

OCT 6 - 1930

DEPARTMENT OF THE INTERIOR  
CANADA

HON. THOMAS G. MURPHY, *Minister*

W. W. CORY, C.M.G., *Deputy Minister*

---

PUBLICATIONS  
OF THE  
**Dominion Observatory**  
OTTAWA

R. MELDRUM STEWART, *Director*

Vol. X

**Bibliography of Seismology**

No. 6

APRIL, MAY, JUNE, 1930

BY

ERNEST A. HODGSON

---

OTTAWA  
F. A. ACLAND  
PRINTED TO THE KING'S MOST EXCELLENT MAJESTY  
1930

*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.

DEPARTMENT OF THE INTERIOR  
CANADA

HON. THOMAS G. MURPHY, *Minister*

W. W. CORY, C.M.G., *Deputy Minister*

---

PUBLICATIONS  
OF THE  
**Dominion Observatory**  
OTTAWA

R. MELDRUM STEWART, *Director*

Vol. X

**Bibliography of Seismology**

No. 6

APRIL, MAY, JUNE, 1930

BY

ERNEST A. HODGSON

---

OTTAWA  
F. A. AUSTIN  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1930

GEOLOGICAL SURVEY  
OF CANADA

DEPARTMENT OF THE INTERIOR

PUBLICATIONS

Geological Observations

OTTAWA

Bibliography of Geology

LIBRARY  
GEOLOGICAL SURVEY  
OF CANADA

# Bibliography of Seismology

April, May, June, 1930

501. AGOSTINO, José, "The Earthquake in the Azores Islands, on August 31st, 1926," *Zeitschrift für Vulkanologie*, 10, 268-272, Berlin, 1927.
502. BAILLAUD, René, "Séismes et coups de toit," *Comptes rendus de l'Académie des Sciences*, 190, No. 8, 508-510, Paris, February 24, 1930. R.R.B.
503. BARTON, Donald C., "Geophysical Prospecting for Oil," *Bulletin of the American Association of Petroleum Geologists*, 14, No. 2, 201-226, Tulsa, February, 1930.  
The author's abstract reads: "Geophysical prospecting for petroleum strictly is an indirect method of mapping geologic structure. In it, three successive steps can be recognized in all of the methods: (1) mapping of the areal variation of some physical effect at the surface; (2) the determination of the subsurface distribution of some physical property producing the surface effect; (3) the interpretation of the geologic situation corresponding with the distribution of that physical property. The methods have their limitations through the incomplete concordance between structure and the distribution of these physical properties, lack of knowledge of the geophysical constants of formations, inexperience, and erroneous geologic information. There is a bare possibility of the direct determination of the presence of petroleum by the electric method. Although the positive value of geophysical methods has been demonstrated, they are no panacea for all the difficulties in prospecting for oil." L.D.L.
- BASKAKOV, V. K., SABININA, A. D., and BONCHKOVSKI, V. E., "Bulletin géophysique, etc." See No. 507 of this list.
504. BELLUIGI, Arnaldo, "Le onde miste e l'ottica dei raggi sismici," *Gerlands Beiträge zur Geophysik*, 23, Heft 3, 233-236, Leipzig, 1929.
505. BODLE, R. R., "Earthquake Notes," Published in mimeographed form by the Eastern Section of the Seismological Society of America, 1, No. 3, 12 pages, Washington, February 10, 1930.
506. BONCHIKOVSKI, B. F., "A Course of Seismophysics," Vitagraph copy of a course of lectures delivered by the author at the First Moscow State University. (In Russian). N.V.R.
507. BONCHKOVSKI, V. E., BASKAKOV, V. K., and SABININA, A. D., "Bulletin géophysique de l'Institut de Recherches géophysiques," *Publications of the Department of Seismology, Geophysical Observatory at Kuchino*, No. 5, 30-45, 10 figures, 1925.  
A description of the first-class station at Kučino (near Moscow) inaugurated in September, 1923. Some results of observations are given (in particular with respect to microseismic motion). (In Russian). N.V.R.
508. BOWIE, William, "The Status and Importance of Isostasy," *Mining and Metallurgy*, No. 278, 11, 93-95, New York, February, 1930.  
This paper was presented before the Geophysical Prospecting Committee; Annual Meeting, American Institute of Mining and Metallurgical Engineers, New York, February, 1930.



509. BOWIE, William, "Crustal Changes Due to Moon's Formation," *Gerlands Beiträge zur Geophysik*, 25, Heft 2, 137-144, Leipzig, 1930.
510. CASTAN, A., "Mesure du module d'Young de quelques substances minérales par la méthode de percussion," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 80-84, Strasbourg, 1929.
511. CONRAD, V., "Existiert eine dritteltägige Häufigkeitsschwankung der Erdbeben," *Gerlands Beiträge zur Geophysik*, 24, Heft 2-3, 81-82, Leipzig, 1929.
512. CONRAD, V., "Einsätze in Fernbebendiagrammen," *Gerlands Beiträge zur Geophysik*, 24, Heft 4, 353-362, Leipzig, 1929.

