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Vol. XII

Bibliography of Seismology

No. 13

Items 3371 - 3478

JANUARY, FEBRUARY, MARCH, 1937

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Printer: A. H. Henson

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Price 35 cents

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Printed at the Dominion Observatory

PRINTED AT THE DOMINION OBSERVATORY
OTTAWA, CANADA

Price 35 cents

Bibliography of Seismology

January, February, March, 1937

3371. BASTINGS, L., "Some Seismological Aspects of the Buller Earthquake," *N.Z.J. Sc. Tech.*, Vol. 18, No. 4, 396-409, 2 fig., 9 tab., bib., Wellington, 1936. R.R.B. + L.B.

This is the second paper on this subject by the same author. It has the sub-title: "Part II.—The P-Waves in the Distant Hemisphere." Part I, dealing with records in the nearer hemisphere, was reported as No. 2011 of these lists.

3372. BEITRÄGE ZUR ANGEWANDTEN GEOPHYSIK, "In memoriam Conrad Schlumberger," *Bei. Angew. Geoph.*, Bd. 6, Heft 2, 123-124, Leipzig, 1936.

The obituary is in French and is preceded by a reproduction from a photograph of Schlumberger.

3373. BELLAMY, Ethel F., "Index Catalogue of Epicentres for 1913-1930," County Press, 36 pp., 3 pl., Newport, Isle of Wight, 1936.

The paper is a geographical index to the *International Seismological Summary*, for the years indicated. The epicentre positions are listed in four divisions according to increasing latitude as: $\phi = N, \lambda = E$; $\phi = N, \lambda = W$; $\phi = S, \lambda = E$; $\phi = S, \lambda = W$. The positions are also shown plotted on a Mollweide Equal Area Projection map of the world. A very valuable appendix to the paper is the list of corrected epicentre positions. Where, with new data, it is possible to obtain a closer approximation to the epicentre of an earthquake, the re-determination is sometimes made and printed in later issues of the *Summary*. Users of the publication may easily employ the earlier values and fail to note the corrected ones. In one list of 77 entries all such changes and all errors due to printing are collected in chronological order. Knowing of such a list, users of the *Summary* for the years 1913-1930 should be able to avoid the incorrect data. The Index has evidently entailed a great deal of work on the part of the one best able to prepare it. Her colleagues in all parts of the world owe her a debt of gratitude.

3374. BIRCH, Francis, and Dow, Richard B., "Compressibility of Rocks and Glasses at High Temperatures and Pressures: Seismological Application," *Bul. Geol. Soc. Am.*, Vol. 47, 1235-1256, 4 fig., bib., New York, Aug. 31, 1936.

The above is Paper No. 21, published under the auspices of the Committee on Geophysical Research and the Division of Geological Sciences at Harvard University. D.G.S.H.U.

3375. BLUM, Victor J., S.J., "The Intermediate Earthquake of June 24, 1935," *Bul. S.S.A.*, Vol. 26, No. 3, 195-196, 1 fig., bib., Berkeley, July, 1936.

3376. BODLE, Ralph R., "Earthquake Notes," Vol. 8, Nos. 1 and 2, 75-116, Washington, 1936.

This issue is reprinted from the *Transactions of the American Geophysical Union*, reporting the joint meeting of that organization with the Eastern Section of the Seismological Society of America. For the papers presented see No. 3269 of these lists.

R.R.B

3377. BODLE, Ralph R., "Earthquake Notes," Vol. 8, No. 3, 12 pp., 1 tab., Washington, Dec., 1936.

The issue contains short notes on various subjects of interest to seismologists among which are the following as indicated by headings: Prospectus; First seismograph in the United States; Engineering experiment station bulletin; International meetings; Commission on continental and oceanic structure; Catalog of earthquake epicentres; Seismology in New Zealand; Dynamic distortions in structures subjected to sudden earth shock; Japanese earthquakes; Amateur seismological league; Data needed for design purposes; Faults of Panama region; Seismology in Washington State; New strong-motion stations; Teleseismic stations; Seismic forces and the San Francisco-Oakland Bay bridge; Cisterns for fire fighting after earthquakes; Earthquake-proof earth dams; Designing bridge towers 708 feet high; Accelerograph at Texas Exposition; Boger, Texas, shock of June 19, 1936; Epicentres; Building vibration work; Publications by members of the Eastern Section; Lectures by Section members; Gravity expedition; Rules and Regulations adopted for the Eastern Section; Casualties and damage in principal earthquakes of the United States.

3378. BOIS, Charles, "Sur l'importance des ondes longues et la profondeur du foyer des tremblements de terre," *C.R.*, Tome 203, No. 19, 948-949, bib., Paris, Nov. 9, 1936.

3379. BRYAN, A. B., "True Ground Motion from Mechanical Seismograph Records," *Geophysics*, Vol. 1, No. 3, 340-346, 4 fig., Houston, Oct., 1936.

