DEPARTMENT OF MINES AND RESOURCES CANADA

SURVEYS AND ENGINEERING BRANCH

PUBLICATIONS

OF THE

Dominion Observatory

OTTAWA

VOL. XIII

Bibliography of Seismology

No. 14

Items 5564-5673

July to December, 1943

BY

ERNEST A. HODGSON

OTTAWA
EDMOND CLOUTIER
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1944

Price 25 cents

This document was produced by scanning the original publication.

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

Bibliography of Seismology

July to December, 1943

- --- Adler, Joseph L., "Method and Apparatus for Seismic Surveying", (Patent) U.S. No. 2,279,191, issued April 7, 1942. See No. 5640 of this list.
- 5564. Alcock, E. D., "Selection of Computational Methods for Seismic Paths", Geophysics, Vol. 8, No. 3, 297-307, 5 fig., bib., Tulsa, July, 1943.

Discusses underlying assumptions and characteristics of several common computational methods and makes an analysis for a specific case.

- --- Alcock, E. D., "Priorities and Supplies". See pp. 253-255 of the conference reported as No. 5667 of this list.
- —— ATHY, L. F., and McCollum, E. V., "Method of Making Geophysical Explorations" (Patent), U.S. No. 2,309,817, issued Feb. 2, 1943. See No. 5642 of this list.
- 5565. Ayre, R. S., "Experimental Response of an Asymmetric, One-story Building Model to an Idealized, Transient Ground Motion", Bulletin, Seismological Society of America, Vol. 33, No. 2, 91-119, 16 fig., 3 tab., Berkeley, April, 1943.
- 5566. Ayres, Lewis G., "Ups and Downs in Seismograph Field Operations", Mines Magazine, Vol. 33, No. 10, 535-537, 1 fig., Golden, Oct., 1943.
- 5567. AYVAZOGLOU, W.,
 - (1) "Geophysical Abstracts 110", U.S. Geological Survey Bulletins, No. 939C, Items 6587-6696, 67-98, Washington, 1943.
 - (2) "Geophysical Abstracts 111", Ibid., No. 939D, Items 6697-6783, 99-138, 1943.
- 5568. AYVAZOGLOU, W., and SKITSKY, V.,
 - "Geophysical Abstracts 113", U.S. Bureau of Mines Information Circulars, No. 7257, Items 6889-7003, 1-50, Washington, Sept., 1943.
 - (2) "Geophysical Abstracts 114", Ibid., No. 7267, Items 7004-7132, 1-51, Dec., 1943.
- 5569. BAUMANN, P., "Design and Construction of San Gabriel Dam No. 1", with cost data, diagrams, plan, Proceedings, American Society of Civil Engineers, Vol. 67, No. 7, 1199-1238, Lancaster, Pa., Sept., 1941. Discussion, Ibid.: No. 9, p. 1783, Nov.; and No. 10, p. 1886, Dec., 1941.

The solution of the problems of stability and water-tightness during major earth-quakes is believed to be novel.

N.R.C.

5570. Biot, M. A., "Analytical and Experimental Methods in Engineering Seismology", Proceedings, American Society of Civil Engineers, Vol. 68, No. 1, 49-69, Lancaster, Pa., Jan., 1942. Discussion, Ibid.: No. 4, 603-611, April; No. 5, 822-826, May; No. 6, 1023-1030, June; No. 7, p. 1261, Sept.; No. 9, 1623-1626, Nov., 1942.

Definition and review of earthquake spectrum and results obtained for various earthquakes with mechanical analyses. N.R.C.

5571. Biot, M. A., "Analytical and Experimental Methods in Engineering Seismology", American Society of Civil Engineers, Transactions, Vol. 108, Paper 2183, 365-408, 10 fig., bib., New York, 1943.
N.H.H.

Analysis of strong-motion earthquakes by the U.S. Coast and Geodetic Survey has made available a mass of data dealing with the actual ground motion during an earthquake. The work of Professor Biot stems from this work and deals with the evaluation of earthquake stresses. The discussion (pp. 386-408) is by: George R. Rich; N. J. Hoff; Merit P. White; N. H. Heck; Frank Neumann; Jacob Feld; George W. Housner; Homer M. Hadley; Robert E. Glover; and M. A. Biot. Much valuable information on the subject is contained in both the original paper and in the discussions.

- 5572. BLAKE, Archie, "On the Determination of Elastic Constants within the Earth from Seismometric Data" (abstract), Transactions, American Geophysical Union, Part 2, p. 233, Washington, Nov., 1942.
- BLAKE, Archie, "The Non-invariantive Character of the Iso-p Surface as an Iso-P Surface in the Statistical Interpretation of Geophysical Data". See *Transactions*, American Geophysical Union, 1943 (p. 60), reported as No. 5589 of this list.
- —— Bodle, Ralph R., "Additional Evidence of High-speed Surface Waves over Atlantic Paths". See *Transactions, American Geophysical Union*, 1943 (pp. 57-59, 1 fig., 1 tab.), reported as No. 5589 of this list.
- BORN, W. T., "The Contribution of Geophysical Laboratories". See pp. 259-264 of the conference reported as No. 5667 of this list.
- 5573. Bradford, Donald C., "Seismological Observatory Bulletin, University of Pittsburgh", 38 pp., Jan.-Dec., 1942, Pittsburgh, 1943.
- 5574. Bravinder, K. M., "Los Angeles Basin Earthquake of October 21, 1941, and Its Effects on Certain Producing Wells in Dominguez Field", Bulletin, American Association . Petroleum Geologists, Vol. 26, 388-399, Tulsa, March, 1942.

 N.R.C.
- 5575. BRYAN, W. H., "Seismology in Queensland", The Australian Journal of Science, Vol. IV, No. 5, 144-146, April, 1942.
 W.H.B.
- Buchanan, J. A., "Accelerometer" (Patent), U.S. No. 2,302,670, issued Nov. 24, 1942. See No. 5642 of this list.
- 5576. Bucher, W. H., "Mechanics of Crustal Deformation" (abstract), Tulsa Geological Society Digest, Vol. 10, 50-61, Tulsa, 1941-42.

The author's abstract, condensed by V. Skitsky, appears as No. 7076, p. 28, of Geophysical Abstracts 114, reported as No. 5568 (2) of this list.

5577. Bucky, Philip B., et al., "Rock Bursts" (a symposium), American Institute of Mining and Metallurgical Engineers, Technical Publications, No. 1468, 56 pp., 22 fig., New York, May, 1942.

This is an important discussion of the various aspects, theories, etc., of the problem of rockbursts. 5578. CAMPBELL, R. B., "Earthquakes in Florida", Proceedings, Florida Academy of Sciences, Vol. 6, No. 1, 1-4, Tallahassee, 1943.

An abstract, by V. Skitsky, appears as No. 7031, p. 12, of Geophysical Abstracts 114, reported as No. 5568 (2) of this list.

5579. Centano-Grati, M., "Estudios sismologicos", Litografia del Comercio, 555 pp., 2 maps, 5 tab., Caracas, 1940.

A comprehensive review of many phases of seismology. There is considerable discussion of earthquake causes and the relation to volcanism, especially in relation to isostasy and the Wegener hypothesis of continental drift. The author advances the theory of electrical causes for earthquakes of volcanic activity. There is a complete catalogue of earthquakes of Venezuela, and a study of the destructive shocks, including predictions of probable recurrences in different regions.

N.H.H.

5580. Chew, R. S., "Approximate Measure of Earthquake Effect on Framed Structures", revised edition, 96 pp., diagrams, charts, tables. Price \$5.00. Richard Sanders Chew, 844a Mills Building, San Francisco.