The author's English abstract reads as follows: "It is possible to find a distance for the epicentre of the New Zealand quake of June 16th by a quite simple calculation method of approximation which shows the best concordance between the observed impetus-times and the times calculated by means of all the time-distance-curves given by Gutenberg in the "Frankfurter Laufzeitkurven." The possibility of finding such an optimum distance confirms the assumptions as to the constitution of the interior of the earth which are taken as the basis of the calculation of the time-distance-curves and fix thus the paths and velocities of the waves".

513. CONRAD, V., "Bemerkungen zum Neuseelandbeben vom 16. Juni 1929," *Zeitschrift für Geophysik*, 5, Heft 5-6, 253-254, Göttingen, 1929.
514. DAY, Arthur L., et al., "Report of the Advisory Committee on Seismology," Carnegie Institution of Washington, Year Book No. 28, 416-424, Washington, 1929.
515. DEGREYERZ, P., "Le fonds suisse de secours en cas de dommages non assurables," *Matériaux pour l'Etude des Calamités*, No. 19, 3, 197-212, Geneva, 1929.
516. EWING, Maurice and LEET, L. Don, "Seismic Propagation Paths," *American Institute of Mining and Metallurgical Engineers*, Technical Publication No. 267, Class L, Geophysical Prospecting, No. 16, 18 pages, New York, 1930.

The paper discusses the path of the seismic ray assuming that wave velocities increase as a continuous linear function of the depth. Formulas are derived for computing, from two time-distance observations, the amount of velocity increase, depth of penetration, and a graphical determination of the path of the vibrations. The ground, reflected and refracted waves are discussed. The application of the formulas is illustrated numerically.

L.D.L.

517. FERRAR, H. T. and GRANGE, L. I., "Geological Reconnaissance in the Murchison Earthquake Area," *New Zealand Journal of Science and Technology*, 11, No. 3, 185-191, Wellington, 1929.
- A.S.M.

The paper is illustrated by means of four photographs and a map, the latter showing geological faults and the epicentres of recorded severe earthquakes.

518. FEVRE, Jean, "Les travaux de prospection en Pologne," *La Revue Pétrolière*, No. 353, 9-10, Paris, 1930.

The following brief abstract by W. Ayvazoglou is taken from *Geophysical Abstracts* No. 10 (see No. 549 of this list). "The addition of geophysical methods of prospecting to the prospection work in Poland has been decided upon, and first investigations have been started in the region between the Stryj and Swica, to the north and south of the Daszawa. The seismic method has been adopted. The results obtained from the work carried on during the summer and the fall will be published in the near future."

F.W.L.

519. FLEMING, Jno. A., et al., "Minutes of the Tenth Annual Meeting, American Geophysical Union," National Research Council, U.S.A., 24 pages, Washington, 1929.

The publication is in mimeographed form with a printed cover sheet. It reports the Minutes of the General Assembly of the Union and of the Sessions of its Sections, April 25, 26, 1929.

520. FYFE, H. E., "Movement on White Creek Fault, New Zealand, During the Murchison Earthquake of 17th June, 1929," *New Zealand Journal of Science and Technology* 11, No. 3, 192-197, Wellington, 1929. A.S.M.

The paper is illustrated by a geological map of the Murchison District, by three photographs, and by a line drawing. One of the photographs shows a road which crossed the fault and which was dislocated in a vertical direction, the difference in height between the dislocated road-surfaces being fourteen feet nine inches.

521. GAMBURZEFF, G. A., "Mechanische Integratoren zur Auswertung von Beobachtungen an gestörten Schwereund Magnetfeldern," *Gerlands Beiträge zur Geophysik*, 24, Heft 2-3, 83-93, Leipzig, 1929.

This paper is included in the Bibliography because of the method rather than for its particular application.

522. GHERZI, E., "Microseisms Associated with Storms," *Gerlands Beiträge zur Geophysik* 25, Heft 2, 145-147, Leipzig, 1930.

- GRANGE, L. I. and FERRAR, H. T., "Geological Reconnaissance in the Murchison Earthquake Area." See No. 517 of this list.

523. GREGORY, J. W., "The Earthquake South of Newfoundland and Submarine Canyons," *Nature*, No. 3138, 124, 945-946, London, December 21, 1929.

The note is accompanied by a map showing the positions of cable breaks caused by the earthquake of November 18, 1929. The author advances data in support of the theory that submarine canyons are the result of subsidence of strips of land along faults rather than excavation by stream action. The evidence of the above earthquake is strongly in favour of such a deduction. Incidentally the statement that the Saguenay fiord is "the site of the powerful earthquake of February, 1925," is in error. It was in the bed of the Saint Lawrence river about half-way between Quebec and Tadoussac. E.A.H.

524. GUTENBERG, B., "Nochmals: Zur Frage der Laufzeitkurven," *Zeitschrift für Geophysik*, 6, Heft 1, 57-59, Göttingen, 1930. B.G.