The author's abstract reads: "Records of several types of ground motion are obtained with two vertical mechanical seismographs of widely different characteristics, mounted on the same base and recorded on the same moving photographic paper. Companion records obtained are shown in one case to yield substantially the same calculated ground motion although the original records are very dissimilar." R.R.B.

- BURIOT-DARSILES, H., "La constitution interne de la terre" (a translation). See No. 3431 of this list.

3380. BYERLY, Perry, and WILSON, James T., "Northern California Earthquakes, April 1, 1934, to December 31, 1935," *Bul. S.S.A.*, Vol. 26, No. 3, 207-213, 1 fig., 2 tab., Berkeley, July, 1936.

3381. CALOI, P., "Studio microsismico del terremoto delle Prealpi Carniche dell'8 giugno 1934," *Bollettino del Comitato per la Geodesia e la Geofisica del Consiglio Nazionale delle Ricerche*, Series 2, Anno 5, No. 4, 209-234, 5 fig., bib., Oct., 1935.

3382. CARDER, Dean S., "Observed Vibrations of Buildings," *Bul. S.S.A.*, Vol. 26, No. 3, 245-277, 25 fig., bib., Berkeley, July, 1936.

3383. CHANT, C. A., "Earthquake Prediction," *Jour. Roy. Ast. Soc. Can.*, No. 260, Vol. 31, 54-55, Toronto, Jan., 1937.

The short note reports a list of earthquakes submitted by E. C. Thrupp of Vancouver in support of his prediction that there would be a peak of seismic stress within ten days of Nov. 1, 1936. See No. 3360 of these lists. Of the eight earthquakes listed, three were not recorded at all on the seismographs at Ottawa. Of the remaining five only one was of major importance. E.A.H.

3384. CHARLESWORTH, J. Kaye, "Geomorphology of the Irish Sea Basin," *Nature*, No. 3503, Vol. 138, 1040-1041, London, Dec. 19, 1936.

3385. CLEMENTS, Thomas, "Experiments on the Fall of Columns," *Bul. S.S.A.*, Vol. 26, No. 3, 229-234, 2 fig., 1 tab., Berkeley, July, 1936.

3386. COMRIE, L. J.,

(1) "Inverse Interpolation and Scientific Applications of the National Accounting Machine," *Supp. Jour. Roy. Statis. Soc.*, Vol. 3, No. 2, 87-114, London, 1936.

L.J.C.

(2) "Scientific Computing Service," Circular of 6 pp., bib., London, 1937.

L.J.C.

The first paper is listed because of the possible application of the machine described for use in interpolation work. In the second paper Dr. Comrie outlines the service in computing which he is offering. The paper is concluded with a list of 20 publications on the use of calculating machines.

E.A.H.

3387. CONRAD, V., "Erdbeben und Luftdruckänderung," *Ger. Bei.*, Bd. 48, Heft 2-3, 239-253, 2 fig., Leipzig, 1936.

See also the paper by Nopcsa reported as No. 3443 of this list.

3388. DAVISON, Charles, "Great Earthquakes," Murby and Co., 286 pp., 12 pl., 97 fig. Price 17s. 6d. London, 1936.

E.T.

A lengthy review, signed H. J., appears on pp. 556-557 of the *Geological Magazine*, No. 870, Vol. 73, London, Dec., 1936. The book deals with sixteen great earthquakes, from the one at Lisbon in 1755 to that at Hawke's Bay in 1931.

F.D.H. + E.T.

3389. DEUTSCHEN GEOPHYSIKALISCHEN GESELLSCHAFT, "Tagung der Deutschen Geophysikalischen Gesellschaft," *Zeit. Geoph.*, Jahr. 12, Heft 5-6, 273-275, Braunschweig, 1936.

Lists the proceedings of the meetings held at Berlin, Oct. 7-10, 1936.

— Dow, Richard B., and BIRCH, Francis, "Compressibility of Rocks and Glasses at High Temperatures and Pressures: Seismological Application." See No. 3374 of this list.

3390. DYK, Karl, "The California Earthquake of April 15, 1928," *Bul. S.S.A.*, Vol. 26, No. 3, 239-244, 1 fig., 1 tab., Berkeley, July, 1936.

3391. EARTHQUAKE RESEARCH INSTITUTE,

(1) "Relative Vertical Displacements of Bench-marks Along the Lines of Levels from Hukuroi to Okitu, from Okitu to Odawara, and from Okitu to Kohu," *Bul. Eq. Res. Inst.*, Vol. 14, Part 3, 481-485, 3 fig., Tokyo, Sept., 1936.

(2) "Relative Vertical Displacements of Bench-marks Along the Line of Levels from Yugawara to Zyoto-mura on the East Coast of the Idu Peninsula," *Ibid.*, 486-488, 1 fig.

