947.
(2) "On Seismogram Types and Focal Depth of Earthquakes in the North Japan and Manchuria Region", *Ibid.*, No. 11, 14 fig., 4 tab., bib., 1946.
- VESSELOWSKY, S. T., and RABBITT, Mary C., "Geophysical Abstracts 141, April-June 1950". See No. 7523 of this list.
- VESSELOWSKY, S. T., RABBITT, Mary C., and SKITSKY, V. L., "Geophysical Abstracts 140 January-March 1950". See No. 7522 of this list.
7564. VOLK, Joseph A., "Microseismic Arclight Timer", *Electronics*, 1 pp., New York, May, 1950.

7565. VOLK, Joseph A., "The Photoelectric Seismograph", *Bulletin, Seismological Society of America*, Vol. 40, No. 3, 169-173, 7 fig., Berkeley, July, 1950.
7566. VOLK, Joseph A., and ROBERTSON, Florence, "The Electronic Seismograph", *Bulletin, Seismological Society of America*, Vol. 40, No. 2, 81-94, 13 fig., bib., Berkeley, April, 1950.
7567. WEST, S. S., "Dependence of Seismic Wave Velocity upon Depth and Lithology", *Geophysics*, Vol. 15, No. 4, 653-662, 5 fig., 3 tab., bib., Menasha, Oct., 1950.
7568. WHITTEN, C. A., "Horizontal Earth Movement in California", *Journal of the Coast and Geodetic Survey*, No. 2, 84-88, 4 fig., Washington, April, 1949.
- WORZEL, J. L., HERSEY, J. B., PRESS, Frank, HAMILTON, G. R., and EWING, Maurice, "Seismic Refraction Measurements in the Atlantic Ocean Basin". See No. 7451 of this list.
- WORZEL, J. L., STEENLAND, N. C., EWING, Maurice, and PRESS, Frank, "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain". See No. 7451 of this list.
- YAMADA, J., HAGIWARA, T., RIKITAKE, T., and KASAHARA, K.,
- (1) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part II".
 - (2) "Observations of the Deformation of the Earth's Surface at Aburatsubo, Miura Peninsula. Part III". See No. 7463 of this list.
7569. ZERBE, W. B., "A Seismic Sea Wave Detector", *Journal of the Coast and Geodetic Survey*, No. 1, 51-55, 5 fig., Washington, Jan., 1948.
7570. ZETLER, Bernard D., "A Seismic Sea Wave Travel Time Chart", *Journal of the Coast and Geodetic Survey*, Vol. 1, 56-58, 1 fig., Washington, Jan., 1948.

SUBJECT INDEX FOR THE YEAR 1950

The following subject index for the items listed in the *Bibliography of Seismology* for the year 1950 has been prepared in the same form as that for the items listed in 1949 (see pp. 143-145, Vol. 14, No. 6, of these *Publications*), and may be considered a continuation of that index.

- B2. Bibliographies: Nos. 7457, 7522, 7523.
- B2.1 Reviews of Papers, Textbooks, etc.: Nos. 7493, 7554.
- C1. Catalogues of Earthquakes, Lists of Aftershocks, etc.: Nos. 7304, 7305, 7327, 7345, 7350, 7353, 7424, 7506, 7508, 7516.
See also R2. (Reports).
- C3. Cosmogony: Theoretical Discussions of Similar Nature; Continental Drift, Orogeny, etc.: Nos. 7255, 7293, 7393, 7415.
- C4. Cycles, Earthquakes: No. 7377.
See also P5 (Prediction).
- D2. Deformations, Gradual, of the Earth's Crust: Nos. 7272, 7273, 7275, 7276, 7463, 7504, 7568.
See also G1. (Geodesy) and T2 (Tides).
- D3. Descriptions, General, of Earthquakes in Canada or the United States: Nos. 7282, 7471, 7502.
- D4. Descriptions, General, of Earthquakes other than those in Canada or the United States: Nos. 7222, 7331, 7332, 7340, 7345, 7348, 7360, 7397, 7412, 7501, 7532, 7550, 7558.
- E1. Effects of Earthquakes, on Buildings, Ground, etc., Observed during or after the Disturbance: Nos. 7289, 7290, 7296, 7303, 7328, 7329, 7330, 7342, 7379, 7380, 7381, 7398, 7412, 7476, 7482, 7483, 7504, 7515.
See also D3. and D4. (Descriptions of Earthquakes).
- E1.2 Electrical, Magnetic, or Luminous Phenomena; Nos. 7339, 7487.
- E1.3 Measurements of the Magnitude of Earthquakes, Nature of Origin Mechanisms, etc.: Nos. 7260, 7382, 7448.
- E2. Engineering; Particular Applications to Seismology or of Seismology: Nos. 7256, 7274, 7295, 7518, 7535, 7538.
- E3. Explosions; Studies of Wave Propagation from: Nos. 7242, 7263, 7266, 7286, 7335, 7337, 7439, 7507.
See also S3. (Seismic Prospecting).
- E4. Education: Curricula, etc.: Nos. 7315, 7495.
- F1.1 Deep-focus Earthquakes: Nos. 7232, 7323, 7446, 7447.
- G1. Geodesy and Surveying Applied to Seismology: Nos. 7273, 7326, 7484.
- G3. Geology of Interest to Seismologists: Nos. 7223, 7230, 7231, 7239, 7250, 7262, 7267, 7311, 7317, 7337, 7358, 7405, 7406, 7411, 7412, 7433, 7480, 7504, 7517, 7536, 7540.
- H1. Historical Studies of Seismological Interest: No. 7322.