525. GUTENBERG, B., "Bemerkungen zu der vorstehenden Erwiderung," *Zeitschrift für Geophysik*, 6, Heft 1, 63-64, Göttingen, 1929. B.G.

526. GUTENBERG, B., "Registrierungen mit zwei Galitzinpendeln verschiedener Periode," *Gerlands Beiträge zur Geophysik*, 25, Heft 1, 74-80, Leipzig, 1930.

At Taunus Observatory two Galitzin pendulums with self periods of three and twenty seconds, respectively, were set up on the same pier. The differences in the graphs (which were registered on the same sheet) are discussed. The paper is illustrated by five text-figures. B.G.

527. GUTENBERG, B., "Hypothesen über die Entwicklung der Erde," *Forschungen und Fortschritte*, 6, No. 5, 66-67, Berlin, February, 1930.

The above paper reports an address given by the author before a combined meeting of the Geological Society and the Philosophical Society, in Washington, on October 23, 1929. B.G.

528. HEILAND, C. A., "Development in Science of Geophysics," *The Oil and Gas Journal*, 28, No. 21, 186-190; 274, Tulsa, October 10, 1929.

A review by W. Ayvazoglou appears in *Geophysical Abstracts* (see No. 549 of this list).

529. HENDERSON, J., "The Faults and Geological Structure of New Zealand," *New Zealand Journal of Science and Technology*, 11, No. 2, 93-97, Wellington, 1929.

A.S.M.

This paper, by the Director of the New Zealand Geological Survey, is illustrated by a small map. A footnote announces that Fault Maps of the North and South Islands (scale 1 inch = 16 miles) may be obtained by subscribers (presumably to the *Journal*) on application to the Director, *New Zealand Geological Survey*, Wellington, or to the Editor, *New Zealand Journal of Science and Technology*.

530. HIGUCHI, Seiichi, "Note on the Oscillatory Motion of a Viscous Liquid in an Open Channel of Infinite Length," *Proceedings of the Physico-Mathematical Society of Japan*, 3rd Series, 11, No. 10, 139-142, Tokyo, November, 1929.

531. HODGSON, Ernest A., "The Earth Beneath: In the Light of Modern Seismology," *Journal of the Royal Astronomical Society of Canada*, 24, No. 2, 65-81, Toronto, February, 1930.

The above paper was presented before the Montreal Centre of the Society on Thursday, October 31, 1929. It deals, in semi-popular fashion, with the contribution of seismology toward an understanding of the structure and the physical condition of the interior of the earth. A bibliography of about twenty items is appended.

532. IMAMURA, Akitune, "On the Multiple Source of Origin of the Great Kwanto Earthquake of 1923 and its Relation to the Fault System Connected with the Earthquake," *Proceedings of the Imperial Academy*, 5, No. 8, 330-333, 6 figures, Tokyo, October, 1929.

533. IMAMURA, Akitune, "On the Active Faults in the Kyoto-Osaka District," *Proceedings of the Imperial Academy*, 5, No. 10, 463-464, 2 figures, Tokyo, December, 1929.

534. IMAMURA, Akitune, "Topographical Changes Accompanying Earthquakes or Volcanic Eruptions," *Publications of the Earthquake Investigation Committee in Foreign Languages*, No. 25, 1-143, 69 text-figures, Tokyo, 1929.

The table of contents is as follows:—

Chapter I. General View of a Cycle of Earth-tiltings.

Chapter II. Topographical Changes in the Past That Were Accompanied by Earthquakes.

Chapter III. Recent Topographical Changes That Were Accompanied by Earthquakes and Which Were Investigated by Means of Precise Levellings.

Chapter IV. Topographical Changes That Have Accompanied Volcanic Eruptions.

Chapter V. Concluding Remarks.

535. IMAMURA, Akitune and KODAIRA, Takao, "On the Pre-seismic Earth-tilting and Mechanism of Occurrence of the Kii Earthquake of July 4, 1929," *Proceedings of the Imperial Academy*, 5, No. 10, 460-462, 1 map, Tokyo, December, 1929.

536. INGLADA, Vicente, "Contribución al estudio del sismo pirenaico (Canal de Berdún) de 10 de julio de 1923," *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales, de Madrid*, 24, Series 2a, No. 9, 54 pages in reprint, 1929. V.I.



537. INOUE, Win and SUGIYAMA, Tomonori, "On Pre-seismic Earth-tiltings Observed at Mount Tukuba," *Proceedings of the Imperial Academy*, 5, No. 10, 457-459, 3 figures, Tokyo, December, 1929.

The authors conclude: "Our opinion on the whole is that, by diligent watching, it is possible to detect certain characteristic earth-tiltings, either before earthquake takes place or during the period when earthquakes are more or less frequent, which we might interpret as signs of instability of the earth's crust prior to an earthquake outbreak as a result of the operation of the seismogenic forces in the particular region."