Practical attempt to indicate approximately effect on structure of oscillation of its foundation in horizontal direction.

N.R.C.

- —— Cloud, Raymond T., "Seismic-wave-generation Apparatus" (Patent), U.S. No. 2,281,751, issued May 5, 1942. See No. 5640 of this list.
- 5581. Colbert, L. O., Citation on Fourth Award of William Bowie Medal to Nicholas Hunter Heck, *Transactions, American Geophysical Union*, Part 2, 179-180, 1 illus., Washington, Nov., 1942.
- 5582. Covarrubias, Luis Flores, "Los métodos geofísicos sismométricos aplicados a la exploración petrolera en las costas del Golfo de Mexico" (abstract), *Proceedings, Eighth American Scientific Congress*, Vol. 4, 607-608, Washington, May, 1940.

Discussion of the advantages of seismic methods over geological investigation without instruments, especially in regions without pronounced surface features.

N.H.H.

- 5583. Creskoff, J. J., "Design of Earthquake Resistant Structures", Building Standards Monthly, Vol. 9, No. 7, 6-10, Los Angeles, July, 1940.

 N.R.C.
- CROSBY, Murray G., "Limiting Amplifier" (Patent), U.S. No. 2,276,565, issued March 17, 1942. See No. 5641 of this list.
- —— Davis, Jack Ostins, "Recording Device" (Patent), U.S. No. 2,268,808, issued Jan. 8, 1942. See No. 5641 of this list.
- 5584. Day, Gene, "Sleuths of Seismographic Secrets", Tycos-Rochester, Vol. 21, No. 3, 91-94, 3 illus., Rochester, July, 1931.

 R.E.Dell.
- 5585. DeGolyer, Everette Lee, "Note on the Nature and Extent of the Use of Applied Geophysics as a Prospecting Tool in the Petroleum Industry of the Americas", Proceedings, Eighth American Scientific Congress, Vol. 4, 597-605, Washington, May, 1940.

A complete résumé of the use of geophysical prospecting methods in most of the American countries, about thirteen of which have employed these methods. N.H.H.

- DISNEY, L. P., et al., "Report of Special Committee for Cooperation with International Commission for Study of Tidal Waves". See Transactions, American Geophysical Union, 1943 (p. 303), reported as No. 5589 of this list.
- DRAPER, C. S., "Vibration-measuring Apparatus" (Patent), U.S. No. 2,299,081, issued Oct. 20, 1942. See No. 5642 of this list.
- 5586. Duran, N., "Precauciones que puedon recomendarse par reducir el dano que en la Ciudad de Colima, Col., causan los tremblores a las construcciones" (precautions that can be recommended to reduce damage caused by earthquakes in the city of Colima, Col.), Revista Mexicana de Ingeneria y Arguitectura, Vol. 19, No. 10, 343-351, Mexico, D.F., Oct., 1941.

 N.R.C.
- EARTHQUAKE NOTES. See Nos. 5618 and 5619 of this list.
- EISLER, J. D., "Timing Device" (Patent), U.S. No. 2,304,901, issued Dec. 15, 1942. See No. 5642 of this list.
- 5587. Electronics, "Film-recording Seismograph", Electronics, Vol. 16, No. 5, 89-92, 4 fig., New York, May, 1943.

 V.E.H.
- 5588. Engle, H. M., "Vibration Periods of Structures", Engineering News-Record, Vol. 128, 859-862, New York, May 21, 1942.
- Feld, Jacob. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- FIELD, R. M., et al., "Conference on the Present Tentative Program of the Commission on Continental and Oceanic Structure of the International Union of Geodesy and Geophysics". See pp. 16-18, Transactions, American Geophysical Union, 1943, reported as No. 5589 of this list.

On pp. 19-28 of the same report are presented the remarks by delegates of each section and general discussion on the Commission's field in international research in the Western Hemisphere, Allied Countries, or elsewhere. Of particular interest to seismologists are the remarks by O. W. Swainson (p. 19), E. G. Zies (pp. 20-21), N. H. Heck (p. 24), W. T. Thom, Jr. (p. 27), and H. T. Stetson (p. 28).

5589. Fleming, J. A., et al., "Transactions of the American Geophysical Union, 1943", Part I, Reports and Papers, 330 pp., Washington, Oct., 1943.

Items of particular interest to seismologists are reported in this issue of the *Bibliography* under the names of the respective authors, as follows: Field (et al.); Bodle; Blake; Shneiderov; Neumann; Gebhardt and Nelson; Gutenberg and Richter; Disney (et al.); Thom (et al.); Marble (et al.).

On pp. 314-316 is presented the report of the Special Committee on Establishment of American Journal of Geophysics (J. A. Fleming, et al.).

- 5590. Fleming. J. A., "The American Geophysical Union", Science, No. 2530, Vol. 97, 565-568, 1 fig., New York, June, 1943.
- Flude, John William, "Method and Apparatus for Subsurface Mining" (Patent), U.S. No. 2,283,200, issued May 19, 1942. See No. 5641 of this list.

5591. Frommer, Joseph C., "Detecting Small Mechanical Movements", Electronics, Vol. 16, No. 7, 104-105, 3 fig., bib., New York, July, 1943.

An improved vacuum tube circuit for detecting mechanical movements as small as a millionth of an inch, by converting them into capacitance changes of the order of $0.01\mu\mu$ f. Accuracy is high because variations in oscillator and cable characteristics are nullified.

5592. Gamburtsev, G. A., "Correlation Method for the Registration of Refracted Waves" (in Russian), Bulletin, Academy of Sciences, U.S.S.R., Geographical and Geological Series, No. 1-2, 26-47, Moscow, 1942.

An abstract, by V. Skitsky, appears as No. 6900, p. 6, of *Geophysical Abstracts 113*, reported as No. 5568 (1) of this list.

- Gebhardt, R. E., and Nelson, J. H., "The Seismological Installation at the Sitka Magnetic Observatory". See *Transactions*, *American Geophysical Union*, 1943 (pp. 91-95, 5 fig., bib.), reported as No. 5589 of this list.
- 5593. GLOVER, Robert E., "Earthquake Stresses in Frame Structures", Journal, American Concrete Institute, Vol. 13, No. 5, 453-470, Detroit, 1942. Discussion, Ibid., p. 472, Nov.

 Nov.
- GLOVER, Robert E. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- 5594. Goldstone, F., "Maintaining an Adequate Level of Geophysical Exploration", Geophysics, Vol. 8, No. 3, 237-243, Tulsa, July, 1943.
- Gutenberg, B., "Variations in Physical Properties within the Earth's Crustal Layers". See *Transactions*, *American Geophysical Union*, 1943 (pp. 281-282), reported as No.5589 of this list.
- 5595. Gutenberg, B., and Richter, C. F., "Seismicity of Central and South America" (abstract), *Proceedings, Eighth American Scientific Congress*, Vol. 4, p. 455, Washington, May, 1940.

Describes distribution of shocks of various depths. The region from Mexico to Chile gives wide ranges in frequency and depth.

N.H.H.

- Gutenberg, B., and Richter, C. F., "Recent Results of Earthquake Study in Southern California". See *Transactions*, *American Geophysical Union*, 1943 (pp. 95-96), reported as No. 5589 of this list.
- Hadley, Homer M. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- 5596. Hansel, C. W., "Graphical Differentiation and Integration", *Philosophical Magazine*, Vol. 34, No. 235, 565-575, 6 fig., London, August, 1943.
- 5597. HAYES, R. C., "Earthquakes in New Zealand During Year 1941", Dominion Observatory N.Z. Bulletins, No. S.68. Reprinted in New Zealand Journal of Science and Technology, Vol. 23, No. 6B, 210B-211B, 1 fig., 1 tab., Wellington, 1942. R.C.H.

