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---

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# Dominion Observatory

OTTAWA

Vol. XIII.

## Bibliography of Seismology

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BY

ERNEST A. HODGSON

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# Bibliography of Seismology

January, February, March, 1939

With this issue a new volume of the PUBLICATIONS OF THE DOMINION OBSERVATORY is assigned to the *Bibliography of Seismology*. Volume X of the PUBLICATIONS contains items 1-2000; it began with the first quarter of 1929, and closed with the last quarter of 1933. Volume XII of the PUBLICATIONS contains items 2001-4259, and brings the series to the end of 1938.

Preceding the bibliography of Volume X, an earlier series, compiled under the auspices of the Eastern Section of the Seismological Society of America and covering a total of 1,200 items for the period 1926 to 1928, was published in the *Bulletin of the Seismological Society of America* (Vol. 17, Nos. 3 and 4, 1927; Vol. 18, Nos. 1, 2, 3, and 4, 1928; Vol. 19, No. 4, 1929; Stanford, Cal.). The present editor is responsible for the entire compilation, old and new.

The editor has been fortunate in having the continued and able assistance of collaborators in practically all the countries of the world in which seismological work is undertaken. Without such collaboration it would not be possible to cover, even approximately, the ever widening field. Publications of interest to seismologists, when reported to the Dominion Observatory by their authors or by collaborators, are listed at once in the current manuscript of the *Bibliography*. The manuscript for any issue is closed about the mid-date of the period nominally covered by that issue.

It is hoped that the list of those regularly collaborating in this work may continue to grow. To this end, convenient report forms have been prepared, a supply of which will be sent on application to anyone interested. The use of the form reduces the work of a collaborator to a minimum and insures the complete listing of the publication details.

4260. ADAMS, John Q., "Alnico—Its Properties and Possibilities, Field of Usefulness, Physical Characteristics, Magnetic Characteristics, Hysteresis Loops, Comparison of Permanent Magnetic Materials, Applications," *General Electric Review*, Vol. 41, No. 12, 518-522, 10 fig., bib., Schenectady, Dec., 1938.

4261. AGAMENNONE, G.,

- (1) "Studio macrosismico del terremoto Calabro-Siculo del 13 Aprile 1938," *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 3-4, 83-98, 1 fig., bib., Rome, 1938.
- (2) "Lo stato del cielo e i terremoti," *Ibid.*, 110-115, bib. G.A.

4262. ALFANI, G., "Strani fenomeni nel cielo e terremoti," *L'Avvenire d'Italia*, May 22, 1938.

A review in Italian, by Agamennone, appears on p. 119 of *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 3-4, Rome, 1938.

4263. ANDREOTTI, G.,

- (1) "L'osservatorio geodinamico della R. Università di Padova," *Atti del Reale Istituto Veneto di Scienze, Lettere ed Arti*, Anno accademico 1937-38, Tomo 97, Part 2 (Science), 737-744, 4 fig., Venice, 1938.
- (2) "Sismicità di Fonzaso," *Memorie della R. Accademia di Scienze, Lettere ed Arti in Padova*, Anno 1937-38, Vol. 54, 5-11, 1 fig., 1938.
- (3) "Sismicità del Friuli," *Atti del XII Congresso Geografico Italiano*, 7 pp., Udine, 1938. G.A.

4264. ANGENSEISTER, G., "Beziehung zwischen Meereshöhe und Schwere in gestörten Gebieten" *Zeitschrift für Geophysik*, Jahr. 14, Heft 5-6, 219-230, 10 fig., bib., Braunschweig, 1938. G.I.G.
4265. ASCARI, M., BACCINO, L., and SANGUINETTI, G., "Le spiagge della Riviera Ligure," *Ricerche sulle variazioni delle Spiagge Italiana*, Vol. 1, 1937.  
A review in Italian, by Agamennone, appears on p. 21 of *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 1-2, Rome, 1938.
4266. AYVAZOGLU, W., "Geophysical Abstracts 91; October-December, 1937," *U.S. Department of the Interior, Geological Survey Bulletins*, No. 895-D, 137-204, Washington, 1938.
- BACCINO, L., SANGUINETTI, G., and ASCARI, M., "Le spiagge della Riviera Ligure." See No. 4265 of this list.
- BANCROFT, Dennison, and BIRCH, Francis, "The Elasticity of Certain Rocks and Massive Minerals." See No. 4273 of this list.
4267. BARSCH, O., "Der Aufbau der geophysikalischen Reichsaufnahme," *Oel und Kohle*, Vol. 13, No. 25, 641-644, Berlin, 1937.  
A brief review by W. Ayvazoglou appears on p. 169 of *Geophysical Abstracts 91*, reported as No. 4266 of this list.
4268. BARTELS, J., "Bericht über die dreizehnte Tagung der Deutschen Geophysikalischen Gesellschaft vom 20. bis 22. Oktober in Jena," *Zeitschrift für Geophysik*, Bd. 14, Heft 7-8, 275-285, Braunschweig, 1938.
4269. BARTON, Donald C., "The State of Geologic Research in the Oil Industry," *Bulletin of the American Association of Petroleum Geologists*, Vol. 21, No. 5, 665-674, Tulsa, 1937.  
A review by W. Ayvazoglou appears on p. 169 of *Geophysical Abstracts 91*, reported as No. 4266 of this list.
4270. BEANFIELD, E. McC., Discussion of paper by L. H. Nishkian, "Why a Constant Seismic Factor for Building?" presented before a meeting of the Seismological Society of America, April 2, 1938. See *Southwest Builder and Contractor*, Oct. 7, 1938.  
E. McC. B.
4271. BERLAGE, H. P., Jr., "Aardbevingen in den Oest-Indischen Archipel waargenomen gedurende het jaar 1936, verzameld en bewerkt door het Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia-Centrum," *Natuurkundig Tijdschrift voor Nederlandsch-Indië*, Vol. 98, No. 3, 142-170, Weltevreden, 1938.
- BERNAL, J. D., "Crystallographic Relations of Seismology." See No. 4277 of this list.
4272. BERNARD, Pierre, "Le cycle solaire dans l'agitation microséismique," *Comptes Rendus*, T. 206, No. 21, 1585-1587, Paris, 1938.
- BIRCH, Francis, "Variation of Seismic Velocities within a Simplified Earth Model" (abstract). See No. 4300 of this list.
4273. BIRCH, Francis, and BANCROFT, Dennison, "The Elasticity of Certain Rocks and Massive Minerals," *American Journal of Science*, Vol. 237, No. 1, 2-6, 1 tab., bib., New Haven, Jan., 1939.

- BOIS, Ch., "Agitation microsismique à Strasbourg." "Tremblements de terre en Afrique du Nord—Tunisie," and "Macrosismes signalés." See No. 4350 of this list.
4274. BOWEN, Norman L.,  
 (1) "Lavias of the African Rift Valleys and Their Tectonic Setting," *American Journal of Science*, Fifth Series, Vol. 35A, 19-33, 3 tab., bib., New Haven, 1938.  
 The above issue of the *Journal* is dedicated to Dr. A. L. Day by the authors of the various papers printed therein. It is listed among the *Publications of the Carnegie Institution of Washington* as Publication No. 1000.  
 (2) "Geology and Chemistry," *Science*, No. 2303, Vol. 89, 135-139, New York, Feb. 17, 1939.
4275. BOWIE, William, "The Shape and Size of the Earth," *Scientific Monthly*, Vol. 47, No. 6, 506-510, New York, Dec., 1938.
- BOWIE, William, "Report of the Chairman of the Planning and Project Committee of the American Geophysical Union, April 29, 1938." See pp. 575-577 of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
4276. BRIDGMAN, P. W., "The High Pressure Behaviour of Miscellaneous Minerals," *American Journal of Science*, Vol. 237, No. 1, 7-18, 2 fig., 4 tab., bib., New Haven, Jan., 1939.
4277. BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. The following abstracts of papers presented before the British Association at Cambridge, 1938, appear in the *Pan-American Geologist*, Vol. 70, No. 5, Des Moines, Dec., 1938.  
 (1) JONES, Owen T., "Introduction to Symposium on Seismology," 370-371.  
 (2) PHILLIPS, D. W., "Imperfections of Elasticity in Rocks," 371-372.  
 (3) GASKELL, T. F., "Seismic Exploration of Eastern England," p. 372.  
 (4) JEFFREYS, Harold, "Deep Foci and After-shocks," 372-373.  
 (5) BERNAL, J. D., "Crystallographic Relations of Seismology," p. 373.
4278. BRYAN, W. H., "The Establishment of a Seismological Station in Brisbane, Queensland," *Proceedings of the Royal Society of Queensland*, Vol. 49, Nos. 9-10, 104-105, bib., Brisbane, June, 1938.  
 The above is also issued as a separate: *University of Queensland Papers, Department of Geology*, New Series, Vol. 1, Nos. 5-6, 1938.
4279. BRYAN, W. H., and WHITEHOUSE, F. W., "The Gayndah Earthquake of 1935," *Proceedings of the Royal Society of Queensland*, Vol. 49, Nos. 9-10, 106-119, 2 fig., 1 tab., Brisbane, June, 1938.  
 The above also appears as a separate: *University of Queensland Papers, Department of Geology*, New Series, Vol. 1, Nos. 5-6, 1938.
4280. BUBNOFF, S. v., "Structure of the Earth," *Naturwissenschaften*, Bd. 26, 490-493, Berlin, July 29, 1938.
4281. BULLARD, E. C., and GASKELL, T. F., "Seismic Methods in Submarine Geology," *Nature*, No. 3603, Vol. 142, 916-917, London, Nov. 19, 1938.
4282. BULLEN, K. E., "The Wairoa Earthquake of 1932, September 15," *Dominion Observatory, Wellington, N.Z., Bulletins*, No. 136. Published as a reprint from the *New Zealand Journal of Science and Technology*, Vol. 20, No. 1, 31B-43B, Wellington, 1938.

K.E.B. + E.T.

- BURKHOLDER, J. L., "Construction Program and Management." See No. 4292 of this list.
- BYERLY, Perry, and WILSON, James T., "Microseisms Recorded at Berkeley." See pp. 107-109 (2 fig., bib.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
4283. CAIRNS, W. D., "Seismology from a Mathematical View-Point," *Science*, No. 2302, Vol. 89, 113-118, bib., New York, Feb. 10, 1939. W.D.C.
4284. CALOI, P., "Sullo spessore dello strato delle onde Pg nell'Europa Centrale," *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 3-4, 75-82, 2 fig., bib., Rome, 1938.  
For a review in Italian, by Agamennone, see *Ibid.*, p. 120.  
An article by the same author and with the same title appears in *La Ricerca Scientifica*, Anno 9, Vol. 1, Nos. 7-8, 334-338, Rome, April, 1938. P.C.
4285. CARDER, Dean S., "Vibrations in Concrete Water Tanks," *Engineering News-Record*, 767-768, 2 fig., bib., New York, Dec. 15, 1938.
4286. CHAMBERLIN, Rollin T., A review of "The West Nelson Earthquakes of 1929," by J. Henderson (reported as No. 4066 of these lists), *Journal of Geology*, Vol. 47, No. 1, 107-109, Chicago, Jan.-Feb., 1939.
- CHIA, L. H., "Summary of Noticeable Earthquakes as Registered at Chiufeng." See No. 4321 of this list.
4287. DALY, R. A., "Architecture of the Earth." D. Appleton—Century Company, 200 pp., 152 illus. Price \$3.00. New York, 1938.  
A review by A. P. Wendler appears on pp. 76-77 of *Geophysics*, Vol. 4, No. 1, Houston, Jan., 1939.
- DALY, R. A., "The Roots of Volcanoes." See pp. 35-39 (1 fig., bib.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
- DEBRACH, J., "Tremblements de terre en Afrique du Nord—Maroc." See No. 4350 of this list.
4288. DEJUHASZ, Kalman J., "Graphical Analysis of Surges in Mechanical Springs," *Journal, Franklin Institute*, Vol. 226, No. 5, 631-644, 5 fig., bib., Philadelphia, Nov., 1938.  
The concluding section of the article of which the first section was reported as No. 4155 of these lists.
4289. DE MIRANDA, R., "A influencia dos fenomenos sismicos no espirito poetico portugues," *A Terra*, 31-33, Coimbra, Nov., 1937.  
A review in Italian, by Agamennone, appears on p. 28 of the *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 1-2, Rome, 1938.
4290. DIX, C. H., "Interpretation of Well-Shot Data," *Geophysics*, Vol. 4, No. 1, 24-32, 4 fig., bib., Houston, Jan., 1939.
- DUDLEY, Oscar E., "System of Geological Explorations" (Patent). See No. 4342 of this list.



- DUNBAR, C. P., and GABRIEL, V. G., "Miscellaneous Geophysical Methods Used in Prospecting for Oil." See No. 4299 of this list.
- EICKELBERG, E. W., "Progress Report in Seismology for the United States Coast and Geodetic Survey and Cooperating Stations." See pp. 130-132 of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
4291. ENCYCLOPAEDIA BRITANNICA. The Encyclopaedia Britannica Book of the Year 1938, published in London (90 Dean Street, Soho Square, London W. 1), contains the following items of interest to seismologists:
- (1) "Bihar Earthquake," p. 100.
  - (2) "Quetta Earthquake," p. 87.
  - (3) "Seismology," p. 573.
4292. ENGINEERING NEWS-RECORD. The issue of the above periodical for Nov. 24, 1938 (Vol. 121, No. 21) is devoted to a series of papers describing the construction of the Colorado River Aqueduct. This "construction supreme" was completed in a section of the United States subject to earthquakes. One of the longest tunnels crosses the San Jacinto fault. The eight papers are of outstanding interest throughout, but those which deal with the seismological problem as a factor may be listed as follows:
- (1) HINDS, Julian, "Major Problems of Aqueduct Location," 646-651, 4 fig.
  - (2) GUMENSKY, D. B., "Governing Factors in Aqueduct Design," 653-658, 6 fig.
  - (3) BURKHOLDER, J. L., "Construction Program and Management," 659-667, 6 fig.
  - (4) LEADBETTER, B. C., "Driving an Extremely Difficult Tunnel," 669-673, 3 fig.
4293. ENGINEERING NEWS-RECORD.
- (1) "Design for Broadcasting," *Engineering News-Record*, Vol. 122, No. 1, 12-15, 6 illus., New York, Jan. 5, 1939.  
Describes the construction of a broadcasting station at Hollywood, designed to resist earthquake stresses.
  - (2) "Volcanoes Erupt after Chile Quake," *Ibid.*, No. 6, p. 5, 5 illus., Feb. 9, 1939.
  - (3) "Earthquake Bracing for a Tall Building," *Ibid.*, No. 7, 215-217, 3 fig., Feb. 16, 1939.  
See also the editorial in the same issue, p. 205, with the title "Earthquake Knowledge".
4294. EWING, Maurice, WOOLLARD, George P., and VINE, A. C., "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain: Part III, Barnegat Bay, New Jersey, Section," *Bulletin of the Geological Society of America*, Vol. 50, No. 2, 257-296, 16 fig., bib., New York, Feb. 1, 1939. M.E.  
An abstract of this paper appeared in the same publication, Vol. 49, No. 12, Part 2, Dec. 1, 1938. See No. 4300 of this list.  
The above paper is listed as one of the *Lehigh University Publications* (Vol. 13, No. 3, March, 1939), being Circular No. 148, Studies in Science and Technology No. 124.
- EWING, Maurice, "Topography of the Buried Land Surface of the Former Continent of Appalachia: from Seismic Evidence" (abstract). See No. 4300 of this list.

- EWING, Maurice, JOHNSON, Meredith, and WOOLLARD, George P., "Geophysical Investigations of the Geologic Structure of the Coastal Plain." See pp. 98-107 (4 fig., 1 tab., bib.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

- EWING, Maurice, and PENTZ, H. H., "A Proposed Investigation of Vening Meinesz Anomalies." See pp. 90-91 (bib.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

- EWING, Maurice, and VINE, A. C., "Deep Sea Measurements Without Wires or Cables." See pp. 248-251 (3 fig.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

4295. FENNER, Clarence N., "The Phenomenon of Falling Mountain," *American Journal of Science*, Fifth Series, Vol. 35A, 35-48, 5 fig., 2 tab., bib., New Haven, 1938.

The above issue of the *Journal* is dedicated to Dr. A. L. Day by the authors of the various papers printed therein. It is listed among the *Publications of the Carnegie Institution of Washington* as Publication No. 1000.

- FIELD, R. M., *et al.*, "Report of Special Committee on Geophysical and Geological Study of Oceanic Basins." See pp. 571-574 of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

4296. FLEMING, John A., *et al.*, "Transactions of the American Geophysical Union," 585 pp., Washington, 1938.

The following meetings are here reported: Washington, April 27-30, 1938; Spokane, Wash., Dec. 28-29, 1937; Denver, June 21, 1937. The pagination above given refers only to Part I, dealing with papers presented before the various sections of the Union at the meetings listed.

Abstracts or short papers of interest to seismologists are listed in this *Bibliography* under the names of the following authors: Daly; Hellweg; Ewing and Pentz; Woollard, Ewing and Johnson; Byerly and Wilson; Thoenen and Windes; Westland; Lynch, Wm. A., and Lynch, J.; Gutenberg, B.; Landsberg and Neuberger; Jaggar; Macelwane and Ramirez; Macelwane and Sprengnether; Heinrich; Eickelberg; Brunner; Ewing and Vine; Field, *et al.*; Bowie.

- FLEMING, J. A., MEYERHOFF, H. A., and STETSON, H. T., "Geophysics as Applied to Continental Structure." See No. 4331 of this list.

4297. FÖRTSCH, O., "Das Verhalten noch freistehender Brückenpfeiler bei Schwingungen und deren Abhängigkeit vom Untergrund," *Zeitschrift für Geophysik*, Jahr. 14, Heft 5-6, 173-195, 6 fig., 4 tab., bib., Braunschweig, 1938. G.I.G.

The above is No. 33 of the series: "*Seismische Untersuchungen des Geophysikalischen Instituts in Göttingen*."

4298. FRIEDLANDER, I., "Sui bradisismi dell'Isola d'Ischia e sulla 'Grotta del Mago'," *Bollettino della Reale Società Geografica Italiana*, Ser. 7a, Vol. 3, 44-54, Genoa, 1938.

A review in Italian, by Agamennone, appears on p. 29 of the *Bollettino della Società Sismologica Italiana*, Vol. 36, Nos. 1-2, Rome, 1938.

4299. GABRIEL, V. G., and DUNBAR, C. P., "Miscellaneous Geophysical Methods Used in Prospecting for Oil," *Louisiana Conservation Review*, Vol. 6, No. 1, 2-4, New Orleans, Jan., 1937.

A brief review by D. W. appears on pp. 463-464 of *Mines Magazine*, Vol. 28, No. 10, Golden, Oct., 1938.

- GAMBURTSEV, G. A., "Seismic Method of Prospecting by Means of Reflected Waves" (Patent). See No. 4342 of this list.

- GASKELL, T. F., "Seismic Exploration of Eastern England." See No. 4277 of this list.

- GASKELL, T. F., and BULLARD, E. C., "Seismic Methods in Submarine Geology." See No. 4281 of this list.

- GÉNAUX, L., "Agitation microséismique au Parc Saint-Maur." See No. 4350 of this list.

4300. GEOLOGICAL SOCIETY OF AMERICA, "Abstracts of Papers to be Offered at the Fifty-first Annual Meeting, December 28-30, 1938," *Bulletin of the Geological Society of America*, Vol. 49, No. 12, Part 2, New York, Dec. 1, 1938.

The following authors have contributed abstracts which are of special interest to seismologists. The titles will be found in each case under the listing of the name of the author in this issue of the *Bibliography*, namely: Ewing, Woollard and Vine; Griggs; Lawson; Shepard; Birch; Heck; Hubbert; Linehan; Lynch, Wm.; Lynch, J.; McMurray; Slichter; Kelly; Lundberg; Ewing; Longwell; Stetson.

4301. GREEN, C. H., "Velocity Determinations by Means of Reflection Profiles," *Geophysics*, Vol. 3, No. 4, 295-305, 8 fig., Houston, Oct., 1938.

4302. GREENWALD, H. P., "Ground Movement in Mines," *Journal of Applied Physics*, Vol. 9, 567-572, Sept., 1938.

The author's abstract is quoted on pp. 932-933 of *Science Abstracts*, Section A., No. 490, Vol. 41, London, Oct. 25, 1938.

- GRIGGS, David, "Convection Currents and Mountain Building" (abstract). See No. 4300 of this list.

- GUMENSKY, D. B., "Governing Factors in Aqueduct Design." See No. 4292 of this list.

- GUTENBERG, B., "The Velocity of Sound Waves from Gun Fire in Southern California." See p. 156 (2 fig.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

4303. HAGIWARA, Takahiro, and OMOTE, Syun'itiro, "Comparative Observations of the Acceleration of Earthquake Motions in the Compound of the Tokyo Imperial University, Part I," *Bulletin, Earthquake Research Institute*, Vol. 16, Part 3, 632-637, 15 fig., 2 tab., bib., Tokyo, Sept., 1938.

The paper is in Japanese with an abstract in English.

- HASSELMANN, Karl F., "Geophysical Measurement-making Apparatus" (Patent). See No. 4342 of this list.