538. JEFFREYS, Harold, "The Future of the Earth," W. W. Norton and Co., 79 pages, Price \$1, New York, 1929.

The chapters, in order, are entitled:

- (1) The Future of the Sun.
- (2) The Cooling of the Earth.
- (3) The Future of the Moon.

539. JONES, E. Lester, et al., "The United States Coast and Geodetic Survey: Its Work, Methods and Organization," Department of Commerce, Special Publication No. 23 (1928 Revised Edition), 1-130, Washington, 1928.

On pages 114-116, the seismological work of the Survey is outlined briefly.

540. KOBER, L., "Die Verteilung der Massen an der Erdoberfläche," *Gerlands Beiträge zur Geophysik*, 25, Heft 2, 163-174, Leipzig, 1930.

The author's English abstract reads, "An attempt is here made to find an explanation of the formation of the earth's surface and the distribution of the masses, based upon the whole of the endogene and exogene geological forces and phenomena. The distribution of the masses depends upon a certain independence of the outer crust of the earth, the 'facial zone,' upon the tendency of land and water to balance each other, upon the inner structure, the quantity of water, the density relationship of land and sea, the rotation of the earth and upon other causes which will be discussed. It is decisive that there exists a regional compensation between land and sea. The ideal arrangement would be given by the inverse relation of quantity and density. This fundamental law of the distribution of the masses is also to be recognized in the actual arrangement which is such as would result from a general relativity between land and sea. The whole and its parts stand in the closest connection; the whole range of geological and geophysical phenomena and relationship must be taken into consideration."

- KODAIRA, Takao and IMAMURA, Akitune, "On the Pre-seismic Earth-tilting and Mechanism of Occurrence of the Kii Earthquake of July 4, 1929," See No. 535 of this list.

541. KOENIGSBERGER, J., "Zur Erforschung der ersten 100 km. Erdkruste," *Zeitschrift für Geophysik*, 5, Heft 7, 289-299, Göttingen, 1929.

542. KÖHLER, R., "Beobachtungen an Profilen auf See-Eis," *Zeitschrift für Geophysik*, 5, Heft 7, 314-316, Göttingen, 1929.

543. KOTO, Bundjiro, "The Iwatsuki Seismic Zone," *Gerlands Beiträge zur Geophysik*, 22, Heft 3, 315-317, Leipzig, 1929.

The author concludes: "In summarizing what is stated, the Iwatsuki seismic zone within the unstable plain of Tokyo and the crustal disturbance at the deep bottom of Sagami Bay constitute together the southwardly sheared strip with the Kazusa-Awa peninsula along the meridionally fractured geotectonic line, viz., the regional inland seismic zone of the environs of Tokyo, and the sliced seaboard strip-blocks are moving remarkably counter-clockwise around the abyss of the north Circum-Pacific, the cause of which is not known."



544. KOTO, Bundjiro, "The Physiographic Relief of Circum-North Pacific," *Gerlands Beiträge zur Geophysik*, 24, Heft 4, 368-370, Leipzig, 1929.
545. KRUMBACH, Gerhard, "Zur Frage der Laufzeitkurven, II," *Zeitschrift für Geophysik*, 5, Heft 7, 303-314, Göttingen, 1929.
546. LABROUSTE, H., "Recherche des composantes élémentaires d'un séismogramme," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 63-70, Strasbourg, 1929.
547. LACOSTE, J., "Sur le rôle des amortisseurs dans les séismographes: Coefficients d'amplification," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 28-59, Strasbourg, 1929.
548. LEE, F. W., "Comparative Advantages of Applying Several Geophysical Methods of Prospecting to the Same Territory," *U. S. Bureau of Mines, Information Circular*, No. 6235, 11 pages, 27 figures, Washington, February, 1930.
549. LEE, F. W., "Geophysical Abstracts No. 10," *U.S. Bureau of Mines, Information Circular*, No. 6253, 1-29, Washington, February, 1930.
- LEET, L. Don and EWING, Maurice, "Seismic Propagation Paths." See No. 516 of this List.
550. LEHMANN, I., "Über die Laufzeitkurve der Phase ScPcS," *Zeitschrift für Geophysik*, 5, Heft 5-6, 259, Göttingen, 1929.
551. LOWE, William F., "Geological Prospecting for Oil Still in Research Stage," *National Petroleum News*, 21, No. 47, 59-63, Cleveland, 1929.
- The following abstract by W. Ayvazoglou is taken from Geophysical Abstracts (see No. 549 of this list); "The important part of geophysics in petroleum exploration, although proved to be of great value, can not yet be considered anything other than a geologic guide. The findings of the magnetometer, torsion balance, seismograph, and the various electrical methods of geologic exploration have a very definite value when properly interpreted. A clear understanding of the value is necessary before a conclusion can be reached concerning subsurface conditions. These instruments can but indicate certain irregularities in the local geological section and can not be considered oil finders. The author draws attention to the growing appreciation of the value of micropaleontology. In connection with the geophysics by which the structure may be outlined it remains for the paleontologist to furnish the more accurate geologic data."  
F.W.L.
552. MACK, K., "Über die bei dem grossen Schwabischen Erdbeben vom November 1911 beobachteten ungewöhnlichen Lichterscheinungen," *Verhandlungen der Gesellschaft Deutscher Naturforscher und Ärzte*, 1912, 6 pages in separate, Leipzig, 1913.  
W.H.
553. MAINKA, C., "Über die Realität von Einsätzen in einem Seismogramm," *Physikalische Zeitschrift*, 16, 241-246, Leipzig, 1915.  
L.D.L.
554. MAINKA, C., "Über Universalseismographen," *Zeitschrift für Feinmechanik*, No. 2, 3 pages in reprint, Berlin, 1916.  
L.D.L.
555. MAINKA, C., "Über die Registrierung mit Hilfe eines Gasstrahles bei Seismometern," *Zeitschrift für Instrumentenkunde*, 40, 195-199, Berlin, 1920.  
W.H.
556. MAINKA, C., "Bestimmung von Ort und Zeit des Ursprungs seismischer Oberflächenwellen," *Physikalische Zeitschrift*, 21, 406, Leipzig, 1920.  
W. H. + L.D.L.

