DEPARTMENT OF THE INTERIOR
CANADA

HON. THOMAS G. MURPHY, *Minister* H. H. ROWATT, *Deputy Minister*

# PUBLICATIONS

OF THE

# Dominion Observatory

## OTTAWA

R. MELDRUM STEWART, *Director*

**Vol. X**

# Bibliography of Seismology

**No. 9**

## JANUARY, FEBRUARY, MARCH, 1931

BY

ERNEST A. HODGSON

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1931

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1931

# Bibliography of Seismology

**January, February, March, 1931**

801. AGAMENNONE, G., "Discussione di alcune scosse in Italia il 27 e 28 luglio 1918," *Bollettino della Società Sismologica Italiana*, **29**, No. 1-2, 27-42, Rome, 1930. G.A.

802. AGAMENNONE, G., "La periodicita dei grandi terremoti marchigiani e romagnoli," *Il Messaggero*, Rome, November 22, 1930. G.A.

803. ALFANO, Giovanni Battista, "Che cosa e il terremoto," Scuolo Tipografica Pontificia per i Figli dei Carcerati, fondata da Barfolo Longo, 35 pages, 11 figures, Pompei, 1930.

The paper deals with the circumstances of the Irpino earthquake of July 23, 1930.

— ALT, H., "Geometrie der Bewegungen." See No. 837 of this list.

— ANGENHEISTER, G., "Seismik (Erdbebenwellen)." See No. 701 and No. 833 of these lists.

804. ANSEL, E. A., "Das Impulsfeld der praktischen Seismik in graphischer Behandlung," *Gerlands Beiträge zur Geophysik, Ergänzungshefte für angewandte Geophysik*, **1**, Heft 2, 117-136, 8 figures, Leipzig, 1930.

805. ARKHANGELSKI, A. D., "The Causes of Crimean Quakes and the Future of the Crimea" (in Russian), *Iskra*, **7**, No. 6, 7-9, 4 figures, Moscow, 1929.

A popular exposition of results of the investigation of the Black sea bottom (at the Crimean coasts) by means of depth measures and borings. Connections between the results secured and the seismic activity of the Crimea are established. N.V.R.

806. BANERJI, Sudhansu Kumar, "Microseisms Associated with Disturbed Weather in the Indian Seas," *Philosophical Transactions of the Royal Society*, Series A, Vol. 229, 287-328. Price 6s. 6d. London, 1930.

An abstract, signed R.S.B., appears in *Science Abstracts*, Section A (Physics), No. 396, **33**, page 1053, item 3954, London, December, 1930. R.R.B.

807. BARSCH, O. and REICH, H., "Ergebnisse seismischer Unterschungen über den Schichtenaufbau von Norddeutschland," *Gerlands Beiträge zur Geophysik, Ergänzungshefte für angewandte Geophysik*, **1**, Heft 2, 165-188, 8 figures, bibliography of 12 items appended, Leipzig, 1930.

The paper deals with the subject of geophysical prospecting by the seismic method in Northern Germany. The author advocates the adoption of the theory of rectilinear propagation of the seismic wave. In this connection see a more extended paper by the first author, listed as No. 305 of these lists.

808. BASU, N. M., "On an Application of the New Methods of the Calculus of Variations to some Problems in the Theory of Elasticity," *Philosophical Magazine*, **10**, No. 66, 886-896, London, November, 1930.

809. Basu, N. M., "On the Torsion Problem of the Theory of Elasticity," *Philosophical Magazine*, **10**, No. 66, 896-904, London, November, 1930.

810. Beams, J. W., "A Review of the Use of Kerr Cells for the Measurement of Time Intervals and the Production of Flashes of Light," *The Review of Scientific Instruments*, **1**, No. 12, 780-793, Menasha, December, 1930.

811. Berlage, H. P., "Seismometer, Auswertung der Diagramme," *Handbuch der Geophysik*, **4**, Lieferung 2, Chapters 8-28, 299-686, 255 illustrations, 40 tables, Berlin, 1930. R.R.B.