- HAWLEY, Paul F., and SPARKS, Neil R., "Maximum Electromagnetic Damping of a Reluctance Seismometer." See No. 4360 of this list.
4304. HAYES, R. C., "Report of the Activities of the Dominion Observatory During the Year Ended 31st December, 1937," *Dominion Observatory (N.Z.) Bulletins*, No. 135, 6 pp., 1 map, 3 tab., bib., Wellington, 1938. R.C.H.
4305. HECK, N. H., "Earthquake History of the United States; Part I—Continental United States (Exclusive of California and Western Nevada) and Alaska," *U.S. Coast and Geodetic Survey Publications*, No. 609, 83 pp., 1 map, bib., Washington, 1938. N.H.H.  
The above may be obtained from the Superintendent of Documents, Washington, D.C., at the nominal price of 20 cents.
- HECK, N. H., "Recent Advances in Seismology," and "Earthquake Problems of the Coastal Plain" (abstracts). See No. 4300 of this list.
- HÉE, Mme. A., "Tremblements de terre en Afrique du Nord—Algérie." See No. 4350 of this list.
- HEINRICH, ROSS R., "A Contribution to the Study of the Seismicity of Missouri." See pp. 129-130 of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
- HELLWEG, J. F., "The Improvement in Time Service and Broadcasting." See pp. 48-51 of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
4306. HESS, Harry Hammond, "Gravity Anomalies and Island Arc Structure with Particular Reference to the West Indies," *Proceedings of the American Philosophical Society*, Vol. 79, No. 1, 71-96, Philadelphia, 1938.
- HINDS, Julian, "Major Problems of Aqueduct Location." See No. 4292 of this list.
- HUBBERT, M. King, "Design Elements of a Self-integrating Strong Motion Accelerometer" (abstract). See No. 4300 of this list.
- HUKUNAGA, Mituo, SATO, Mitunosuke, and MIYABE, Naomi, "Crustal Deformations in Central Taiwan, Part 2." See No. 4333 of this list.
4307. INOUE, Win, "Notes on the Origin of Earthquakes, Sixth Paper," *Bulletin, Earthquake Research Institute*, Vol. 16, Part 3, 597-631, 30 fig., 2 tab., bib., Tokyo, Sept., 1938.
- JAGGAR, T. A., "A Simple Seismoscope." See p. 125 (1 fig.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.
- JEFFREYS, Harold, "Deep Foci and After-shocks." See No. 4277 of this list.
4308. JENKINS, Olaf P., "Geologic Map of California," Scale 1:500,000; Size 6½ ft. x 7½ ft. Price \$4, from Walter W. Bradley, State Mineralogist, Ferry Building, San Francisco, Cal.  
For further details see p. 516, *Mines Magazine*, Vol. 28, No. 11, Golden, Nov., 1938.

4309. JOHNSON, C. H., "Steady State Polar Sensitivity Curves," *Geophysics*, Vol. 4, No. 1, 33-52, 13 fig., bib., Houston, Jan., 1939.

————— JOHNSON, Meredith, WOOLLARD, George P., and EWING, Maurice, "Geophysical Investigations of the Geologic Structure of the Coastal Plain." See pp. 98-107 (4 fig., 1 tab., bib.) of the *Transactions of the American Geophysical Union*, reported as No. 4296 of this list.

4310. JOHNSTON, W. A., "Recent Changes of Level of the Land Relative to Sea Level," *American Journal of Science*, Vol. 227, No. 2, 94-98, bib., New Haven, Feb., 1939.

4311. JONES, Austin E., "The Amateur's Seismograph: Instructions for building and operating in the owner's cellar an instrument which will record quakes from the most distant parts of the earth," *Scientific American*, Vol. 160, No. 2, 83-85, 10 fig., New York, Feb., 1939. R.R.B.

In the same issue of the *Scientific American*, p. 97, appears a brief note entitled: "Ten Tires Float Oil Explorers." This note describes the field equipment for transporting seismic prospecting materials over swamp lands. It is illustrated with one figure.

————— JONES, Owen T., "Introduction to Symposium on Seismology." See No. 4277 of this list.

4312. KANAI, Kiyoshi, "Three-dimensional Vibrations of a Framed Structure, I," *Bulletin, Earthquake Research Institute*, Vol. 16, Part 3, 538-549, 6 fig., Tokyo, Sept., 1938.

————— KANAI, Kiyoshi, and SEZAWA, Katsutada,

- (1) "Damping of Periodic Visco-elastic Waves with Increase in Focal Distance."
  - (2) "The Formation of Boundary Waves at the Surface of a Discontinuity within the Earth's Crust, I."
  - (3) "The Effect of Cooling on a Plastic Earth under Gravitational Forces, II."
- See No. 4357 of this list.

4313. KATO, Y., "Changes in Earth's Magnetic Field Accompanying Earthquakes or Volcanic Eruptions," *Tohoku University Science Reports*, No. 27, 1-90, Sendai, July, 1938.

4314. KELLY, Dunford, "A Reaction-type Shaking Table," *Geophysics*, Vol. 4, No. 1, 69-75, 4 fig., Houston, Jan., 1939. R.R.B.

4315. KELLY, Sherwin F., "Geophysical Prospecting," *Mining and Metallurgy*, Vol. 18, No. 361, 26-27, New York, Jan., 1937.

A brief review by D. W. appears on p. 463 of *Mines Magazine*, Vol. 28, No. 10, Golden, Oct., 1938.

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 (1) "Periodicity of Earthquakes," No. 3598, p. 689, Oct. 15. A review of the book by Charles Davison reported as No. 4047 of these lists.  
 (2) "Vibration in Engineering," *Ibid.*, 705-707.  
 (3) "Recent Research in Seismology," *Ibid.*, 710-711. A report of a symposium on seismology held at Cambridge by Section A of the British Association.  
 (4) "Earthquake of October 19," No. 3600, p. 790, Oct. 29.  
 (5) "Travel-times of the Seismic Waves *P* and *S*," *Ibid.*, 801-802.  
 (6) "Geocentric Distances in Seismology," *Ibid.*, p. 802.  
 (7) "Geophysical Research at Johannesburg," No. 3601, p. 824, Nov. 5.  
 (8) "Seismological Work at Stuttgart," *Ibid.*, p. 826.  
 (9) "The Earth's Crust," *Ibid.*, p. 840.  
 (10) "Gulf Coast Oil Fields," No. 3602, p. 854, Nov. 12. A review of the book reported as No. 4025 of these lists.  
 (11) "Earthquake in Bulgaria on November 6," *Ibid.*, p. 869.  
 (12) "Japanese Earthquake of November 5," *Ibid.*  
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- (14) "Violent Earthquake of November 10," No. 3603, p. 909, Nov. 19.
  - (15) "Earthquake near Vienna," *Ibid.*
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  - (17) "Earthquake Sounds," *Ibid.*
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  - (2) "Earthquake in Belgium," *Ibid.*
  - (3) "Earth Tremor at Quetta," No. 3611, p. 71, Jan. 14.
  - (4) "Outer Regions of the Earth's Core," No. 3612, p. 124, Jan. 21.
  - (5) "Rate of Faulting near an Earthquake Epicentre," *Ibid.*
  - (6) "The Earth's Crust near New Zealand," No. 3613, p. 168, Jan. 28.
  - (7) "Earth Tremor in the Lipari Islands," No. 3614, p. 197, Feb. 4.
  - (8) "The Chilean Earthquake," *Ibid.*
  - (9) "Northern Californian Earthquakes during 1937," *Ibid.*, p. 209.
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  - (13) "Clover Creek Earthquake of July 15, 1938," *Ibid.*, p. 250.
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- (1) SALVATORI, Henri, and WALLING, Dean, "Method of Making Weathering Corrections in Seismic Surveying," U.S. Patent 2,087,120, July 13, 1937.
- (2) PETERS, Leo J., "Method and Means for Recording Terrestrial Waves," U.S. Patent 2,087,702, July 20, 1937.
- (3) DUDLEY, Oscar E., "System of Geological Explorations," U.S. Patent 2,088,588, Aug. 3, 1937.
- (4) RICKER, Norman H., "Method and Means of Geophysical Prospecting," U.S. Patent 2,089,983, Aug. 17, 1937.
- (5) HASSELMANN, Karl F., "Geophysical Measurement-making Apparatus," Canadian Patent 364,924, March 23, 1937.
- (6) GAMBURTSEY, G. A., "Seismic Method of Prospecting by Means of Reflected Waves," Russian Patent 50,338, Aug. 31, 1936.

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4348. ROCK, S. M., "Three Dimensional Reflection Control," *Geophysics*, Vol. 3, No. 4, 340-348, 8 fig., Houston, Oct., 1938.

4349. ROTHÉ, E., "Rapport de la Section de Séismologie," *Compte Rendu 1933-1934-1935-1936, du Comité National Français et Comité National Marocain de Géodésie et Géophysique*, 111-141, Paris, 1938.

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The report presents the seismological records of the stations in France and her dependencies. There is a discussion of microseisms by J. Lacoste. Professor Lacoste died on November 19, 1937. An obituary, by professor E. Rothé, appears in the above publication together with a portrait of Professor Lacoste.

The sub-sections of the report are prepared by J. P. Rothé, P. Stahl, Mme. A. Hée, Ch. Bois, J. Debrach, Ch. Poisson, J. Lacoste, L. Génaux, and O. Mengel. For the titles of the section prepared by each, see cross references under the author names in this issue.

— ROTHÉ, J. P., "Tremblements de terre en France (1935)." See No. 4350 of this list.

— SALVATORI, Henri, and WALLING, Dean, "Method of Making Weathering Corrections in Seismic Surveying" (Patent). See No. 4342 of this list.

— SANGUINETTI, G., ASCARI, M., and BACCINO, L., "Le spiagge della Riviera Ligure." See No. 4265 of this list.

— SATO, Mitunosuke, MIYABE, Naomi, and HUKUNAGA, Mituo, "Crustal Deformations in Central Taiwan, Part 2." See No. 4333 of this list.

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(1) "Zur Dämpfungskopplung," *Annalen der Physik*, Folge 5, Bd. 33, Heft 2, 107-108, Leipzig, Sept., 1938.

(2) "Ausgleichung der besten Stationsbeobachtungen mitteleuropäischer Erdbeben," *Zeitschrift für Geophysik*, Bd. 14, Heft 7-8, 351-390, 6 fig., 3 tab., bib., Braunschweig, 1938.



4352. SCHUMANN, T. E. W., "A General Graduation Formula for the Smoothing of Time Series," *Philosophical Magazine*, No. 179, Vol. 26, 970-983, 2 fig., 2 tab., bib., London, Dec., 1938.
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- (1) "The Mathematical Association of America," No. 2290, 469-470, Nov. 18.  
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  - (2) "Award of the Penrose Medal to Professor Lawson," *Ibid.*, p. 470.
  - (3) "Seismological Observatory at Mineral, Cal.," No. 2293, p. 8 (Supp.), Dec. 6.
  - (4) "The Action of Rocks under Pressure," No. 2294, p. 8 (Supp.), Dec. 16.
  - (5) "The Washington Meeting of the International Union of Geodesy and Geophysics," No. 2295, p. 589, Dec. 23.
4354. SCIENCE. The following brief reports of interest to seismologists have appeared in recent issues of Vol. 89 of the above periodical (New York, 1939):
- (1) "Drill Samples of Ocean Floor," No. 2301, p. 48 (Supp.), Feb. 3.
  - (2) "The Sixth Pacific Science Congress," No. 2303, 146-147, Feb. 17.
4355. SCIENCE NEWS-LETTER. The following brief notes of interest to seismologists have appeared in recent issues of Vol. 34 of the above periodical (Washington, 1938):
- (1) "Earth Trembles" (Nov. 5), No. 20, p. 318, Nov. 12.
  - (2) "Earth Trembles" (Nov. 16), No. 22, p. 340, Nov. 26.
  - (3) "Pull of Sun and Moon Seen as Trigger for Quakes," No. 23, p. 361, Dec. 3.
  - (4) "Earthquake Observatory Established in California," No. 24, p. 375, Dec. 10.
  - (5) "Rocks Flow, then Break, Harvard Studies Show," No. 25, p. 388, Dec. 17.
4356. SCIENCE NEWS-LETTER. The following brief notes of interest to seismologists have appeared in recent issues of Vol. 35 of the above periodical (Washington, 1939):
- (1) "Changes in Gravity may Warn of Earthquake," No. 2, p. 22, Jan. 14.
  - (2) "Moon may Start Earthquakes by 'Triggering' Stresses," No. 4, p. 57, Jan. 28.
  - (3) "Earth Trembles," No. 6, p. 90, Feb. 11.
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- (1) "Damping of Periodic Visco-elastic Waves with Increase in Focal Distance," *Bulletin, Earthquake Research Institute*, Vol. 16, Part 3, 491-503, 1 fig., 2 tab., bib., Tokyo, Sept., 1938.
  - (2) "The Formation of Boundary Waves at the Surface of a Discontinuity within the Earth's Crust, I," *Ibid.*, 504-526, 3 fig., 2 tab., bib.
  - (3) "The Effect of Cooling on a Plastic Earth under Gravitational Forces, II," *Ibid.*, 527-537, 5 fig., bib.
- SHEPARD, Francis P., "California Submarine Canyons" (abstract). See No. 4300 of this list.
4358. SILVERMAN, Daniel, "The Frequency Response of Electro-magnetically Damped, Dynamic, and Reluctance-type Seismometers," *Geophysics*, Vol. 4, No. 1, 53-68, 10 fig., bib., Houston, Jan., 1939. R.R.B.
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4359. SMITH, Lynn Davis, "Boring through a Rainstorm. San Jacinto Tunnel, Part of Colorado River Aqueduct System, Presented Engineering Difficulties, Rock and Water, Pioneer Tunnels Driven Ahead," *Scientific American*, Vol. 160, No. 3, 140-141, 4 illus., New York, March, 1939.
4360. SPARKS, Neil R., and HAWLEY, Paul F., "Maximum Electromagnetic Damping of a Reluctance Seismometer," *Geophysics*, Vol. 4, No. 1, 1-7, 1 fig., bib., Houston, Jan., 1939. R.R.B.
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- STAHL, P., "Les séismes des Charentes," and "Tremblements de terre en Indochine." See No. 4350 of this list.
- STETSON, H. T., "Time Problem in Connection with Geophysical Study of Crustal Structure" (abstract). See No. 4300 of this list.
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4361. STIPE, C. G., and KELLY, S. F., "Geophysical Methods Aid Construction Work," *Civil Engineering*, Vol. 7, No. 4, 264-268, Easton, Pa., 1937.  
A quotation of the authors' abstract is given on p. 171 of *Geophysical Abstracts 91*, reported as No. 4266 of this list.
4362. TAKABEYA, F., "Model Experiments on the Minimization of Structural Vibrations Caused by Seismic Disturbances," *Nature*, No. 3583, Vol. 142, 38-39, London, 1938.
4363. TAKAHASI, K., "On the Effect of the Block Structure of the Earth's Crust on the Propagation of Seismic Waves," *Journal of the Meteorological Society of Japan*, Vol. 15, 118-133, Tokyo, 1937.  
A review by Y. Kodaira is quoted on pp. 161-162 of *Geophysical Abstracts 91*, reported as No. 4266 of this list. The paper by Takahasi is in Japanese.
4364. TAMS, E., "Fortschritte in der Physik der Erde als Ganzes und der Erdrinde," *Geologische Jahresberichte*, Bd. 1, 23 pp. in reprint, bib., 1938. E. Tams.
4365. TAMS, E., "Zur Frage der regionalen Verkoppelung von Erdbeben," *Zeitschrift für Geophysik*, Jahr. 14, Heft 7-8, 241-259, 7 fig., bib., Braunschweig, 1938. E. Tams.  
The author's abstract is in German. Translated it reads: "On the basis of a closer study of suitable data in Iceland, Austria and the Philippines, it is established that, in seismotectonic regions known to be essentially related, even earthquakes which, considered alone, seem to be independent, being widely separated in space and time, may very well be interconnected causally with others through a widespread and deep-seated condition. This relationship, not apparent perhaps in the data of isolated cases, becomes evident through a statistical-probability treatment. In Norway, no such interrelationship has been established. However, there has been a noticeable diminution in seismic activity within the past twenty-five years, so that earth deformation must also be diminishing as time goes on."

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4366. TRAPPE, Fr., "Beiträge zur Anwendung der Reflexionsmethode in Deutschland," *Oel und Kohle*, Vol. 13, No. 30, 757-758, Berlin, 1937.  
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4368. U.S. COAST AND GEODETIC SURVEY, "Preliminary Report of the New Jersey Earthquakes of August 22, 23, and 27, 1938" (mimeographed), 3 pp., 1 map., Washington, 1938.
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- (15) "Earthquake near Smyrna", and "Other Recent Earthquakes", No. 3648, p. 589, Sept. 30.
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- (2) "Centrifuge for Testing Mines and Bridges in New Columbia School of Engineering Research", No. 2342, p. 8 suppl., Nov. 17.
- (3) "The New Jersey Earthquake of Nov. 14 and the Seattle Earthquake of Nov. 13", No. 2343, p. 13 suppl., Nov. 24.
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- (2) "Artificial Earthquake Reflections Show Oil", No. 3, p. 38, July 15.
- (3) "Earth Trembles (July 5)", No. 4, p. 61, July 22.
- (4) "Earth Trembles (July 17)", No. 5, p. 78, July 29.
- (5) "Earth Trembles (July 19)", No. 6, p. 95, Aug. 5.
- (6) "Volcanic Eruption Forecast", No. 7, p. 101, Aug. 12.
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- V2. Volcanoes in Relation to Earthquakes: 4293(2), 4296, 4335(22), 4398(2), 4547, 4681(19), 4694(1), 4696(6).
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See also E3. (Explosions), F1. (Foci), M3. (Mathematical Physics), O4. (Origins), R1. (Records), S3. (Seismic Prospecting), T1. (Texts), T4. (Time-Distance Curves), and V1. (Vibrations).
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# PUBLICATIONS

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OTTAWA

VOL. XIII

## Bibliography of Seismology

No. 5

Items 4716-4769

JANUARY, FEBRUARY, MARCH, 1940

BY

ERNEST A. HODGSON

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# Bibliography of Seismology

January, February, March, 1940

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The effect of the disturbed world conditions is now being felt in the literature of seismology. The present issue of the *Bibliography* lists only half the number of items usually reported. This is partly due to the fact that less research is being done and less is being published on the subject. A lesser but still important reason is that the various publications are more difficult to obtain in Canada. Some are not available and others arrive after quite an unusual delay.

Under these circumstances, the Editor would ask all those who are or who have been collaborating in this work to be especially careful to report all publications that should be listed in the *Bibliography* and that are not likely to be received at the Dominion Observatory.

The collaboration of others is asked at this time. For the convenience of those reporting bibliographical items, a form has been prepared. The use of this form reduces the work of reporting to a minimum and ensures that all required data are included. A supply of these forms will be sent to those who request them. It is hoped that the combined efforts of all interested may enable the *Bibliography* to list all important papers in seismology or allied subjects wherever they may appear.

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The present issue deals in order with the following subject headings: Spring Meeting—1940; New Committees of the Eastern Section; Methods and operations; Earthquakes at Boulder Dam; Seismographs for Shasta Dam Area?; San Francisco-Oakland Bay Bridge; Seismic investigation, North Atlantic Ocean; New seismograph for the Fiji Government; Disastrous earthquakes, Jan.-June, 1938; Deep-focus earthquake of May 8, 1938 (by William A. Lynch); Trends in earthquake insurance and engineering since 1933 (by A. C. Chick); Geologic age (a correction); Density of seismograph stations (by H. Landsberg); Earthquake near Seattle; New Jersey Shock of November 14, 1939; Earthquake in Turkey; Southern California earthquakes; Strong-motion records; Epicentres: Items.

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- (5) "Oil Discoveries in Nebraska Based on Success in Michigan. New Finds Are Based on Two Years of Exploration following Corrugations in Geologic Basin Underground", *Ibid.*, p. 79.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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## PUBLICATIONS

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The paper is followed by printed discussions by: A. E. Payne (pp. 155-156); and a reply by Mr. Adler (pp. 157-158).

- ALTSON, B. T., "Hanging Control in Deep Level Mines on the Witwatersrand—Its Ultimate Effect on Maximum Ore Extraction". See pp. 61-78 (8 fig.) of the publication reported as No. 4771 of this list.

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This map was prepared by the American Geophysical Union as a special exhibit for the Seventh General Assembly of the International Union of Geodesy and Geophysics. Copies may be had through Dr. J. A. Fleming, General Secretary, American Geophysical Union, 2541 Broad Branch Rd., Washington, D.C. The price is \$3.50 postpaid to points in the United States. If six or more copies are ordered the price is \$3 each.

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On pp. 197-198 are given a series of notes dealing with rock bursts. These deal with the definition reporting and mining of remnants as adopted on many Witwatersrand mines.

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- MERES, M. W., and MUSKAT, M., "Reflection and Transmission Coefficients for Plane Waves in Elastic Media", and "The Seismic Wave Energy Reflected from Various Types of Stratified Horizons". See No. 4823 of this list.

- MICKEL, R. E., "Pressure Bursts". See pp. 161-180 (1 fig., 1 tab.) of the publication reported as No. 4771 of this list.

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- MINTON, J. P., "Frequency Multiplication System for Seismic Recording" (Patent). See No. 4832 of this list.

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- (2) "The Seismic Wave Energy Reflected from Various Types of Stratified Horizons", *Ibid.*, 149-155, 12 fig.

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- (2) "Earthquakes in Greece", and "Earth Tremors in Scotland", No. 3667, p. 219, Feb. 10.
- (3) "Other Recent Earthquakes", and "Earthquake Recorded on Magnetograph", *Ibid.*, p. 220.
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- (5) "Lunar Tide in the Atmosphere", No. 3668, p. 257, Feb. 17.
- (6) "Earth Tremor in New Jersey", *Ibid.*, p. 258.
- (7) "Aftershocks of the Earthquake in Turkey", *Ibid.*, p. 259.
- (8) "Structure of the Pacific Basin", *Ibid.*, p. 269.
- (9) "January Earthquakes Registered at Kew", No. 3669, p. 301, Feb. 24.
- (10) "Earthquakes in Turkey", No. 3670, p. 346, March 2.
- (11) "The Quetta Earthquake of 1935", No. 3671, p. 393, March 9.
- (12) "New Seismographic Equipment in the United States", No. 3672, p. 419, March 16.
- (13) "Earthquakes during February 1940", No. 3673, p. 460, March 23.
- (14) "Earthquakes near Great Dams", No. 3674, p. 508, March 30.
- (15) "After Shocks of the Great Turkish Earthquake", No. 3676, p. 586, April 13.
- (16) "The Earth's Interior", *Ibid.*, p. 599.
- (17) "Recent Earthquake Recordings", No. 3677, p. 622, April 20.
- (18) "Recent Trends in Earthquake Insurance", *Ibid.*, p. 633.
- (19) "Recent Earthquakes", No. 3678, p. 666, April 27.
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- (21) "The International Seismological Summary", and "Recent Earthquakes", No. 3679, p. 701, May 4.
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4828. OBSERVATORY. Review of "Seismology at Kew Observatory", by A. W. Lee (reported as No. 4445 of these lists), *The Observatory*, No. 789, Vol. 63, 51-53, London, Feb., 1940.