Each of these papers is in Japanese with a *résumé* in English.

— EWING, Maurice, "Frequency of Water Waves." See No. 3463 of this list.

3392. FUCHIDA, Takato, "An Experimental Method to Solve the Equation of Motion of the Seismograph," *Bul. Eq. Res. Inst.*, Vol. 14, Part 3, 415-419, 6 fig., Tokyo, Sept., 1936.

3393. GIBBS, Reginald E., and TSIEN, Ling-Chao, "The Production of Piezoelectricity by Torsion," *Phil. Mag.*, No. 146, Vol. 22, 311-322, 6 fig., bib., London, Aug., 1936.

— GOLDTHWAIT, James W., and LYON, Charles J., "An Attempt to Cross-date Trees in Drowned Forests." See No. 3428 of this list.

3394. GOLDTHWAIT, Richard P., "The Damariscotta Shell Heaps and Coastal Stability," *Am. Jour. Sc.*, Vol. 30, 1-13, 3 fig., 1 pl., bib., July, 1935. R.P.G.

3395. GUNN, ROSS, "On the Origin of the Continents and Their Motions," *Jour. Frank. Inst.*, Vol. 222, No. 4, 475-492, bib., Philadelphia, Oct., 1936.

3396. GUTENBERG, B., "On Some Problems Concerning the Seismic Field Methods," *Bei. Angew. Geoph.*, Bd. 6, Heft 2, 125-140, 5 fig., bib., Leipzig, 1936.

3397. GUTENBERG, B., and RICHTER, C. F., "Materials for the Study of Deep-focus Earthquakes," *Bul. S.S.A.*, Vol. 26, No. 4, 341-390, 1 fig., 53 tab., bib., Berkeley, Oct., 1936.

The article includes a graph (28" x 19") of the travel times for the various phases of an earthquake with a focal depth of 400 km.

3398. HAGIWARA, Takahiro, "Observation of the Predominating Periods in the Earthquake Motions at Daiho-mura and Kamiotu-mura, Ibaraki Prefecture," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 599-603, 4 fig., bib., Tokyo, Dec., 1936.

In Japanese with a short *résumé* in English.

— HAGIWARA, Takahiro, OMOTE, Syun-itiro, and NASU, Nobuji, "Studies on Earthquakes in the Kwanto District: Part I." See No. 3438 of this list.

— HAGIWARA, Takahiro, OMOTE, Syun-itiro, and NASU, Nobuji, "Studies on the Propagation of the Artificial Earthquake Waves through Superficial Soil or Sand Layers and the Elasticity of Soil and Sand." See No. 3439 of this list.

3399. HAYES, R. C., "Dominion Observatory (N.Z.): Report on the Activities of the Observatory during the Year Ended 31st December, 1935," *Dom. Obs. (N.Z.) Bul.*, No. 112, 7 pp., 1 map, tab., Wellington, 1936. R.C.H.

3400. HECK, N. H., "The Earthquake Problem," *Scientia*, No. 293-9, Vol. 60, 136-142, bib., Bologna, 1936. N.H.H.

3401. HERMANN et Cie, "Géologie et paléontologie" (a bibliography), 240 pp., Paris, 1936.

The above bibliography contains one section on volcanism and seismology (Sec. I, pp. 69-75). In this section appear the names of some modern authors whose publications have already been listed in this *Bibliography of Seismology*. There are, however, other publications listed which appeared some years ago and which are not entered in these lists. The actual papers, most of them very difficult to obtain, are offered by Hermann and Co., 6, Rue de la Sorbonne, Paris, France, at prices which vary from 8 or 10 to 100 francs.

3402. HERRMANN, H., STÖCKE, K., and UDLUFT, H., "Ground Pressure and Plate-statics Tests on the Elastic Properties of Coal-measure Rocks from Upper-Silesian Mines," *Bei. Angew. Geoph.*, Bd. 6, Heft 2, 206-240, 43 fig., Leipzig, 1936.

This is the second part of the paper. The first part was reported as No. 3079 of these lists.

3403. HIDAKA, K., "Numerical Solution of Fredholm's Integral Equation with a Kernel whose Derivative is Discontinuous," *Geoph. Mag.*, Vol. 10, No. 2, 269-274, 2 fig., Tokyo, Sept., 1936.

3404. HILLER, Wilhelm, "Das Oberschwäbische Erdbeben am 27. Juni 1935," *Württembergische Jahrbücher für Statistik und Landeskunde*, 1934-1935, 209-226, 11 fig., 4 tab., 2 pl., Stuttgart, 1936. W.H.