See note at end of item 843 of this list.

812. Berloty, B., "Sur la localisation des épicentres des tremblements de terre," *Comptes rendus*, **191**, No. 19, 813-816, Paris, November 10, 1930.

813. Berndt, G., "Die Bestimmung der elastischen Konstanten," *Zeitschrift für Instrumentenkunde*, **15**, Heft 11, 624-638: Heft 12, 679-692, 20 text figures, Berlin, November and December, 1930.

— Biezeno, C. B., "Geometrie der Kräfte und Massen." See No. 837 of this list.

814. Bobillier, Carlos, "Observaciones de 1928 y Terremoto del 1.0 de Diciembre," *Boletin del Servicio Sismologico de la Universidad de Chile*. No. 20, 55 pages, Santiago, 1930.

815. Bodle, Ralph R., "Earthquake Notes," Published by the Eastern Section of the Seismological Society of America, **2**, No. 3, Washington, December 10, 1930.

Besides the current notes the issue gives a short account of the Louisiana Earthquake of October 19, 1930, by Frank Neumann, notes on the Stockholm Meeting of the International Geodetic and Geophysical Union, by N. H. Heck, and an open letter from the Director of the U. S. Coast and Geodetic Survey, in reply to an editorial in the Engineering News-Record criticizing the contributions of seismology to engineering. As usual, the epicentres of earthquakes, determined during the interval since the publication of the previous issue of Earthquake Notes, are listed with an indication of the position and time of each earthquake. The editor of the publication, Ralph R. Bodle, is a member of the staff of the U.S. Coast and Geodetic Survey, Washington, D.C. Items of interest to seismologists which might properly find place in this publication should be reported to the editor.

816. Bonchkovski, V. F., "Seismology and Its Achievements" (in Russian). A paper of 26 pages (13 figures) from the series *Science and Technics in the U.S.S.R.* Price 0.35 cop. Moscow, 1928. N.V.R.

817. Bowie, W., "River Sediment Caused New Orleans Quake," *Science News Letter*, **18**, No. 499, 280, Washington, November 1, 1930.

818. Breyer, Johannes, "Über die Elastizität von Gesteinen," *Beiträge zur physikalischen Erforschung der Erdrinde*. Heft 1 (herausgegeben von der Preussischen Geologischen Landesanstalt) 53 pages, 5 plates, 9 figures, 3 tables. Price RM 3.75. Berlin, 1929.

A brief review, in German, is given as item No. 92, pg. 21, of *Geologisches Zentralblatt*, **43**, No. 1, Berlin, November 15, 1930.

See also No. 608 of these lists.

819. Briske, Rudolf, "The Earthquake Resistance of Buildings," State Publishing Office (Technic), 60 pages, 71 figures. Price 1.25 rub. Moscow, 1928.

A Russian translation from the German of R. Briske's work "Die Erdbebensicherheit von Bauwerken". N.V.R.

820. BROCKAMP, B. and MOTHES, H., "Seismische Untersuchungen auf dem Pasterzegletscher," *Zeitschrift für Geophysik*, **6**, Heft 8, 482-500, 5 figures, Göttingen, 1930.

— BUSEMANN, A. and FÖPPL, Otto., "Physikalische Grundlagen der Elastomechanik." See No. 838 of this list.

821. BÜSS, Eugen, "Seismic Equidistant Map of the World on Azimuthal Projection with the Centre at Tiflis" (in Russian), *Monthly Seismic Bulletin, Geophysical Observatory of Georgia Seismological Department*, Nos. 10-12, 57-68, with 2 charts, Tiflis, October-December, 1927.

In Mercatorian cartography the map of the world is shown on one sheet; on the other hand, the peculiar distribution of isolines of azimuths and distances is prejudicial to the demonstrativeness and integrity of the map. In consequence, the author has drawn his seismic map on azimuth-zenithal projection (Postel). With brief summary in German and Georgian. N.V.R.