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- (2) OWEN, J. E., "Seismic Surveying", U.S. No. 2,184,313, Dec. 26, 1939.
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The volume consists of an introduction of 64 pages, explaining the conditions under which the bibliography was prepared, listing the publications consulted, etc. In the bibliography proper, the arrangement is primarily by subject, the secondary order being that of authors. A complete list of authors with the bibliography item number or numbers indicating their various papers appears at the end of the publication.

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(1) "An Experimental Investigation of the Nature and Origin of Microseisms at Saint Louis, Missouri" (Part One), *Bulletin, Seismological Society of America*, Vol. 30, No. 1, 35-84, 32 fig., 12 tab., bib., Berkeley, Jan., 1940.

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4842. ROUSE, M. K., "Correction of Towers and Supporting Structures of Sprinkler Equipment Tanks to Resist Earthquake Forces", *Bulletin, Seismological Society of America*, Vol. 30, No. 2, 115-127, 10 fig., 1 tab., Berkeley, April, 1940.

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## 4844. ROZOVA, E.,

- (1) "Contribution to the Question of the Structure of the Earth's Crust in Central Asia", *Académie des Sciences de URSS, Publications de l'Institut Séismologique*, No. 94, 1-15, 1 fig., 1 map, bib., Moscow-Leningrad, 1939.
- (2) "Determination of the Epicenter and of the Depth of Focus of an Earthquake from Records of Two Regional Stations", *Ibid.*, 16-22, 1 tab.
- (3) "Contribution to the Question of the Deep-seated Structure of the Caucasus", *Ibid.*, 23-34, 1 map, 4 tab.

Each of the above papers is in Russian with a short abstract in English.

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## 4846. SCIENCE. The following brief notes of interest to seismologists have appeared in recent issues of Vol. 91 of the above periodical (New York, 1940) as follows:

- (1) "New Seismograph Station at Utah State Agricultural College, Logan", No. 2355, p. 167, Feb. 16.
- (2) "Record High Pressures", No. 2357, p. 10 suppl., March 1.
- (3) "High Pressure", No. 2361, p. 10 suppl., March 29.
- (4) "Aleutian Island Shock of March 27, 1940", No. 2362, p. 14 suppl., April 5.
- (5) "Need for Seismological Stations in Central and South Americas", No. 2369, p. 12 suppl., May 24.
- (6) "Earthquake in the Imperial Valley", No. 2370, p. 8 suppl., May 31.

## 4847. SCIENCE NEWS-LETTER. Brief items of interest to seismologists have appeared in recent issues of Vol. 37 of the above periodical (Washington, 1940) as follows:

- (1) "Earth Trembles: Feb. 7", No. 8, p. 125, Feb. 24.
- (2) "Earth Trembles: Feb. 19", No. 9, p. 141, March 2.
- (3) "World's Record Pressures are Achieved at Harvard", No. 10, p. 147, March 9.
- (4) "New Metal Working Machine is Also Powerful Testing Device", *Ibid.*, p. 149, 1 fig.
- (5) "New Apparatus May Double World's Record High Pressure", No. 14, p. 211, 1 fig., April 6.
- (6) "Earth Trembles: March 27", No. 15, p. 231, April 13.
- (7) "Moon, Sun Helps Release Pent-up Volcanic Energy", *Ibid.*, p. 233.
- (8) "Trigger for Earthquakes", No. 18, p. 284, May 4.
- (9) "Earth Trembles: May 4 and May 11", No. 21, p. 355, May 25.
- (10) "Earth Trembles: May 19, 21, and 24", No. 22, p. 340, June 1.
- (11) "Imperial Valley Earthquake Fifth in Amount of Damage", *Ibid.*, p. 341.

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- SCOTT, W., "Notes Concerning a Pressure Burst that Occurred in No. 1 Shaft, Rose Deep, in September, 1932". See pp. 185-188 (3 fig.) of the publication reported as No. 4771 of this list.
4849. SHEPARD, Edgar R., and WOOD, Albert E., "Application of the Seismic Refraction Method of Subsurface Exploration to Floor Control Projects", *American Institute of Mining and Metallurgical Engineers, Technical Publications*, No. 1219, 13 pp., 6 fig., 1 tab., bib., New York, June, 1940.
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The subjects dealt with in the above issue are: Fifteenth Annual Meeting—at Xavier University; Progress of earthquake-resistant design; Earthquake-proof construction; Record enlarger; Bermuda seismograph; History and development of

seismology at the University of Pittsburgh Seismological Station (by Donald C. Bradford); Bibliography of Seismology (note from Nature); Japanese earthquake of May 1, 1939; Earthquake off Central America; Other recent earthquakes; Earthquake in Turkey; Seismic studies at Observatorio del Salto; A study of the slow period movements of the earth's crust in relation to the earthquake of January 24, 1939; Earthquake of January 24, 1939, and the eruption of the volcano Quizapu (by Julio Bustos Navarrete); Separating reflected waves in seismic prospecting; Bulletin Séismique temporarily suspended; A.I.M.M.E.; Epicentres.

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## APPENDIX

## BIBLIOGRAPHICAL ITEMS FROM OLD JOURNALS

A compilation of bibliographical items referring to old publications has been prepared by Rev. C. W. Repetti, S.J., and is presented below. The lists are in two categories: those taken from the *Transactions of the Seismological Society of Japan* and those from a miscellany of publications. Following Father Repetti's lead, those of the first group are given in chronological order, while those of the latter are in the alphabetical order of authors' names.

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44. — "Land Deformations in the Kii and Muroto Peninsulas", 200-240, 1 fig.

45. — "Land Deformations in the North-western Part of the City of Osaka During the Period from 1934 to 1936", 411-421, 3 fig.

46. ISHIMOTO, Mishio, "The Earthquake Faults and the Movements of Crustal Blocks", 350-354.

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— DOXSEE, W. W., "Progress Report" (abstract). See pp. 18-20 of *Earthquake Notes*, reported as No. 4978 of this list.

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4935. DU TOIT, Alexander L., "An Hypothesis of Submarine Canyons", *Geological Magazine*, Vol. 77, No. 5, 395-404, 6 fig., bib., Hertford, Sept.-Oct., 1940.

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(2) "Flexible Core for Dam in Earthquake Country", No. 9, p. 41, Aug. 29.

(3) "William Bowie Dies, Noted Geodesist", No. 11, p. 67, Sept. 12.

(4) "Column Fails Underground" (in Imperial Valley Earthquake, May 18, 1940), No. 19, p. 40, 1 fig., Nov. 7.

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- EWING, Maurice, and WOOLLARD, G. P., "Structural Geology of the Bermuda Islands". See No. 5010 of this list.

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(2) "Subsurface Seismic Surveying" (Patent), U.S. No. 2,156,624, May 2, 1939.

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- GRIMES-GRAEME, R., and LUNDBERG, H., "How Geophysics Aids the Geologist". See No. 4966 of this list.
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- HATTORI, Y., KANEKO, T., MIYAMURA, S., MATUZAWA, T., and HAYAKAWA, M., "Erdbebenhäufigkeit in Bezug auf die Stellung der Sonne und des Mondes". See No. 4969 of this list.
- HAYAKAWA, M., HATTORI, Y., KANEKO, T., MIYAMURA, S., and MATUZAWA, T., "Erdbebenhäufigkeit in Bezug auf die Stellung der Sonne und des Mondes". See No. 4969 of this list.
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- A review, signed G.D.H., appears as No. 1084, p. 350A, *Journal of the Institute of Petroleum*, Vol. 26, No. 202, London, Aug., 1940.
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— INNES, MORRIS J. S., "The Saint Lawrence Earthquake of October 19, 1939" (abstract). See p. 16 of *Earthquake Notes*, reported as No. 4978 of this list.

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- (2) "The Action of Soil Layers and of the Ocean as Dynamic Dampers to Seismic Surface Waves, and Notes on a few Previous Papers".
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— KANEKO, T., MIYAMURA, S., MATUZAWA, T., HAYAKAWA, M., and HATTORI, Y., "Erdbebenhäufigkeit in Bezug auf die Stellung der Sonne und des Mondes". See No. 4969 of this list.

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4971. MILLER, George W., "Information Please" (Letter to the editor re some effects of the recent earthquake at Brawley, Cal.), *Engineering News-Record*, Vol. 125, No. 3, p. 79, 1 fig., New York, July 18, 1940.

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— MINTON, J. P., "Seismograph Blasting Cap" (Patent). See No. 4980 of this list.

4973. MIYABE, Naomi, "Variation in the Rate of Subsidence of the Earth's Surface in Tokyo", *Bulletin of the Earthquake Research Institute*, Vol. 17, Part 4, 723-732, 8 fig., Tokyo, Dec., 1939.

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- (2) "Earthquakes in the Aleutian Islands", *Ibid.*, p. 102.
- (3) "Earthquake in Tibet", and "Earth Tremors in Great Britain", No. 3691, p. 128, July 27.
- (4) "Recent Earthquakes", No. 3693, p. 196, Aug. 10.
- (5) "Interior of the Earth", *Ibid.*, p. 203.
- (6) "A Seismograph for Microseisms", No. 3694, p. 237, Aug. 17.
- (7) "Earthquakes and Structures", No. 3700, 437-438, Sept. 28.
- (8) "July Earthquakes Registered at Kew", No. 3695, p. 263, Aug. 24.
- (9) "Earthquakes of South and Central America", "Seismicity of the Northern Pacific Coast of U.S.A.", and "Origin of Microseisms", *Ibid.*, 270-271.
- (10) "Japanese Earthquakes, January-June, 1939", and "Earthquakes of the U.S. Atlantic Coastal Plain", No. 3696, p. 307, Aug. 31.
- (11) "July Earthquakes", No. 3698, p. 364, Sept. 14.
- (12) "Seismological Data from India", No. 3699, p. 398, Sept. 21.
- (13) "Earthquakes Registered at Hong-Kong", *Ibid.*, p. 405.
- (14) "Recent Earthquakes", No. 3702, p. 490, Oct. 12.
- (15) "Progress in Seismology", *Ibid.*, p. 496.

4978. NELSON, James H., "Earthquake Notes", Vol. 12, Nos. 1-2, 20 pp., 1 fig., Washington, Sept., 1940.

The above publication is the organ of the Eastern Section of the Seismological Society of America. The Editor, Mr. Nelson, of the U.S. Coast and Geodetic Survey, Washington, D.C., should be notified of any data of interest to the Eastern Section which should be published in this periodical.

The present issue deals in order with the following topics: Imperial Valley earthquake; Earthquake recorded on "non-seismic" instruments; Boulder Dam seismological program; Earthquake felt in Ohio; Seismology in Connecticut; Connection between deep-focus earthquakes and anomalies of terrestrial magnetism and gravity; Earthquakes at sea; Notes on earthquakes from *Nature*; Old earthquake recorders; Earthquakes in Turkey; Dr. Charles Davison (who died at Cambridge on April 28, 1940, at the age of 81); Personal observation of earthquake in Peru; Letters to the editor; Epicentres; Proceedings of the Cincinnati meeting of the Eastern Section (May 31-June 1, 1940); Abstracts of papers delivered at the meeting (for titles see under names of authors: Heck, Birkenhauer, Walter, Innes, Westland and Elliot, Smith, Lynch, Cull and Ring, Doxsee); Officers of the Eastern Section.



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— OMOTE, S., and HAGIWARA, T., "Seismic Prospecting on a Sea Bottom". See No. 4947 of this list.

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- (1) MINTON, J. P., "Seismograph Blasting Cap", U.S. No. 2,189,741, Feb. 6, 1940.
- (2) INNES, A. I., "Seismic Surveying Method", U.S. No. 2,192,972, March 12, 1940.
- (3) ZUSCHLAG, Theodor, "Apparatus for Geophysical Exploration", U.S. No. 2,202,885, June 4, 1940.
- (4) SPARKS, N. R., "Apparatus for Determining Seismic Velocities", U.S. No. 2,203,272, June 4, 1940.

4981. PATENTS. A list of patents granted on geophysical apparatus or methods appears in *Geophysical Abstracts 97 and 98*, reported as No. 4917 of this list. Those of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the patentees as follows: Rieber, Blau, Faust, Engineering Laboratories, Weatherby, Gardner, Scherbatskoy, Prescott, and Zavialov.

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4983. PICARD, Leo, "Outline on the Tectonics of the Earth, with Special Emphasis upon Africa", *Bulletins of the Geological Department, Hebrew University, Jerusalem*, Vol. 2, No. 3-4, 66 pp., maps, diag., bib., Jerusalem, 1939.

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4984. POPULAR MECHANICS, " 'Old Quakes' Are Repeated to Analyze Relative Shocks", *Popular Mechanics*, Vol. 74, No. 3, p. 352, 1 fig., New York, Sept., 1940. G.H.A.C.

— PRESCOTT, Harold R., "Method and Apparatus for Making Geological Explorations" (Patent), U.S. No. 2,158,198, May 16, 1939.

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4986. RHODES, Jean, "Le tremblement de terre du Chili", *La Nature*, No. 3048, 268-271, 13 illus., Paris, May 1, 1939. S.A.

4987. RIABINKIN, L. A., "Seismic Methods of Prospecting" (in Russian), *Razvedka Nedr*, Vol. 9, No. 1, 24-27, Moscow, 1939.

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(2) "Wave Record Analyzer" (Patent), U.S. No. 2,155,507, April 25, 1939.

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— RING, Francis J., S.J., and CULL, John P., S.J., "A Vacuum Tube Coupled Relay" (abstract). See p. 18 of *Earthquake Notes*, reported as No. 4978 of this list.

4988. ROSAIRE, E. E., "A Perspective of Exploration for Petroleum", *Geophysics*, Vol. 5, No. 3, Part 1, 259-271, 1 fig., 1 tab., bib., Menasha, July, 1940.

4989. RÖSSLE, P., "Seismic Work in the Region between the Mouth of the Aller and the Weser Highland" (abstract), *Bohrtechnik Zeitung*, Vol. 57, No. 1, 1-3, Vienna, 1939.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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## SUBJECT INDEX FOR THE YEAR 1940

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- V2. Volcanoes in Relation to Earthquakes: 4754, 4902, 4921.  
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The present unsettled world conditions have reduced the volume of items to be reported in the *Bibliography*. Fewer papers are being written; the assistance of some collaborators has been lost; and the opportunity in Canada for obtaining access to some periodicals is gone.

For these reasons it has seemed best to change the *Bibliography* temporarily from a quarterly to a semi-annual publication. The series, begun in January, 1929, continues unbroken. When the volume of bibliographical material warrants, a return to the original quarterly form is planned.

Collaboration by workers in seismology and allied fields is always welcomed. At the moment, it is particularly desired in the case of those living in neutral countries and therefore, presumably, having access to periodicals not available in Canada. On request, report forms will be furnished which reduce to a minimum the work of reporting papers and books which should be listed.

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- BYERLY, Perry, "Time Service at Seismological Stations in Mexico". See No. 5091 of this list.

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A brief announcement of a grant of \$10,000 for research in geophysics recently awarded to the University of Toronto by the Viking Foundation of Panama.

5031. CARDER, Dean S., "Response of a Torsion Seismometer to Sustained Vibrations", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 343-351, 5 fig., bib., Berkeley, Oct., 1940.

5032. CARNEGIE INSTITUTION OF WASHINGTON, "Cooperative Researches at the Seismological Laboratory", *Carnegie Institution of Washington Year Book*, No. 39, 134-136, bib., Washington, 1940.

5033. CENTENO-GRAU, M., "Estudios Sismologicos", 555 pp., tabs., bib. Litografia del Comercio, Caracas, Venezuela, 1940.

Contains a chapter on the author's electro-tectonic hypothesis of earthquake origin; also a catalogue of earthquakes felt between 1530 and 1939 in Venezuela. The other chapters are devoted to general seismology. H.L.

5034. COMRIE, L. J., "The Correction of Epicentres by Least Squares", *Monthly Notices, Royal Astronomical Society, Geophysical Supplement*, Vol. 5, No. 1, 27-29, 1 tab., bib., London, 1941. E.T.

- COOMBS, Howard A., BRADFORD, Donald C., and BARKSDALE, Julian D., "Puget Sound Earthquake of November 12, 1939" (abstract). See p. 2017 of the publication reported as No. 5047 of this list.

5035. DALY, R. A., "Strength and Structure of the Earth", 434 pp., 83 fig., 69 tab., bib. Price \$3.50. Prentice-Hall, Publisher, New York, 1940.

A review by Chester R. Longwell appears on pp. 210-211 of *Science*, No. 2409, Vol. 93, New York, Feb. 28, 1941, and on pp. 220-221 of *Economic Geology*, Vol. 36, No. 2, Lancaster, March-April, 1941.

A lengthy review by L. L. Nettleton appears on pp. 90-92 of *Geophysics*, Vol. 6, No. 1, Houston, Jan., 1941.

Adolph Knopf reviews the book on pp. 319-320 of *American Journal of Science*, Vol. 239, No. 4, New Haven, April, 1941.

- DEAKIN, C. S., JUNNER, N. R., BATES, D. A., and TILLOTSON, E., "The Accra Earthquake of 22nd June, 1939". See No. 5065 of this list.

5036. DELISLE, J. F., "On the Epicentre of the North Pacific Earthquake of 1938 November 10", *Dominion (NZ) Observatory Bulletins*, No. S-58, reprinted from *New Zealand Journal of Science and Technology*, Vol. 22, No. 1B, pp. 47B-49B, 1 tab., bib., Wellington, 1940.



5037. DISIN. Several papers have appeared in the Japanese language only in the periodical *Disin* (Vol. 8, Tokyo, 1936). They are briefly reported in English on p. (4) of the abstracts section of the *Japanese Journal of Astronomy and Geophysics*, Vol. 18, No. 1, Tokyo, 1940. They are indexed in this *Bibliography* under the names of the respective authors as follows: Yosiyama, Kishinouye, Haeno, Honma.

5038. DU REE, A. C., "Fire-Department Operations during the Long Beach Earthquake of 1933", *Bulletin, Seismological Society of America*, Vol. 31, No. 1, 9-12, Berkeley, Jan., 1941.

5039. ECKHARDT, E. A., "Some Reflections on Seismic Prospecting", *Explosives Engineer*, Vol. 18, No. 4, 102-104, Wilmington, April, 1940.

A brief abstract, signed D.W., appears on p. 185 of *Mines Magazine*, Vol. 31, No. 4, Golden, April, 1941.

— ECKHARDT, E. A. Reviews of books by Jakosky and Heiland (see Nos. 5063 and 5058 of this list), *Geophysics*, Vol. 6, No. 1, 85-86, 88-89, Houston, Jan., 1941.

— ELDER, J. S., and SCHONLAND, B. F. J., "Anticipatory Triggering Devices for Lightning and Static Investigations". See No. 5108 of this list.

5040. ENGINEERING NEWS-RECORD, "Earthquakes Influence Tower Design", *Engineering News-Record*, Vol. 125, No. 25, 812-814, 3 fig., New York, Dec. 19, 1940.

"The 279-ft. tower of the Hoover Library at Stanford University has a steel frame designed to carry wind loads, reinforced concrete outer walls to carry earthquake loads. At second-floor level, shears from the tower are distributed over a base five and a half times the tower area. Earthquake precautions added little to construction costs."

5041. ENGINEERING NEWS-RECORD, "Earthquake Analyzer", *Engineering News-Record*, Vol. 126, No. 7, p. 103, 1 fig., New York, Feb. 13, 1941.

Simply an illustration with foot-note description to the effect that the instrument shown is an earthquake analyzer developed by the Bureau of Reclamation for the study of earthquake forces, regarding which data are required in the building program of that organization.

— ENGLISH, Walter A., "Subsurface Structure of the San Joaquin Valley, California" (abstract). See p. 1957 of the publication reported as No. 5048 of this list.

5042. EWING, Maurice, WOOLLARD, George P., and VINE, A. C., "Geophysical Investigations in the Emerged and Submerged Atlantic Coastal Plain", *Bulletin, Geological Society of America*, Vol. 51, No. 12, Part 1, 1821-1840, 3 fig., 6 pl., bib., New York, Dec. 1, 1940.

— EWING, Maurice, "Application of Artificial Seismic Methods on Land and Sea". See No. 5091 of this list.

5043. FABIAN, H. J., "Bilder vom Erdbeben in Rumänien am 10. November, 1940", *Natur und Volk*, Vol. 71, No. 1, 35-38, 5 fig., Frankfurt, a.M., Jan., 1941.

A short paper showing damages done by the Rumanian earthquake of November 10, 1940, with a brief description of the epicentral region. H.L.



5044. FESSENDEN, H. M., "Fessenden, Builder of Tomorrows", Coward McCann Inc., 362 pp., illus., tab. Price \$3.00. New York, 1940.

The life of Reginald A. Fessenden, written by his wife. Some of the earliest patents in seismic prospecting were taken out by Fessenden.

— FLOYD, Francis M., "Seismic Surveying" (Patent). See No. 5093 of this list.

5045. GAERTNER SCIENTIFIC CORPORATION, "Bore Inspection Telescopes", *Review of Scientific Instruments*, Vol. 12, No. 2, p. 106, New York, Feb., 1941.

5046. GEOLOGICAL MAGAZINE. On pp. 153-160 of *Geological Magazine*, Vol. 78, No. 2, Hertford, March-April, 1941, is printed a lengthy review, signed O.T.J., of the book by Douglas Johnson on "The Origin of Submarine Canyons", which was reported in these lists as No. 4808.

5047. GEOLOGICAL SOCIETY OF AMERICA. The issue of the *Bulletin of the Geological Society of America* devoted to abstracts (Vol. 51, No. 12, Part 2, 1919-2042, New York, Dec. 1, 1940) contains a number of notices of particular interest to seismologists. They are indexed in this issue of the *Bibliography* under the names of the authors, as follows:—Griggs; Heck and Neumann; Murray; Russell; Slichter; English; Gutenberg and Richter; Leet; Longwell; Barksdale, Coombs and Bradford; Treasher; Byerly.