- 5598. HAYES, R. C., "Report of the Acting Director for the Dominion Observatory, N.Z., for the Year Ended 31st December, 1942", Dominion Observatory, N.Z., Bulletins, No. R.28, 2 pp., Wellington, 1943.
- 5599. HAYES, R. C., "The Subcrustal Structure in the New Zealand Region from Seismic Data", Bulletin, Seismological Society of America, Vol. 33, No. 2, 75-80, 3 fig., Berkeley, April, 1943.
- 5600. Heck, N. H., "Problemas sismologicos de la America del Sur", Recista Geografica del Instituto Panamericano de Geografia e Historia, Tomo 2, No. 4, 5, 6, 5-16, 9 fig., bib., 1942.

 N.H.H.

A general review of the nature and distribution of earthquakes in South America.

- —— Heck, N. H. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- Heck, N. H., "Seismic Sea Waves". See p. 2 of Earthquake Notes (Vol. 15, Nos. 1-2), reported as No. 5619 of this list.
- —— Herzenberg, A. J., "Seismic Exploration Method" (Patent), U.S. No. 2,312,642, issued March 2, 1943. See No. 5642 of this list.
- —— Hill, F. G., Discussion of paper by Professor Jeppe, entitled "Review of the Rock Pressure Problem". See No. 5611 of this list.
- 5601. Hodgson, Ernest A., "Recent Developments in Rockburst Research at Lake Shore Mines", Canadian Mining and Metallurgical Bulletin, No. 377, 313-324, 11 fig., Montreal, Sept., 1943.
- 5602. Hodgson, Ernest A., "What is a Rockburst?", The Northern News, Kirkland Lake, Sept. 9, 1943.

The above was the full text of a radio talk broadcast over CJKL, Kirkland Lake, on Sept. 7 as one of a series sponsored by the mine managers of the Kirkland Lake district. It was also printed in full in the Christmas issue of the Northern Miner, 102-103, Toronto, 1943. It deals particularly with the program of rockburst study being carried out at Lake Shore Mines, Kirkland Lake, Ont.

In the same issue of the Northern Miner (52-53) appears an article by Professor A. Brant entitled "Geophysical Methods Have Role in Prospecting". Although seismic methods are mentioned, they are not stressed, most of the paper dealing with applications of the magnetic method.

R.E.DeL. + G.H.A.C.

- Hoff, N. J. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- Hoover, Herbert, Jr., "System for Making Weathering Corrections" (Patent), U.S. No. 2,276,306, issued March 17, 1942. See No. 5640 of this list.
- --- Hoover, Herbert, Jr.,
 - (1) "Seismic Exploration" (Patent), U.S. No. 2,307,791, issued Jan. 12, 1943.
 - (2) "Seismometer" (Patent), U.S. No. 2,307,792, issued Jan. 12, 1943. See No. 5642 of this list.

- Hoover, Herbert Jr., "Automatic Amplitude Control System" (Patent), U.S. No. 2,307,790, issued Jan. 12, 1943. See No. 5643 of this list.
- 5603. Hornberger, R. G., "High-head Pumping for Flathead Project", Civil Engineering, Vol. 11, No. 7, 417-420, New York, July, 1941.

Earthquake loads influence structural design of new irrigation plant. N.R.C.

- 5604. Horton, C. W., "Secondary Arrivals in a Well Velocity Survey", Geophysics, Vol. 8, No. 3, 290-296, 4 fig., 3 tab., bib., Tulsa, July, 1943.
- Housner, George W. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- 5605. Humphreys, W. J., "Obituary of Charles Frederick Marvin", Science, No. 2531, Vol. 98, 6-7, New York, July 2, 1943.
- 5606. Hussey, H. D., "Cuscatlan Bridge in El Salvador, Design and Construction Details", Civil Engineering, Vol. 12, No. 12, 663-666, Easton, Dec., 1942.

 A.K.L.

 For abstract, see Earthquake Notes, Vol. 14, Nos. 3-4, reported as No. 5618 of this list.
- 5607. Hyde, C. G., "Effects of Earthquakes on Water Distribution Systems", Journal, New England Works Association, Vol. 56, No. 1, 14-37, Boston, March, 1942.
 Effects on distribution system according to experience in California, report of Committee of American Society of Civil Engineers.
- 5608. Instituto de Igenieros de Chile, "Principles basicos del calculo asismico", Anales, Instituto de Ingenieros de Chile, Vol. 54, No. 7-8, 41-64, Santiago, July-August, 1941.

 Mathematical discussion of basic principles of calculation of earthquake-resistance of structures.

 N.R.C.
- 5609. JEFFREYS, Harold, "On Pulses Whose Travel Times Are Not True Minima", Proceedings, Cambridge Philospohical Society, Vol. 39, Part 1, 48-51, Cambridge, Jan., 1943.
 An abstract, by V. Skitsky, appears as No. 7036, p. 14, of Geophysical Abstracts 114, reported as No. 5568 (2) of this list.
- 5610. Jeffreys, Harold, "The Stress-differences in the Earth's Shell", Monthly Notices, Royal Astronomical Society, Geophysical Supplement, Vol. 5, No. 3, 71-89, London, W. 1, 1943.
- 5611. JEPPE, C. W. Biccard, "Review of the Rock Pressure Problem", Journal, Chemical, Metallurgical and Mining Society of South Africa, Vol. 44, Nos. 1 and 2, 3-11, with discussion by Theo Meyer, F. G. Hill, and O. Weiss (11-20), Johannesburg, July-Aug., 1943.

The paper constitutes the Presidential Address of Professor Jeppe. The discussions by the mover, seconder, and supporter of the vote of thanks might each be termed a paper in itself on the same subject. The paper by Jeppe, without the others, appears in the Canadian Mining Journal (Vol. 64, No. 12, 788-792, Gardenvale, Dec., 1943), with the title "Rock Pressure Problem: Cause, Control and Prediction".

— Kaspar, Josef, and Steudel, Eberhard, "Oscillograph" (Patent), U.S. No. 2,301,826, issued Nov. 10, 1942. See No. 5642 of this list.

- 5612. Keller, Fred, "An Electronic Seismographic Recorder", Seismological Observatory Bulletin, University of Pittsburgh, Vol. 1, No. 2, 24-28, Pittsburgh, Jan.-Dec., 1942.
 A detailed description of the interesting and unique equipment in operation for nearly three years at the author's amateur station at New Kensington, Pa., U.S.A.
- --- KILPATRICK, S. A., and MINOR, E. E., "Vibration Measuring Apparatus" (Patent), U.S. No. 2,305,267, issued Dec. 15, 1942. See No. 5642 of this list.
- --- Kintz, G. M., "Progress of Cooperation between the Bureau of Mines and the Geophysical Industry with Regard to the Federal Explosives Act". See pp. 267-272 of the conference reported as No. 5667 of this list.
- 5613. Klotz, R. L., "Seismic Shooting near Power Lines", Explosives Engineer, Vol. 20, No. 4, 108-112, Wilmington, 1942.

A brief review, by W. Ayvazoglou, appears as No. 6622, p. 76, of *Geophysical Abstracts 110*, reported as No. 5640 of this list.

5614. Knoche, Walter, "La accion humana como une causa posible de liberar movimientos sismicos", Anales, Sociedad Científica Argentina, Vol. 135, No. 4, 168-181, Buenos Aires, April, 1943.