557. MALINOVSKI, N. V., "Peculiarities of Propagation of Seismic Waves in the Caucasus," *Annals of the V. J. Lenin State University of Azerbaijan: Section of Natural History and Medicine*, 8, 131-137, 1 chart, 1929.

The long years of observations of the first class seismic station Baku established that for earthquakes lying in W. and SW. quadrants from the station and for  $\Delta$  less than 2,000-3,000 km., the determination of the coördinates of the epicentre based upon the observations of one station (Galitzin's method) led to wrong deductions, the obtained azimuth values being incorrect, because the first deflections of the horizontal and vertical pendulums pointed to the direction of epicentres in the NW. quadrant (about NW. 50°) with variations of  $\pm 10^\circ$  to  $15^\circ$ , instead of the true one. In the author's opinion, such a phenomenon, i.e., the arrival of the initial oscillations of the first phase not in the direction from the epicentre, is a peculiarity of tectonics of the Caucasus, due to which the longitudinal movements coming directly from the hearth of the quake are either damped on their way, or acquire a lower velocity, the first movements registered thus being those which reached the mountains and were propagated through the latter towards the seismic station." (In Russian.) N.V.R.

558. MATÉRIAUX POUR L'ÉTUDE DES CALAMITÉS, "L'assurance contre les séismes," *Matériaux pour l'Étude des Calamités*, No. 19, 3, 256-276, Geneva, 1929.

A lengthy review of the subject which quotes largely from publications which have appeared in English dealing with earthquake insurance.

559. MEISSNER, E., "Elastische Oberflächenwellen mit Dispersion in einem inhomogenen Medium," *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich*, No. 66, 180-195, June, 1921. J.B.M.+W.H.

- MIYABE, N., and TERADA, T., "Deformation of the Earth Crust and Topographical Features." See No. 581 of this list.

560. MONTANDON, Frédéric, "Les éboulements du Motto d'Arbino," *Matériaux pour l'Étude des Calamités*, No. 19, 3, 222-232, 2 illustrations, Geneva, 1929.

561. MUSHKETOV, D. and NIKIFOROFF, P., "Gravimetric and Seismic Expedition to Central Asia," *Comptes rendus de l'Académie des Sciences de l'Urss*, No. 22, 499-502, Leningrad, 1929. N.V.R.

The article, which is written in English, reports the above expedition undertaken by the Institute for Applied Geophysics and the Seismological Institute of the Academy of Sciences of the U.S.S.R. The point of investigation was the Ferghana depression (central Asia) and was begun in the autumn of 1928. The expedition was under the general direction of P. Nikiforoff assisted by Girin. The seismic party was headed by N. Raiko; they endeavoured to secure data "to determine the rate of propagation of elastic movements within those layers, in order to establish the law according to which their values change in the lapse of time between two consecutive earthquakes." With regard to the tentative conclusions which are drawn from the work carried out, the report concludes: "Thus, in the area of the Ferghana depression, a lack of compensation is established quite positively, which involves the tendency of that portion of the earth crust to vertical displacement upward, the latter circumstance being the cause of numerous strong earthquakes. As to the origin of the Ferghana depression, we are led to conclude that it was formed in the result of squeezing of the earth crust, the sial-masses being pressed into a denser layer underlying the crust."

562. NAKAMURA, Saemontaro, "The Great Earthquake of SE. Japan on Sept. 1, 1923," *Report of the Imperial Earthquake Investigation Committee*, No. 100 A., Tokyo, 1925.

"A description of the earthquake phenomena is given. A generalized form of Professor Omori's formula for the distribution of the after-shocks is discussed. By means of the new formula the number of earthquakes are given separately according to the difference of intensities." The paper is in Japanese only. The above abstract by the author is taken from the abstracts section of the *Japanese Journal of Astronomy and Geophysics*, 7, No. 2, (15), Tokyo, 1930.

