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— MIYABE, N., and TERADA, T., "Crustal Deformation along the Line of Levels from Miyako to Aomori." See No. 3249 of this list.

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— MORGAN, C. C., "Geophysical Studies in Antarctica" (title only). See No. 3240 of this list.

— MURPHY, Paul R., "The Diagnostic Value of Fault and Vein Intersections in Determining Regional Deformation" (abstract). See No. 3152 of this list.

3211. NASU, Nobuji, and HAGIWARA, Takahiro,

- (1) "The Kawati-Yamato Earthquake of February 21st, 1936," *Bul. Eq. Res. Inst.*, Vol. 14, Part 2, 285-289, 1 fig., 2 tab., Tokyo, June, 1936.
- (2) "Determination of the Proper Periods of the Ground in Osaka," *Ibid.*, 290-296, 5 fig.

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- (1) "Destructive Earthquakes of 1935," No. 3475, p. 955, June 6. F.D.H.
- (2) "Locating Underground Rock by Sound Waves," *Ibid.*
- (3) "Crustal Deformations in Japan," No. 3476, p. 1000, June 13.

3213. NATURE. The following items of interest to seismologists have appeared recently in Vol. 138 of the above periodical (London, 1936):

- (1) "Earthquake Records at De Bilt, Holland," No. 3481, p. 109, July 18.
- (2) "The Japanese Earthquake of February 21, 1936," No. 3482, p. 171, July 25.
- (3) "Lunar Periodicity of Earthquakes," No. 3483, p. 209, Aug. 1.

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3218. PASTOR, A. Rey,

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- (2) "Datos sísmicos de la península Ibérica: 1^{er} trimestre de 1935," *Ibérica*, Vol. 44, Nos. 1092-1097, 6 pp. in reprint, 3 fig., bib., Barcelona, Nov. 2-Dec. 7, 1935.
- (3) "Datos sísmicos de la península Ibérica: 2^o trimestre de 1935," *Ibid.*, Vol. 45, No. 1106, 3 pp. in reprint, 2 fig., 1 tab., bib., Feb. 8, 1936.
- (4) "Datos sísmicos de la península Ibérica: 3^{er} trimestre de 1935," *Ibid.*, No. 1115, 3 pp. in reprint, 2 fig., 1 tab., bib., Apr. 11, 1936. A.R.P.

3219. PATENTS. The following patents of interest to seismologists are reported in *Geophysical Abstracts* (see No. 3199 of this list). Of the three numbers in brackets following each entry below, the first indicates the serial number of the *Abstracts* in which it is reported, the second the abstract number, and the third the page of the issue reporting it.

- (1) TURNER, Edwin E., Jr., "Method and Apparatus for Measuring Depths." U.S. Patent No. 2,033,160, Mar. 10, 1936. (84, 3140, 1804.)

(2) McCOLLUM, Burton, "Seismic Method for Profiling Geologic Formations." U.S. Patent No. 2,021,943, Nov. 26, 1935. (85, 3183, 1826.)

(3) SUBMARINE SIGNAL Co., "Improvements in Apparatus for Distance and Depth Measurements." British Patent No. 434,554, Sept. 4, 1935. (85, 3187, 1827.)

— PATRICK, H. G., "Regional Geophysical Activities for 1935" (West Texas and Southeastern New Mexico). See No. 3172 of this list.

3220. PERRI, Emilio, "Considerazioni sulle vibrazioni del suolo e dei fabbricati," *Bol. Soc. Sis. Ital.*, Vol. 34, No. 1-2, 20-34, 6 fig., bib., Rome, 1936.

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— RANSONE, K., and ROSAIRE, E. E., "Regional Geophysical Activities for 1935" (Gulf Coast—Southeast Texas and South Louisiana). See No. 3172 of this list.

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3222. RIEBER, F., "A New Reflection System with Controlled Directional Sensitivity," *Geoph.*, Vol. 1, No. 1, 97-106, 8 fig., Houston, Jan., 1936. R.R.B.

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— ROSAIRE, E. E., and RANSONE, K., "Regional Geophysical Activities for 1935" (Gulf Coast—Southeast Texas and South Louisiana). See No. 3172 of this list.

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— SCHERB, Ivan, "Earthquake of October 23, 1935, San Bernardino County, California" (abstract). See No. 3152 of this list.