The paper was concluded in the May issue of the same publication, pp. 206-229. A bibliography was included in the final section.

5615. LAWRENCE, R. W., "Basic Research on Explosives", Explosives Engineer, Vol. 20, No. 5, 131-136, Wilmington, 1942.

A brief review, by W. Ayvazoglou, appears as No. 6623, p. 76, of Geophysical Abstracts 110, reported as No. 5640 of this list.

5616. Leet, L. Don, "Some Applications of Pure Seismology to Geological Problems" (abstract), Tulsa Geological Society Digest, Vol. 10. p. 42, Tulsa, 1941-42.

The author's abstract, condensed by V. Skitsky, appears as No. 7037, p. 14, of Geophysical Abstracts 114, reported as No. 5643 of this list.

- 5617. LINEHAN, Daniel, S.J., "Seismic Prospecting in New England", Transactions, American Geophysical Union, Part 2, 227-228, Washington, Nov., 1942.
- 5618. Ludy, Albert K., "Earthquake Notes", Vol. 14, Nos. 3-4, 1-10, Washington, June. 1943.

 The above publication is the organ of the Eastern Section of the Seismological Society of America. Items which should be brought to the attention of members should be reported to Mr. Ludy, as editor, at the U.S. Coast and Geodetic Survey, Washington, D.C.

The present issue deals with the following topics: The Eastern Section; Uses of seismology in geological studies; Cuscatlan Bridge in El Salvador; Turkish earthquakes; New Zealand earthquakes; Photo-developing problems (J. H. Nelson); New volcano in Mexico; Seismograph for Mexico; Local earthquakes recorded in Missouri; Fordham records of the Ecuador Earthquakes, May 14 to July 12, 1942 (William A. Lynch); Notes of interest.

5619. Ludy, Albert K., "Earthquake Notes", Vol. 15, Nos. 1-2, 1-7, Washington, Sept., 1943.

The present issue deals with: Report of elections in Eastern Section; Seismic sea waves (by N.H. Heck); Obituary of Dr. Charles F. Marvin; Earthquake in Turkey: Notes of interest; Epicentres; Obituary of Dr. Alexander G. McAdie.

- 5620. Lynch, William A., "Deep-focus Earthquakes", Transactions, New York Academy of Sciences, Ser. 2, Vol. 5, No. 7, 159-167, Lancaster, 1943.
 - An abstract, by V. Skitsky, appears as No. 7040, p. 15, of *Geophysical Abstracts* 114, reported as No. 5643 of this list.
- Lynch, William A., "The Fordham Records of the Ecuador Earthquakes, May 14 to July 12, 1942". See No. 5618 of this list.
- Marble, J. P., "Report of Special Committee on Resolutions". See *Transactions*, American Geophysical Union, 1943 (pp. 317-318), reported as No. 5589 of this list.
- 5621. MARMER, H. A., "Tide Observations at Baltimore and the Problem of Coastal Stability", Geographical Review, Vol. 33, No. 4, 620-629, 3 fig., 2 tab., bib., New York, Oct., 1943.
- MAYNE, William H., "Oscillograph" (Patent), U.S. No. 2,279,124, issued April 7, 1942. See No. 5641 of this list.
- 5622. McAfee, J. C., "Spiralok—a New Shell for Seismic Shooting", Explosives Engineer, Vol. 20, No. 4, 105-107, Wilmington, 1942.

A brief review, by W. Ayvazoglou, appears as No. 6625, p. 77, of Geophysical Abstracts 110, reported as No. 5640 of this list.

- McCarty, Malcolm, "Timing Device" (Patent), U.S. No. 2,277,521, issued March 24, 1942. See No. 5640 of this list.
- McCollum, E. V., and Athy, L. F., "Method of Making Geophysical Explorations" (Patent), U.S. No. 2,309,817, issued Feb. 2, 1943. See No. 5642 of this list.
- 5623. McCracken, C. K., "Cuscatlan Bridge in El Salvador, General Description of the Project", Civil Engineering, Vol. 12, No. 12, 661-663, Easton, Dec., 1942. A.K.L. For abstract, see Earthquake Notes, Vol. 14, Nos. 3-4, reported as No. 5619 of this list.
- 5624. McCreery, Don Hull, "Frame Buildings for a Western Cantonment", Civil Engineering, Vol. 13, No. 6, 269-271, Easton, June, 1943.

A.K.L.

5625. Mei, Alexis, I., S.J., "The Amplitude Ratio PP/P, as Recorded by Galitzin Seismographs", Bulletin, Seismological Society of America, Vol. 33, No. 3, 149-195, 16 fig., 13 tab., bib., Berkeley, July, 1943.

The ratio of the amplitude of the longitudinal wave reflected at the surface of the earth to that of the direct wave as recorded by Galitzin seismographs was examined to find whether it might be used as a means of distinguishing between Pacific and continental reflections. The author concludes that this is impossible, but deduces interesting and important facts with regard to the radiation of energy from a focus which is shown to vary greatly with the mechanism of the earthquake.

5626. Mejia, J. E., "Elementos de sismologia", Ingenieria Salvadorena, Vol. 1, No. 3, 10-23, San Salvador, 1940.

An abstract appears in *Revista Geografica*, Vol. 1, Nos. 2-3, p. 369, Tacubaya, May and Sept., 1941.

A continuation from a previous number in which were considered elastic waves, their reflection and refraction, trajectory, and velocity. Seismographs are described in continuation. (Translation of abstract.)

N.H.H.

- MEYER, Theo. Discussion of paper by Professor Jeppe, entitled "Review of the Rock Pressure Problem". See No. 5611 of this list.
- MILLER, William W., "Galvanometer" (Patent), U.S. No. 2,282,590, issued May 12, 1942. See No. 5641 of this list.
- MINOR, E. E., and KILPATRICK, S. A., "Vibration Measuring Apparatus" (Patent), U.S. No. 2,305,267, issued Dec. 15, 1942. See No. 5642 of this list.
- Minton, John P., "Gain Control for Seismometer Amplifiers" (Patent), U.S. No. 2,265,538, issued Dec. 9, 1941. See No. 5641 of this list.
- 5627. Moisseiff, L. S., "Provision for Seismic Forces in Design of Golden Gate Bridge", Civil Engineering, Vol. 10, No. 1, 33-35, New York, Jan., 1940.

Analysis of earthquake forces shows that the stresses are within the limits of structural design stresses.

N.R.C.

5628. MUKHERJEE, S. M., "Seismological Features of the Satpura Earthquake of the 14th March, 1938", Proceedings, Indian Academy of Sciences, Series A, Vol. 16, 167-175, Bombay, Sept., 1942.

The following brief abstract appears as No. 462, p. 40 of *Physics Abstracts*, Sec. A, London, 1943: "The shock was felt over about 400,000 sq. miles. The position of the epicentre is calculated as 21° 32′ N. and 75° 50′ E. and the time of origin as 0⁶48^m30^s G.M.T. The depth of focus is calculated as 40 km. The magnitude of the shock was about 5.5 and energy about 10¹⁹ ergs. Velocities of the various crustal waves are given."

5629. Nasu, Nobuji, "Studies on the Propagation of an Artificial Earthquake Wave through Superficial Soil or Sand Layers, and the Elasticity of Soil and Sand", Bulletin, Earthquake Research Institute, Vol. 18, No. 2, 289-304, Tokyo, 1940.

A brief review, by W. Ayvazoglou, appears as No. 6627, p. 77, of Geophysical Abstracts 110, reported as No. 5640 of this list.