The paper is divided into three sections. The first deals with the subject: "Die makroseismischen Wirkungen des Erdbebens." Eleven reproductions from photographs, showing damage sustained by various buildings in the epicentral area, illustrate this section. The second section bears the title: "Bearbeitung der instrumentellen Aufzeichnungen." In this connection the author tabulates the instrumental data and deduces the position of the epicentre and the depth of focus. The final section treats of the aftershocks. A large scale map of the epicentral area is added as a plate, supplementing the isoseismal map of the text.

3405. HILLER, Wilhelm, "Seismische Berichte der Württembergischen Erdbebenwarten," *Jahrgang 1935*, 86 pp., 9 fig., Stuttgart, 1936.

The report is divided into two sections—the usual report of earthquake phases, and the appendix (of 23 pp.) describing in greater detail some of the more important earthquakes. Besides the central station records at Stuttgart, the report deals with the data from the subsidiary stations at Ravensburg and Messstetten. The detailed descriptions are concerned with earthquakes which had their epicentres in southwest Germany.

W.H.

- HOLLISTER, J. S., and REED, R. D., "Structural Evolution in Southern California." See No. 3448 of this list.

- HUGHES, J. S., "The International Seismological Summary" (a report on this subject). See No. 3475 of this list.

3406. IDE, John M., "An Experimental Study of the Elastic Properties of Rocks," *Geophysics*, Vol. 1, No. 3, 347-352, 2 tab., bib., Houston, Oct., 1936.

The author's abstract reads: "Laboratory determinations of Young's modulus, rigidity, and compressibility were made on a set of representative rock samples. These measurements are compared with the theoretical relations between the elastic constants of an isotropic medium. Computed longitudinal and transverse wave velocities are compared with direct field measurements by Leet in granite and norite. Agreement is within 5 per cent for norite, and 20 per cent for granite." R.R.B.

3407. IDE, John M., "The Elastic Properties of Rocks: A Correlation of Theory and Experiment," *Proc. Nat. Acad. Sc.*, Vol. 22, No. 8, 482-496, 1 fig., 3 tab., bib., Washington, Aug., 1936.

The above is Paper No. 30, published under the auspices of the Committee on Geophysical Research at Harvard University. D.G.S.H.U.

— IDA, Kumizi, and ISHIMOTO, Mishio,

- (1) "Expériences sur le sol."
- (2) "Determination of Elastic Constants of Soils by Means of Vibration Methods. Part I. Young's Modulus." See No. 3410 of this list.

3408. INOUE, Win, "Notes on the Origins of Earthquakes," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 582-598, 8 fig., bib., Tokyo, Dec., 1936.

3409. ISHIMOTO, Mishio, "Études statistiques sur les séismes observés à Tôkyô depuis 1876," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 610-615, 3 fig., Tokyo, Dec., 1936.

The paper is in Japanese with a short *résumé* in French.

3410. ISHIMOTO, Mishio, and IDA, Kumizi,

- (1) "Expériences sur le sol," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 534-542, 11 fig., 2 tab., bib., Tokyo, Dec., 1936.
- (2) "Determination of Elastic Constants of Soils by Means of Vibration Methods. Part I. Young's Modulus," *Ibid.*, 632-656, 30 fig., 8 tab., bib.

The first paper is in Japanese with a short *résumé* in French; the second is in English with a short *résumé* in Japanese.

3411. JACKSON, Dugald C., "Japanese Higher Education and Research in the Physical Sciences," *Science*, No. 2174, Vol. 84, 189-192, New York, Aug. 28, 1936.

3412. JEFFREYS, Harold, "On the Figures of the Earth and Moon," *M.N., R.A.S.*, Vol. 97, No. 1, 3-15, bib., London, Nov., 1936.

— JEFFREYS, Harold, "Transmission Times." See No. 3475 of this list.

3413. JONGMANS, W. J., "Geologische onderzoekingen voor de Nederlandsche Spoorwegen in Limburg in verband met bodemaafschuivingen (Geological researches for the Dutch railways in the Province of Limburg, in connection with earth slides)," *Spoor- en Tramwegen*, Vol. 4, Nos. 3-6, 62-66, 88-89, 112-114, 145-147, The Hague, Aug.-Sept., 1931.

A review appears in *Geol. Zentralblatt*, Vol. 47, No. 2, 108-109, Berlin, June, 1932. The paper contains communications as to the earth slides of Nov., 1864, Sept. 25, 1892, and those of 1926-1927, for the region indicated. See also the papers by Klink and by Kengen, reported as Nos. 3418 and 3416, respectively, of this list. J.F.S.

— KANAI, Kiyoshi, and SEZAWA, Katsutada,

- (1) "Damping in Seismic Vibrations of a Surface Layer Due to an Obliquely Incident Disturbance."
- (2) "Dissipation Waves Accompanying Forced Seiches in a Bay."
- (3) "The Effect of Stiffness of Floors on the Horizontal Vibrations of a Framed Structure."
- (4) "Energy Dissipation in Seismic Vibrations of Actual Buildings Predicted by Means of an Improved Theory." See No. 3459 of this list.