- I1. Instruments; Seismographs and Accessories: Nos. 7226, 7287, 7291, 7309, 7313, 7343, 7368, 7369, 7372, 7418, 7423, 7440, 7473, 7474, 7489, 7543, 7547, 7564, 7565, 7566.
- I3. Isostasy and Gravity; Papers of Interest to Seismologists: Nos. 7269, 7388, 7417, 7552, 7557.
- M2. Materials of the Earth's Crust, Laboratory Tests of: Nos. 7346, 7374, 7475, 7505, 7513.
- M3. Mathematical Physics, as Applied to Seismological Problems: Nos. 7235, 7247, 7314, 7319, 7325, 7359, 7374, 7375, 7389, 7403, 7465, 7520, 7531, 7549, 7553.
- M4. Microseisms: Nos. 7237, 7249, 7250, 7253, 7254, 7279, 7306, 7312, 7336, 7384, 7426, 7432, 7435, 7443, 7456, 7476, 7477, 7492, 7494.
- M5. Meteorology of Interest to Seismologists: Nos. 7268, 7384, 7441.
- O2. Oceanography; Charting, etc.: Nos. 7223, 7225, 7231, 7245, 7268, 7283, 7284, 7285, 7311, 7358, 7450, 7451, 7452, 7467, 7490, 7560.
- O2.1 T(s)unamis (Tidal Waves): Nos. 7257, 7344, 7347, 7353, 7354, 7373, 7386, 7400, 7401, 7402, 7472, 7512, 7528, 7530, 7569, 7570.
- O3. Organizations for Seismological Investigations; Inaugurations, Reports, New Equipment, etc.: Nos. 7368, 7376, 7399, 7511, 7542, 7548.
- P3. Physics of the Earth; Density, Viscosity, Rigidity, Elasticity, Temperature, etc.: Nos. 7429, 7430, 7455, 7475, 7524.
See also M2. (Materials of Earth's Crust, Laboratory Tests of) and M3. (Mathematical Physics).
- P4. Popular Presentations of Various Phases of Seismology: No. 7555.
- P5. Prediction of Earthquakes: No. 7535.
See also C4. (Cycles).
- R2. Reports, Seismological; Regular Series: Nos. 7227, 7300, 7301, 7316, 7334, 7355, 7356, 7357, 7365, 7425, 7445, 7478, 7529.
See also C1. (Catalogues).
- R2.1 Reviews of Various Phases of Seismology: Nos. 7240, 7241, 7264, 7365, 7366, 7367, 7437, 7438, 7488, 7502, 7503, 7510.
- R3. Rotation Period of the Earth, Variations Therein; Wandering of the Pole; Variation of Latitude: No. 7292.
- S2. Seismicity of Particular Regions: Nos. 7260, 7261, 7271, 7333, 7335, 7378, 7391, 7410, 7468, 7481, 7497, 7509, 7537, 7541, 7551, 7561.
See also C1. (Catalogues), D3. and D4. (Descriptions of Particular Earthquakes), and R2. (reports).
- S3. Seismic Prospecting: Nos. 7224, 7229, 7233, 7234, 7243, 7244, 7252, 7268, 7278, 7281, 7299, 7362, 7363, 7364, 7370, 7371, 7383, 7387, 7390, 7392, 7394, 7395, 7396, 7419, 7444, 7449, 7458, 7462, 7486, 7519, 7544, 7545, 7556.
See also E3. (Explosions).
- S4. Surface Waves: Nos. 7297, 7413, 7421, 7422, 7436, 7464, 7525, 7546, 7562.
- T1. Textbooks; General Treatises on Seismology or Its Applications: Nos. 7235, 7434, 7491.

- T3. Tides, Earth: Nos. 7294, 7404.
- T4. Time-Distance Curves, Tables, etc.: No. 7246.
See also W1. (Studies of Earthquake Waves).
- V1. Vibrations of the Ground, Buildings, etc., Caused by Non-seismic Disturbances Other Than Explosions; as Traffic, Machinery, Falling Weights, Meteors, Frost; Nos. 7274, 7286, 7414.
See also E2. (Engineering).
- V2. Volcanoes in Relation to Earthquakes: Nos. 7298, 7310, 7318, 7341, 7454, 7480, 7485, 7498, 7514.
- W1. Waves, Studies of Earthquake; Based on Observational Data; Velocity, Paths, Nature, etc.: Nos. 7226, 7228, 7236, 7250, 7257, 7258, 7259, 7280, 7288, 7307, 7324, 7349, 7351, 7352, 7407, 7420, 7442, 7466, 7496, 7515, 7521, 7526, 7534, 7559, 7563, 7567.
See also E3. (Explosions), M3. (Mathematical Physics), S3. (Seismic Prospecting), T1. (Texts), T4. (Time-Distance Curves), and V1. (Vibrations).
- W1.2 Seismological Studies of Earth Crustal Structure: Nos. 7231, 7238, 7242, 7250, 7265, 7270, 7277, 7279, 7302, 7361, 7408, 7416, 7417, 7428, 7459, 7486.
- W1.3 Seismological Studies of Deep Structure of the Earth; Velocity-Depth Curves: Nos. 7248, 7255, 7345, 7427, 7453, 7460, 7461, 7469.