822. COOKE, H. C., "Studies of the Physiography of the Canadian Shield," *Transactions of the Royal Society of Canada*, Section 4, Geological Sciences including Mineralogy, Third Series, **24**, Part 1, Section 4, 51-87, Ottawa, May, 1930.

The above paper is confined to a study of "Glacial Depression and Post-glacial Uplift." It supplements a previous paper with the same general title which appeared in the *Transactions of the Royal Society of Canada*, as above, but Volume 23, Section 4, 91-120, Ottawa, May, 1929.

823. DAVIS, W. M., "Origin of Limestone Caverns," *Bulletin of the Geological Society of America*, **41**, No. 3, 475-628, 2 plates, 62 text-figures, Washington, September, 1930.

824. DAVISON, Charles, "Crust-movements Connected with Tango (Japan) Earthquake of 1927," *Nature*, No. 3189, **126**, 923-924, 2 figures, London, December 13, 1930.

825. DELANEY, J. P., S.J., "New Galitzin Installed at Canisius," *Bulletin of the American Association of Jesuit Scientists (Eastern Section)*, **8**, No. 2, 22-23, Baltimore, 1930.

The above short article, published in the indicated bulletin for private circulation by Loyola College of Baltimore, outlines the installation of the new Galitzin seismographs at the Canisius College (Buffalo) station. These are manufactured by Wilip, of Dorpat, Esthonia, under direction of H. Masing who superintended their manufacture by Galitzin. Note is made of the fact that Masing has recently died.

826. DE SOUSA, Francisco Luis Pereira, "O terremoto do 1° Novembro de 1755 em Portugal e um estudo demografico," Volume III, published by the Geological Service of Portugal, 479-939, index, 5 plates, 3 plans, 23 text figures, Lisbon, 1928.

The third volume of a monumental work describing the Lisbon earthquake of 1755.

827. DVOYCHENKO, P. A., "What Are Earthquakes and Why Do They Occur?" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 16-42, 4 figures, Simpheropol, 1928. N.V.R.

828. (1) DVOYCHENKO, P. A., "The Black Sea Quakes of 1927 in the Crimea (preliminary report)" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Black Sea Quakes of 1927 and the Fate of the Crimea,"* 77-98, Simpheropol, 1928.

A description of the earthquakes of the 26th June and 12th September, 1927, and of the damages and secondary phenomena caused thereby. N.V.R.

828. (2) DVOYCHENKO, P. A., "The Black Sea Quakes of 1927 in the Crimea" (in Russian), *Priroda (Nature)*, **17**, No. 6, 523-542, 7 figures, Leningrad, 1928.

The author gives a brief description of the Crimean earthquakes of June 26 and September 12, 1927, from his personal observations. N.V.R.

829. EGERVÁRY, Eugen v., "Über die seismischen Trajektorien und über das Bertrandsche Problem in der Seismologie," *Gerlands Beiträge zur Geophysik*, **14**, 284-299, Leipzig, 1916.

— FÖPPL, Otto and BUSEMANN, A., "Physikalische Grundlagen der Elastomechanik." See No. 838 of this list.

830. FREDERICKS, George, "Life History and Structure of the Earth from the Point of View of Transmutation of Matter" (in Russian), *Journal of Geophysics and Meteorology*, **4**, No. 1, 77-91, Leningrad, 1927.

An essay on applying the theory of transmutation of matter to the knowledge of the evolution of the universe. In search for a solution of the problem of fundamental causes to which tectonic processes are due, the author was, since 1920, led to the conclusions which furnish the basis of the present paper, namely, that there exists a primary element, called by the author "Protocosmium," possessing the highest atomic weight. In the author's opinion, the whole of matter originally existed in the form of protocosmium. Of protocosmium consisted all the cosmic bodies which acquired later a more complicated structure as a result of the transmutation of matter. On the ground of the recent geophysical evidence, the author suggests the following constitution:—

VI. The atmosphere, in its external layers is formed of H and He, whereas in the lower it is composed of N, O, $CO_2$, etc.