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- (2) "Shaking Table Experiments at Massachusetts Institute of Technology," fourth paragraph, first column, p. 510, No. 2161, May 29.
- (3) "Solomon Islands Earthquake, May 19, 1936," *Ibid.*, p. 11 (Supp.)
- (4) "Dr. Jaggar to Visit Montserrat," No. 2162, p. 548, June 5.

3230. SCIENCE. The following notes of interest to seismologists appear in recent issues of Vol. 84 of the above periodical (New York, 1936):

- (1) "Japanese Earthquakes," No. 2167, p. 8 (Supp.), July 10.
- (2) "Volcanic Activity on the Island of Montserrat," No. 2168, p. 7 (Supp.), July 17.

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- (1) "New Instrument Predicts Mine Roof Cave-ins," No. 786, p. 289, May 2, 1936.
- (2) "Earthquake Shakes Honduran Seacoast," No. 787, p. 301, May 9, 1936.
- (3) "124 Earth Tremors in 10 Days at Mt. Lassen," No. 790, p. 348, May 30, 1936.
- (4) "Earthquakes Belong to Two Different Families," *Ibid.*, p. 348.

- (5) "Violent Earthquake Centered in Northern Part of India," No. 791, p. 363, June 6, 1936.
- (6) "Earthquake Recorded from Solomon Islands," *Ibid.*
- (7) "Earth Writes of Tragedy," *Ibid.*, 1 fig.
- (8) "Pacific Ocean Bottom Has Its Own 'Lost' Quake," *Ibid.*
- (9) "Quake off Pacific Coast of Northern California," No. 792, p. 380, June 13, 1936.
- (10) "Used Plane to Hunt Quake Located by Seismograph," No. 793, p. 402, June 20, 1936.

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- (1) "Three Vast Submarine Canyons Found off Atlantic Coast," No. 795, p. 6, July 4, 1936.
- (2) "Quake North of Japan Recorded by Instruments," No. 796, p. 25, July 11, 1936.

3233. SCIENTIFIC AMERICAN, "Sound Waves Locate Underground Rock," Vol. 154, No. 5, p. 271, 1 fig., New York, May, 1936. F.D.H.

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- (2) "Elastic Waves Formed by Local Stress Changes of Different Rapidities," *Ibid.*, 10-17, 4 fig.
- (3) "Energy Dissipation in Seismic Vibrations of Actual Buildings of Unlike Structure," *Ibid.*, 119-133, 10 fig., 7 tab.
- (4) "Energy Dissipation in Seismic Vibrations of a Six-storied Structure. Coincidence of Resonance and Corresonance," *Ibid.*, 134-145, 3 fig., bib. K.S.

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- (1) "The Nature of Transverse Waves Transmitted Through a Discontinuity Layer," *Bul. Eq. Res. Inst.*, Vol. 14, Part 2, 157-163, 3 fig., bib., Tokyo, June, 1936.
- (2) "Improved Theory of Energy Dissipation in Seismic Vibrations of a Structure," *Ibid.*, 164-188, bib.
- (3) "Energy Dissipation in Seismic Vibrations of a Seven-storied Structure. Nature of Corresonance," *Ibid.*, 189-200, 4 fig., 1 tab., bib. K.S.

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— SHARPE, J. A., "Instrumental Determination of the Extent of the Focal Region of an Earthquake" (abstract). See No. 3152 of this list.

3238. SHEPARD, F. P., "Submerged Valleys on Continental Slopes and Changes of Sea Level," *Science*, No. 2165, Vol. 83, 620-621, bib., New York, June 26, 1936.

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— SLOTNICK, M. M., "On Seismic Computations, II," and "A Simplified Circuit of the Seismic-Electric Method and its Steady State Solution" (titles only). See No. 3240 of this list.

— SMITH, G. H., and JOHNSON, N. G., "Explosives for Seismic Prospecting" (title only). See No. 3240 of this list.