- 5630. NATIONAL BUREAU OF STANDARDS, "Congress of Physics at Puebla, Mexico", Technical News Bulletin, No. 314, 43-44, Washington, June, 1943.
- 5631. NATURE. Brief items of interest to seismologists have appeared in recent issues of Vol. 151 of the above periodical (London, 1943) as follows:
 - (1) "Earthquakes Registered in Spain", No. 3838, p. 584, May 22.
 - (2) "Earthquakes Registered in New Zealand", No. 3842, 694-695, June 19.
 - (3) "Earthquakes Registered in Spain", Ibid., p. 695.
- 5632. Nature. Brief items of interest to seismologists have appeared in recent issues of Vol. 152 of the above periodical (London, 1943) as follows:
 - (1) "Earthquake in Turkey", No. 3844, p. 17, July 3.
 - (2) "New Zealand Earthquakes", Ibid., p. 18.
 - (3) "Deep-focus Earthquakes and Aftershocks", Ibid., p. 25.
 - (4) "Earthquakes Registered at Kew and Stonyhurst", No. 3845, p. 45, July 10.
 - (5) "New Zealand Earthquakes" and "Earth Tremors in Portugal", No. 3846, p. 74, July 17.

- (6) "Earthquakes in the Pacific", No. 3847, p. 101, July 24.
- (7) "New Zealand Earthquakes During 1941", Ibid., p. 111.
- (8) "Recent Earthquakes", No. 3849, p. 158, Aug. 7.
- (9) "Recent Earthquakes", No. 3850, p. 186, Aug. 14.
- (10) "New Seismograph in Mexico", No. 3853, p. 272, Sept. 4.
- (11) "Earthquake in Japan", No. 3855, 324-325, Sept. 18.
- (12) "Earthquakes during June", No. 3856, p. 353, Sept. 25.
- (13) "Royal Society of Canada Annual Meeting", Ibid., 362-363.
- (14) "Earthquakes Registered in Spain", No. 3857, p. 382, Oct. 2.
- (15) "Earthquakes in Central and South America", No. 3858, p. 410, Oct. 9.
- (16) "Recent Earthquakes", No. 3859, p. 444, Oct. 16.
- (17) "Sub-crustal Structure of New Zealand", No. 3861, p. 512, Oct. 30.
- (18) "Obituary of Dr. F. J. W. Whipple", No. 3863, 557-558, Nov. 13,
- (19) "Roots of Mountains", Ibid., p. 576.
- (20) "Earthquakes Recorded during July and August", No. 3865, p. 624, Nov. 27.
- (21) "Recording Cathode Ray Oscillograph Traces", No. 3866, 656-657, Dec. 4.
- 5633. Navarrete, Julio Bustos, "Los terremotos mas notables habidos en Chile en los ultimos cuatro siglos", Boletin de Estudios de la Seccion Sismologica del Observatoria del Salto, 2 pp., 1 fig., Santiago, 1943.
- Nelson, J. H., "Photo-developing Problems". See No. 5618 of this list.
- Nelson, J. H., and Gebhardt, R. E., "The Seismological Installation at the Sitka Magnetic Observatory". See *Transactions, American Geophysical Union*, 1943 (pp. 91-95, 5 fig., bib.), reported as No. 5589 of this list.
- 5634. NEUMANN, Frank, "Progress-report on Seismological Activities of the United States Coast and Geodetic Survey, April 1, 1941, to March 31, 1942", Transactions, American Geophysical Union, Part 2, 231-232, Washington, Nov., 1942.
- 5635. NEUMANN, Frank.
 - (1) "United States Earthquakes, 1940", Publications, U.S. Department of Commerce, No. 647, 74 pp., 26 fig., Washington, 1942.
 - (2) "United States Earthquakes, 1941", Ibid., 69 pp., 27 fig., 1943.
- Neumann, Frank, "Progress-report on Seismological Activities of the United States Coast and Geodetic Survey, April 1, 1942, to March 31, 1943". See *Transactions*, American Geophysical Union, 1943 (pp. 88-91), reported as No. 5589 of this list.
- Neumann, Frank. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- 5636. NIELSEN, D. M., "Strain Gages", *Electronics*, Vol. 16, No. 12, 106-111, 192, 13 fig., 1 tab., New York, Dec., 1943.

A résumé of characteristics of wire resistance strain gages developed recently for determining stresses in structures and machines. Typical electronic circuits for measuring and recording with high precision the fractional changes in resistance are also given. 5637. Ockleston, A. J., "Effect of Earthquakes on Framed Buildings", Journal, Institution of Civil Engineers, Vol. 16, No. 5, 41-64, London, March, 1941.

Behaviour of buildings, lateral vibrations of framed structures, vibrations of model.

N.R.C.

- 5638. Oxford University Observatory, "International Seismological Summary 1934, April, May, June", 155-325, May, 1940.
- 5639. Pan American Institute of Geography and History, "Sobre la necessidad de la cooperacion de todas las republicas Américanas en las actividades sismologicas", Revista Geografica, Vol. 1, Nos. 2-3, 291-292, Tacubaya, May and Sept., 1941.

Outlines reasons for better cooperation of the American republics in seismological work, the benefits to be derived, and plans for early accomplishment of useful results.

- —— Parr, Josephus O., "Seismic Surveying" (Patent), U.S. No. 2,286,567, issued June 16, 1942. See No. 5640 of this list.
- —— Parr. Josephus O., "Seismic Surveying" (Patent), U.S. No. 2,294,627, issued Sept. 1, 1942. See No. 5641 of this list.
- —— Parr, Josephus O., "Transducer" (Patent), U.S. No. 2,311,079, issued Feb. 16, 1943. See No. 5643 of this list.
- 5640. Patents. In Geophysical Abstracts 110 (see No. 5567 (1) of this list) appears a list of Patents (Items 6663-6696). Those of particular interest to seismologists are listed in this issue of the Bibliography under the names of the patentees as follows: Hoover, Peterson, Silverman, McCarty, Adler, Cloud, Ritzmann, Petty, Parr.
- 5641. Patents. In Geophysical Abstracts 111 (see No. 5567 (2) of this list) appears a list of Patents (Items 6742-6783). Those of particular interest to seismologists are listed in this issue of the Bibliography under the names of the patentees as follows: Minton, Davis, Woods, Crosby, Mayne, Miller, Flude, Ray, Ritzmann, Parr.
- 5642. Patents. In Geophysical Abstracts 113 (see No. 5568 (1) of this list) appears a list of Patents (Items 6964-7003). Those of particular interest to seismologists are listed in this issue of the Bibliography under the names of the patentees as follows: Draper, Steudel and Kaspar, Buchanan, Eisler, Minor and Kilpatrick, Hoover, Ritzmann, Athy and McCollum, Herzenberg, Shook, Renner.
- 5643. Patents. In *Geophysical Abstracts 114* (see No. 5568 (2) of this list) appears a list of Patents (Items 7100-7132). Those of particular interest to seismologists are listed in this issue of the *Bibliography* under the names of the patentees as follows: Hoover, Welty, Parr, Shimek, Peters.
- —— Patrick, H. G., "Transportation". See pp. 256-259 of the conference reported as No. 5667 of this list.
- 5644. Perret, Frank A., "Notes on the Volcanism of the West Indies", Proceedings, Eighth American Scientific Congress, Vol. 4, 751-756, Washington, May, 1940.

Though dealing chiefly with volcanic distribution, the article is of seismological interest, in that it points out that efforts to reopen plugged conduits led to strong earthquakes at Monserrat.

N.H.H.