V. The zone of lighter elements being divided into—

B. The subzone of oxygen combinations—

c) Hygrosphere (water being the main component)

b) Lithosphere (main component acid rocks SiAl)..... 60 km.

$a_3$) Magma (SiMa) imbued with gas..... 60 km.

$a_2$) Magma (SiMa) containing no gas..... 100 km.

$a_1$) Sulphid-Oxyd region..... 280 km.

A. The subzone of combinations devoid of oxygen..... 700 km.

IV. Iron Zone (NiFe)..... 500 km.

III. Zone of heavy elements up to iron (PbCu)..... 750 km.

II. Zone of radioactive elements..... 450 km.

I. Primitive nucleus of Protocosmium..... 3470 km.

An extensive summary in English is annexed to the paper. N.V.R.

831. FREDERICKS, George, "On the Origin of Surface Foldings" (in Russian), *Journal of Geophysics and Meteorology*, **6**, No. 1, 79-80, Leningrad, 1929.

An English summary accompanies the paper. N.V.R.

832. FREEMAN, John R., "The Italian Earthquake of July 23, 1930," *Bulletin of the Seismological Society of America*, **20**, No. 4 (preprint of 24 pages), Stanford, December, 1930.

This report, illustrated by means of three maps and seventeen reproductions from photographs, has resulted from the fact that the author, in Germany at the time of the earthquake, was enabled to visit the scene within a reasonably short time. He deals with the subject from the standpoint of an engineer, pointing out those details of construction which resulted in so much damage being wrought by this earthquake. J.R.F.

— FUES, E., "Störungsrechnung." See No. 837 of this list.

— FUES, E. and NORDHEIM, L., "Die Hamilton-Jacobische Theorie der Dynamik." See No. 837 of this list.

— GECKELER, J. W., "Elastostatik." See No. 838 of this list.

— GECKELER, J. W., "Elastizitätstheorie anisotroper Körper (Kristallelastizität)." See No. 838 of this list.

833. GEIGER, H. and SCHEEL, Karl, "Handbuch der Physik," A textbook in 24 volumes, published by Julius Springer, Berlin, 1927-1929.

Reference to this textbook has already been made in item No. 701 of these lists. Further reference to sections of interest to seismologists appears in this list in Nos. 837 and 838. The price for the complete set of twenty-four volumes is quoted at RM 1328·60.

834. GERMANSKY, Boris, "Über ein optisches Verfahren zur Fourieranalyse," *Annalen der Physik*, Folge 5, **7**, Heft 4, 453-469, 10 figures, Leipzig, 1930.

835. GHERASSIMOFF, A. P., "Slow Movements of Firm Land and Their Study" (in Russian), *Priroda (Nature)*, **16**, Nos. 7-8, 551-566, Leningrad, 1927.

The paper considers in the first place the epirogenic movements in the Black Sea-Caspian area. The author expresses the idea of the necessity of periodical accurate geodetic surveys of the said area for scientific as well as practical purposes. The motion in question is of importance with regard to the construction of new harbours, canals, etc. N.V.R.

836. GHEORGHIEVSKI, T., "Contribution to the Question of Sounding and Vibrating of Telegraph Wires" (in Russian), *North Caucasus Transport*, **7**, No. 4 (170), 8-10, Rostov-Don, 1929.

The author suggests that sounding and vibrating of wires is due to microseismic motion of the earth crust which he confirms by diagrams and points to the necessity of more extensive combined investigation of the said phenomena. N.V.R.

837. GRAMMEL, R. et al. "Grundlagen der Mechanik: Mechanik der Punkte und starren Körper," Band V. of *Handbuch der Physik* (see No. 833 of this list), 623 pages, 256 illustrations. Price: unbound, RM 51.60; bound, RM 54. Berlin, 1927.