- KANAI, Kiyoshi, and SEZAWA, Katsutada,
 (1) "Polarization of Elastic Waves Generated from a Plane Source,"
 (2) "Energy Dissipation in Seismic Vibrations on an Eight-storied Structure,"
 (3) "On the Seismic Vibrations of a Gozyunoto (Pagoda)."
 See No. 3460 of this list.
3414. KAWASUMI, Hiroshi, "Theoretical and Experimental Study of Initial Motion of Seismographs and the Quantitative Study of First Impulsion of Earthquake: Part I—Initial Motion of Seismographs Caused by Ground Motion of Shock Type, with Special Reference to a Simple Method of Reducing the First Impulsion of Earthquake Motion," *Bul. Eq. Res. Inst.*, Vol. 14, Part 3, 319-338, 19 fig., bib., Tokyo, Sept., 1936.
3415. KAWASUMI, Hiroshi, and KINOSITA, Zyun'iti, "Theoretical and Experimental Study of Initial Motion of Seismographs and the Quantitative Study of First Impulsion of Earthquake: Part II—An Experimental Study of the Initial Motion of Seismographs Caused by Motions of Short Duration," *Bul. Eq. Res. Inst.*, Vol. 14, Part 3, 337-353, 14 fig., 2 tab., Tokyo, Sept., 1936.
3416. KENGEN, A. C., "Uit Geul's verleden. Wetenswaardigheden van de parochie en gemeente Geul (Of the Past of Geul. Interesting Things Regarding the Parish and Community of Geul.—Limburg, Netherlands)," *Anderdaagsche Courant "Het Zuiden,"* 432 pp., Maastricht, 1926.
 Contains references to the earth slides south of Terhagen, Esloo, Nov., 1864, and of Geul, Sept. 25, 1892 (pp. 18-19). See also the publications by Jongmans and by Klink, reported as Nos. 3413 and 3418, respectively, of this list. J.F.S.
- KIDDER, Arthur D., "Cadastral Surveys." See No. 3463 of this list.
- KINOSITA, Zyun'iti, and KAWASUMI, Hiroshi, "Theoretical and Experimental Study of Initial Motion of Seismographs and the Quantitative Study of First Impulsion of Earthquake: Part II." See No. 3415 of this list.
3417. KISHINOUE, Fuyuhiko, "On the Diurnal Periodicity of Felt Earthquakes," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 604-609, 4 fig., 4 tab., bib., Tokyo, Dec., 1936.
3418. KLINK, D. J., "Grondverschuiving nabij Elsloo, Limb. (Earth slide near Elsloo, Limburg)," *De Ingenieur*, Vol. 42, No. 17, 352-353, Gravenhage, April, 1927.
 An abstract appears in *Geol. Zentralblatt*, Vol. 37, No. 7, p. 336, Berlin, July, 1928. See also the papers by Jongmans and by Kengen, reported as Nos. 3413 and 3416, respectively, of this list. J.F.S.
3419. KLIPSCH, Paul W., "Some Aspects of Multiple Recording in Seismic Prospecting," *Geophysics*, Vol. 1, No. 3, 365-377, 5 fig., bib., Houston, Oct., 1936.
 The author presents data and develops the argument to show that "a large number of geophones per channel is necessary to obtain consistently worthwhile values of gain in signal-to-noise ratio."
3420. KOCH, H. W., and ZELLER, W., "Der Einschwingvorgang bei Erschütterungsmessgeräten," *Zeit. Geoph.*, Jahr. 12, Heft 5-6, 220-228, 6 fig., bib., Braunschweig, 1936.

3421. KOHLSCHÜTTER, E., "Messkarte zur Auflösung sphärischer Dreiecke," Dietrich Reimer, Publisher. Price RM 8. Berlin, 1936.

A review by Heinrich Jung appears on pp. 272-273 of *Zeit. Geoph.*, Jahr. 12, Heft 5-6, Braunschweig, 1936.

3422. KUNO, Hisashi, "On the Displacement of the Tanna Fault since the Pleistocene," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 619-631, 4 fig., bib., Tokyo, Dec., 1936.
3423. LANDSBERG, H., "Remarks on the Diurnal Variation of Earthquake Occurrence with Reference to the Helena, Montana, Swarm," *Bul. S.S.A.*, Vol. 26, No. 3, 235-237. 3 tab., Berkeley, July, 1936.

— LEE, A. W., "The Baffin Bay Earthquake of 1933 November 20." See No. 3475 of this list.

3424. LEE, F. W., THOMSEN, J. R., and WINDES, Stephen L., "Earth Vibrations Caused by Quarry Blasting," U.S. Department of the Interior, Bureau of Mines, Inves. Rep. No. 3319, 19 pp., 11 fig., bib., Washington, 1936.