The meetings reported are as follows:—

- (1) Geological Society of America:  
December Meeting at Austin (1919-1954),  
Cordilleran Section Meeting at Los Angeles in April (1955-1966);
- (2) Paleontological Society:  
December Meeting at Austin (1967-1980),  
Pacific Coast Branch Meeting at Los Angeles in April (1981-1988);
- (3) Section E, American Institute for the Advancement of Science:  
December Meeting at Philadelphia (1989-2014),  
June Meeting at Seattle (2015-2038),  
Columbus (1939) meeting (papers not previously published) (2039-2042).

5048. GEOLOGICAL SOCIETY OF AMERICA. The Cordilleran Section of the Geological Society of America held their fortieth annual meeting at Stanford University on April 18-19, 1941. The usual official program was issued, containing a list of the papers to be presented and short abstracts of each. The session on Saturday afternoon, April 19, was held jointly with the Seismological Society of America.

The abstracts of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the authors, as follows: Merriam and Anderson, Gilluly, Buwalda and Richter, Gutenberg.

— GILLULY, James, "Thrust Faulting in the Dragoon Mountains, Arizona". See No. 5048 of this list.

5049. GORANSON, Roy W.:—

- (1) "Fracture and Flow in Stressed Solids", *Transactions, American Geophysical Union*, 698-700, Washington, 1940;
- (2) "Physical Effects of Extreme Pressure", *Scientific Monthly*, Vol. 51, 524-535, New York, 1940.

Brief summaries of the above papers are given in *Carnegie Institution of Washington Year Book*, No. 39 (pp. 51, 52), Washington, 1940.

5050. GORANSON, Roy W., "Experimental Flow of Rocks under Conditions Favoring Recrystallization", *Bulletin, Geological Society of America*, Vol. 51, 1001-1034, 10 fig., 2 pl., bib., New York, 1940.

The above is No. 66 in the list of papers published under the auspices of the Committee on Geophysics of the Department of Geology of Harvard University.

— GREEN, W. G., "Method for Seismic Surveying" (Patent). See No. 5093 of this list.

5051. GRIGGS, David, "Creep of Rocks", *Journal of Geology*, Vol. 47, No. 3, 225-251, 12 fig., bib., Chicago, April-May, 1939.

The above is No. 54 in the list of papers published under the auspices of the Committee on Geophysics of the Department of Geology of Harvard University.

5052. GRIGGS, David, "Earth Heat and Geological Processes", *Journal of Applied Physics*, Vol. 12, No. 4, p. 302, Lancaster, April, 1941.

The above is an abstract only of a paper presented at the Conference of Applied Nuclear Physics, held at Cambridge, Mass., October 28-November 2, 1940.

— GRIGGS, David, "Experiments in Dynamic Metamorphism" (abstract). See p. 1928 of the publication reported as No. 5047 of this list.

5053. GUTENBERG, Beno, "Changes in Sea Level, Postglacial Uplift, and Mobility of the Earth's Interior", *Bulletin, Geological Society of America*, Vol. 52, No. 5, 721-772, 5 fig., 9 tab., bib., Washington, May, 1941.

— GUTENBERG, Beno, "Mechanism of Faulting in Southern California Indicated by Seismograms". See No. 5048 of this list.

— GUTENBERG, Beno, "Urgent Need for Additional First Class Stations in the Southern Hemisphere and Elsewhere". See No. 5091 of this list.

— GUTENBERG, Beno, and RICHTER, Charles F., "Seismicity of the Earth" (abstract). See p. 1958 of the publication reported as No. 5047 of this list.

— HAENO, Seizo, and KISHINOUE, Fuhuhiko, "A Small Portable Apparatus for Marking Wireless Time Signals upon Seismograms" (in Japanese language only). See No. 5037 of this list.

5054. HAFNER, W., "The Seismic Velocity Distribution in the Tertiary Basins of California", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 309-326, 4 fig., 1 tab., Berkeley, Oct., 1940.

5055. HASKELL, Norman A., "The Viscosity of the Asthenosphere", *American Journal of Science*, Vol. 33, 22-28, bib., New Haven, 1937.

5056. HAYES, R. C., "The Deep-focus Earthquakes of the Southeast Pacific", *Proceedings, Sixth Pacific Science Congress*, 131-134, 1 fig., bib., 1939. R.C.H.

5057. HECK, N. H., "Earthquakes and the Foreign Service", *American Foreign Service Journal*, Vol. 18, No. 2, 75-77, 105-107, 4 fig., Washington, Feb., 1941. N.H.H.

- HECK, N. H., Presidential Address, Association of Seismology of the International Union of Geodesy and Geophysics. See No. 5091 of this list.

- HECK, N. H., and NEUMANN, Frank, "Earth Motions in the Vicinity of a Fault Slip" (abstract). See p. 1929 of the publication reported as No. 5047 of this list.

5058. HEILAND, Carl A., "Geophysical Exploration", Prentice-Hall, Inc., 1013 pp., 536 illus. Price \$10.00. New York, 1940.

"This book encompasses a thorough discussion of geophysical procedures and apparatus, calculations and interpretations of methods and applications. The results obtained by geophysics under a variety of geological conditions are presented with pertinent illustrations selected from various parts of the world". Geoph.

An extended review by the author appears on p. 616 of *Mines Magazine*, Vol. 30, No. 11, Golden, Nov., 1940. A short review is given on p. 103 of *Economic Geology*, Vol. 36, No. 1, Lancaster, Jan.-Feb., 1941. A lengthy review by E. A. Eckhardt appears on p. 86 of *Geophysics*, Vol. 6, No. 1, Houston, Jan., 1941, and a further discussion, comparing several recent books on geophysics, appears on pp. 88-89 of the same publication.

5059. HODGSON, Ernest A., "The Structure of the Earth as Revealed by Seismology", *Smithsonian Institution Report for 1939*, 281-302, 3 pl., 11 fig., Washington, 1940.

The above is a reprinting of the text which was reported as No. 4178 of these lists.

- HONMA, Syosaku, "Velocity Distribution of P-waves within the Earth" and "Effect of Velocity-Discontinuity upon the Results of Wiechert-Herglotz's Method of Determining Wave Velocity within the Earth" (in Japanese language only). See No. 5037 of this list.

5060. HONNELL, P. M., "Record Counter Aids in Seismograph Computations", *Oil and Gas Journal*, Vol. 38, No. 36, p. 44, Tulsa, 1940.

The article describes a mechanism for placing timing lines on seismograms as used in oil survey work.

5061. ICHINOSE, Masami, "Precise Investigation of Hooke's Law in Primary Elastic Deformation", *Proceedings, Physico-Mathematical Society of Japan*, Third Series, Vol. 23, No. 2, 119-131, 4 fig., 7 tab., bib., Tokyo, Feb., 1941.

- INGLIS, D. R., "Motion of the Earth's Fluid Core". See p. 469 of the report listed as No. 5015 of this issue.

- IRELAND, Andrew T., THOENEN, J. R., and WINDES, S. L., "Progress Report: House Movements Induced by Mechanical Agitation and Quarry Blasting". See No. 5120 of this list.

5062. JACKSON, Charles F., "Annual Report of Mining Division, U.S. Bureau of Mines, for Fiscal Year 1940", *Bureau of Mines Publications*, No. RI-3536, 25 pp., 1 fig., Washington, 1940.

"Contains chapters on . . . seismic effects of blasting, measurements of pressure on mine pillars, . . ." A lengthy review appears on pp. 58-59 of *The Mining Magazine*, Vol. 64, No. 2, London, Feb., 1941.

5063. JAKOSKY, J. J., "Exploration Geophysics", Times-Mirror Press, 800 pp., 430 illus. Price \$8.00. Los Angeles, 1940.

A review in *Geophysics* reads: "This volume describes the fundamental theories, equipment and field technique of the recognized exploratory geophysical methods, and illustrates their application to problems of economic geology".

The earlier chapters of the book are printed in the *Canadian Mining Journal* (Montreal) as follows: Vol. 61, No. 12, 787-795, 4 fig., 1 tab., bib., Dec., 1940; and Vol. 62; No. 1, 24-28, 2 fig., bib., Jan., 1941; No. 3, 161-166, 2 tab., bib., March, 1941; and No. 4, 239-242, 2 tab., April, 1941. The series of excerpts is "to be continued".

A brief review appears on p. 104 of *Economic Geology*, Vol. 36, No. 1, Lancaster, Jan.-Feb., 1941.

A lengthy review by E. A. Eckhardt is given on page 85 of *Geophysics*, Vol. 6, No. 1, Houston, Jan., 1941, and a further discussion, comparing several recent books on geophysics, appears on pp. 88-89 of the same publication.

5064. JEFFREYS, Harold:—

- (1) "The Determination of the Earth's Gravitational Field", *Monthly Notices, Royal Astronomical Society, Geophysical Supplement*, Vol. 5, No. 1, 1-22, tab., bib., London, 1941;
- (2) "The Figures of the Earth and Moon", *Monthly Notices, Royal Astronomical Society*, Vol. 101, No. 1, 34-36, London, Feb., 1941. E.T.

— JEFFREYS, Harold, "The Genesis of Deep Focus Earthquakes". See No. 5091 of this list.

5065. JUNNER, N. R., BATES, D. A., TILLOTSON, E., and DEAKIN, C. S., "The Accra Earthquake of 22nd June, 1939", *Gold Coast Geological Survey, Bulletins*, No. 13, 72 pp. Price 3s. London, 1941.

Dr. Junner and Mr. Bates deal with the geology and macroseismic evidence. Mr. Tillotson presents the instrumental reports and Mr Deakin treats the subject from the standpoint of engineering. E.T.

5066. KAMEN-Kaye, M., "Seismic Refraction Studies in the Orinoco Basin of Deposition, Venezuela", *Geophysics*, Vol. 5, No. 4, 385-392, 4 fig., Menasha, Oct., 1940.

— KANAI, K., and SEZAWA, K.:—

- (1) "Dynamical Absorption of the Energy of Rayleigh Waves and Love Waves by Weak Surface Layers";
- (2) "Thermodynamical Origin of the Earth's Core. I";
- (3) "Effect of Distribution of Masses in a Rahmen Floor on Seismic Structural Vibration, and Model Experimental Confirmations of that Effect with a New Vibration Table".

See No. 5115 of this list.

— KANAI, K., and SEZAWA, K., "The Action of a Soft Surface Layer as a Dynamic Damper to Seismic Surface Waves" (title only). See No. 5085 of this list.



5067. KATO, Y., "Changes in the Earth's Magnetic Field Accompanying Earthquakes or Volcanic Eruptions", *Tohoku University Science Reports*, No. 29, 315-342, Sendai, Nov., 1938.

The above comprises sections two and three of the report. Section I was listed as No. 4313 in this *Bibliography*.

5068. KELLY, S. F., "Photographing Rock Walls and Casings of Bore Holes," *Transactions, American Geophysical Union*, 1939, Part 3, 269-271, Washington, Aug., 1939.

— KEMP, Garrett, "Lecture Notes on Practical Petroleum Geophysics". See No. 5102 of this list.

5069. KENNEDY, W. Jay, "The Interferometer Method of Determining the Amplitudes of Small Mechanical Vibrations", *Journal, Optical Society of America*, Vol. 31, No. 2, 99-101, 3 fig., bib., New York, Feb., 1941.

— KIRK, David K., "Apparatus for Transmitting and Recording Shot Moments" (Patent). See No. 5093 of this list.

5070. KISHINOUE, Fuyuhiko, "The Unusually Large Microseisms of October 21, 1938, at Hongo, Tokyo", *Bulletin, Earthquake Research Institute*, Vol. 18, Part 3, 401-418, 14 fig., 7 tab., bib., Tokyo, Sept., 1940.

— KISHINOUE, Fuyuhiko, "On the Earthquakes occurred at Oosima, Izu, in 1905", and "Shocks associated with the Idu Earthquake of November 26, 1930" (in Japanese language only). See No. 5037 of this list.

— KISHINOUE, Fuyuhiko, and HAENO, Seizo, "A Small Portable Apparatus for Marking Wireless Time Signals upon Seismograms" (in Japanese language only). See No. 5037 of this list.

5071. KRUGER, F. C., and LINEHAN, D., S.J., "Seismic Studies of Floored Intrusives in Western New Hampshire", *Bulletin, Geological Society of America*, Vol. 52, No. 5, 633-648, 5 fig., 1 tab., bib., Washington, May, 1941.

— LANDSBERG, H., and NEUBERGER, H., "On Differences of Pn Velocities". See No. 5091 of this list.

5072. LANGFORD, George B., "The Rock Burst Problem", *The Canadian Mining and Metallurgical Bulletin*, No. 348, 169-182, Montreal, April, 1941.

The above is the text of a paper delivered before the Canadian Institute of Mining and Metallurgy at the Montreal Meeting in March, 1941. The paper was also printed in part in the *Northern Miner*, pp. 36 and 44, Toronto, March 6, 1941.

G.H.A.C.

5073. LAWSON, Andrew C., "Another Note on the Isostatic Control of Fluctuations of Sea Level", *Science*, No. 2414, Vol. 93, 326-327, New York, April 4, 1941.

5074. LEET, L. Don, "Adapting the Milne-Shaw Seismograph to Registration of Diurnal Tilts", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 327-329, 4 fig., bib., Berkeley, Oct., 1940.



5075. LEET, L. Don, "New England's Earthquakes", *Harvard Alumni Bulletin*, 4 pp. in reprint, 2 fig., Cambridge, 1941. L.D.L.
- LEET, L. Don, "Physical Frontiers in Seismology" (abstract). See p. 2000 of the publication reported as No. 5047 of this list. The same abstract also appears on p. 14 of the *Bulletin of the American Physical Society* (Vol. 15, No. 7, New York, Dec. 10, 1940), announcing the program of the annual meeting to be held in Philadelphia, Dec. 26-28, 1940. See also p. 479 of the report listed as No. 5015 in this issue.
5076. LEVIN, S. Benedict, "The Salvador Earthquakes of December, 1936", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 377-407, 11 fig., bib., Berkeley, Oct., 1940.
- LINEHAN, D., S.J., "Need for Uniform Practice in the Publication of Distance, Time, and Other Data". See No. 5091 of this list.
- LINEHAN, D., S.J., and KRUGER, F. C., "Seismic Studies of Floored Intrusives in Western New Hampshire". See No. 5071 of this list.
- LONGWELL, Chester R. Review of "Strength and Structure of the Earth" by R. A. Daly. See No. 5035 of this list.
- LONGWELL, Chester R., "Problems of Orogeny" (abstract). See p. 2001 of the publication reported as No. 5047 of this list. See also p. 478 of the report listed as No. 5015 in this issue.
5077. LYNCH, Joseph, S.J., "Our Trembling Earth", Dodd Mead and Co., 202 pp., 59 illus. Price \$3. New York, 1940.
5078. LYNCH, Joseph, S.J., "What is the State of the Earth's Core?", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 337-341, 1 fig., bib., Berkeley, Oct., 1940.
5079. LYNCH, William A., "The Energy of Local Earthquakes Recorded at Fordham", *Bulletin, Seismological Society of America*, Vol. 30, No. 4, 331-335, 3 fig., 1 tab., bib., Berkeley, Oct., 1940.
- MACELWANE, James B., S.J., "The Present Status of the Problem of Microseisms". See No. 5091 of this list.
- MCCOLLUM, E. V., and ATHY, L. F., "Method and Apparatus for Seismic Surveying" (Patent), U.S. No. 2,219,508, issued Oct. 29, 1940. See No. 5094 of this list.
5080. MCCREADY, H. J., "Shot Hole Characteristics in Reflection Seismology", *Geophysics*, Vol. 5, No. 4, 373-381, Menasha, Oct., 1940.
5081. McMURRAY, Howard, "Periodicity of Deep-focus Earthquakes", *Bulletin, Seismological Society of America*, Vol. 31, No. 1, 33-82, 15 fig., 5 graphs, 17 tab., Berkeley, Jan., 1941.
- MERCANTON, P. L., "Seismic Soundings on Glaciers in Switzerland". See No. 5091 of this list.
- MERRIAM, C. W., and ANDERSON, C. A., "Low-angle Thrusting in the Roberts Mountains, Nevada". See No. 5048 of this list.

5082. MILLER, William J., "Recognition of Faults in Southern California", *Journal of Geology*, Vol. 49, No. 1, 87-100, bib., Chicago, Jan.-Feb., 1941.

— MINTON, John P., "Electric Seismograph" (Patent). See No. 5093 of this list.

5083. MONTANDON, Raoul, WERNER, Mlle. D., and TRONDLÉ, Mlle. P., "Chronique des Calamités (1er septembre 1929 à 31 août 1930)", *Revue pour l'Étude des Calamités*, Tome 3, Nos. 10-11, 164-176, 2 tab., Geneva, May-Dec., 1940.

— MÜFFLY, Gary, "Seismograph Prospecting" (Patent), U.S. No. 2,217,806, issued October 15, 1940. See No. 5094 of this list.

5084. MUGGE, R., "Erdbeben-Katastrophen einst und jetzt", *Natur und Volk*, Vol. 70, No. 11, 542-549, Frankfurt a.M., Nov., 1940.

Popular article on causes of earthquakes with illustrations from the Feb. 1939 earthquake at Concepcion, Chile. H.L.

— MURRAY, Harold W., "Submarine Mountains in the Gulf of Alaska" (abstract). See p. 1935 of the publication reported as No. 5047 of this list.

— NAKAMURA, S. T., "On the Period and Damping of Seismometers", and "Further Studies on the Period and Damping of Seismometers" (titles only). See No. 5085 of this list.

5085. NATIONAL RESEARCH COUNCIL OF JAPAN, "Transactions: Minutes of the Meetings (fifty-fourth to fifty-eighth) of the Division of Geophysics", *Japanese Journal of Astronomy and Geophysics*, Vol. 18, No. 1, 3 pp., Tokyo, 1940.

Titles of papers of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the respective authors: Sassa, Nakamura, Sezawa and Kanai, Nishimura.

5086. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 146 of the above periodical (London, 1940) as follows:—

- (1) "Earthquake Work in Toledo, Spain", No. 3697, p. 337, Sept. 7;
- (2) "Seismological Data from India", No. 3704, p. 556, Oct. 26;
- (3) "Physical Controls in Adjustments of the Earth's Crust", *Ibid.*, 563-564;
- (4) "Aleutian Islands Earthquake", No. 3705, p. 592, Nov. 2;
- (5) "Earthquakes in Rumania and Turkey", No. 3706, p. 615, Nov. 9;
- (6) "The Imperial Valley (California) Earthquake", *Ibid.*, p. 622;
- (7) "Earthquake in Rumania", No. 3707, p. 647, Nov. 16;
- (8) "Earthquakes during October", "Earthquakes Registered in Switzerland", and "Seismological Observations at Saint Louis", No. 3709, 719-720, Nov. 30;
- (9) "Bibliography of Seismology", No. 3710, p. 744, Dec. 7;
- (10) "New Seismographs for Boulder Dam", and "Earthquake in Chili", No. 3711, p. 775, Dec. 14;
- (11) "Recent Earthquakes", No. 3712, p. 803, Dec. 21;
- (12) "Canadian Seismological Stations", *Ibid.*, p. 804;
- (13) "Crustal Structure of the United States", *Ibid.*, p. 809;
- (14) "Determination of the Depth of Glacial Deposit", *Ibid.*, p. 810.

5087. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 147 of the above periodical (London, 1941) as follows:—

- (1) "Recent Earthquakes", No. 3714, p. 24, Jan. 4;
- (2) "Recent Earthquakes", No. 3717, p. 114, Jan. 25;
- (3) "Earthquake in Cyprus", No. 3718, p. 145, Feb. 1;
- (4) "Submarine Canyons", *Ibid.*, p. 151;
- (5) "Earthquake in Cyprus", and "Other Recent Earthquakes", No. 3719, p. 174, Feb. 8;
- (6) "The Deepest Boring", *Ibid.*, p. 180.

5088. NELSON, James H., "*Earthquake Notes*", Vol. 12, No. 3, 10 pp., Washington, Dec., 1940.

*Earthquake Notes* is the organ of the Eastern Section of the Seismological Society of America. It is edited by Mr. Nelson (U.S. Coast and Geodetic Survey, Washington, D.C., U.S.A.) to whom items of seismological interest should be reported.

The present issue deals with the following subject headings in the order given: Spring Meeting 1941; New committees of the Eastern Section; Earthquake in Rumania; More earthquakes in Turkey; Imperial Valley earthquake; Need for strong motion seismographs; Science Service; The earthquake analyzer, a preliminary report (Arthur C. Ruge); Two experimental seismographic stations in Saint Louis (Florence Robertson); Seismographs for Grand Coulee and Shasta Dams; Vertical component vibration meter used as seismometer; Schedule of Naval Radio Time Signals; Royal Observatory, Hong Kong; Prof. Mishio Ishimoto; The interior of the earth; Our Trembling Earth (see No. 5077 of this list); The Little Seismograph (a poem in French with translation by N. H. Heck).

5089. NELSON, James H., "*Earthquake Notes*", Vol. 12, No. 4, 11 pp., 1 fig., 1 tab., Washington, April, 1941.

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The minutes of the various sessions are given in full, in English and in French. Considerable time was given to a discussion of the future of the International Seismological Summary. At the sessions for the presentation of papers contributions were made to the program by the following, the titles of the papers being indexed in this *Bibliography* under the names of the respective authors:—Jeffreys, Gutenberg, Byerly, Linehan, Stagg, Macelwane, Richter, Rothé, Ewing, Mercanton, Landsberg and Neuberger, Bullard, Neumann, Bodle, Blake, Heck. A valuable section of the report is a model questionnaire prepared by Prof. Rothé for distribution to various seismological stations for the purpose of preparing data for a new list of seismological stations of the world. It should stimulate a more complete determination and registration of station and instrumental constants by the seismological stations, providing suggestions as to the data required and insuring uniformity in compilation. The report also contains the usual reports of the permanent officers of the Association of Seismology.