The table of contents, indicating the sections as written by the collaborating authors, is as follows:—

"Die Axiome der Mechanik," by G. Hamel, Berlin.
"Die Prinzipe der Dynamik," by L. Nordheim, Göttingen.
"Die Hamilton-Jacobische Theorie der Dynamik," by L. Nordheim, Göttingen and E. Fues, Stuttgart.
"Störungsrechnung," by E. Fues, Stuttgart.
"Geometrie der Bewegungen," by H. Alt, Dresden.
"Geometrie der Kräfte und Massen," by C. B. Biezeno, Delft.
"Kinetik der Massenpunkte," by R. Grammel, Stuttgart.
"Kinetik der starren Körper," by M. Winkelmann, Jena and R. Grammel, Stuttgart.
"Technische Anwendungen der Stereomechanik," by Th. Pöschl, Prag.
"Relativitätsmechanik," by O. Halpern, Wien.

838. GRAMMEL, R. et al., "Grundlagen der Mechanik: Mechanik der elastischen Körper," Band VI of *Handbuch der Physik* (see No. 833 of this list), 632 pages, 290 illustrations. Price: unbound, RM 56; bound, RM 58.60. Berlin, 1928.

The table of contents, indicating the sections as written by the collaborating authors, is as follows:—

"Physikalische Grundlagen der Elastomechanik," by A. Busemann and Otto Föppl, Braunschweig.
"Mathematische Elastizitätstheorie," by E. Trefftz, Dresden.
"Elastostatik," by J. W. Geckeler, Jena.
"Elastokinetik," by F. Pfeiffer, Stuttgart.
"Elastizitätstheorie anisotroper Körper (Kristallelastizität), by J. W. Geckeler, Jena.
"Plastizität und Erddruck," by A. Nàdai, Göttingen.
"Der Stoss," by Th. Pöschl, Karlsruhe.
"Seismik (Erdbebenwellen)," G. Angenheister, Potsdam. See No. 701 of these lists.
"Tafeln der Elastizitätskonstanten und Festigkeitszahlen," by P. Riekert, Stuttgart.

— GRAMMEL, R., "Kinetik der Massenpunkte." See No. 837 of this list.

—— GRAMMEL, R. and WINKELMANN, M., "Kinetik der starren Körper." See No. 837 of this list.

839. GRUNMACH, Leo., "Experimentaluntersuchung zur Messung von Erderschütterungen," Physikalisches Institut der Königlichen Technischen Hochschule zu Berlin (verlag von Leonhard Simion, Berlin), 102 pages, 59 diagrams, Berlin, 1913.

The subtitle reads: "Zusammenfassender Generalbericht über die im Auftrage der Provinzialverwaltung Schlesiens ausgeführte Untersuchung zur Messung der an der Queistalsperre bei Marklissa durch den Wasserabsturz hervorgerufenen Erschütterungen."

840. GUNN, Ross, "Earth-movements and Terrestrial Magnetic-variations," *Terrestrial Magnetism and Atmospheric Electricity*, **35**, No. 3, 151-156, Baltimore, September, 1930.

The author's abstract reads: "It is shown that a general contraction of the earth or a movement of a small part of it may give rise to appreciable disturbing magnetic fields. The movement of a conducting region inside the earth across the earth's magnetic field sets up electromotive forces which may produce large current-systems. These current-systems can give rise to the observed magnetic variations if the conductivity of the earth's core is sufficiently large.

"Earlier determinations of the resistivity of the earth's core are found to be several orders of magnitude too high, due to the neglect of skin-effects. It seems probable that the electrical time-constant of the earth's core is not less than 1000 years, and therefore magnetic diurnal-variation data cannot be used to calculate its conductivity."

841. GUTENBERG, B., "Schallgeschwindigkeit und Temperatur in der Stratosphäre," *Gerlands Beiträge zur Geophysik*, **27**, No. 2, 217-225, Leipzig, 1930.

Compares recorded air-waves with those reported from ear-observations, and discusses the height at which velocity of sound begins to increase. A method is given for determining sound velocity in the stratosphere.