Describes results of a five year program of the U.S. Bureau of Mines in co-operation with a group of quarry companies who offered their quarries for use in field tests and supplied part of the funds used in the development of the seismometers by the Bureau of Mines.

R.R.B. + F.W.L.

3425. LEETH, Andrew, and SHARPE, J. A., "Deep-focus Earthquakes and Their Geological Significance," *Jour. Geol.*, Vol. 44, No. 8, 877-917, Chicago, Nov.-Dec., 1936.

R.R.B.

3426. LUCA MURO, F. P. de, "Posibilidades del metodo sismico en el estudio de las ondas elasticas reflejadas," *Boletin de Informaciones Petroleras*, No. 140, Ano 13, 25-28, 1 fig., bib., Buenos Aires, April, 1936.

3427. LYNCH, J. J., S.J., "The Geographical Distribution of Deep-focus Earthquakes," *Bul. S.S.A.*, Vol. 26, No. 3, 197-199, 1 fig., Berkeley, July, 1936.

3428. LYON, Charles J., and GOLDTHWAIT, James W., "An Attempt to Cross-date Trees in Drowned Forests," *Geog. Rev.*, Vol. 24, No. 4, 605-614, 6 fig., bib., New York, Oct., 1934.

J.W.G.

3429. MACELWANE, James B., S.J., "Earthquakes" (a review), *Bul. S.S.A.*, Vol. 26, No. 4, 395-396, Berkeley, Oct., 1936.

The book reviewed is that by N. H. Heck, reported as No. 3302 of these lists.

3430. MAINKA, Karl, "Einige Ergebnisse der geophysikalischen Gebirgsschlagforschung," *Bei. Angew. Geoph.*, Bd. 6, Heft 2, 241-258, 7 fig., Leipzig, 1936.

K.M.

3431. MALLADRA, A., "La costituzione interna della terra," *Scientia*, No. 291-7, Vol. 60, 22-27, 2 fig., Bologna, 1936.

A translation into French, by H. Buriot-Darsiles, appears on pp. 10-14 of the Supplement section of the same issue of *Scientia*.

3432. McCOMB, H. E., "Selection and Installation and Operation of Seismographs," *U.S. Coast and Geodetic Survey, Special Publications*, No. 206, 42 pp., 37 fig., bib., 4 tab., Washington, 1936.

This publication may be obtained from the Supt. of Documents, Washington, at the nominal price of 10 cents. The author has analysed the problem indicated by the title and has discussed the way in which it should be solved under various circumstances. All types of seismographs are dealt with, for both teleseismic and strong motion installations. Instruments for seismic prospecting are not included. The treatment is valuable and authoritative, resulting from the wide experience of the author with the various types of installation which he describes. E.A.H.

3433. McCOMB, H. E., and WENNER, Frank, "Shaking Table Investigations of Teleseismic Seismometers," *Bul. S.S.A.*, Vol. 26, No. 4, 291-316, 23 fig., Berkeley, Oct., 1936.

— McCOMB, H. E., and WENNER, Frank, "The Galitzin Seismometer: Discrepancies Between the Galitzin Theory and the Performance of a Wilip-Galitzin Seismometer." See No. 3474 of this list.

3434. MITSUI GEOPHYSICAL OBSERVATORY, "Reports of Geophysical Observations": No. 1, Apr. 12-Dec. 31, 1933, 4 pp., 1 map, 5 pl.; No. 2, Jan. 1-June 30, 1934, 17 pp., 27 fig., 8 pl.; Susaki, Siduoka-ken, Japan, 1936.

This new series of seismological reports is elaborately printed with reproductions of important seismograms. It is proposed to issue the report twice a year.

3435. MIYABE, Naomi, "On the Degree of Disturbance of the Earth's Crust," *Bul. Eq. Res. Inst.*, Vol. 14, Part 3, 387-398, 13 fig., 3 tab., bib., Tokyo, Sept., 1936.

3436. MIYABE, Naomi,

(1) "Preliminary Notes on Experimental Studies on the Plastic Deformation of Soil," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 543-552, 14 fig., 2 tab., bib., Tokyo, Dec., 1936.

(2) "Experimental Studies on the Deformation of Sand Masses due to Vertical Loads, I," *Ibid.*, 553-559, 10 fig., 3 tab., bib.

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- (1) "Recent Earthquakes in California," No. 3500, p. 936, Nov. 28.
- (2) "Temperature Measurements in Oil Wells," No. 3502, pp. 1020-1021, Dec. 12.
- (3) "Distribution of Earthquakes in the Kwanto (Japan) District," No. 3503, p. 1063, Dec. 19.