- Peters, L. J., "Seismograph Amplifier System" (Patent), U.S. No. 2,318,795, issued May 11, 1943. See No. 5643 of this list.
- Peterson, Raymond A., "Method of Making Weathering Corrections" (Patent), U.S. No. 2,276,335, issued March 17, 1942. See No. 5640 of this list.
- 5645. Petroleum World, "Over 15 Seismograph Crews in Valley", Petroleum World, Vol. 39, No. 2, 25-26, Los Angeles, 1942.
- PETTY, Miss Olive S., "Method and Apparatus for Seismic Surveying" (Patent), U.S. No. 2,285,610, issued June 9, 1942. See No. 5640 of this list.
- 5646. POTTER, E. V., "An Automatic Frequency-controlled Oscillator and Amplifier for Driving Mechanical Vibrators", U.S. Bureau of Mines Reports of Investigations, No. 3702, 10 pp., 12 fig., Washington, May, 1943.
- 5647. RAAB, N. C., and Wood, H. C., "Earthquake Stresses in the San Francisco-Oakland Bay Bridge", Proceedings, American Society of Civil Engineers, Vol. 66, No. 8, 1147-1168; Discussion, Ibid., No. 10, 1864-1866; Vol. 67, No. 3, 465-466; No. 5, 885-886; No. 6, 1109-1110, Lancaster, Pa., 1940.

Calculation of stresses in deep piers and long spans and provisions incorporated to resist seismic forces. Published as German abstract in *Bautechnik*, Vol. 19, No. 23, 252-253, May 30, Berlin, 1941.

N.R.C.

- 5648. Ramirez, J. Emilio, "The Geophysical Institute of the Colombian Andes", Bulletin, Seismological Society of America, Vol. 33, No. 2, 81-90, 6 fig., bib., Berkeley, April, 1943.
- --- RAY, Robert H., "Geophysical-instrument Mounting" (Patent), U.S. No. 2,290,354, issued July 21, 1942. See No. 5641 of this list.
- RENNER, D. S., "Seismic Recording" (Patent), U.S. No. 2,313,091, issued March 9, 1943. See No. 5642 of this list.
- 5649. Review of Scientific Instruments, "High Speed Movie Camera", Review of Scientific Instruments, Vol. 14, No. 10, p. 323, 2 fig., New York, Oct., 1943.

A brief description of a high speed camera developed by Bell Telephone Laboratories which can take pictures at a travel speed as great as 8,000 frames a second (an exposure period of 33 millionths of a second) using continuous concentrated light. The description is given by Western Electric Co., New York. The instrument is known as the Fastex camera.

- Rich, George R. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology." See No. 5571 of this list.
- 5650. Rich, John Lyon, "Structure and Physiography of the Western Andes" (abstract), Proceedings, Eighth American Scientific Congress, Vol. 4, 391-392, Washington, May, 1940.

The conclusion from photographs taken from a plane is that movement is still active on the western slopes, especially southern Peru and northern Chile, where recent fault scarps and earthquake cracks were observed and photographed. N.H.H.

--- RICHTER, C. F., and GUTENBERG, B., "Seismicity of Central and South America". See No. 5595 of this list.

- —— RICHTER, C. F., and GUTENBERG, B., "Recent Results of Earthquake Study in Southern California". See *Transactions*, *American Geophysical Union*, 1943 (pp. 95-96), reported as No. 5589 of this list.
- 5651. RICKER, Norman, "Further Developments in the Wavelet Theory of Seismogram Structure", Bulletin, Seismological Society of America, Vol. 33, No. 3, 197-228, 6 fig., 6 tab., bib., Berkeley, July, 1943.

In this paper the wavelet theory of seismogram structure previously proposed by the author has been extended to obtain the form of the seismic disturbance (due to a sharp seismic pulse) at various distances from the source. The solution of Stoke's differential equation is given in the form of a series of wavelet functions, and calculated seismograms are presented to show the manner in which the shape, breadth, and amplitude of the disturbance vary with the distance from the source. Tables are given of the wavelet functions and wavelet-form functions used in the calculations.

- RITZMANN, Otto F., "Apparatus for Seismograph Prospecting" (Patent), U.S. No. 2,281,949, issued May 5, 1942, and "Apparatus for and Method of Receiving and Recording Vibrations" (Patent), U.S. No. 2,286,106, issued June 9, 1942. See No. 5640 of this list.
- --- RITZMANN, Otto F., "Oscillograph" (Patent), U.S. No. 2,294,320, issued Aug. 25, 1942. See No. 5641 of this list.
- --- RITZMANN, Otto F., "Apparatus for Detecting and Exhibiting Explosions in Wells" (Patent), U.S. No. 2,308,390, issued Jan. 12, 1943. See No. 5642 of this list.
- 5652. Salomon, Calvi W., "Turkiyedeki Zelzelere Muteallik Etudler", Maden tetkik ve arama enstitusir, Series B., No. 5, 5-121, Ankara, 1940.

Reports on investigations of earthquakes in Turkey: Kirsehir on 19 April, 1938; Dikili-Bergama on 21-22 Nov., 1939.

N.R.C.

- 5653. SANCHEZ, Pedro C.,
 - (1) "Temblores de tierra, sismos y volcanes", Publications, Pan American Institute of Geography and History, No. 33, 32 pp., Tacubaya, 1939.
 - (2) "Sismos y volcanes en la región que geograficamente de la considerarse como América Central, o sea desde el paralelo 19° hasta la Depresión del Atrato en el Istmo de Darien", Proceedings, Eighth American Scientific Congress, Vol. 4, 747-750, Washington, May, 1940.

In the first paper the author gives a comprehensive discussion of seismology in relation to volcanology. He discusses the volcanic regions of the earth in relation to earthquake belts, with estimates of volcanic activity. Both phenomena are ascribed to isostatic adjustment, combined with alternating periods of contraction and expansion of the earth's crust.

In the second paper, after an adequate but less comprehensive discussion of volcanic distribution than in the first, he concludes that the area named in the title might well be considered as a unit from the volcanic and seismic viewpoint. N.H.H.

- 5654. Science. Brief items of interest to seismologists have appeared in recent issues of Vol. 97 of the above periodical (New York, 1943) as follows:
 - (1) "The Japanese Earthquake", No. 2530, p. 9, Suppl., June 25.

- 5655. Science. Brief items of interest to seismologists have appeared in recent issues of Vol. 98 of the above periodical (New York, 1943) as follows:
 - (1) "The New Mexican Volcano", No. 2537, p. 10 Suppl., August 13.
 - (2) "The Pacific Coast Earthquake on September 23, 1943", No. 2544, p. 12 Suppl., October 1.
- 5656. Science News-Letter. Brief items of interest to seismologists have appeared in recent issues of Vol. 43 of the above publication (Washington, 1943) as follows:
 - (1) "Two Quakes in Two Days Recorded on Seismographs", No. 24, p. 383, June 12.
- 5657. Science News-Letter. Brief items of interest to seismologists have appeared in recent issues of Vol. 44 of the above publication (Washington, 1943) as follows:
 - (1) "Volcano Unpredictable", No. 7, p. 101, 3 fig., August 14.
 - (2) "Recent 'Lost' Earthquake was not in Japan", No. 21, p. 329, Nov. 20.
- 5658. Seeburger, M. M., "Different Types of Disturbances Appearing on Iowa Seismological Records", *Proceedings, Academy of Sciences*, Vol. 49, 367-373, Des Moines, 1942.