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- OWEN, J. E., "Seismic Surveying" (Patent), U.S. No. 2,215,297, issued Sept. 17, 1940, and also U.S. No. 2,216,452, issued Oct. 1, 1940. See No. 5094 of this list.

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- (4) KIRK, David K., "Apparatus for Transmitting and Recording Shot Moments", U.S. No. 2,212,988, Aug. 27, 1940;
- (5) ATHY, L. F., and PRESCOTT, H. R., "Seismic Method of Logging Bore Holes", U.S. No. 2,207,281, July 9, 1940.



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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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Coronet—Coronet Magazine, Chicago, Ill., U.S.A.	C.
Geophysics—Geophysics Journal of General and Applied Geophysics published by the Society of Exploration Geophysics at Menasha, Wisconsin, U.S.A.	Geoph.
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The above section of the *Transactions* presents the reports and papers of the General Assembly and of the several sections of the Union. Papers of particular interest to seismologists are indexed in this list by the names of authors, as follows: Macelwane, Benfield, Griggs, Bucher, Pekeris, Landsberg, Linehan, Neumann, Bodle, Sohon, McComb and Nelson, Heck, Birkenhauer, Walter, Field, Woollard, Birch, Bancroft, Delaney, Goranson, Washburne.

Progress reports were tabled as follows: Macelwane, J. B., S.J., for the Jesuit Seismological Association; Perry Byerly, for the University of California Seismograph Station; L. C. Langguth, for the Northeastern Seismological Association; Frank Neumann, for the U.S. Coast and Geodetic Association.

Of a series of resolutions adopted, three are of particular interest to seismologists: Resolution on Repositories for Geophysical Records; Resolution on Seismographic Stations in the North Atlantic; Resolution on Seaward Extension of Submarine Valleys. With regard to the first it is interesting to note (p. 732) that Saint Louis University has been designated as a central repository for fundamental geophysical data which may be released by petroleum companies and geophysical organizations.

Among the reports of special committees may be mentioned that by W. T. Thom, Jr., for the Special Committee on Geophysical and Geological Study of Continents; and that by Frank Neumann for the Minutes of the Annual Meeting, 1940, of the Section of Seismology.

5169. FLEMING, John A., *et al.*, "*Transactions, American Geophysical Union, 1941*", Part II, Twenty-second Annual Meeting, April 30 to May 3, 1941, Reports and Papers, General Assemblies and Sections of Geodesy, Seismology, Meteorology, Terrestrial Magnetism and Electricity, Oceanography, Volcanology, and Tectonophysics, 218-583, Washington, Aug., 1941.

Titles of papers and abstracts of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the various authors as follows: Field, Adams, Macelwane, Heck; Doxsee; Macelwane and Sprengnether, Jr.; McComb; LaRocque, Jr.; Linehan, Blake; Pekeris, Bodle; Hodgson; Neumann; Lynch, J.; Linehan and Leet; Perry; Devlin, Langguth and Arringdale; Stechschulte; Walter and Birkenhauer; Wilson; Lynch, W. A.; Balsley; Demorest, Griggs, Clark; Slichter; Brooks; Birch; Gutenberg.

- FLOYD, Francis M., "Seismic Surveying" (Patent). See No. 5227 of this list.
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- (1) "On the Possibility of Separation of Reflected Transversal Waves in Seismic Prospecting" (in Russian), *Académie des Sciences URSS, Bulletins Géographiques et Géophysiques*, No. 2, 155-173, Moscow, 1939;
- (2) "On the Theory of Electromagnetic Damping in Induction Seismographs" (in Russian), *Ibid.*, No. 1, 31-34.

Brief reviews of the above, signed W. A., and bearing Nos. 5337 and 5338, respectively, appear on p. 13 of *Geophysical Abstracts 100*, reported as No. 5139 of this list.

— GARDNER, L. W., "Seismograph Prospecting" (Patent). See No. 5224 of this list.

— GASKELL, T. F., and BULLARD, E. C., "Submarine Seismic Investigations". See No. 5154 of this list.

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- (3) "Apparatus for Recording Seismic Waves" (Patent), U.S. No. 2,167,124, July 25, 1939, reported as No. 5282, p. 171, of same publication;
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- (2) "Submarine Canyons", *Ibid.*, p. 151;
- (3) "Earthquake in Cyprus", and "Other Recent Earthquakes", No. 3719, p. 174, Feb. 8;
- (4) "The Deepest Boring", *Ibid.*, p. 180;
- (5) "Death Notice of Father G. Alfani", No. 3720, p. 201, Feb. 15;
- (6) "Deep Focus Earthquake of the South-west Pacific", *Ibid.*, p. 213;
- (7) "Gravity Anomalies and the Earth's Figure", No. 3722, 273-274, March 1;
- (8) "Earthquake in Greece", No. 3723, p. 292, March 8;
- (9) "Thermal Conductivity of Rocks", *Ibid.*, p. 301;
- (10) "Election of Dr. E. C. Bullard to Royal Society", No. 3726, p. 383, March 29;
- (11) "Recent Earthquakes Recorded at Kew", and "Earthquake near New Guinea", No. 3727, p. 414, April 5;
- (12) "Data of Seismology", and "Earthquakes near America", No. 3728, p. 450, April 12;
- (13) "Earthquake in Mexico", No. 3730, p. 507, April 26;
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- (16) "South Atlantic Earthquake of August 28, 1933", No. 3732, p. 578, May 10;
- (17) "Earthquake in Manchuria", No. 3733, p. 606, May 17;
- (18) "Earthquake in Atlantic Ocean", No. 3734, p. 639, May 24;
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- (21) "Crustal Structure of New Zealand", *Ibid.*, 685-686;
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- (26) "Velocities of Earthquake Waves", No. 3738, 783-784, June 21;
- (27) "Earthquake in Baja, California", and "Earthquakes Registered at Kew", No. 3739, p. 804, June 28.



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- (2) "Stereographic Projection" (a review of the book by F. W. Sohon, S.J., reported as No. 5257 of these lists), No. 3741, p. 37, July 12;
- (3) "Death notices of Prof. A. C. Carson and of Dr. G. van Dijk, both noted for contributions to seismology", *Ibid.*, p. 45;
- (4) "The International Seismological Summary", No. 3742, p. 83, July 19;
- (5) "Earthquake in Japan" and "Earthquakes Registered in Switzerland during 1939", No. 3743, p. 110, July 26;
- (6) "Earthquake of April 15, in Mexico", No. 3744, p. 138, Aug. 2;
- (7) "Mathematical Problems in Seismology", *Ibid.*, p. 146;
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- (9) "Epicentres of Earthquakes of April 20 and 21", *Ibid.*, p. 194;
- (10) "Recent Earthquakes", No. 3747, p. 224, Aug. 23;
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- (13) "Postglacial Uplift and the Mobility of the Earth's Interior", *Ibid.*, 347-348;
- (14) "Research in Geophysics", *Ibid.*, p. 348;
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  - (2) "Growth of Safety Measures Reduces Mining Hazards", *Ibid.*, p. 15, Aug. 28. G.H.A.C.
5222. OBERT, Leonard, "Measurement of Pressures on Rock Pillars in Underground Mines", *U.S. Bureau of Mines, Reports of Investigations*, No. R.I. 3521, 11 pp., 9 fig., 4 tab., Washington, June, 1940.
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5224. PATENTS. The following patents of interest to seismologists are listed in *Geophysics* (Vol. 6, No. 2, Houston) for April, 1941, on pp. 198-199:
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  - (2) SCHAEFFER, H. C., and PETERSON, R. A., "Method of Making Weathering Corrections", U.S. No. 2,229,191, Jan. 21, 1941;
  - (3) MINTON, J. P., "Method of Calibrating Field Timing Systems", U.S. No. 2,230,002 Jan. 28, 1941;
  - (4) GARDNER, L. W., "Seismograph Prospecting", U.S. No. 2,231,575, Feb. 11, 1941;
  - (5) KLIPSCH, P. W., "Recording Seismic Waves", U.S. No. 2,232,612, Feb. 18, 1941;
  - (6) KLIPSCH, P. W., "Seismic Prospecting", U.S. No. 2,232,613, Feb. 18, 1941.

5225. PATENTS. On pp. 299–300 of *Geophysics* (Vol 6, No. 3, Houston, July, 1941) appears a list of patents recently granted in the field of seismic prospecting. They are indexed in this issue of the *Bibliography* under the names of the various patentees, as follows:—Sparks, Klipsch, Kelly, Silverman, Zuschlag, Ellis.

5226. PATENTS. Three recent issues of *Geophysical Abstracts* (99, 100, 101), reported as No. 5139 of this list, contain lists of patents some of which are of particular interest to seismologists. These are reported in this issue of the *Bibliography* under the respective names of the patentees, as follows: Minton; Woodyard, Putnam, and Prescott; Seismos; Ivanov; Vulfius; Reynolds; Kannenstine; Pogany; Blau, Mounce, and Rust; Owen; Slichter; Innes.

5227. PATENTS. The following patents of interest to seismologists are listed on pp. 128–133 of the bibliography reported as No. 5139 of this list.

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- (2) GREEN, William Gladstone, "Method for Seismic Prospecting", U.S. Patent 2,203,140, June 4, 1940;
- (3) SPARKS, Neil R., "Apparatus for Determining Seismic Velocities", U.S. Patent 2,203,272, June 4, 1940;
- (4) ATHY, Lawrence F., and PRESCOTT, Harold R., "Seismic Method of Logging Boreholes", U.S. Patent 2,207,281, July 9, 1940;
- (5) FLOYD, Francis M., "Seismic Surveying", U.S. Patent 2,207,398, July 9, 1940;
- (6) CLOUD, Raymond T., "Seismic Surveying System", Canadian Patent 387,159, Feb. 27, 1940;
- (7) SALVATORI, Henri, and WALSTRUM, James N., "Seismic Surveying Method", Canadian Patent 388,428, April 30, 1940.

— PEKERIS, C. L., "Note on Tides in Wells". See pp. 212–213 of *Transactions, American Geophysical Union, 1940*, reported as No. 5168 of this list. See also No. 5198 of this list.

— PEKERIS, C. L., "The Propagation of an *SH*-Pulse in a Layered Medium" (abstract). See pp. 392–393 of the publication reported as No. 5169 of this list.

— PENTHER, C. J., and POMPEO, D. J., "Direct Pen Recording of Galvanometer Deflections" (abstract). See No. 5229 of this list.

— PERRY, Elwyn L.,

- (1) "The Moodus Earthquakes and the Cause of Earthquakes in New England". See pp. 401–404 (1 fig., 2 tab.) of the publication reported as No. 5169 of this list;
- (2) "Report of Committee on Methods, and Operations, Eastern Section, Seismological Society of America", *Ibid.*, 408–415.

— PETERSCHMITT, E., "Agitation microsismique à Strasbourg". See p. 76 *seq.* of the publication listed as No. 5238 in this issue.

- PETERSON, R. A., and SCHAEFFER, H. C., "Method of Making Weathering Corrections" (Patent). See No. 5224 of this list.
5228. PETRESCU, G., "Sur quelques séismes de Roumanie", *Académie Roumaine, Bulletin de la Section Scientifique*, Tome 22, No. 10, 7 pp., 3 fig., Bucarest, 1941.
- PETRESCU, G., and DEMETRESCU, G., "Sur les phénomènes lumineux qui ont accompagné le tremblement de terre de Roumanie du 10 novembre 1940", and "La carte macro-séismique du tremblement de terre du 22 octobre 1940". See No. 5162 of this list.
- POGÁNY, Béla, "Improvement in or Relating to Electrostatic Instruments for Detecting Seismic Vibrations" (Patent), British No. 509,783, July 20, 1939, reported as No. 5450, p. 48, of *Geophysical Abstracts 100*. See No. 5139 of this list.
- POISSON, Ch., "Tremblements de terre à Madagascar". See p. 103 *seq.* of the publication listed as No. 5238 in this issue.
5229. POMPEO, D. J., and PENTHER, C. J., "Direct Pen Recording of Galvanometer Deflections" (abstract), *Bulletin, American Physical Society* (Programme of the Pasadena Meeting, June 18-20, 1941), Vol. 16, No. 3, p. 9, Lancaster, 1941.
5230. POPESCU-CERNAUTI, I., "Sur les épicentres des tremblements de terre ressentis en Dobrudja", *Comptes Rendus, Institut des Sciences de Roumanie*, Vol. 3, No. 2, 166-171. Bucharest, 1939.
5231. PRESCOTT, H. R., "Seismic Receptors", *Geophysics*, Vol. 6, No. 3, 221-244, 19 fig., Menasha, July, 1941.
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- PRESCOTT, Harold, WOODYARD, Kenneth C., and PUTNAM, Clifford A., "Means and Method of Making Geophysical Explorations" (Patent). See listing under Woodyard.
- PUTNAM, Clifford A., PRESCOTT, Harold, and WOODYARD, Kenneth C., "Means and Method of Making Geophysical Explorations" (Patent). See listing under Woodyard.
- RANGASWAMI, M. R., and MUKHERJEE, S. M., "On the Very Large Pacific Earthquake of November 10, 1938". See No. 5213 of this list.
5232. REICH, Hermann, "Laufzeitplan und Geologie in Ostpommern und im Alpenvorland", *Oel und Kohle*, Vol. 35, No. 41, 740-743, Berlin, 1939.
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- REYNOLDS, Frank F., "Electromagnetic Wave Pickup Instrument" (Patent), U.S. No. 2,147,060, Feb. 14, 1939, reported as No. 5429, p. 42, of *Geophysical Abstracts 100*. See No. 5139 of this list.

5233. RICHTER, C. F., "Earthquake Epicenters and Structure of the Pacific Region of North America (Southern Part)", *Proceedings, Sixth Pacific Science Congress*, 113-118, 6 fig., bib., Berkeley, 1939.

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- (2) "Grant to Daniel Linehan, S.J., for Seismic Survey in Connecticut Valley", No. 2433, p. 158, Aug. 15;
- (3) "Appointment of Dr. H. Landsberg to Institute of Meteorology of University of Chicago", No. 2434, p. 184, Aug. 22;
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- VI. The Projection of the Spheroid
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#### Appendix

##### Protractor Constructions

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 SUBJECT INDEX FOR THE YEAR 1941

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- (4) "Earthquake in the Argentine", No. 3759, p. 592, Nov. 15.
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The successive titles in the present issue are as follows: Captain Heck honored; Annual Meeting 1942; The Lewiston-Auburn, Maine Earthquake of March 8, 1942 (by William H. Weeks, S.J.); Surveys at Long Beach; Golden Gate Bridge; Correction; International Seismological Summary; Earthquakes registered in New South Wales; Recent earthquakes; More notes on the Earthquake of November 25, 1941; News items from England; Amateur seismology; Earthquakes in Central United States; Earthquakes registered at Kew; Epicentres; Officers of Eastern Section, S.S.A.; Report of Nominating Committee.

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The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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The present issue deals with: Announcement by the retiring Chairman, Ralph R. Bodle; Announcement by the Chairman, Elwyn L. Perry; Obituary, Dr. E. Rothé; Obituary, Rev. Navarro Neumann, S.J.; Do deep-focus earthquakes have after-shocks? (by Ross R. Heinrich); Dams built on faults; Golden Gate Bridge; Luminous phenomenon accompanying the Cyprus earthquake of January 20, 1941; South American earthquakes; Earthquakes registered in Switzerland; New Zealand earthquakes reported in Nature; Vibrations in structures; Notes of interest; Epicentres.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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- (3) "Earthquakes Registered in Spain", *Ibid.*, p. 695.

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- (2) "New Zealand Earthquakes", *Ibid.*, p. 18.
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- (4) "Earthquakes Registered at Kew and Stonyhurst", No. 3845, p. 45, July 10.
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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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## SUBJECT INDEX FOR THE YEAR 1943

The following subject index for the items listed in the *Bibliography of Seismology* for the year 1943 has been prepared in the same form as that for the items listed in 1942 (see pp. 212-214, Vol. XIII, No. 12, of these *Publications*) and may be considered a continuation of that index.

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- E2. Engineering; Particular Applications to Seismology or of Seismology: Nos. 5514, 5565, 5569, 5571, 5588, 5603, 5606, 5607, 5608, 5623, 5624, 5627, 5647, 5664, 5669.  
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- M3. Mathematical Physics, as Applied to Seismological Problems: Nos. 5454, 5464, 5467, 5468, 5505, 5542, 5560, 5564, 5596, 5651, 5673.
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5684. BIRKENHAUER, Henry F., "The Structure of the Earth's Crust East and North of Saint Louis (abstract)", *Proceedings, Missouri Academy of Science*, Vol. 7, No. 4, p. 112, Columbia, Jan. 25, 1942.

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- BORN, W. T., and WEATHERBY, B. B., "Seismic Surveying" (Patent). See No. 5757 of this list.

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5688. BROGGI, J. A., "On Experimental Tectonics: Fracture and Folding of a Solid Crust Dragged along by a Liquid Substratum in Motion", *Boletin de la Sociedad Geologica del Peru*, Vol. 11, No. 1, Lima, 1941.

Experiments are described tending to show that a fluid in motion produces fractures and folding of the type observed in the Jura, Ouachita, and Appalachian mountains, in an overlying crust. Illustrated by ten plates and one figure in the text.

R.R.

5689. BRUCKSHAW, J. M., "Some Factors Limiting Geophysical Prospecting", *Proceedings, Geological Society of London, 1941-42*, Nos. 1381-1388, 57-58, London, 1942.

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N.H.H.

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R.R.

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5698. CANADIAN MINING AND METALLURGICAL BULLETIN, "Lecture on Rockbursts", *Canadian Mining and Metallurgical Bulletin*, No. 384, p. 197, Montreal, April, 1944.

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- COWLES, Lawrence G., and WOLF, Alexander, "Astatic Electromagnetic Vibration Detector" (Patent). See No. 5756 of this list.
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5706. DONALD, Douglas D., "A Discussion of the Rock Burst Problem". A Thesis Submitted for a Bachelor's Degree in Geological Engineering from Princeton University. Private circulation, 80 pp., 23 fig., bib., New York, 1943. D.D.
5707. ECKHARDT, E. A., "Striking Expansion in Geophysical Operations", *Oil Weekly*, Vol. 105, No. 7, 38-41, Houston, April 20, 1942.  
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5717. GUTENBERG, B., and RICHTER, C. F., "Apparent Origin Time of  $\bar{S}$ ", *Bulletin, Seismological Society of America*, Vol. 33, No. 4, 269-279, 4 fig., 1 tab., bib., Berkeley, Oct., 1943.

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(2) "Earthquakes in New Zealand during the Year 1942", *Ibid.*, No. S-69, 4 pp., 1 fig., tab., Wellington, 1944.

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5722. HENDERSON, J., "Earthquake Risk in New Zealand", *New Zealand Journal of Science and Technology*, Vol. 24, No. 5B, 195B-219B, Wellington, March, 1943.

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R.R.

- HESS, H. H., and BETZ, F., "The Floor of the North Pacific Ocean". See No. 5682 of this list.

5723. HOBBS, William, "New Volcanoes and a New Mountain Range", *Science*, No. 2572, Vol. 99, 287-290, 2 fig., bib., New York, April 14, 1944.

5724. HOCKING, W. T., "Notes on Rock Bursts in the Nundydroog Mine", *Kolar Gold Fields Mining and Metallurgical Society Bulletins*, Vol. 8, No. 40, 69-81, 1936. DD.

5725. HODGSON, Ernest A., "What is a Rockburst?", *Journal, Royal Astronomical Society of Canada*, Vol. 38, No. 1, 1-6, Toronto, Jan., 1944.

5726. HODGSON, Ernest A., "Rockburst Research at Lake Shore", *The Mining Magazine*, Vol. 70, No. 2, 116-118, 1 fig., London, Feb., 1944.

- HOLBACK, G. E., and COSTA, P. J., "Vibration Pick-up" (Patent). See No. 5756 of this list.

- HOLLE, Werner, SCHUMACHER, Martin, and WELLENSTEIN, Robert, "Device for Regulating the Sensitivity of Signal Receiving Apparatus" (Patent). See No. 5758 of this list.

5727. HOLMES, Arthur. Review of "The Floor of the Ocean", by R. A. Daly (reported as No. 5471 of these lists), *Nature*, No. 3883, Vol. 153, p. 389, London, April 1, 1944.

- HOOVER, Herbert,

(1) "Seismic Wave Amplifier" (Patent), U.S. No. 2,303,357, issued Dec. 1, 1942.

(2) "Stable Seismic Wave Amplifier" (Patent), U.S. No. 2,303,358, issued Dec. 1, 1942.

(3) "Geophysical Exploration System" (Patent), U.S. No. 2,305,383, issued Dec. 15, 1942.

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5728. HORTON, C. W., "A Note on the Reading of Seismograms", *Geophysics*, Vol. 9, No. 2, 160-162, Tulsa, April, 1944.

5729. HORWOOD, C. B., "Prevention of Rock Bursts on the Rand", *South African Mining and Engineering Journal*, Johannesburg, March 11, 1939. D.D.

- HOSTETTLER, G. W., "Infinite Period Seismograph" (Patent), U.S. No. 2,302,219, issued Nov. 17, 1942. See No. 5756 of this list.
5730. JEFFREYS, Harold, "Units and Dimensions", *Philosophical Magazine and Journal of Science*, Vol. 34, No. 239, 837-842. London, Dec., 1943.
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- KLOTZ, R. L., "Seismic Surveying" (Patent), U.S. No. 2,334,414, issued Nov 16, 1943. See No. 5759 of this list.
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R.R.
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5736. LOUDERBACK, George D., "The Reputed Destructive Earthquake of January 16-18, 1940", *Bulletin, Seismological Society of America*, Vol. 34, No. 2, 103-107, Berkeley, April, 1944.
5737. LUDY, Albert K., "Earthquake Notes", Vol. 15, Nos. 3-4, 1-7, Washington, May, 1944.  
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The present issue deals with: 1944 Meeting of the Eastern Section; Earth Science School at Saint Louis; A possible great earthquake (in the past) in the State of Washington; Short historic sketch of the Eastern Section; A vibration meter with variable period and magnification; Seismology in China; Turkish earthquake of November 27, 1943; Obituary of Arthur Keith; Obituary of Dr. F. J. W. Whipple; Argentine earthquake; Steel storage tank designed for seismic forces; Earthquake in Azores; Pulkovo Observatory; Belen Observatory, Cuba; Seismic sea wave (Aug. 24, 1942); together with isolated notes on a few other points of interest to seismologists.