3441. **NATURE.** The following items of interest to seismologists have appeared in recent numbers of Vol. 139 of the above periodical (London, 1937), as follows:

- (1) "Salvador Earthquake of December 20," No. 3505, pp. 19-20, Jan. 2.
- (2) "Earthquake in Kent on December 29," No. 3506, pp. 64-65, Jan. 9.
- (3) "Tibet Earthquake of January 7," No. 3507, pp. 106-107, Jan. 16.

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See also the paper by Conrad reported as No. 3387 of this list.

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— RANSONE, K., and ROSAIRE, E. E., "The Growth of Company Owned Operations in Gulf Coast Geophysical Prospecting since July, 1930." See No. 3450 of this list.

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3451. ROTHÉ, E., "Circular Ishimoto." Circular issued by E. Rothé, Secretary of the Association of Seismology of the International Union of Geodesy and Geophysics, 10 pp., Strasbourg, Oct., 1935.

This circular quotes a letter circulated by Mishio Ishimoto, Director of the Earthquake Research Institute, Tokyo, suggesting that stations amplify their monthly reports with a view to interpretation of the mechanism of an earthquake from its records. The replies of various countries to this proposal are summarized and the whole distributed to facilitate discussion at the Edinburgh meeting.

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3454. SCIENCE. The following short notes of interest to seismologists have appeared in recent issues of Vol. 84 of the above periodical (New York, 1936):

(1) "The International Union of Geodesy and Geophysics," No. 2178, p. 283, Sept. 25.

A notice regarding the Edinburgh meeting and a list of the delegates expected from the United States.

(2) "The Indian Journal *Current Science*," No. 2186, p. 452, Nov. 20.

(3) "The Exact Shape of the Earth," Supp. p. 8, No. 2187, Nov. 27.

3455. SCIENCE NEWS-LETTER. The following item of interest to seismologists has appeared in a recent issue of Vol. 30 of the above periodical (Washington, 1936): "Roads are not all Asphalt," No. 818, 378-380, 2 fig., Dec. 12.

Contains a reference to the use of seismographs to determine the depth of overburden in road building. In the same connection see an abstract, signed R.H.O. and entitled, "Sound Wave Timing Locates Underground Rock," appearing on page 522, *Journal Franklin Institute* (Vol. 222, No. 4, Philadelphia, Oct., 1936), which reports a description of the same methods published in *Construction Methods*, Vol. 18, No. 7.

3456. SCIENCE NEWS-LETTER. The following items of interest to seismologists have appeared in recent issues of Vol. 31 of the above periodical (Washington, 1937):

- (1) "Swamp Buggy," No. 821, p. 3, 1 fig., Jan. 2.
- (2) "Quake Records 'Fuzzed' so Epicentre is Mystery," *Ibid.*, p. 13.
- (3) "Scientists Find 'Lost' Earthquake in Tibet," No. 823, p. 40, Jan. 16.
- (4) "Device Splits a Second into 100,000 Parts," *Ibid.*, p. 41.

3457. SEISMOLOGICAL SOCIETY OF AMERICA, "The Earthquake Problem: What Can We Do?" *Bul. S.S.A.*, Vol. 26, No. 3, 279-282, 3 fig., Berkeley, July, 1936.

In the same issue of the *Bulletin*, p. 287, is an obituary of the late Conrad Schlumberger who died at Stockholm, Sweden, on May 9, 1936.

On pp. 288-289 of the same issue appear the minutes (together with a list of the papers presented) of the meeting of the Seismological Society of America at Saint Louis, December 30-31, 1935, and of the meeting of the same Society at Pasadena, Cal., April 17-18, 1936.

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- (2) "Dissipation Waves Accompanying Forced Seiches in a Bay," *Ibid.*, 360-366, 2 fig., bib.
- (3) "The Effect of Stiffness of Floors on the Horizontal Vibrations of a Framed Structure," *Ibid.*, 367-376, 6 fig., bib.
- (4) "Energy Dissipation in Seismic Vibrations of Actual Buildings Predicted by Means of an Improved Theory," *Ibid.*, 377-386, 4 fig., bib. K.S.

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- (1) "Polarization of Elastic Waves Generated from a Plane Source," *Bul. Eq. Res. Inst.*, Vol. 14, Part 4, 489-505, 18 fig., bib., Tokyo, Dec., 1936.
- (2) "Energy Dissipation in Seismic Vibrations of an Eight-storied Structure," *Ibid.*, 514-524, 3 fig., bib.
- (4) "On the Seismic Vibrations of a Gozyunoto (Pagoda)," *Ibid.*, 525-533, 5 fig., bib.

— SHARPE, J. A., and LEITH, Andrew, "Deep-focus Earthquakes and Their Geological Significance." See No. 3425 of this list.

— SHEPARD, FRANCIS P., and WANLESS, Harold R., "Sea Level and Climatic Changes Related to Late Paleozoic Cycles." See No. 3473 of this list.