563. NAKAMURA, Saemontaro, "On the Tango Earthquake of the 7th of March, 1927," *Reports of the Saito Gratitude Institute (Gakuzyutu Kenkyû Hôkoku)*, No. 5, Saito, 1928.

The paper is in Japanese only. A short abstract by the author appears in the *Japanese Journal of Astronomy and Geophysics*, 7, No. 2 (Abstracts), (15), item 41, Tokyo, 1930. It reads as follows: "In Part I a general description of the earthquake which occurred in Tango, Japan, is given. The most remarkable result is that the earthquake was preceded by a change of the sea-level along the coast of the epicentral region. In Part II a discussion of the earthquake phenomena is given. The writer found that there is a simple relationship between the horizontal and vertical dislocations along the main fault line in the epicentral region. From this relationship he concluded that the earthquake was caused by the horizontal compression of a layer of the earth's crust some 9 km. thick along the fault line. His final conclusion is that the earthquakes of 1925 and 1927 must have had a common cause."

564. NAKAMURA, Saemontaro, "On the Earthquake of the 7th of March, 1927, in Tango, Japan," *Science Reports of the Tohoku University*, 18, No. 4, 419-472, Sendai, December, 1929. USC&GS.+R.R.B.

565. NAVARRO NEUMANN, M. Ma. S., S.J., "Terremotos, Sismographos y Edificios," Gabriel Lopez del Horno, 252 pages, 21 illustrations, Madrid, 1916.

The book is divided into three parts, the pagination and chapter divisions running through the whole. There are twenty-one chapters: the first nine deal with the phenomena of earthquakes; the next eight discuss the registration of earthquakes and the studies arising from such records; the last four present a special study of building construction in relation to seismic conditions.

566. NEUMANN, Frank, "Seismological Report, April, May, June, 1927," U.S. Department of Commerce, Coast and Geodetic Survey, Serial No. 468, 45 pages, Washington, 1930.

567. NEVILLE, Ernest H., "The Mintrop Seismic Method," *Oil News*, 26, No. 877,276, 283,284, London, September 20, 1929: and *Journal of the Institution of Petroleum Technologists*, 15, No. 76, 569-573, London, 1929.

A review, signed W. Ayvazoglou, appears in *Geophysical Abstracts* No. 10 (see No. 549 of this list). After noting that the paper described the Mintrop instrument, and method, as well as its successful applications to petroleum geology, the review concludes, "One of the most striking applications was the accurate contouring of the surface of the Paleozoic rocks beneath the later looser strata in Holland." F.W.L.

- NIKIFOROFF, P. and MUSHKETOV, D., "Gravimetric and Seismic Expedition to Central Asia." See No. 561 of this list.

568. ODDONE, E., "Études sur les mouvements séismiques, gravitationnels et projectifs d'égale vitesse," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 18-27, Strasbourg, 1929.

569. ODDONE, E., "Influence des hautes températures sur la vitesse de propagation des ondes séismiques," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 71-79, Strasbourg, 1929.

570. PREY, A., "Über die Elastizitätskonstante der Erde," *Gerlands Beiträge zur Geophysik*, 23, Heft 4, 379-429, Leipzig, 1929.

A lengthy summary, in English as well as in French and in German, is given. The paper is an important contribution to the literature of the subject indicated.