5738. LUFKY, Carroll, "The Construction and Operation of the Wood-Anderson Seismograph" (abstract), *Proceedings, Missouri Academy of Science*, Vol. 6, No. 4, p. 90, Columbia, March 25, 1941.

5739. LUNDBERG, Hans, "A Plea for Lowering the Brows of the Geophysicists", *Mining and Metallurgy*, Vol. 24, No. 444, p. 560, New York, 1943.

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5740. LYNCH, William A., and DILLON, Vincent, "The Deep-focus Earthquake of May 19, 1940, in the Sea of Okhotsk", *Bulletin, Seismological Society of America*, Vol. 33, No. 4, 251-267, 3 fig., 9 tab., bib., Berkeley, Oct. 1943.

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5741. MACELWANE, James B., S.J., "The Rev. William Charles Repetti, S.J.", *Bulletin, Seismological Society of America*, Vol. 34, No. 2, 83-84, 1 fig., Berkeley, April, 1944.

- MAYNE, W. H., "Seismic Circuit" (Patent), U.S. No. 2,326,153, issued Aug. 10, 1943. See No. 5758 of this list.

- McCARTY, M. D.,

(1) "Seismograph" (Patent), U.S. No. 2,304,738, issued Dec. 8, 1942.

(2) "Expander for Electrical Seismographs" (Patent), U.S. No. 2,305,543, issued Dec. 15, 1942.

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- McCARTY, M. D., "Geophone" (Patent), U.S. No. 2,328,222, issued Aug. 31, 1943. See No. 5758 of this list.

- MCCOLLUM, E. V., and ATHY, L. F., "Seismic Surveying" (Patent). See No. 5757 of this list.

5742. MCCREERY, D. H., "Frame Buildings for a Western Cantonment Designed to Resist Earthquake Stresses", *Civil Engineering*, Vol. 13, No. 6, 269-271, New York, June, 1943. R.R.

- METCALF, D. F., and NEUENSCHWANDER, E. F., "Study of Electrical Earth Noise". See No. 5752 of this list.

5743. MINDLIN, R. D., "Stress Distribution around a Tunnel", *Proceedings, American Society of Civil Engineers*, New York, April, 1939. D.D.

5744. MINES MAGAZINE. Obituary of W. A. J. M. van Waterschoot van der Gracht, *Mines Magazine*, Vol. 33, No. 12, 676-677, Golden, Dec., 1943.

Obituary of the famous geologist who is reported to have died at Rowrmond in the Netherlands in August. Dr. van der Gracht is well known to seismologists through his work on the book "Continental Drift", published some years ago by the American Association of Petroleum Geologists.



5745. MINES MAGAZINE, "New Method of Seismic Prospecting", *Mines Magazine*, Vol. 34, No. 4, p. 177, Golden, April, 1944.

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- MINTON, J. P., and SHOOK, E. M., "Gain Control for Seismograph Amplifier" (Patent), U.S. No. 2,301,739, issued Nov. 10, 1942. See No. 5756 of this list.
- MORITZ, B. E., Jr., "Gain Control" (Patent), U.S. No. 2,316,354, issued April 13, 1943. See No. 5757 of this list.

5746. MORRISON, R. G. K., "Notes on a Rockburst in the Ooregum Mine", *Kolar Gold Fields Mining and Metallurgical Society Bulletins*, No. 33, 1932. D.D.

5747. MORRISON, R. G. K., "Notes on Witwatersrand Mining Practice", *Kolar Gold Fields Mining and Metallurgical Society Bulletins*, Vol. 9, No. 38, p. 2, 1935. D.D.

5748. MORRISON, R. G. K., "Points of View on the Rock Burst Problem", *Transactions, Canadian Institute of Mining and Metallurgy*, Vol. 42, 443-460, Montreal, Aug., 1939. D.D.

5749. NATURE. The arrival of this periodical at Ottawa is very erratic at times, due to present war conditions, with the result that some issues arrive very late. For example, the issue for April 24, 1943, reached the Observatory on May 8, 1944. The following item may be noted: "Seismological Tables", *Nature*, No. 3834, Vol. 151, p. 472, London, April 24, 1943.

5750. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 152 of the above periodical (London, 1943) as follows:

(1) "Earthquakes Recorded during September", No. 3868, p. 720, Dec. 18.

5751. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 153 of the above periodical (London, 1944) as follows:

- (1) "An Ultra-High-Speed Motion-Picture Camera", No. 3872, p. 77, Jan. 15.
- (2) "Recent Earthquakes", No. 3875, p. 163, Feb. 5.
- (3) "Man's Influence on Seismic Movements", No. 3877, p. 219, Feb. 19.
- (4) "The Dominion Observatory, Wellington", *Ibid.*, 219-220.
- (5) "Earthquake in Turkey", No. 3876, p. 193, Feb. 12.
- (6) "Earthquakes Registered in New Zealand and Spain", No. 3883, 402-403, April 1.
- (7) "Recent Earthquakes", No. 3884, p. 431, April 8.
- (8) "Bibliography of Seismology", No. 3886, p. 491, April 22.
- (9) "Geophysical Exploration in Canada and the United States", *Ibid.*, p. 503.
- (10) "Earthquakes Registered at Fiji", No. 3887, p. 522, April 29.
- (11) "Earthquakes Registered at Kew", No. 3888, p. 554, May 6.
- (12) "The Microtimer", No. 3889, p. 599, May 13.

5752. NEUENSCHWANDER, E. F., and METCALF, D. F., "Study of Electrical Earth Noise", *Geophysics*, Vol. 7, No. 1, 69, 77, Houston, Jan., 1942.

5753. ONGLEY, M., "Wairarapa Earthquake of 24th June, 1942, together with Map showing Surface Traces of Faults Recently Active", *New Zealand Journal of Science and Technology*, Sec. B, Vol. 25, No. 2, 67-78, 17 fig., 2 maps, Wellington, Sept., 1943.

Although called the Masterton earthquake, the disturbance was worst at Taueru (56 miles NE of Wellington) where the hills were found to be scarred with many slips.  
R.R.

5754. ONGLEY, M., "Surface Trace of the 1855 Earthquake", *Transactions and Proceedings of the Royal Society of New Zealand*, Vol. 73, No. 3, 84-89, 13 illus., Dunedin, Sept., 1943.

In all but two places of the fault trace from Palliser Bay northeast to Alfredton, the west side has been raised three feet to ten feet, and in two places (Alfredton and Tiraumea River), the east side has been raised six feet to ten feet.  
R.R.

5755. ORDONEZ, Ezequiel, "El volcan de Pericutin", *Irrigacion en Mexico*, Vol. 24, No. 4, 5-36, Mexico, July-Aug., 1943.

Volcanism and associated earthquakes: one of a series of articles on the new volcano Paracutin; primary history and development of volcano; description of seismic activity.  
N.H.H.

— PARR, J. O.,

(1) "Seismic Circuits" (Patent), U.S. No. 2,297,319, issued Sept. 29, 1942.

(2) "Seismic Surveying" (Patent), U.S. No. 2,298,020, issued Oct. 6, 1942.

See No. 5756 of this list.

— PARR, J. O.,

(1) "Seismic Circuit" (Patent), U.S. No. 2,331,623, issued Oct. 12, 1943.

(2) "Method of and Apparatus for Seismic Surveying" (Patent), U.S. No. 2,331,624, issued Oct. 12, 1943. See Nos. 5758 and 5759 of this list.

— PARR, J. O., and PETTY, O. S., "Automatic Volume Control for Recorder Amplifiers" (Patent). See No. 5757 of this list.

— PASLAY, Le Roy C., "Signal Controlled Amplifier" (Patent), U.S. No. 2,319,626, issued May 18, 1943. See No. 5757 of this list.

5756. PATENTS. In *Geophysical Abstracts 112* (see No. 5677 of this list) appears a list of patents (items 6835-6888). Those of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the patentees as follows: Heiland, Costa and Holback, Pike, Gadd, Wolf and Cowles, Parr, Salvatori, Minton and Shook, Hostetler, Hoover, Washburn, McCarty.

5757. PATENTS. In *Geophysical Abstracts 115* (see No. 5678 of this list) appears a list of patents (items 7221-7252). Those of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the patentees as follows: Moritz, Powell, Petty and Parr, Paslay, Weatherby and Born, Athy and McCollum.

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## LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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- (2) "Recent Earthquakes", No. 3893, p. 708, June 10.
- (3) "Earthquakes Registered in Spain", No. 3894, p. 741, June 17.
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- (6) "Earthquakes during July", No. 3917, p. 665, Nov. 25.
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- (2) "Turkey's Earthquake in Same Region as Before", No. 17, p. 261, Oct. 21.
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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

BRYAN, W. H., Dept. of Geology, University of Queensland, Brisbane, Australia	W.H.B.
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## SUBJECT INDEX FOR THE YEAR 1944

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The writer describes the phenomenon known as "galloping" sometimes observed in telegraph and transmission lines, and erroneously attributed to tremors caused by distant earthquakes. An explanation is offered by R. L. G. Gilbert, V. Robinson, and W. N. Wilson, in a short communication appearing on the same page.

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- BODLE, Ralph R., "Progress-Report on Seismological Activities of the United States Coast and Geodetic Survey", *Transactions, American Geophysical Union* (reported as No. 5906 of this list), 269-271, 1 fig.

5898. BURMISTER, D. M., "The General Theory of Stresses and Displacements in Layered Systems", *Journal of Applied Physics*, Vol. 16, No. 2, 89-94, 1 fig., bib., Lancaster, Feb., 1944.

5899. CARDER, D. S., and GILMORE, M. H., "Ground Vibrations", *Bulletin, Seismological Society of America*, Vol. 35, No. 1, 13-26, 9 fig., 3 tab., bib., Berkeley, Jan., 1945.

- COLLINS, Mary P., and LEET, L. Don, "The Mexican Earthquakes of April 15, 1941, and February 22, 1943", *Transactions, American Geophysical Union* (reported as No. 5906 of this list), 315-316.

5900. CREAGER, JUSTIN and HINDS, "Engineering for Dams", John Wiley and Sons, Inc., 3 vol., New York, 1945.

Seven pages (279-285) are given to a discussion of earthquake forces on dams. J.B.M.

5901. CRITIKOS, N. A. On the occasion of the 35th Anniversary of the Scientific work of Dr. N. A. Critikos, Professor of the Faculty of Sciences of the University of Athens and Scientific Director of the National Observatory of Athens, his colleagues have

decided to publish two volumes of collected papers in his honour. They have prepared a list of his Publications, most of them dealing with seismology or allied subjects. For the sake of completeness this list is reproduced as follows:

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- (1) "Sur les phénomènes chimique des étincelles (Thèse)", *Annales de l'Observatoire Nat. d'Athènes*, t. VII, 1916, pp. 51-61.
- (2) "L'île de Leucade et ses sismes du 23 et 27 Novembre 1914", *Annales de l'Observatoire Nat. d'Athènes*, t. VII (pp. 62-81), 1916.
- (3) "Ein ausserordentlicher Temperaturfall in Athen in Monat April 1923", *Meteorologische Zeitschrift*, Heft 2, 1924. *Annales de l'Observatoire Nat. d'Athènes*, t. X (Mémoires), 1929.
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- (5) "Impression d'une visite à Santorin", *Annales de l'Observatoire Nat. d'Athènes*, t. VIII (Mémoires), 1926. *Ciel et Terre, Bulletin de la Société Belge d'Astronomie*, Année 1926 (p. 99).
- (6) "Sur les phénomènes sismiques produits avant et depuis l'éruption du volcan de Santorin", *C.r. de séances de l'Académie des Sciences*, t. 181 (p. 923). *Annales de l'Observatoire Nat. d'Athènes*, t. VIII (Mémoires), 1926.
- (7) "Sur la Sismicité des Cyclades et de la Crète", *Annales de l'Observatoire Nat. d'Athènes*, t. IX (Mémoires), 1926. *Gerlands Beiträge zur Geophysik*, Bd. XVIII, Heft 1, 1927 (Rapport).
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- (11) "Phénomènes sismiques qui ont précédé la récente activité du volcan de Santorin (1928)", *Praktika de l'Académie d'Athènes*, 3, 1928 (p. 450).
- (12) "Ueber die Struktur des Taues", *Annales de l'Observatoire Nat. d'Athènes*, t. X (Mémoires), 1929. *Gerlands Beiträge zur Geophysik*, Bd. XXI, Heft 1, 1929.
- (13) "Le mouvement extraordinaire des marées qui s'est manifesté dans l'Egée en Avril 1928", *Annales de la Commission pour l'étude des Ras de Marée de l'Union Géodésique et Géophysique Internationale*, No. 1, 1931.
- (14) "Sur les causes de mouvements microsismiques de 4 à 8 sec. à Athènes", *Publications du B.C. Seism. International*, Série A. *Travaux Scientifiques*, Fasc. No. 7, 1932 (pp. 1-11).
- (15) "Le tremblement de terre du 17 Avril 1930 dans le Golfe Saronique (d'Egine)", *Praktika de l'Académie d'Athènes* 5, 1930 (p. 166). *Annales de l'Observatoire Nat. d'Athènes*, t. XII (Mémoires), 1940.
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- (17) "Nouveau type de séismographe à pendule horizontale", *Publications du B.C. Seism. International*, Série A. *Travaux Scientifiques*, Fasc. No. 10, 1934 (pp. 19-27).
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- (21) "Phénomènes météorologiques et magnétiques, observés près d'Athènes, pendant l'éclipse totale du soleil du 10 Juin 1936", *Gerlands Beiträge zur Geophysik*, t. 50 (1937), pp. 18-21.
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- (23) "Les conditions climatiques dans l'été sur le mont Parnès", *Publications de l'Institut de Physique et de Météorologie du Ministère de l'Agriculture de Grèce*, No. 10, 1938.
- (24) "Causes et effets probables des éruptions du volcan de Santorin survenues au cours des derniers millénaires avant l'ère vulgaire", *Bulletin volcanologique de l'Association de Volcanologie de l'Union géodésique et géophysique internationale*, Série II, Tome IV—1938.
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- (26) "Die Schlinger der Meermuehlen von Argostoli", *Geographischer Anzeiger*, Jahrgang 1939, Heft 8.
- (27) "Sur la sismicité de l'Attique, 1939". Rapports présentés à la septième conférence de l'Union géodésique et géophysique Internationale à Washington (Septembre 1939).
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- DUVAL, Wilbur, and OBERT, Leonard, "Microseismic Method of Predicting Rock Failure in Underground Mining, Part 1, General Method; Part 2, Laboratory Experiments". See No. 5920 of this list.
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- This part of the *Transactions* reports the brief papers and abstracts of papers of particular interest to seismologists. They are quoted by author as sub-references in this issue of the *Bibliography*. See: Schneiderov, Macelwane, Bodle, Ulrich, Murphy, Swainson, Lynch and Dillon, Walter, Newmann, Robertson, Keller, McComb, Gebhardt and Wark, Collins and Leet, Sanchez.
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- GEBHARDT, R. E., WARK, David, and McCOMB, H. E., "The Seismological Installation at the South Dakota State School of Mines and Technology, Rapid City, South Dakota". See No. 5906 of this list.
- GILMORE, M. H., and CARDER, D. S., "Ground Vibrations". See No. 5899 of this list.
- 5910. GUTENBERG, Beno, "Amplitudes of Surface Waves and Magnitudes of Shallow Earthquakes", *Bulletin, Seismological Society of America*, Vol. 35, No. 1, 3-12, 6 tab., 1 fig., bib., Berkeley, Jan., 1945.
- 5911. HEROY, William B., "Oil for the Future", *Economic Geology*, Vol. 39, No. 8, 593-599, Lancaster, Dec., 1944.  

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- 5912. HODGSON, Ernest A., "The Cornwall-Massena Earthquake, September 5, 1944," *Journal, Royal Astronomical Society of Canada*, Vol. 39, No. 1, 5-13, 4 pl., Toronto, Jan., 1945.
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- 5915. JONES, W. M., "The Use of Differences of Arrival Times of *P* as an Aid to Epicentral Determinations in the South Pacific", *Dominion (N.Z.) Observatory Bulletins*, No. S-72, reprinted from the *New Zealand Journal of Science and Technology*, Vol. 26, No. 3 (Sec. B), 146-154, 6 fig., Wellington, 1944.
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- McCOMB, H. E., and NEUMANN, Frank, "A General Purpose Vibration Meter". See No. 5906 of this list.
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- MUZZEY, D. S., Jr., "Vibration Detector" (Patent), U.S. No. 2,353,920, issued July 18, 1944. See No. 5923 of this list.
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  - (2) "Earth Tremor of December 30, 1944, in Britain", No. 3926, 106-107, Jan. 27.
  - (3) "Report of Seismological Investigations Committee", *Ibid.*, p. 107.
  - (4) "Astronomical and Geophysical Periodicities", No. 3930, 224-227, Feb. 24.
  - (5) "Vibrations in Telegraph Wires", *Ibid.*, p. 243.
  - (6) "Recent Earthquakes Recorded in the British Isles", No. 3936, p. 423, April 7.
  - (7) "Recent Earthquakes", No. 3937, p. 450, April 14.
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- (2) "According to the Daily Press, Washington University, St. Louis, Will Receive under a Decision of the Appellate Court \$1,250,000 for a Geophysical Technological Institute from the Estate of Henry E. Sever, Chicago Publisher. The Decision Reverses a Ruling by Judge Joseph A. Graber, of the Cook County Superior Court, that the Money Should Go to St. Louis University", *Ibid.*, p. 220.

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- (2) "Japan's New Earthquake Centered off Honshu", No. 4, p. 56, Jan. 27.
- (3) "Prize to Dr. Jaggar", No. 9, p. 134, March 3.
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The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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The present issue contains reports on: The Brazeau, Missouri, Earthquake of January 7, 1944 (LeRoy Buckie); The Missouri Earthquake of September 25, 1944; Determinations of geographic coordinates in Greenland; Earthquake in Britain, Earthquake in Japan; Recent earthquakes; Report of Seismological Investigations Committee (British Association); Personalia; New idea of continental drift; Reports and Papers, Section of Seismology (A.G.U.). Papers by Macelwane, Bodle, Ulrich, Murphy, Swainson (all reported elsewhere in this *Bibliography*).

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- (1) "Recent Earthquakes", No. 3951, p. 79, July 21.
  - (2) "Recent Earthquakes", No. 3955, p. 201, Aug. 18.
  - (3) "Earthquakes during the First Quarter of 1945", No. 3957, p. 264, Sept. 1.
  - (4) "Frequency of Earthquakes in California", No. 3960, p. 371, Sept. 22.
  - (5) "Earthquakes in New Zealand during 1942-43", No. 3961, p. 396, Sept. 29.
  - (6) "Recent Earthquakes", No. 3966, 544-545, Nov. 3.
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- (1) "Apparatus for Transmitting Seismic Signals" (Patent), U.S. No. 2,369,081, issued Feb. 6, 1945.
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- PARR, J. O., Jr., "Seismic Surveying" (Patent), U.S. No. 2,348,409, May 9, 1944.  
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- PARR, J. O., Jr., "Seismic Surveying" (Patent), U.S. No. 2,352,494, June 27, 1944.  
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- PARR, J. O., Jr., and BAZHAW, W. O., "Seismic Surveying" (Patent), U.S. No. 2,354,659, Aug. 1, 1944.  
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- PARR, J. O., Jr., and PETTY, O. S., "Automatic Volume Control for Recorder Amplifiers" (Patent). See No. 6004 of this list.
- PASLAY, L. C., "Signal Controlled Amplifier" (Patent). See No. 6004 of this list.
6001. PATENTS. A list of patents appears on pp. 38-47 (items 7756-7785) of *Geophysical Abstracts 119*, reported as No. 5940 of this list. Those of particular interest to seismologists are entered in this issue of the *Bibliography* under the names of the respective patentees as follows: Maillet, Petty, Manzanera, Parr, Merten.
6002. PATENTS. A list of patents appears on pp. 41-49 (items 7907-7932) of *Geophysical Abstracts 120*, reported as No. 5941 of this list. Those of particular interest to seismologists are entered in this issue of the *Bibliography* under the names of the respective patentees as follows: Ricker; Lay, Treybig and Hubby; Parr; Fay; Tolk; Merten and Woods, Minton; Bazhaw and Parr.
6003. PATENTS. In *Geophysical Abstracts 121* (see No. 5942 of this list) appears a list of patents (items 8028-8052). Those of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the respective patentees, as follows: Shimek, Muzzey, Ritzmann, Green, Pratley, Petty.
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  - (2) POWELL, F. K., "Vibration Response Device", U.S. No. 2,316,616, April 13, 1943.
  - (3) SHIMEK, E. J., "Master Control for Electric Seismographs", U.S. No. 2,317,334, April 20, 1943.
  - (4) PETTY, O. S., and PARR, J. O., Jr., "Automatic Volume Control for Recorder Amplifiers", U.S. No. 2,318, 624, May 11, 1943.
  - (5) PETERS, L. J., "Seismograph Amplifier System", U.S. No. 2,318,795, May 11, 1943.
  - (6) PASLAY, L. C., "Signal Controlled Amplifier", U.S. No. 2,319,626, May 18, 1943.
  - (7) SHIMEK, E. J., "Method for Seismic Surveying", U.S. No. 2,320,248, May 25, 1943.
  - (8) WEATHERBY, B. B., and BORN, W. T., "Seismic Surveying", U.S. No. 2,321,341, June 8, 1943.
  - (9) ATHY, L. F., and MCCOLLUM, E. V., "Seismic Surveying", U.S. No. 2,321,450, June 8, 1943.