Investigations such as this represent a further widening of the field for the application of principles of seismology which they employ. L.D.L.

842. GUTENBERG, B., "Kräfte in der Erdkruste," *Handbuch der Geophysik*, **3**, Chapters 1 and 2, 1-31, Berlin, 1930. B.G.

The first chapter deals with continuing forces—those due: to temperature difference within the earth, to drift from the poles to the equator (Polfluchtkraft), to tidal action, the forces evidenced in the "wandering of the pole," and those due to changes in the rotation period of the earth.

The second chapter deals with temporary forces of local effect. These are due to: changes in barometric pressure, to physical or chemical changes in the crust of the earth, to the difference in elevation of layers of the earth, to differential warming of the crust, to differential and changing sea-level, and to a general series—sedimentation, denudation, growth or melting of ice, etc. (See note at end of next item of this issue of the Bibliography.)

843. GUTENBERG, B., "Geotektonische-Hypothesen," *Handbuch der Geophysik*, **3**, Chapters 19-27, 442-547, 46 figures, Berlin, 1930.

The *Handbuch der Geophysik* is being published by Gebrüder Borntraeger, Berlin, and edited by Professor Gutenberg. See also No. 332 of these lists. B.G.

—— HALPERN, O., "Relativitätsmechanik." See No. 837 of this list.

—— HAMEL, G., "Die Axiome der Mechanik." See No. 837 of this list.

844. HECKER, O. et al., "Tätigkeitsbericht der Reichsanstalt für Erdbebenforschung für 1929," Mimeographed pamphlet of 14 pages published by the Reichsanstalt für Erdbebenforschung in Jena, 1930.

The pamphlet presents the following information—
(1) Personnel of the institution.
(2) Earthquake investigations.
(3) Applied Geophysics:
  (a) Gravity measurements.
  (b) Seismograph measurements.
  (c) Earth-magnetism measurements.
  (d) Air wave measurements.
  (f) Radio-active methods.
  (g) Courses of instruction.
  (h) Publications.
  (i) Construction.

845. HEILAND, C. A., "A New Geophone," The American Institute of Mining and Metallurgical Engineers, Technical Publication No. 330, Class L, Geophysical Prospecting, No. 22, 10 pages, New York, 1930.

846. HEILAND, C. A., "Geophysical News and Review," *The Colorado School of Mines Magazine*, **21**, No. 1, 32-33, Golden, January, 1931.

*Geophysical News and Review*, previously published in mimeographed form by the Colorado School of Mines, is now to appear in the printed *Colorado School of Mines Magazine*. It will continue to be edited by Dr. C. A. Heiland, assisted by Dart Wantland. The *Review* deals particularly with applied or practical geophysics, though general papers on geophysics are also reviewed in its columns. The subscription price of the *Magazine* is a dollar and a half a year. It appears monthly (twelve issues per year). The mimeographed issue of the *Geophysical News and Review* is discontinued from the above date.

847. HIGGINSON, H. W., "On the Trail of an Earthquake," *International Communications Review*, **7**, No. 1, 49-56, 5 illustrations, New York, January, 1931.

The article describes the difficulties experienced in repairing the submarine cables broken by the Grand Banks Earthquake of November 18, 1929. The author, a member of the Plant Department of the Commercial Cable Company, is particularly well situated to deal with the above subject, which he has done in an interesting and informative manner.
H.W.H.

848. HIGUCHI, S., "On the Forced Vibration of an Elastic Rod," *Proceedings of the Imperial Academy*, **6**, No. 8, 306-309, Tokyo, October, 1930.

849. HOLLANDSKI, P. T., "Earthquake Resistant Building for the Crimea" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 99-112, Simpheropol, 1928.

A brief general description of antiseismic measures and of methods of construction as applied to the Crimea. N.V.R.

850. IMBO, Giuseppe, "Il terremoto calabro del 7 marzo 1928," *Bollettino della Società Sismologica Italiana*, **29**, No. 1-2, 9-25, Rome, 1930.