571. PUSEY, William Allen, "The New Madrid Earthquake—An Unpublished Contemporaneous Account," *Science*, No. 1837, **71**, 285-286, New York, March 14, 1930.  
The paper quotes excerpts from the diary of William Brown, who lived about forty-six miles directly south of Louisville, Ky., at the time of the New Madrid earthquake. References are also given to other sources of information regarding that earthquake.
572. REUTLINGER, G., "Eine experimentelle Überprüfung der Theorie der Schwingungsmesser," *Gerlands Beiträge zur Geophysik*, **24**, Heft 2-3, 168-240, Leipzig, 1929.  
An important contribution to the literature of the subject indicated.
573. RISCH, Kurt, "Messungen von Verkehrserschütterungen," *Strassenbau und Strassenunterhaltung (Strassenbau-Beilage der 'Verkehrstechnik')*, Heft 40, 4 pages in reprint, 1929.  
The paper describes a number of different types of instruments designed to record artificial tremors. These included a "Vibrograph" by Dr. Geiger, a "Seismograph" by Spindler and Hoyer, an "Amplitudenmesser" by Schenk, and a Piezo-quartz Acceleration-meter after Ambronn.
- SABININA, A. D., BONCHKOVSKI, V. E., and BASKAKOV, V. K., "Bulletin géophysique, etc." See No. 507 of this list.
574. SCRASE, F. J., "Two Notes on the Operation of Galitzin Seismographs," Meteorological Office, London, *Geophysical Memoirs*, **5**, No. 49, H.M. Stationery Office, London, 1930.  
The first note describes an isopleth diagram for the rapid evaluation of the free period and the damping constant of a Galitzin seismograph. The second note discusses the variation of period of the Galitzin vertical pendulum with angular deviation and the effect of this variation on the magnification factor. F.J.S.
575. SELLARDS, E. H., "Man-made Earthquakes," *Science*, No. 1833, **71**, 188-189, New York, February 14, 1930.  
An account of the effects of blasts used for seismic prospecting at distances of thirty miles and more in Texas. The author concludes that "limestone is apparently an effective medium for the transfer of earth tremors."
576. SOMIGLIANA, Carlo, "The Mechanics of Earthquakes," *Scientific American Supplement*, No. 2269, **87**, 402-403: 407, New York, June 28, 1919.  
The above interesting paper was translated for the *Scientific American Supplement* from *Scientia* (Bologna). L.D.L.
577. SOMVILLE, O., "L'enregistrement des séismes des 11 novembre 1922 et 14 avril 1924 à Uccle et à De Bilt," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 1-17, Strasbourg, 1929.
578. SPITALER, R., "Über die Auslösung von Erdbeben durch die Achsenschwankungen der Erde," *Gerlands Beiträge zur Geophysik*, **25**, Heft 1, 119-129, Leipzig, 1930.  
The author's English abstract reads, "Based on 87 observations of earthquakes, a close connection is shown to exist between the latitude of a terrestrial place and the respective changes of it at the time of the earthquake. The earthquake is generally preceded by a change of direction of the elastic tension or forces caused by the change of latitude with the tendency of forming the rotation ellipsoid conformable to the new position of the rotation axis and temporarily producing earthquakes in certain places disposed for them."
- SUGIYAMA, Tomonori and INOUE, Win, "On Preseismic Earth-tiltings Observed at Mount Tukaba." See No. 537 of this list.



579. SUYEHIRO, Kyoji, "Über die untere Grenze der fühlbaren Schwingungen," *Proceedings of the Imperial Academy*, 5, No. 9, 411-414, Tokyo, November, 1929.
580. TANAKADATE, H., "On the Relations between the Tectonic Earthquakes and Volcanic Activities in Japan," *Union géodésique et géophysique internationale, Section de Séismologie, Série A, Travaux scientifiques*, Fascicule 6, 60-62, Strasbourg, 1929.
581. TERADA, T. and MIYABE, N., "Deformation of the Earth Crust and Topographical Features," *Proceedings of the Imperial Academy*, 5, No. 8, 322-325, 2 diagrams, Tokyo, October, 1929.
582. THORNBURGH, H. R., "Wave-front Diagrams in Seismic Interpretation," *Bulletin of the American Association of Petroleum Geologists*, 14, No. 2, 185-200, Tulsa, February, 1930.  
 The author's abstract reads: "Subsurface structure can be derived from seismic data by graphical methods based upon wave-front diagrams. The method of construction of these diagrams is shown, and the nature and origin of the important underlayer wave is explained. Coincident-time curves and secondary shotpoints are defined and some applications are illustrated. The diagrams are used to explain some of the simpler seismic rules, and the original determination of simple underlayer structure is illustrated. The paper is only an introduction to wave-front methods; the principles developed can be applied by experienced seismologists to more complex situations." L.D.L.
583. TSUBOI, Chuji, "On a Relation between the Distributions of Gravitational Anomalies and the Origins of Earthquakes in Japan," *Proceedings of the Imperial Academy*, 5, No. 8, 326-329, 2 maps, Tokyo, October, 1929.
584. TSUBOI, Chuji, "Report on the Activity of the Earthquake Research Institute, Tokyo Imperial University, 1925-1929," *Gerlands Beiträge zur Geophysik*, 23, Heft 4, 430-441, Leipzig, 1929.
585. ULLER, Karl, "Wellen von elementarer Schwingungsform in Flüssigkeiten und Gasen," *Physikalische Zeitschrift*, 17, 302-305, Leipzig, 1916. L.D.L.
586. ULLER, Karl, "Grundlegung der Kinematik einer physikalischen Welle von elementarer Schwingungsform" (Parts II and III), *Physikalische Zeitschrift*, 17, 610-615, Leipzig, 1916: and 18, 548-550, Leipzig, 1917. L.D.L.  
 Part I was previously reported as No. 493 (2) of these lists, having appeared in the same periodical, 17, 168-172, Leipzig, 1916.
587. ULLER, Karl, "Widersprüche gegen die Wellenkinematik; ihre Auflösungen" (Parts I and II), *Physikalische Zeitschrift*, 18, 99-100: 130-132, Leipzig, 1917. L.D.L.
588. ULLER, Karl, "Das Interferenzprinzip," *Physikalische Zeitschrift*, 18, 101-103, Leipzig, 1917. L.D.L.
589. ULLER, Karl, "Ton-Erzeugung und empirischer Nachweis gebundener Deformationswellen," *Zeitschrift für Physik*, 6, No. 2, 100-105, Braunschweig, 1921. L.D.L.
590. ULLER, Karl, "Über die Verzerrungswellen-Induktion," *Verhandlungen der Deutschen physikalischen Gesellschaft*, Series 3, 3, No. 1, 8-12, Braunschweig, January, 1922. L.D.L.