3240. SOCIETY OF PETROLEUM GEOPHYSICISTS. At the meeting of the above society, held at Tulsa, March 19-21, 1936, the following papers of particular interest to seismologists were presented:

- (1) GUTENBERG, B., "Some Theoretical Problems, Concerning the Seismic Method."
- (2) SLOTNICK, M. M., "On Seismic Computations, II."
- (3) BURBOWS, L. A., "Relation between Firing Current and Performance in Seismograph Caps."
- (4) LEET, L. DON, "Refraction and Reflection Fan to 187.8 km."
- (5) WEATHERBY, B. B., "The Organization of an Effective Exploration Department."
- (6) VAN ORSTRAND, C. E., "Geothermal Methods of Estimating the Age of the Earth."
- (7) RIEBER, F., "Controlled Directional Sensitivity; a Method for Adapting Reflection Methods to Complex Structures."
- (8) MACELWANE, J. B., S.J., "Absolute and Relative Energy Relations in Reflection and Refraction of Elastic Waves."
- (9) KLIPSCH, P. W., "Some Aspects of Multiple Recording."
- (10) BRYAN, A. B., "True Ground Motion from Mechanical Seismograph Records."
- (11) IDE, J. M., "Laboratory Determination of Elastic Constants."
- (12) FAUST, L. Y., "Optimum Geophone Spreads for Reflection Surveys."
- (13) HEILAND, C. A., "Notes on Reflections from Steeply Dipping Beds."
- (14) BARAD, J., "Significance of Some Fundamental Properties of Explosives with Special Reference to Geophysical Prospecting."
- (15) THOMPSON, R. R., "The Seismic-Electric Effect; Its Use in Recording Seismic Waves."
- (16) SLOTNICK, M. M., "A Simplified Circuit of the Seismic-Electric Method and its Steady State Solution."
- (17) JOHNSON, N. G., and SMITH, G. H., "Explosives for Seismic Prospecting."
- (18) LEET, L. DON, "True Horizontal Displacements near a Five-ton Blast."

(19) MORGAN, C. C., "Geophysical Studies in Antarctica."

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3242. SOUTHWELL, R. V., "An Introduction to the Theory of Elasticity for Engineers and Physicists." Oxford University (Clarendon) Press, ix+510 pp. Price 30s. net. London, 1936.

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3243. STAUSS, H. E., "The Cooling of the Earth as a Problem in Metallurgy," *Sc. Month.*, Vol. 42, No. 4, 371-373, New York, Apr., 1936.

— STILES, M. E., and ROSAIRE, E. E., "Exploration on the Gulf Coast, to 1936." See No. 3224 of this list.

3244. STILLE, Hans, "The Present Tectonic State of the Earth," *Bul. Amer. Ass. Pet. Geol.*, Vol. 20, No. 7, 849-880, 2 fig., bib., Tulsa, July, 1936.

3245. STOCKDALE, Paris B., "Montlake—An Amazing Sinkhole," *Jour. Geol.*, Vol. 44, No. 4, 515-522, 3 fig., 1 tab., Chicago, May-June, 1936.

3246. SWEET, H. A., "Elevated Tanks in Earthquakes," *Eng. N.-R.*, Vol. 117, No. 3, 94-95, New York, July 16, 1936.

See also p. 97 of same issue for editorial comment under the heading "Earthquake-proof Tank Towers."

3247. TAMS, E., "Die neuen Schweremessungen auf dem Meere und ihre Deutung (Schwere-Expeditionen 1923 bis 1932)," *Zeit. Geoph.*, Jahr. 11, Heft 4-5, 235-246, 6 fig., bib., Braunschweig, 1935. E. Tams.

3248. TAYAMA, Risaburo, "Landslide in Dainenzi Hill, Sendai," *Bul. Eq. Res. Inst.*, Vol. 14, Part 2, 271-284, 18 fig., Tokyo, June, 1936.

The paper is in Japanese with a short abstract in English.

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— THOMPSON, R. R., "The Seismic-Electric Effect; Its Use in Recording Seismic Waves" (title only). See No. 3240 of this list.

3250. TIBBETTS, F. H., "Earthquake-Proof Earth Dams," *Eng. N.-R.*, Vol. 117, No. 1, 10-13, 4 fig., New York, July 2, 1936.

Five storage dams on water-deposited soils over the shattered and shaken bed rock between the historic San Andreas and Hayward faults in California have earthquake resisting sections.

See also editorial comment on p. 24 of same issue of *Eng. N.-R.* On p. 96 of the issue of this periodical for July 16 (No. 3) is an editorial note under the heading "For Safe Dams" which indicates that a recent survey of dams in California has found that about a third of them are in need of repair. The question "Are Our Dams Safe?" is raised on the title page of Vol. 117, No. 2, *Eng. N.-R.*, July 9, 1936.

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3252. TOYOOKA OBSERVATORY, "The Observation of the Tilting of the Earth Crust at the Toyooka Observatory," *Seis. Bull. Kobe*, Vol. 10, No. 4, 184-185, 2 pl., Kobe, May, 1936.