851. KAO, Pan-Tcheng, "Sur les vibrations du quartz piezoelectrique suivant l'axe optique," *Comptes rendus*, **191**, No. 18, 768-770, Paris, November 3, 1930.

852. KLEINSCHMIDT, E., "Eine neue württembergische Erdbebenwarte," *Zeitschrift für Geophysik*, **6**, No. 4-7, 370-376, Göttingen, 1930.

A description of the establishment and organization of the new earthquake observatory in Stuttgart, Geophysikalische Abteilung, Württembergisches Statistisches Landesamt, Buchsenstrasse 56, Stuttgart, Württemberg, Germany. W.H.

853. KLUSSMANN, Walther, "Über das Innere der Erde," *Gerlands Beiträge zur Geophysik*, **14**, 1-38, Leipzig, 1915.

854. KOTO, Bundjiro, "The Iwatsuki Seismic Zone a Factor of the Habitual Tokyo Earthquake," *Journal of the Faculty of Science, Tokyo Imperial University*, **3**, Part 1, 1-21, 3 plates, 4 figures, 1929.

855. LACOSTE, J., "Sur la variation du coefficient d'amortissement avec la période dans les séismographes," *Journal de Physique et le Radium*, **10**, No. 2, 54-55, Paris, 1929.

A review by Mainka appears in *Physikalische Berichte*, **11**, Heft 19, page 2065, Braunschweig, October 1, 1930.

856. LAKE, Philip, "Mountain and Island Arcs," *The Geological Magazine*, No. 799, **68**, 34-39, London, January, 1931.

857. LANDSBERG, Helmut, "Vergleich der Aufzeichnungen zweier Galitzinpendel mit verschiedener Eigenperiode," *Gerlands Beiträge zur Geophysik*, **27**, Heft 3-4, 326-359, 8 figures, Leipzig, 1930.

The above paper comprises the author's Dissertation presented to the Naturwissenschaftlichen Fakultät der Universität Frankfurt a.M. Lengthy abstracts in German, in French, and in English are given by the author. The article describes the results of systematic recording of ninety-four earthquakes by means of two Galitzin seismographs (with free periods of three and eighteen seconds, respectively) set to record the same component on the same pier at Taunus Observatory. The relative value of the instruments is described for various parts of earthquake records and for microseisms. (A previous brief report has been published by Gutenberg—see No. 526 of these lists.)

858. LAZAREV, P. P., "Achievements of Geophysics" (in Russian), State Publishing Office, 83 pages, 43 figures. Price 1 rub. Moscow-Leningrad, 1929.

Chapter 2 deals with the experimental study of the processes occurring in the earth's crust (pp. 27-65). N.V.R.

859. LEE, Frederick W., "Geophysical Abstracts," United States Bureau of Mines, No. 18 (Circular 6393), 27 pages, October: No. 19 (Circular 6403), 31 pages, November: No. 20 (Circular 6422), 29 pages, December: Washington, 1930. F.W.L.

860. LEE, J. S., "Further Notes on Structural Types and Earth Movements," *The Geological Magazine*, No. 799, **68**, 15-24, 2 figures, London, January, 1931.

861. LITCHKOV, B. L., "Isostasy and Modern Ideas of the Earth's Crustal Movements" (in Russian), *Priroda (Nature)*, **17**, Nos. 7-8, 654-684, 2 figures, Leningrad, 1928.

A retrospective outline of the effect produced by the theory of isostasy upon modern ideas of geologists as to vertical and horizontal motion in the earth crust. An extensive bibliography accompanies the paper. N.V.R.

862. MARKIEWICZ, A. J., "Annals of Earthquakes in the Crimea (historical information)" (in Russian), *Collected Papers of the Crimean Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 64-73, Simpheropol, 1928.

Historical information with regard to earthquakes which have occurred in the Crimea since 480 of our era. N.V.R.