591. ULLER, Karl, "Die Entwicklung des Wellen-Begriffes, II," *Gerlands Beiträge zur Geophysik*, 24, Heft 2-3, 309-334, Leipzig, 1929.  
The paper concludes with a bibliography of twenty-three items, a valuable list of papers published by the same author.
592. VILLA, Mario, "Les tremblements de terre d'Asie Mineure et des Balkans," *Vers la Santé*, 468-474, Paris, December, 1928.  
A short review, signed R. M., appears in *Matériaux pour l'Étude des Calamités*, No. 20, 4, 392-393, Geneva, 1929.
593. VON BUELOW, E. U., "Essential Points in Use of Geophysics," *The Oil and Gas Journal*, 28, No. 33, 34; 67, 68; 104, Tulsa, January 2, 1930.  
An abstract by W. Ayvazoglou appears in *Geophysical Abstracts* (see No. 549 of this list) Included in this is the following statement: ". . . Summarizing all the foregoing investigations, the author is of the opinion that they reveal the fact that for structural studies and studies of the exact shape and position of salt domes, etc., the seismic method of measuring the acceleration of the ground particles is the most reliable and speediest, therefore the most economic of to-day . . ." F.W.L.
594. VOSNESENSKI, A. V., "Earthquakes of 1927 in the Crimea," *Priroda (Nature)*, 16, No. 12, 958-974, 3 photographs and 4 sketches, 1927.  
A study by the author of the Crimean earthquakes of 26 June and 12 September, 1927, based upon the evidence from instrumental observations as well as upon seismograms of distant seismic stations According to the author, the intensity of the former quake is VI, of the latter VII, Rossi-Forel. The epicentres as deduced from observations of distant stations are :  $\varphi = 44^{\circ} 30' N.$ ;  $\lambda = 35^{\circ} 50' E.$   $\varphi = 44^{\circ} 30' N.$ ;  $\lambda = 35^{\circ} 10' E.$ , differing from those calculated upon isoseists. (In Russian.) N.V.R.
595. WANNER, E., "Über die Frequenz der schweizerischen Erdbeben und Erdstöße von 1879-1929," *Jahresbericht des Schweizerischen Erdbebendienstes 1928*, 20-25, Zürich, 1928.  
The above paper concludes the report of the seismic work at the Schweizerischen Meteorologischen Zentralanstalt, Zürich. The report as issued is a separate of twenty-five pages, taken from the Annalen for 1927 of the Zentralanstalt. W.H.
596. WHIPPLE, F. J. W., "Researches on the Transmission of Air Waves to Great Distances," *Gerlands Beiträge zur Geophysik*, 24, Heft 1, 72-75, Leipzig, 1929.
597. YABE, Hisakatsu, "Geological Age of the Latest Continental Stage of the Japanese Islands," *Proceedings of the Imperial Academy*, 5, No. 9, 430-433, November, Tokyo, 1929.
598. YABE, Hisakatsu, "Larger Geotectonic of the Island Arc of Japan Proper," *Proceedings of the Imperial Academy*, 5, No. 10, 465-468, Tokyo, December, 1929.
599. YAROSLAVTSEV, T. N., "Seismic Activity at the Kuban from 1794 to 1927," *Annals of the Kuban Institute of Agronomy*, 8, 1-33, 1929.  
A catalogue of earthquakes of the Kuban area (North Caucasus) comprising quakes recorded by instruments as well as those studied in a non-instrumental way. (In Russian.) N.V.R.
600. YEHARO, Shingo, "Geologic and Tectonic Study of Shikoku," *Japanese Journal of Geology and Geography*, 7, No. 1, 1, Tokyo, October, 1929.  
A history of earthquakes in Tosa province appears on page 20. R.R.B.

## LIST OF COLLABORATORS

The appended initials are those used to indicate, in each case, the items contributed by the respective collaborator.

Bodle, Ralph R., United States Coast and Geodetic Survey, Washington D.C., U.S.A.	R.R.B.
Gutenberg, Beno, Darmstadt, Germany.	B.G.
Hiller, W., Stuttgart, Germany.	W.H.
Inglada, Vicente, Madrid, Spain.	V.I.
Lee, Frederick W., U.S. Bureau of Mines, Washington, D.C., U.S.A.	F.W.L.
Leet, L. Don, Harvard University, Cambridge, Mass., U.S.A.	L.D.L.
Macelwane, James B., S.J., Saint Louis University, Saint Louis, Mo., U.S.A.	J.B.M.
Mitchell, A. S., Wellington, New Zealand.	A.S.M.
Raiko, N. V., Physico-Mathematical Institute, Academy of Sciences, Leningrad, U.S.S.R.	N.V.R.
Scrase, F. J., Kew Observatory, Richmond, Surrey, England.	F.J.S.