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3254. TYCOS,

(1) "Earthquake Predictors Being Tested," *Tycos* (Organ of Taylor Instrument Companies), Vol. 25, No. 2, p. 74, Rochester, 1935.

(2) "Seismogram of Indian Quake," *Ibid.*, No. 3, p. 111, 1 fig., 1935.

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— UHRIG, L., PYE, W., and SCHAFER, S., "Earthquake of February 26, 1932" (abstract). See No. 3152 of this list.

3255. ULLER, Karl, "Die Entwicklung des Wellen-Begriffes, IX," *Ger. Bei.*, Bd. 47, Heft 3, 299-320, 2 fig., bib., Leipzig, 1936.

— ULRICH, Franklin P., "Helena Earthquakes," and "Progress Report of California Seismological Program" (abstracts). See No. 3152 of this list.

— VAN ORSTRAND, C. E., "Geothermal Methods of Estimating the Age of the Earth" (title only). See No. 3240 of this list.

3256. VISSER, S. W.,

(1) "Aardbevingen en getijden te Amboina in 1932," *Natuur. Tijd.*, Vol. 93, 143-147, Batavia, 1933.

(2) "Vulkanische verschijnselen en Aardbevingen in den O. I. Archipel dedurende het jaar 1932," *Ibid.*, 183-229.

3257. VISSER, S. W., "Some Remarks on the Deep-focus Earthquakes in the International Seismological Summary," *Ger. Bei.*, Bd. 47, Heft 3, 321-332, 4 fig., 8 tab., bib., Leipzig, 1936.

3258. WADE, Arthur, "New Theory of Continental Spreading" (revision note), *Bul. Amer. Ass. Pet. Geol.*, Vol. 20, No. 3, p. 317, Tulsa, Mar., 1936.

The revisions apply to the paper reported as No. 3032 of these lists.

3259. WAILES, C. D., "Behavior of Structures During the Helena Earthquake," *Build. Stand. Month.*, Vol. 4, No. 10, 3-6, 2 fig., Los Angeles, Dec., 1935. B.S.M.

— WAILES, C. D., "Investigation of Damage to Buildings in Helena, Montana, Following Earthquakes of October, 1935" (abstract). See No. 3152 of this list.

— WASHBURN, H. Bradford, Jr., "The Harvard-Dartmouth Alaskan Expeditions, 1933-1934." See No. 3173 of this list.

— WEATHERBY, B. B., "The Organization of an Effective Exploration Department" (title only). See No. 3240 of this list.

3260. WESTLAND, A. J., S.J., "A Comparison of Old and New Methods in the Analysis of the September 9, 1931, Earthquake," *Bul. S.S.A.*, Vol. 26, No. 2, 119-124, 3 fig., Berkeley, Apr., 1936.

3261. WHIPPLE, F. J. W., "On the Theory of the Strains in an Elastic Solid Bounded by a Plane when There is a Nucleus of Strain at an Internal Point, and on the Relation of the Theory to Seismology," *M.N., Geoph. Sup.*, Vol. 3, No. 9, 380-388, 2 fig., bib., London, Apr., 1936. E.T.

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— WILSON, John H., "Regional Geophysical Activities for 1935" (Rocky Mountain Region, Arizona, Colorado, Idaho, Montana, Nevada, North Dakota, South Dakota, Utah, Wyoming). See No. 3172 of this list.

3263. WINDHAUSEN, Heriberto, "Que es y que hace la Seccion Sismografica de la Comision Geofisica de Y P F?," *Boletin de Informaciones Petroleras*, Año 12, No. 133, 21-45, 20 fig., Buenos Aires, Sept., 1935.

3264. WOOD, Harry O., and GUTENBERG, B., "Earthquake Prediction," *Science*, No. 2123, Vol. 82, 219-220, New York, Sept. 6, 1935. B.G.

3265. YAMAGUTI, Seiti, "Relation between Earthquakes and Precipitation, Barometric Pressure, and Temperature. A Supplementary Note," *Bul. Eq. Res. Inst.*, Vol. 14, Part 2, 235-239, 3 fig., 3 tab., bib., Tokyo, June, 1936.

3266. ZANON, Francesco Saverio, "I cicloni dell'Atlantico settentrionale e i microsismi a Venezia," *Bol. Soc. Sis. Ital.*, Vol. 34, No. 1-2, 35-53, 2 fig., tab., Rome, 1936.

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