 An abstract, by V. Skitsky, appears as No. 7049, p. 18, of *Geophysical Abstracts* 114, reported as No. 5568 (2) of this list.
- —— SEYFFERT, W. A., "Seismograph Explosives and the War". See pp. 264-267 of the conference reported as No. 5667 of this list.
- —— SHIMEK, E. J., "Master Control for Electric Seismographs" (Patent), U.S. No. 2,317,334, issued April 20, 1943. See No. 5643 of this list.
- —— Shneiderov, Anatol James, "The Exponential Law of Gravitation and Its Effects on Seismological and Tectonic Phenomena: a Prelininary Exposition". See *Transactions*, *American Geophysical Union*, 1943 (pp. 61-88, 13 fig., bib.), reported as No. 5589 of this list.
- —— Shook, Earley M., "Gain Control for Seismograph Amplifiers" (Patent), U.S. No. 2,312,934, issued March 2, 1943. See No. 5642 of this list.
- 5659. Shrader, J. E., "The Bellows Accelerometer", Journal, Franklin Institute, Vol. 236, No. 4, 253-362, 7 fig., Philadelphia, Oct., 1943.
- —— SILVERMAN, Daniel, "Recording System" (Patent), U.S. No. 2,276,423, issued March 17, 1942. See No. 5640 of this list.
- —— SKITSKY, V., and AYVAZOGLOU, W., "Geophysical Abstracts 113 and 114". See No. 5568 of this list.
- —— STEUDEL, Eberhard, and KASPAR, Josef, "Oscillograph" (Patent), U.S. No. 2,301,826, issued Nov. 10, 1942. See No. 5642 of this list.
- 5660. Straley, H. W., III, et al., "The Professional Training of Geophysicists", American Institute of Mining and Metallurgical Engineers, Technical Publications, No. 1633, 19 pp., bib., New York, Sept., 1943.

The above is a report of the Geophysics Education Committee of Mineral Industry Education Division, A.I.M.E. It was presented at the New York meeting, Feb., 1943. A proposed curriculum for the training of professional geophysicists is given. Discussion follows by C. A. Heiland, S. F. Kelly, and W. R. Chedsey. J.B.M.

- Тном, W. T., Jr., et al., "Report of Special Committee on Geophysical and Geological Study of Continents". See *Transactions*, American Geophysical Union, 1943 (pp. 304-307), reported as No. 5589 of this list.
- 5661. Thomson, R. O. C., "Earthquake Reconstruction on Quetta (Railway) Division 1936-1940", India Railway Board Technical Papers, No. 307, 64 pp., supp. plates, Delhi, 1940.

 Design data adopted for unframed buildings of "banded" type, structural framed buildings, earthquake proof buildings, following earthquake of May 31, 1935.

NRC

5662. Tillotson, Ernest, "The Recent Earthquake in Turkey", Nature, No. 3867, Vol. 152, 684-685, London, Dec. 11, 1943.

Gives details regarding the earthquake of Nov. 27, 1943, which occurred east of Ankara, between central Anatolia and the Black Sea coast, resulting in 2,919 deaths and many thousands injured.

5663. Trask, Parker D., "The Mexican Volcano Paricutin", Science, No. 2554, Vol. 98, 501-505, New York, Dec. 10, 1943.

A geologist's observations of the Mexican volcano which began to erupt in a field on Feb. 20, 1943, and by late September had built up a cone 1,500 ft. in height. "For the first time in their lives geologists have been able to observe in a single volcano all stages of its history."

5664. Ulrich, F. P., "Earthquakes Resistant Design", Building Standards Monthly, Vol. 9, No. 10, 7-12, Los Angeles, Oct., 1940.

N.R.C.

- 5665. Van Tuyl, F. M., "Some Significant Developments in 1942 in Petroleum Geology and Geophysics", *Mines Magazine*, Vol. 33, No. 10, 517-520, 548, bib., Golden, Oct., 1943.
- 5066. WAUGH LABORATORIES, "Mechanical Oscillator for Applying Periodic Forces to Buildings, Structures and Machines" (abstract), Mines Magazine, Vol. 33, No. 5, p. 262, Golden, May, 1943.
- 5667. Weatherby, B. B., et al., "Conference—Maintaining Geophysical Operations During the War", Geophysics, Vol. 8, No. 3, 244-272, Tulsa, July, 1943.

For the several papers presented in this series see the listings under the names of the respective authors: Weatherby, Alcock, Patrick, Born, Seyffert, Kintz. See also, in the same connection, the paper by F. Goldstone.

The first paper in the conference series is by B. B. Weatherby, and is entitled "Report of the War Efforts Advisory Committee". See pp. 244-252.

5668. Weaver, Paul, "The Geophysicist as a Forecaster", Geophysics, Vol. 8, No. 3, 273-289, 2 fig., bib., Tulsa, July, 1943.

The author discusses the role of the physicist as a forecaster in the cases of artificial non-equilibrium appearing in wells, mines, quarries, and in the extraction of underground fluids and in the cases of natural non-equilibrium to be found in weather (particularly fog), earthquakes, landslides, and volcanoes.

5669. Weileman, E. H., "The Design of Recent TVA Projects—The Kentucky Dam, Power House, and Lock", Civil Engineering, Vol. 13, No. 6, 257-260, Easton, June, 1943.

5670. Weiss, Oscar, "Causes of Rockbursts", South African Mining and Engineering Journal, Vol. 53, Part 2, No. 2592, pp. 103, 105, and 107, Johannesburg, October 3, 1942.

- Weiss, Oscar, Discussion of paper by Professor Jeppe, entitled "Review of the Rock Pressure Problem". See No. 5611 of this list.
- Welty, William Robertson, "Method and Apparatus for Measuring and Recording Vibrational Effects" (Patent), U.S. No. 2,309,560, issued Jan. 26, 1943. See No. 5643 of this list.
- White, Merit P. Discussion of paper by M. A. Biot, entitled "Analytical and Experimental Methods in Engineering Seismology". See No. 5571 of this list.
- 5671. WILSON, James T., "A Statistical Study of the Periods and Amplitudes of Microseisms", Transactions, American Geophysical Union, Part 2, 228-231, 2 fig., 2 tab., bib., Washington, Nov., 1942.
- 5672. WINDES, S. L., "Damage from Air Blast, II", U.S. Bureau of Mines, Reports of Investigations, No. 3708, 50 pp., 37 fig., 28 tab., Washington, June, 1943.
- Wood, H. C., and RAAB, N. C., "Earthquake Stresses in the San Francisco-Oakland Bay Bridge". See No. 5647 of this list.
- Woods, John P., "Multiple-recording Galvanometer" (Patent), U.S. No. 2,269,414, issued Jan. 6, 1942. See No. 5641 of this list.
- 5673. Wylie, C. R., Jr., "On the Forced Vibrations of Non-linear Springs", Journal, Franklin Institute, Vol. 236, No. 3, 273-284, 6 fig., bib., Philadelphia, Sept., 1943.

 A mathematical analysis of various phases of the subject indicated by the title.

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., University of Queensland, Brisbane, Australia	W.H.B.
Collins, G. H. A., Dominion Observatory, Ottawa, Canada	G.H.A.C.
DeLury, Ralph E., Dominion Observatory, Ottawa, Canada	R.E.DeL.
Hayes, R. C., Dominion Observatory, Wellington, N.Z.	R.C.H.
Heck, N. H., United States Coast and Geodetic Survey, Washington, D.C., U.S.A.	N.H.H.
Hollinsworth, V. E., Dominion Observatory, Ottawa, Canada	V.E.H.
Ludy, A. K., Editor "Earthquake Notes", United States Coast and Geodetic Survey, Washington, D.C., U.S.A.	A.K.L.
Macelwane, James B., S.J., Department of Geophysics, Saint Louis University, Saint Louis, Mo., U.S.A.	J.B.M.
National Research Council, Ottawa, Canada	N.R.C.