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- (1) PUGH, W. E., "Method of Seismic Prospecting", U.S. No. 2,345,288, March 28, 1944.
- (2) EISLER, J. D., "Seismic Surveying", U.S. No. 2,346,369, April 11, 1944.
- (3) PETTY, O. S., "Magnetic Seismometer", U.S. No. 2,348,225, May 9, 1944.
- (4) DIJKSTERHUIS, P. H., "Device for Converting Variations of a Mechanical Quality into Variations of an Electric Voltage", U.S. No. 2,348,245 (Vested in Alien Property Custodian), May 9, 1944.
- (5) MANZANERA, L., "Apparatus for Recording Wave Form Signals", U.S. No. 2,348,401, May 9, 1944.
- (6) PARR, J. O., Jr., "Seismic Surveying", U.S. No. 2,348,409, May 9, 1944.
- (7) PETTY, O. S., "Method for Correlating Seismographic Curves", U.S. No. 2,348,411, May 9, 1944.
- (8) MERTEN, E., "Sensitivity Control for Seismic Recording", U.S. No. 2,349,186, May 16, 1944.
- (9) NEWCOMB, R. D., "Automatic Volume Control", U.S. No. 2,350,803, June 6, 1944.
- (10) RICKER, N. H., "Seismic Prospecting", U.S. No. 2,351,456, June 13, 1944.
- (11) LAY, R. L., TREYBIG, B. H., Jr., and HUBBY, L. M., "Method of Seismic Prospecting", U.S. No. 2,351,524, June 13, 1944.

6006. PATENTS. The following patents of interest to seismologists are listed on pp. 248-249 of *Geophysics*, Vol. 10, No. 2, Tulsa, April, 1945:

- (1) MINTON, J. P., "Apparatus for Recording Seismic Waves", U.S. No. 2,360,507, Oct. 17, 1944.
- (2) PETTY, O. S., "Seismic Surveying", U.S. No. 2,361,648, Oct. 31, 1944.
- (3) EHRGOTT, K., and HAGG, A. C., "Vibration Pickup", U.S. No. 2,363,303, Nov. 21, 1944.
- (4) MOSER, W., "Automatic Volume Control Device", U.S. No. 2,363,985 (Vested in Alien Property Custodian), Nov. 28, 1944.
- (5) GREEN, W. G., "Seismic Prospecting", U.S. No. 2,364,209, Dec. 5, 1944.
- (6) PRATLEY, H. H., "Geophysical Exploration", U.S. No. 2,364,655, Dec. 12, 1944.
- (7) RITZMANN, O. F., "Apparatus for Seismograph Prospecting", U.S. No. 2,364,755, Dec. 12, 1944.
- (8) PETTY, O. S., "Seismic Surveying", U.S. No. 2,365,289, Dec. 19, 1944.
- (9) MOUNCE, W. D., "Automatic Gain Adjusting Device for Reflection Seismographs", U.S. No. 2,366,043, Dec. 26, 1944.

6007. PATENTS. In *Geophysics* (Vol. 10, No. 3, Menasha, July, 1945) appears a list of patents. Those of special interest to seismologists are given on pp. 434-435. They are listed in this *Bibliography* under the names of the patentees, as follows: Petty, Shook and Olson, Muffly, Minton, Broding. The following, on pp. 438-439, may also be listed: Burkhardt, Hathaway, Dale, Begun.



6008. PATENTS. In *Geophysics* (Vol. 10, No. 4, Menasha, Oct., 1945) appears a list of patents. Those of special interest to seismologists are given on pp. 550-551. They are listed in this *Bibliography* under the names of the respective patentees, as follows: Hoover, Cloud, Minton, McDermott, Scherbatskoy, Steinhoff, Cottrell, Darnell, Navarte, Rieber, Johnson, Hoskins and Moore, Nicolson.

— PETERS, L. J., "Seismograph Amplifier System" (Patent). See No. 6004 of this list.

6009. PETRENKO, E. E., "A Net of Coordinates for Determining the Epicentre of an Earthquake" (in Russian), *Akademiia Nauk S.S.S.R., Trudy Seismologicheskogo Instituta*, No. 106, 12-16, Moscow, 1941.

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6010. PETROLEUM, "Petroleum, The British Oilfield", *Petroleum*, Vol. 7, No. 11, p. 204, London, 1944.

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6011. PETROLEUM ENGINEER, "English Oil Field", *Petroleum Engineer*, Vol. 16, No. 2, p. 254, Dallas, 1944.

The following abstract is taken from No. 7839, p. 19, of *Geophysical Abstracts 120*, reported as No. 5941 of this list.

An official disclosure was recently made that oil has been discovered in England during the war and is being extensively developed. The location of the oil fields is secret. The total production in the war period has reached 78,000,000 gallons. The seismic method of survey was employed and has proved to be of great value. (V.S.)

— PETTY, O. S.,

(1) "Magnetic Seismometer" (Patent), U.S. No. 2,348,225, May 9, 1944.

(2) "Method for Correlating Seismograph Curves" (Patent), U.S. No. 2,348,411, May 9, 1944.

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— PETTY, O. S., "Magnetic Seismometer", and "Method for Correlating Seismographic Curves" (Patents). See No. 6005 of this list.

— PETTY, O. S., "Automatic Volume Control for Recorder Amplifiers" (Patent), U.S. No. 2,367,049, issued Jan. 9, 1945. See No. 6007 of this list.

— PETTY, O. S., and PARR, J. O., Jr., "Automatic Volume Control for Recorder Amplifiers" (Patent). See No. 6004 of this list.



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— POWELL, F. K., "Vibration Response Device" (Patent). See No. 6004 of this list.

— PRATLEY, H. H., "Geophysical Exploration" (Patent), U.S. No. 2,364,655, issued Dec. 12, 1944. See Nos. 6003 and 6006 of this list.

— PUGH, W. E., "Method of Seismic Prospecting" (Patent). See No. 6005 of this list.

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The above book, edited by Reich and von Zwenger, deals with the information required by geophysicists in practical work.

— RICHTER, C. F., and GUTENBERG, Beno, "Seismicity of the Earth". See No. 5974 of this list.

6015. RICKER, Norman, "The Computation of Output Disturbances from Amplifiers for True Wavelet Inputs", *Geophysics*, Vol. 10, No. 2, 207-220, 7 fig., bib., Tulsa, April, 1945.

— RICKER, N. H.,

(1) "Seismic Prospecting" (Patent), U.S. No. 2,351,456, June 13, 1944.

(2) "Seismic Prospecting" (Patent), U.S. No. 2,354,548, July 25, 1944.

Reported as No. 7908, p. 41, and No. 7921, p. 45, respectively, of the patents indicated in No. 6002 of this list.

— RICKER, N. H., "Seismic Prospecting" (Patent). See No. 6005 of this list.

— RIEBER, F., "System for Geological Exploration by Elastic Waves" (Patent), U.S. No. 2,377,903, issued June 12, 1945. See No. 6008 of this list.

— RITZMANN, O. F.,

(1) "Electrical Displacement Vibrometer" (Patent), U.S. No. 2,359,245, issued Sept. 26, 1944.

(2) "Apparatus for Seismograph Prospecting" (Patent), U.S. No. 2,364,755, issued Dec. 12, 1944. See Nos. 6003 and 6006 of this list.

6016. ROBERTS, John, "Earthquakes Reveal Oil Fields", *Petroleum Times*, Vol. 48, No. 1221, 315-317; 323, London, 1944.

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6017. ROBINSON, W. B., "Refraction Waves Reflected from a Fault Zone", *Geophysics*, Vol. 10, No. 4, 535-545, 9 fig., bib., Menasha, Oct., 1945.

6018. ROTHÉ, E., *et al.*, "Annales de l'Institut de Physique du Globe 1938", Nouvelle Série, Tome 3, Deuxième Partie: Séismologie, 170 pp., and also Troisième Partie: Géophysique, 126 pp., Mende, 1941.

See references in this issue of the *Bibliography* to articles by J. P. Rothé and by L. Cagniard, which appear in the latter of the two reports listed above.

6019. ROTHÉ, J. P.,

(1) "La séismicité des Alpes occidentales", *Annales de l'Institut de Physique du Globe de Strasbourg*, Troisième Partie: Géophysique, Tome 3, 1938, 105 pp. in reprint, Clermont-Ferrand, 1941. J.P.R.

(2) "Les séismes franco-belges du 11 et 12 juin 1933", *Ibid.*, Deuxième Partie: Séismologie, 133-141. J.P.R.

6020. RUST, W. M., Jr., "Evaluation of New Geophysical Methods", *Geophysics*, Vol. 10, No. 3, 329-337, Menasha, July, 1945.

6021. SADOVSKII, M. A., "Determination of Seismic Danger Zones in Blasting" (in Russian), *Akademiia Nauk S.S.S.R., Trudy Seismologicheskogo Instituta*, No. 106, 64-73, Moscow, 1941.

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6023. SAUNDERS, James B., "An Apparatus for Photographing Interference Phenomena", *Journal of Research, National Bureau of Standards*, Vol. 3, No. 35, 157-186, 18 fig., bib., Washington, Sept., 1945.

6024. SAVARENSKII, E. F., "Seismic Waves Reflected from a Boundary at a Depth of 900 Kilometers" (in Russian), *Akademiia Nauk S.S.S.R., Trudy Seismologicheskogo Instituta*, No. 106, 6-8, Moscow, 1941.

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6025. SAWDON, W. A., "The Oil Industry in Mexico", *Petroleum Engineer*, Vol. 16, No. 1, p. 158, Dallas, 1944.

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6026. SAWDON, W. A., "Geophysical Work in Paraguay Indicates Extent of Exploration in South America", *Petroleum Engineer*, Vol. 16, No. 6, 81-82, Dallas, 1945.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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## SUBJECT INDEX FOR THE YEAR 1945

The following subject index for the items listed in the *Bibliography of Seismology* for the year 1945 has been prepared in the same form as that for the items listed in 1944 (see pp. 283-284, Vol. XIII, No. 16, of these *Publications*) and may be considered a continuation of that index.

- A1. Aids to Seismological Study: Nos. 5994, 6009. See also M1. (Maps).
- B1. Building Construction: No. 5978. See also E2. (Engineering).
- B2. Bibliographies: Nos. 5901, 5939, 5940, 5941, 5942.
- B2.1. Reviews of Papers, Textbooks, etc.: Nos. 5959, 6037.
- C1. Catalogues of Earthquakes, Lists of Aftershocks, etc.: Nos. 5921, 5945, 5993, 6018, 6019.  
See also R2. (Reports).
- C3. Cosmogony; Theoretical Discussions of Similar Nature; Continental Drift, Orogeny, etc.:  
Nos. 5937, 5957, 5963, 5983.
- D1. Dams and Earthquakes: Nos. 5900, 5956.  
See also E2. (Engineering).
- D2. Deformations, Gradual, of the Earth's Crust: No. 5956.  
See also G1. (Geodesy).
- D3. Descriptions, General, of Earthquakes in Canada or the United States: Nos. 5912, 5971, 6044.
- D4. Descriptions, General, of Earthquakes other than those in Canada or the United States:  
Nos. 5901, 5906, 5919, 5959.
- E1. Effects of Earthquakes, on Buildings, Ground, etc., Observed during or after the Disturbance:  
Nos. 5895, 5956, 5978.  
See also D3. and D4. (Descriptions of Earthquakes).
- E1.3. Measurements of the Magnitude of Earthquakes, Nature of Origin Mechanisms, etc.:  
Nos. 5910, 5972, 5973.
- E2. Engineering; Particular Applications to Seismology or of Seismology: Nos. 5900, 5905.  
See also B1. (Building Construction) and D1. (Dams).
- E3. Explosions, Studies of Wave Propagation from: Nos. 5899, 6021.  
See also S3. (Seismic Prospecting).
- E4. Education: Curricula, etc.: Nos. 5903, 6039.
- F1. Foci, Depth of Earthquake: No. 5980.
- F1.1. Deep-focus Earthquakes: No. 5943.

G1. Geodesy and Surveying Applied to Seismology: Nos. 5906, 5953.

G3. Geology of Interest to Seismologists: Nos. 5911, 5936, 5937, 5950, 5951, 5952, 5958, 5965, 6032.

See also M1. (Maps).

G3.1. Geology, Experimental; Geodynamics: No. 5958.

H1. Historical Studies of Seismological Interest: Nos. 5996, 6043, 6044.

I1. Instruments; Seismographs and Accessories: Nos. 5906, 5914, 5924, 5946, 5960, 5969, 6015, 6023, 6028, 6031, 6033.

I2. Insurance and Earthquakes: No. 5978.

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M1. Maps, Geological and Seismological: No. 6032.

See also G3. (Geology).

M2. Materials of the Earth's Crust, Laboratory Tests of: No. 5947.

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M4. Microseisms: No. 6045.

M6. Mining: as Related to Seismology: Nos. 5913, 5920, 5958.

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O4. Origins of Earthquakes; Methods of Locating Epicentres and Results of that Work: Nos. 5922, 5980, 6000, 6009, 6013.

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R1. Records, Evaluation of Earthquake: Nos. 5906, 5915, 5980, 6041, 6042.

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M1. (Maps), O4. (Origins), and R2. (Reports).
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6049. AMERICAN GEOPHYSICAL UNION. Beginning with Vol. 26, Part 1, the *Transactions of the American Geophysical Union* are to appear bimonthly. Three parts are to be published in 1945, completing the intermediate volume. Beginning with Vol. 27, 1946, the publication will run six issues to the volume and year.

The material is now classified into departments, papers, and reports bearing upon the work of all Sections, letters to the editor, current news items and related matters, and activities of the Union and of its Sections and Committees.

Heretofore the Transactions have been listed in the *Bibliography* as a numbered entry, the various papers appearing as cross references. From now on all references to items in the Transactions will be listed as numbered entries except for grouped references to brief notes. These will be listed as are similar group references to Nature, etc., with the heading American Geophysical Union.

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J.F.S.

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6074. FU, C. Y., "Studies on Seismic Waves: I. Reflection and Refraction of Plane Waves; II. Rayleigh Waves in a Surficial Layer", *Geophysics*, Vol. 11, No. 1, 1-23, 5 fig., bib., Menasha, Jan., 1946.

6075. GAMBURTSEV, G. A., "Interpretation of Refraction Wave Isotime Maps", *Comptes Rendus (Doklady) de l'Académie des Sciences*, Vol. 43, No. 6, 239-241, May; and Vol. 44, No. 7, 274-276, Sept.; Moscow, 1944.

The introduction of the Correlation Refraction Method (CRM) has stressed new prospects for the use of isotime maps, i.e. maps in which are plotted equal travel-time curves of seismic waves generated at a single shot point. In the second paper, an approximate method of spatial interpretation of isotime maps is described. R.R.

6076. GAMBURTSEV, G. A., "Correlation of Refraction Shooting", *Geophysics*, Vol. 11, No. 1, 59-65, 4 fig., Menasha, Jan., 1946.

The above is a revised and condensed version of a translation from the Russian language. The translation was furnished by a professional translator. The condensation and interpretation was done by L. W. Gardner.

- GARDNER, L. W. See note following No. 6076 of this issue of the *Bibliography*, listing a paper by G. A. Gamburtsev, entitled "Correlation of Refraction Shooting".



6077. GEOFISICA PURA E APPLICATA. In Vol. 8, No. 1-2 of the above periodical (Milan, 1946) appears a series of obituaries of interest to seismologists (pp. 73-80). These refer, in order, to: Giovanni Battista Rizzo, Carlo Bonacini, Bruno Castiglioni, Augusto Stella, Dan La Cour, Edmond Rothé, and Franz Linke.
6078. GILLIN, J. A., and ALCOCK, E. D., "The Correlation Refraction Method of Seismic Surveying", *Geophysics*, Vol. 11, No. 1, 43-52, 5 fig., bib., Menasha, Jan., 1946.
6079. GOLDSTEIN, H., and BALES, Paul D., "High Speed Photography of the Cathode-Ray Tube", *Review of Scientific Instruments*, Vol. 17, No. 3, 89-96, 7 fig., 2 tab., Lancaster, March, 1946.
6080. GUILLAMON, Felix Gomez, "Nuevo sismografo 'Victoria' proyectado y construido en la Estacion Sismologica de Malaga del Instituto Geografico y Catastral", *La Cièncias*, Ano 7, No. 1, 15 pp. in reprint, 5 fig., Madrid, 1941.  
A complete description of a seismograph "of the Benioff type" designed and constructed at the institution indicated.
6081. GUILLAMON, Felix Gomez, "Nomogramas para el cálculo de la distancia epicentral y profundidad del foco en los sismos proximos", Instituto Geografico y Catastral, Sección 1ª—Servicio de Sismologia, printed pamphlet, 10 pp., 6 fig., bib., Malaga, 1945.  
Trabajo presentado en el Congreso para el Progreso de las Cièncias de Oporto en 1942 y publicado en 1944 por Associação Portuguesa para o Progresso das Cièncias.
6082. GUTENBERG, B., and RICHTER, C. F., "Earthquake Study in Southern California, 1944", *Transactions, American Geophysical Union*, Vol. 26, No. 2, 313-314, bib., Washington, Oct., 1945.
6083. HARRIS, Sidon, and PEABODY, Gwendolyn, "Refraction Exploration in West Texas", *Geophysics*, Vol. 11, No. 1, 52-58, 4 fig., bib., Menasha, Jan., 1946.
6084. HARTMANN, Ph. C. P., "Aardmagnetische Anomalieën in Nederland", N. V. Uitgever-smaatschappij, J. H. Kok, 62 pp., 2 fig., tab., bib., Kampen, 1945.  
The above is a dissertation of the University at Utrecht. Chapter I: The magnetic measurements; Chapter II: Magnetic anomalies and geotectonic geology; Chapter III: The local anomalies. Summary in English. J.F.S.
6085. HEISKANEN, W.,  
(1) "On the Figure and Structure of the Earth", *Publications of the Isostatic Institute of the International Association of Geodesy*, No. 8, reprinted from *Annales Academiae Scientiarum Fennicae*, Ser. A., Tome 57, No. 5, 46 pp., bib., Helsinki, 1941.  
(2) "The Japanese Anomalies on the Japanese Islands and in the Waters East of Them", *Ibid. (Publications)* No. 13. *Ibid. (Reprint)*. Vol. 3, No. 8, 21 pp., 3 fig., bib., Helsinki, 1945.
6086. HEISKANEN, W., "Report on the Activity of the Isostatic Institute of the International Geodetic Association during the Period 1939-1942", *Bulletin Géodésique*, Nos. 69-76 combined, 67-80, Paris, 1941-1942.  
The above *Bulletin* is the official organ of the Association of Geodesy of the International Union of Geodesy and Geophysics.

6087. HOBSON, G. D., "Producing Oils: Science Lends a Hand", *The Advancement of Science*, Vol. 3, No. 11, 239-251, 3 fig., bib., London, 1945.

Among other oils, petroleum is considered in some detail; the nature of an oil pool, the formation of petroleum and oil pools, the discovery of oil pools, drilling, and production of oil from a well.

6088. HODGSON, Ernest A., "Industrial Earthquake Hazards in Eastern Canada", *Bulletin, Seismological Society of America*, Vol. 35, No. 4, 151-174, 22 fig., bib., Berkeley, Oct., 1945.

The paper presents the sources of seismological data upon which can be based an estimate of industrial earthquake hazards in Eastern Canada. The records of all earthquakes of about grade V or over in the Rossi-Forel Scale which have occurred in the region concerned since 1534 and of which any information is now available are discussed with a view to indicating some contribution to the subject in each case. The problem itself is then dealt with in a series of specific questions to which answers are given in conformity with the evidence previously tabled.

6089. JAGGAR, T. A., "Volcanoes Declare War", Paradise of the Pacific, Ltd., 166 pp., 32 pl., 34 fig. Price \$3.75. Honolulu, 1945.

A brief review appears on page 177 of *Economic Geology*, Vol. 41, No. 2, Lancaster, March-April, 1946.

6090. KENDALL, J. M., "Airplane Noise Interference with Seismic Prospecting", *Geophysics*, Vol. 11, No. 1, 82-91, 4 fig., bib., Menasha, Jan., 1946.

6091. KINTZ, G. M., "The Need of Standardized Instructions for Handling Explosives by Geophysical Parties", *Mines Magazine*, Vol. 35, No. 12, 677-686, 8 fig., 11 tab., Golden, Dec., 1945.

6092. KNOPF, Eleanora Bliss, "Study of Experimentally Deformed Rocks", *Science*, No. 2665, Vol. 103, 99-103, New York, Jan. 25, 1946.

The text of a paper read before the Section of Tectonophysics, American Geophysical Union, Washington, June, 1945.

6093. KNUDSEN, Martin, "Dan Barfod LaCour" (Obituary), *Bulletin Géodésique*, Nos. 69-76 combined, 28-39, extensive bibliography, Paris, 1941-1942.

The above *Bulletin* is the organ of the Association of Geodesy of the International Union of Geodesy and Geophysics.

6094. KONING, L. P. G., "Over het mechanisme in den haard van diepe aardbevingen" (On the Mechanism in the Focus of Deep Earthquakes), N. V. Drukerij, Jacob van Kampen, 104 pp., Amsterdam, 1941.

This dissertation of the University of Amsterdam was published on March 5, 1941. It contains, besides an introduction and a bibliography of 74 entries, seven chapters, viz.:

- I. The historical development of the studies of the earthquake with a deep focus (pp. 13-26).
- II. The geographical distribution of the earthquakes with deep focus (pp. 27-40).
- III. The relation of earthquakes with deep focus and other phenomena (pp. 41-49).
- IV. The mechanism at the focus of an earthquake (pp. 50-60).

- V. Dilatations and compressions of reflected longitudinal waves (pp. 61-65).
- VI. Theoretical deduction of the distribution of dilatations and compressions at the surface of the earth at a fault along an arbitrary plane at depth beneath the surface of the earth: (a) The formulation of the problem, (b) Theoretical considerations (pp. 66-68).
- VII. The distribution of dilatations and compressions at the surface of the earth of the deep earthquake of June 29, 1934, in the Netherlands East Indies and the mechanism at the focus (89-100). J.F.S.