3461. SLOTNICK, M. M.,

- (1) "On Seismic Computations with Applications, II," *Geophysics*, Vol. 1, No. 3, 299-305, 4 fig., Houston, Oct., 1936.

The first part of this paper was reported as No. 3239 of these lists. The author discusses the travel times and other similar properties of the wave paths in a medium in which the seismic velocity is an integral function of the depth. In the second part, reported above, the discussion is extended to consider similar properties of the waves from a point on the surface to a point in a "well" in such a medium. R.R.B.

- (2) "A Simplified Circuit of the Seismic Electric Method and Its Steady-state Solution," *Ibid.*, 336-339 1 fig.

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— STONELEY, R., "Surface Waves." See No. 3475 of this list.

3463. SWAINSON, O. W., "The Velocity and Ray Paths of Sound Waves in Sea Water," *U.S. Coast and Geodetic Survey, Field Engineer's Bulletin*, No. 10, 64 pp., 34 fig., Washington, 1936.

The above constitutes a report of the experiments conducted by the ships, *Guide* and *Pioneer*, in the Santa Barbara basin in 1935, for the purpose of extending the accuracy of radio acoustic ranging. Short reports are included by Maurice Ewing on, "Frequency of Water Waves," (p. 65, 1 fig.) and by Arthur D. Kidder on, "Cadastral Surveys" (pp. 66-68). P.E.S. + R.R.B.

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The author's abstract reads: "The seismic electric effect is the name which has been given to the variation of earth resistivity with elastic deformation. An account is given of the use of this effect in recording seismic waves. The recording circuit employs a direct current sent through the ground by means of a storage battery and

spaced electrodes, and the changes in current due to seismic disturbances are recorded. An analysis of the noise appearing in the recording circuit is given and methods of reducing the noise level are described. The results of measurements on the magnitude of the effect are given, and the sensitivity obtained with the seismic electric method is compared with that given by an electromagnetic pickup."

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3469. UNITED STATES COAST AND GEODETIC SURVEY,

- (1) "Preliminary Report on the Distribution of Intensity in the Major Earthquakes at Helena, Montana, in October, 1935." Mimeographed, 4 pp., map with isoseismals, Washington, 1936. N.H.H.
- (2) "Preliminary Report on the Earthquake of November 1, 1935." Mimeographed, 4 pp., map with isoseismals (in U.S. only), Washington, 1936. N.H.H.

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- (1) "Over de Cepaling van de epicentra van aardbevingen in Nederlandsch-Indië (On the location of the epicentres of earthquakes in the Dutch East Indies)," *Verslagen der Geologische Sectie van het Geologisch-Meijnbouwkundig Genootschap voor Nederland en Koloniën*, Vol. 3, 151-154, The Hague, 1919-1936.

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- (2) "Aardbevingen met zeer diepenhaard (Earthquakes with very deep focus—deep-focus earthquakes)," *Verslag van het verhandelde in de sectie vergaderingen en de algemeene vergadering van het Provinciaal Utrechtsch Genootschap voor Kunder en Wetenschappen gehouden Utrecht, den 3 en 2 en Juni 1936*, 46-49, Utrecht, 1936.

Read on June 2, 1936, at Utrecht. Contains communications concerning the earthquakes with very deep focus (Turner, 1921; Wadati, 1929) and their properties; their geographical distribution; the theory of Holmes as to the cause of the appearance of earthquakes at great depths. J.F.S.

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3474. WENNER, Frank, and McCOMB, H. E., "The Galitzin Seismometer: Discrepancies Between the Galitzin Theory and the Performance of a Wilip-Galitzin Seismometer," *Bul. S.S.A.*, Vol. 26, No. 4, 317-322, 1 fig., Berkeley, Oct., 1936.

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3475. WHIPPLE, F. J. W., *et al.*, "Seismological Investigations." Reprinted from the *Forty-first Annual Report of the Committee on Seismological Investigations of the British Association for the Advancement of Science, Blackpool Meeting, 1936*, 7 pp., London, 1936.

The report begins with the usual accounting, followed by short notes: Seismographs, British Earthquakes, Montserrat. Somewhat longer discussions are then given by various authors: "The International Seismological Summary," by J. S. Hughes; "Transmission Times," by Harold Jeffreys; "Very Long Seismic Waves," by the Editor; "Surface Waves," by R. Stoneley; and "The Baffin Bay Earthquake of 1933 November 20," by A. W. Lee.

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The author's abstract reads, in part, as follows: "In seismic exploration it is assumed that elastic waves can be refracted into and out of a high speed medium at the angle of total reflection and meanwhile travel along the interface between the two media. That such a path is in agreement with the general theory of elastic waves has been proved by Muskat. The present paper is an extension of the work of Mus-

kat, and shows in addition that the general theory can explain the low amplitude and low frequencies of these refracted waves, and is otherwise in agreement with observation." R.R.B.

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