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.

- A1. Aids to Seismological Study: No. 5596.
- A2. Air, Sound vibrations in: No. 5489.
- B1. Building Construction: Nos. 5565, 5583, 5586, 5593, 5608, 5624, 5633, 5637, 5661. See also E2. (Engineering).
- B2. Bibliographies: Nos. 5440, 5442, 5567, 5568.
- C1. Catalogues of Earthquakes, Lists of Aftershocks, etc.: Nos. 5514, 5579, 5635, 5638.
 See also R2. (Reports).
- C2. Causes of Earthquakes: Nos. 5508, 5558, 5579, 5614, 5653, 5670. See also R3. (Rotation Variation).
- C3. Cosmogony; Theoretical Discussions of Similar Nature; Continental Drift, Orogeny, etc.: No. 5459.
- C4. Cycles, Earthquake: Nos. 5446, 5459.
- D1. Dams and Earthquakes: No. 5669. See also E2. (Engineering).
- D2. Deformations, Gradual, of the Earth's Crust: Nos. 5447, 5510, 5562. See also G1. (Geodesy) and T2. (Tides).
- D3. Descriptions, General, of Earthquakes in Canada or the United States: Nos. 5451, 5457.
- D4. Descriptions, General, of Earthquakes other than those in Canada or the United States: Nos. 5628, 5652, 5662.
- E1. Effects of Earthquakes, on Buildings, Ground, etc., Observed during or after the Disturbance: Nos. 5457, 5562, 5574, 5580, 5586, 5607, 5633.

 See also D3. and D4. (Descriptions of Earthquakes).
- E1.3 Measurements of the Magnitude of Earthquakes, Nature of Origin Mechanisms, etc.: Nos. 5576, 5628.
- 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.

 See also B1. (Building Construction) and D1. (Dams).
- E3. Explosions, Studies of Wave Propagation from: Nos. 5547, 5561, 5615, 5622, 5672. See also S3. (Seismic Prospecting).
- E4. Education: Curricula, etc.: No. 5660.
- F1.1 Deep-focus Earthquakes: No. 5620.
- G1. Geodesy and Surveying Applied to Seismology: No. 5506.

- G3. Geology of Interest to Seismologists: Nos. 5441, 5459, 5461, 5478, 5483, 5513, 5524, 5557, 5563, 5616, 5650.
- G3.1 Geology, Experimental: Geodynamics: No. 5629.
- Instruments: Seismographs and Accessories: Nos. 5444, 5480, 5486, 5515, 5521, 5587,
 5591, 5612, 5636, 5646, 5649, 5659, 5666, 5673.
- Insurance and Earthquakes: No. 5445.
 See also B1. (Building Construction) and E2. (Engineering).
- M2. Materials of the Earth's Crust, Laboratory Tests of: Nos. 5448, 5449, 5450, 5475, 5487, 5488.
- M3. Mathematical Physics, as Applied to Seismological Problems: Nos. 5454, 5464, 5467, 5468, 5505, 5542, 5560, 5564, 5596, 5651, 5673.
- M4. Microseisms: Nos. 5466, 5671.
- M5. Meteorology of Interest to Seismologists: No. 5472.
- M6. Mining: as Related to Seismology: Nos. 5496, 5527, 5558, 5577, 5601, 5611, 5670.
- O1. Obituaries: Nos. 5514, 5549, 5551, 5605, 5632.
- O2. Oceanography; Charting, etc.: Nos. 5471, 5554.
- O3. Organizations for Seismological Investigations; Inaugurations, Reports, New Equipment, etc.: Nos. 5492, 5509, 5514, 5517, 5523, 5526, 5533, 5553, 5575, 5581, 5589, 5597, 5598, 5630, 5634, 5639, 5648, 5660.
- O4. Origins of Earthquakes; Methods of Locating Epicentres and Results of that Work: Nos. 5452, 5628.
- P2. Physics, Experimental, As Applied to Seismological Problems: Nos. 5448, 5518, 5519, 5552, 5629.
- P3. Physics of the Earth; Density, Viscosity, Rigidity, Elasticity, Temperature, etc.: Nos. 5610, 5629.

 See also M2. (Materials of Earth's Crust, Laboratory Tests of) and M3. (Mathematical Physics).
- P4. Popular Presentations of Various Phases of Seismology: Nos. 5522, 5523, 5537, 5538, 5539, 5584, 5601, 5618, 5619, 5620, 5631, 5632, 5654, 5655, 5656, 5657, 5662.
- R1. Records, Evaluation of Earthquake: Nos. 5456, 5536, 5658.

 See also T4. (Time-Distance Curves) and W1. (Wave Study).
- R2. Reports, Seismological; Regular Series: Nos. 5462, 5469, 5470, 5492, 5529, 5573, 5597, 5598, 5638.

 See also C1. (Catalogues).
- R2.1 Reviews of Various Phases of Seismology: Nos. 5494, 5495, 5497, 5505, 5522, 5523, 5537, 5538, 5548, 5600, 5665.
- R3. Rotation Period of the Earth, Variations therein; Wandering of the Pole; Variation of Latitude: No. 5446.
- Seismicity of Particular Regions: Nos. 5458, 5484, 5511, 5522, 5523, 5578, 5595, 5631, 5632, 5654, 5655, 5656, 5657.
 See also C1. (Catalogues), D3 and D4. (Descriptions of Particular Earthquakes),

O4. (Origins), and R2 (Reports).

- S3. Seismic Prospecting: Nos. 5443, 5455, 5473, 5474, 5476, 5477, 5479, 5481, 5485, 5498, 5501, 5502, 5504, 5505, 5520, 5534, 5535, 5539, 5541, 5542, 5543, 5544, 5545, 5546, 5550, 5559, 5566, 5582, 5585, 5592, 5594, 5604, 5613, 5617, 5622, 5629, 5645, 5651, 5665, 5667, 5668.

 See also E3. (Explosions).
- S3.1 Patents: Nos. 5530, 5531, 5532, 5564, 5640, 5641, 5642, 5643.
- T1. Textbooks; General Treatises on Seismology or Its Applications: Nos. 5448, 5465, 5471.
- T2. Tidal Loading; Its Effects; Sea-level Pressure Changes, etc.: No. 5621.
- T3. Tides, Earth: No. 5507.
- T4. Time-Distance Curves, Tables, etc.: Nos. 5503, 5609, See also W1. (Studies of Earthquake Waves).
- V1. Vibrations of the Ground, Buildings, etc., Caused by Non-seismic Disturbances other than Explosions, as Traffic, Machinery, Falling Weights, Meteors, Frost: No. 5588. See also E2. (Engineering).
- V2. Volcanoes in Relation to Earthquakes: Nos. 5482, 5644, 5653, 5655, 5657, 5663.
- W1. Waves, Studies of Earthquake; Based on Observational Data; Velocity, Paths, Nature, etc.: Nos. 5528, 5555, 5560, 5609, 5625, 5626.
 See also E3. (Explosions), M3. (Mathematical Physics), O4. (Origins), R1. (Records), S3. (Seismic Prospecting), T1. (Texts), T4. (Time-Distance Curves), and V1. (Vibrations).
- W1.2 Seismological Studies of Earth Crustal Structure: Nos. 5453, 5463, 5490, 5491, 5516, 5525, 5572, 5599.
- W1.3 Seismological Studies of Deep Structure of the Earth; Viscosity-Depth Curves: Nos. 5460, 5493, 5499, 5500, 5512, 5556, 5572.