6095. KONING, L. P. G., "Het mechanisme in den haard van diepe aardbevingen" (The Mechanisms in the Focus of Deep Earthquakes), *Handelingen van het XXVII<sup>e</sup> Nederlandsch Natuur- en Geneeskundig Congres*, Vol. 27, 252-254, Haarlem, 1941.

The author has collected all the data on the deep earthquake of June 29, 1934, in the Dutch East Indies (depth of focus 700 km.). As the number of data was insufficient to permit the application of the method of Shida and Hiller, the author has supposed the theoretical case, that a movement took place along a plane in the interior of the earth at a depth of 700 km. below the surface. The author supposes that the hypothetical plane of Berlage coincides with the plane of movement in the focus of the earthquake. The plane of Berlage, in which the hypocentra may be arranged, dips with an angle of 55° beneath Asia. J.F.S.

6096. LANDAU, L., "On Shock Waves at Large Distances from the Place of Their Origin", *Journal of Physics*, Vol. 9, No. 6, 496-500, 1 fig., Moscow, 1945.

6097. LEET, L. Don, "A Three-component Portable Seismograph for the Measurement of Vibrations", *Transactions, American Geophysical Union*, Vol. 26, Part 1, 33-36, 4 fig., Washington, Aug., 1945.

6098. LEET, L. Don, "Earth Motion from the Atomic Bomb Test", *American Scientist*, Vol. 34, No. 2, 198-211, 14 fig., bib., New Haven, April, 1946. N.H.H.

6099. LICHKOV, B. L., "Changes in the Relief of the Earth as Related to its Movement and Energy Balance", *Comptes Rendus (Doklady) de l'Académie des Sciences*, Vol. 44, No. 8, 336-339, Moscow, Sept., 1944. R.R.

6100. MACELWANE, James B., S.J., "Progress Report of the Jesuit Seismological Association for 1944", *Transactions, American Geophysical Union*, Vol. 26, No. 2, 315-316, 1 tab., Washington, Oct., 1945.

6101. MACELWANE, James B., S.J., "Forecasting Earthquakes". A radio talk; one of a series delivered by American scientists on the New York Philharmonic-Symphony Program, and sponsored by the United States Rubber Company. The text of the above talk was printed in a 3-page sheet and distributed by the Sponsors.

Dr. Macelwane defines a forecast as a prediction which is specific as to time, intensity and place of occurrence, and further specifies that such a prediction is to be reliable. With the above definition in mind he asserts that no method so far tried gives a forecast of earthquakes. He adds that, in a wider sense earthquake forecasting is possible to the extent of indicating the parts of the world where earthquakes are more likely to occur. Most of the claims made for earthquake prediction are based on assertions that an earthquake will occur at an indefinite time and at an indefinite place within such seismic zones. Such predictions are practically certainties but are not forecasts in the sense defined by the speaker.

The text of the address was also published in the *Bulletin, Seismological Society of America*, Vol. 36, No. 1, 1-4, Berkeley, Jan., 1946.

6102. MACELWANE, James B., S.J., "The Interior of the Earth", *American Scientist*, Vol. 34, No. 2, 177-197, 20 fig., bib., New Haven, April, 1946.

The above paper is based on material presented in the Sigma Xi National Lectureships, 1945. N.H.H.

6103. MAGNANI, Mario, "Tettonica e sismicità nella regione Albanese", *Geofisica Pura e Applicata*, Vol. 8, No. 1-2, 1-42, bib., Milan, 1946.

6104. MEINESZ, F. A. Vening, "De theorie van Wegener" (The Theory of Wegener), *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, Vol. 41, No. 4, 453-457, Leiden, July, 1939.

The article contains a compilation of the geophysical and geological aspects of the theory of Wegener. The seismological investigation of the velocity of propagation of earthquake waves has proved that, only beneath the great ocean, is this velocity greater than on the continents. Gravity investigations have given indirect support to the theory. Geophysical knowledge of this time is not sufficient to justify the reputation of the conception of Wegener. J.F.S.

6105. MEINESZ, F. A. Vening,

- (1) "Gravity over the Continental Edges", *Proceedings, Nederl. Akademie van Wetenschappen*, Vol. 44, No. 8, 883-887, 2 fig., 1 tab., bib., Amsterdam, 1941. N.H.H.
- (2) "Topography and Gravity in the North Atlantic Ocean", *Ibid.*, Vol. 45, No. 2, 120-125, 1 pl., bib., 1942. N.H.H.
- (3) "The Equilibrium Figure of the Earth and the Indirect Isostatic or Bowie Reduction", *Ibid.*, No. 7, 611-618, 3 tab., bib., 1942.
- (4) "Spanningen in de aardkorst tengevolge van poolverschuivingen", *Ibid.*, Vol. 52, No. 5, 185-196, 2 fig., bib., 1943.
- (5) "Spanningen in de aardkorst door poolverschuivingen", *Tijdschrift van het Nederlandsch Aardrijkskundig Genootschap*, Vol. 60, No. 4, 530-535, 4 fig., 1 pl., Leiden, 1943.
- (6) "De verdeeling van continenten en oceanen over het aardoppervlak", *Proceedings, Nederl. Akademie van Wetenschappen*, Vol. 53, No. 4, 150-159, 1 fig., bib., Amsterdam, 1944.
- (7) "Nieuwe formules voor schietloodafwijkingssystemen en het theorema van Laplace", *Ibid.*, 160-168, 2 fig., bib.

6106. MERINO Y CORONADO, J., "Notes on a New Type of Electronic Earthquake Recorder", mimeographed folder, 4 pp., 5 fig., issued by Servicio Meteorológico Nacional, San Jose, Costa Rica, 1945.

The instrument consists of a Bosch-Omori seismograph provided with an eclipsing vane which, when the boom is moved, varies the amount of light reaching a light sensitive cell. The current in the circuit controlled by the cell is amplified and used to operate a galvanometer or milliammeter which serves to move a recording stylus over a smoked sheet mounted on a rotating drum in the usual fashion.

6107. MURPHY, Leonard M., "Winter Microseisms", *Transactions, American Geophysical Union*, Vol. 27, No. 1, 19-26, 1 fig., tables, Washington, Feb., 1946.

The paper is a brief report of the results of the important studies carried out in the United States for several periods since 1942 for the purpose of determining the possibility of tracing the progress of tropical hurricanes and winter storms on the



Atlantic seaboard by means of the microseisms registered at tripartite stations after the method of Ramirez. See also a report entitled "The Use of Microseisms in Hurricane Detection" released by the U.S. Navy Department and published in the same issue of the *Transactions*, 111-117, 4 fig., bib. The latter report is supplemented by remarks by Captain H. T. Orville, U.S.N., and by Prof. B. Gutenberg.

6108. NARVARTE, P. E., "On Well Velocity Data and Their Application to Reflection Shooting", *Geophysics*, Vol. 11, No. 1, 66-81, 11 fig., bib., Menasha, Jan., 1946.

6109. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 157 of the above periodical (London, 1946), as follows:

- (1) "Earthquake Swarm in Switzerland", No. 3979, p. 130, Feb. 2.
- (2) "Earthquake in Algeria", No. 3982, p. 224, Feb. 23.
- (3) "Seismic Sea Wave of April 2", No. 3989, p. 474, April 13.
- (4) "Mechanism of Orogenesis and Volcanic Activity", No. 3990, p. 509, April 20.
- (5) "Note re Dr. H. P. Berlage, jun.", *Ibid.*, p. 510.
- (6) "Recent Work of the Physico-Mathematical Institutes of the Academy of Sciences of the U.S.S.R. Seismological Institute (V. F. Bonchkovski)", *Ibid.*, p. 526.

6110. NEUMANN, Frank, "Earthquake Notes", Vol. 17, Nos. 1 and 2, 16 pp., Washington, Dec., 1945.

The above periodical is the organ of the Eastern Section of the Seismological Society of America. The issue listed contains: "Seismology and the Atomic Age" (Editorial); Seismology in 1945; Gilmore talks on Hurricane-Microseism Project; Cosmological implications of the atom bomb; Seismic notes from Weston College; Station and instrument notes; Notes on earthquakes and records; Engineering-Seismology notes; Personalalia; Treasurer's Report; Epicentres.

6111. NEUMANN, Frank, "Progress-Report on Seismological Activity of the United States Coast and Geodetic Survey, 1944-1945", *Transactions, American Geophysical Union*, Vol. 26, No. 3, 441-443, Washington, Dec., 1945.

6112. NORDQUIST, John M., "Theory of Largest Values Applied to Earthquake Magnitudes", *Transactions, American Geophysical Union*, Vol. 26, Part 1, 29-31, 2 fig., 1 tab., bib., Washington, Aug., 1945.

6113. NORMAN, G. W. H., "Major Faults, Abitibi Region", *Canadian Mining and Metallurgical Bulletin*, No. 406, 129-144, 7 fig., bib., Montreal, Feb., 1946.

6114. NORTHERN MINER, "Geophysical Work in Demand", *The Northern Miner*, p. 17, Toronto, Feb. 7, 1946.

A brief outline of geophysical prospecting, recently completed or now contemplated, indicates the use of the seismograph for determining the depth of overburden in winter surveys.  
G.H.A.C.

6115. OBSERVATORY, "The Thermal History of the Earth", *The Observatory*, No. 829, Vol. 66, 176-179, London, Dec., 1945.

The above is the report of a discussion at a meeting of the Geophysical Section of the Royal Astronomical Society. The discussion was opened by Dr. E. C. Bullard. Others taking part were: Dr. E. M. Anderson, Dr. W. Q. Kennedy, Mr. M. W. Strong, Dr. H. Jeffreys, and Dr. G. M. Lees.



6116. OMER, Guy C., Jr., "Seismic Areas and Secular Magnetic Variations", *Bulletin, Seismological Society of America*, Vol. 36, No. 1, 21-29, 4 fig., bib., Berkeley, Jan., 1946.

— PARR, J. O., Jr., "Stabilizer for Automatic Volume Control Circuits". See No. 6117 of this list.

6117. PATENTS. The following patents of interest to seismologists are listed in *Geophysics* for January, 1946 (Vol. 11, No. 1, p. 97):

1. SHOOK, E. M., "Gain Control for Seismograph Amplifiers", U.S. No. 2,383,571, issued Aug. 28, 1945.
2. PARR, J. O., Jr., "Stabilizer for Automatic Volume Control Circuits", U.S. No. 2,384,393, issued Sept. 4, 1945.
- (3) REICHERT, C., "Method of Seismic Surveying", U.S. No. 2,384,851, issued Sept. 18, 1945.

— PEABODY, Gwendolyn, and HARRIS, Sidon, "Refraction Exploration in West Texas". See No. 6083 of this list.

6118. PHILLIPS, D. W., "Rock Bursts or Bumps in Coal Mines", *Transactions, Institute of Mining Engineers*, Vol. 104, Part 2, 55-84, with discussion, pp. 84-91, London, Nov., 1944.

I. Introduction. II. Definitions and some basic considerations (Classification, elastic strain energy, properties of rocks, practical implications). III. Influence of natural features. IV. Description of actual rock bursts (Nova Scotia, Westphalia, Yorkshire). V. Precautions. R.R.

6119. PICKETT, Gerald, "Dynamic Testing of Pavings", *Journal, American Concrete Institute*, Vol. 16, No. 5, 473-489, Detroit, April, 1945.

A theoretical analysis is made of the problem of vibration of a pavement in contact with an elastic support. For each frequency, waves may be propagated with three different velocities. R.R.

6120. PONCELET, Eugene F., "Nature of Strength and Failure in Brittle Solids", *Colloid Chemistry*, Vol. 6, 77-88, 2 fig., bib., New York, 1945. J.A.

6121. RAMIREZ, J. E., S.J., "Investigaciones sobre la naturaleza de los microseisms", *Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales*, Vol. 6, Nos. 22 and 23, 300-318, 24 fig., 12 tab., bib., Bogota, January-August, 1945.

The article is in Spanish. It deals in detail with the author's thesis subject which has attracted considerable attention during the war years. The thesis was published, in English, in two papers published in the *Bulletin, Seismological Society of America* (Vol. 30, Nos. 1 and 2, 1940), and reported as No. 4838 of these lists.

— REICHERT, C., "Method of Seismic Surveying". See No. 6117 of this list.

6122. REPETTI, W. C., "Seventy-five Years of Seismology in the Manila Observatory", *Transactions, American Geophysical Union*, 15-18, bib., Washington, Feb., 1946.

— RICHTER, C. F., and GUTENBERG, B., "Earthquake Study in Southern California, 1944". See No. 6082 of this list.

6123. ROBERTSON, Florence, "On the Problem of Ground Motion", *Bulletin, Seismological Society of America*, Vol. 36, No. 1, 17-20, 1 fig., Berkeley, Jan., 1946.

6124. ROBERTSON, Florence, "On Long-period Seismographic Disturbances". *Transactions, American Geophysical Union*, Vol. 27, No. 1, 11-13, bib., Washington, Feb., 1946.

The disturbances described by the author are different in period (longer) but react to temperature changes, etc., quite similarly to those reported in a paper published in 1921 (The Effect of Cooling on a Cement Pier, *Publications, Dominion Observatory*, Vol. 5, No. 2, Ottawa, 1921). The explanation of this phenomenon has never been learned.

6125. RONOV, A. B., "A Quantitative Method for Studying Oscillatory Movements of the Earth's Crust", *Comptes Rendus (Doklady) de l'Académie des Sciences*, Vol. 44, No. 4, 158-161, Moscow, Aug., 1944.

An idea of the average rate of subsidence of the earth's crust is gained from the total volumes of the sedimentary rocks and the igneous rocks deposited per 1 square km. of the territory investigated for each million years.

R.R.

6126. RUTTEN, L. M. B., "Het parelsnoer der Antillen en de gordel van smaragd" (The pearl necklace of the Antilles and the girdle of emerald—East Indies), *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, Vol. 57, No. 3, 362-396, Leiden, May, 1940.

The author compares the physical geography, the geology, the biology and the anthropology of the East Indies and West Indies with each other and discusses the seismological phenomena in these two areas by means of two sketch maps of the epicentres.

J.F.S.

6127. SCIENCE. Brief items of interest to seismologists have appeared in recent issues of Vol. 103 of the above periodical (New York, 1946) as follows:

- (1) "Earth Motion due to Atomic Bomb", reported by L. Don Leet, No. 2671, p. 311, March 8.
- (2) "The Arctic Institute of North America", No. 2676, p. 452, April 12.

6128. SCIENCE NEWS-LETTER. Brief items of interest to seismologists have appeared in recent issues of Vol. 49 of the above periodical (Washington, 1946) as follows:

- (1) "Last Earthquake of 1945 'Got Lost' ", No. 2, 21-22, Jan. 12.
- (2) "Earthquake Forecasting Lacks Scientific Basis" (Dr. James B. Macelwane, S.J.), No. 4, p. 62, Jan. 26.
- (3) "Tidal Wave Caused by Quake off Unimak Island", No. 15, pp. 227-228, April 13.
- (4) "Earthquake Detectors Can Also Predict Weather", *Ibid.*, p. 231.
- (5) "Oil Search in New Deep Sea Diving Bell", No. 18, p. 280, May 4.
- (6) "Mississippi River's 'Grand Canyon' Discovered", *Ibid.*, p. 281.

6129. SHAPER, H. B., "Electrodynamic Direct-inking Pen", *Electronics*, Vol. 19, No. 3, 148-151, 7 fig., New York, March, 1946.

The author's summary reads: "Mathematical analysis, choice of drive, constructional details, and performance curves of a high-speed unit capable of inking wave forms of transients, directly on a moving paper chart. Response is essentially flat from zero up to 100 cps."

6130. SHARPE, C. F. Stewart, "Landslides and Related Phenomena", Soil Conservation Service, U.S. Department of Agriculture. Published by the Columbia University Press, 137 pp., 9 pl., 16 fig., extensive bibliography (275 ref.). The book is No. 2 of the Columbia Geomorphic Series, edited by Douglas Johnson.

The book deals with a study of many kinds of mass-movements of soil and rock, including, for example, the removal of soil from beneath a vegetation cover without movement of the cover. Subsidence is discussed. For a number of different types, earthquakes have started the slides. It is clearly brought out how unstable extensive areas are.

N.H.H.

— SHOOK, E. M., "Gain Control for Seismograph Amplifiers". See No. 6117 of this list.

6131. TANNI, L., "On the Isostatic Structure of the Earth's Crust in the Carpathian Countries and the Related Phenomena", *Publications of the Isostatic Institute of the International Association of Geodesy*, No. 11. Reprinted from *Annales Academiae Scientiarum Fennicae*, Ser. A, Vol. 3, No. 4, 100 pp.; num. maps, tables, figures; bib., Helsinki, 1942.

6132. ULRICH, Franklin P., "Progress Report of Seismological Work by the United States Coast and Geodetic Survey in the Western United States during 1944", *Bulletin, Seismological Society of America*, Vol. 36, No. 1, 31-41, 4 fig., Berkeley, Jan., 1946.

6133. VALENZUELA, J. I., "Earthquake Resisting Structures", *Engineer*, Vol. 179, No. 4646, 64-67, London, Jan. 26, 1945.

The above is translated from an article in *La Ingeniera* for April, 1943. In Chile an approximate analytical method has been evolved and is embodied in the general building law.

R.R.

6134. VAN RAADSHOVEN, B., "De aardbevings-epicentra van West-Indië en omgeving" (The epicentres of the earthquakes in the West Indies and its surroundings), *Handelingen van het XXVII<sup>e</sup> Nederlandsch Natuur- en Geneeskundig Congres*, Vol. 27, 254-255, Haarlem, 1941.

Most of the epicentres are submarine. Only to the extent of about half the cases can one speak of any correlation with tectonics or topography. The western part of the Bartlett Trough, which is so strongly seismic, has experienced only one earthquake of great energy.

J.F.S.

6135. VAN RUMMELEN, F. H., "Overzicht van de tusschen 600 en 1940 in Zuid-Limburg en omgeving waargenomen aardbevingen en van aardbevingen, welke mogelijk hier haren invloed kunnen hebben doen gelden. (Review of the earthquakes which have been observed between 600 and 1940 in South-Limburg and surroundings and of earthquakes which may have exerted their influence there.)" *Mededeelingen behorende bij het Jaarverslag 1942-1943 van de Geologische Stichting, afdeling Geologische Bureau voor het Mijngebied*, Heerlen, 1945, 130 pp., bib., Maastricht, 1945.

Contains, after a short introduction, a compilation of all the earthquakes which have been observed between 600 and 1940 in South-Limburg or in some other parts of the Netherlands and concerning which in the literature something has been communicated. Important or interesting peculiarities of the recorded earthquakes have also been copied. The total number of observed earthquakes is 307 and of the possibly observed 354. The author also discusses fault-block movements, and concludes that these are involved and that they have not yet stopped. The bibliography lists 86 entries. Several works could not be consulted on account of the war and may be important in further study.

J.F.S.

6136. VESANEN, Eijo, "Ueber die typenanalytische Auswertung der Seismogramme", *Annales Academiae Scientiarum Fennicae*, Ser. A, III, Geologica-Geographica, 5, 244 pp., Helsinki, 1942.

The paper is written in German and is the result of an exhaustive study of the relation between wave types as recorded on the seismograms and the place of origin, including focal depth.

6137. VISSER, S. W., "Aardbevingen in Nederland" (Earthquakes in the Netherlands), *Tijdschrift van het Nederlandsch Aardrijkskundig Genootschap*, Vol. 59 (2), No. 4, 494-507, Leiden, July, 1942.

The article contains an historical review and a chronological list of the earthquakes in the Netherlands (2177, 1081-1938). J.F.S.

6138. VISSER, S. W., "Seismologie", J. Noorduyt en Zoon N. V., vii+151 pp. Price f 3. Gorinchem, 1943.

The book contains seven chapters, viz.: I. Aardbevingen (Earthquakes); II. Verspreiding van de aardbevingen naar plaats en tijd (The distribution of earthquakes as to place and time); III. Seismische instrumenten (Seismic instruments); IV. Aardbegingolven (Seismic waves); V. Het seismogram en de plaatsbepaling (The seismogram and the indication of the epicentrum); VI. Toegepaste seismologie (Applied seismology); VII. Het binnenste der aarde (The interior of the earth), Bijlage (appendix): Aardbevingen in Nederland (Earthquakes in the Netherlands). J.F.S.

6139. VLADAVETZ, V. I., "On the Influence of the Volcanoes of Kamtchatka on the Seismic Activity", *Bulletin, Volcanological Stations in Kamtchatka*, No. 6, 28-30, Moscow-Leningrad, 1939. R.R.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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Volume XIII

**Bibliography of Seismology**

No. 20

Items 6143-6356

July to December, 1946

BY

ERNEST A. HODGSON

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# Bibliography of Seismology

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With this issue, the *Bibliography of Seismology* completes the year 1946 and closes Vol. XIII of the *Publications of the Dominion Observatory*. With it, too, the present editor, Ernest A. Hodgson, gives up his duties in this capacity, after continuous service for twenty-one years.

The bibliography was begun in January, 1926, as a quarterly mimeographed publication compiled under the auspices of the Eastern Section of the Seismological Society of America. It continued in this form for the full three years 1926 to 1928 inclusive, listing in all 1200 items, and was republished in the *Bulletin of the Seismological Society of America* as follows: Vol. 17, Nos. 3 and 4, 1927; Vol. 18, Nos. 1, 2, 3 and 4, 1928; Vol. 19, No. 4, 1929.

From January 1929 to December 1946, it has been printed as a series in the *Publications of the Dominion Observatory*, Ottawa. Up to and including 1940, it continued as a quarterly issue. From 1941 to 1946 inclusive, it has appeared half-yearly. A total of 6356 entries has been listed in this second series or a grand total of 7556 since January, 1926.

The series will continue without interruption, beginning Vol. XIV of the *Publications*. The *Bibliography* will be edited by Mr. W. G. Milne of the staff of the Seismological Division of the Dominion Observatory. The continued co-operation of our collaborators is earnestly requested.

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#### LIST OF COLLABORATORS

The initials appended to various items throughout the *Bibliography* indicate, in each case, the contribution by the respective collaborator.

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