863. MARTIN, H., "Luft- und Bodenseismik: Bodenseismik," *Handbuch der Experimentalphysik*, **25**, No. 3, 251-302, 47 figures, Leipzig, 1930.

The *Handbuch der Experimentalphysik* is published by Akademische Verlagsgesellschaft G.m.b.H., Leipzig. The above section by H. Martin, and the companion section by O. Meisser (see No. 864 of this list), both officials of the Reichsanstalt für Erdbebenforschung in Jena, are published as reprints. Beautifully arranged, clearly expounded, and well illustrated, they are a valuable contribution to the literature of seismology. O.M.

864. MEISSER, O., "Luftseismik," *Handbuch der Experimentalphysik*, **25**, No. 3, 211-251, 30 figures, Leipzig (Akademische Verlagsgesellschaft, G.m.b.H.), 1930. O.M.

Presents the theory, practice, and instrumental technique involved in studies of sound propagation in the atmosphere from artificial explosions, volcanic outbursts, and similar sources.

This article outlines some of the work which an increasing number of German investigators have been doing in the past few years along the line of applying principles of seismology to studies of the upper air. L.D.L.

See also No. 863 of this list, for the companion article by H. Martin.

865. MENDEL, H., "Die seismische Bodenunruhe in Hamburg und ihr Zusammenhang mit der Brandung," *Zeitschrift fur Geophysik*, **6**, Heft 1, 32-41, Göttingen, 1930.

The above presents a somewhat detailed summary of the author's doctorate dissertation, reported as No. 146 of these lists.

866. MOHOROVIČIĆ, S., "Die reduzierte Laufzeitkurve und die Abhängigkeit der Herdtiefe eines Bebens von der Entfernung des Inflexionspunktes der primären Laufzeitkurve. (II Mitteilung: Die Ausbreitung der Erdbebenstrahlen in den tiefen Schichten der Erde.)," *Gerlands Beiträge zur Geophysik*, **14**, 187-198, Leipzig, 1915.

Mitteilung I was reported as No. 62 of these lists.

— MOTHES, H. and BROCKAMP, B., "Seismische Untersuchungen auf dem Pasterzegletscher." See No. 820 of this list.

867. MYARD, F. E., "Sur une généralisation du joint de Cardan," *Comptes rendus*, **191**, No. 19, 830-832, Paris, November 10, 1930.

— NÁDAI, A., "Plastizität und Erddruck." See No. 838 of this list.

868. NAKAMURA, Saemontaro, "On the Topographical Changes in the Sea-bottom of Sagami Bay preceding the Earthquake of 1923," *Proceedings of the Fourth Pacific Science Congress, Java, 1929*, Vol. 2B, page 1071, Batavia, 1930.

The above paper is reported in the Proceedings by abstract only. This reads as follows: "The writer, by studying the charts issued by the Hydrographic Department of the Imperial Navy in 1907 and in 1914, worked out the contour lines of the sea-bottom of Sagami bay for these years and found that remarkable topographical changes had been taking place there during the interval between these periods, possibly a premonitory phenomenon of the great earthquake that occurred in 1923."

869. NEUMANN, Frank, "Seismological Report, July, August, September, 1927," United States Department of Commerce, Coast and Geodetic Survey, Serial Number 495, 60 pages, Washington, 1930.

870. NIKIFOROFF, P. M., "On the Organization of Geologic-Seismological Investigations and Seismic Service in the Crimea (Report Note)" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 74-76, Simpheropol, 1928.

According to the Report Note, in order to secure materials for scientific conclusions as to the character and immediate causes of the Crimean earthquakes, it is necessary to: (1) organize regular seismometric observations at four points in the Crimea; (2) carry out the gravimetric survey of the Crimea; (3) determine the subterranean relief of the basal rocks (seismologic prospecting); (4) carry out the route survey of the Crimea. N.V.R.

871. NODON, Albert, "Recherches sur les perturbations électromagnétiques, sismiques et solaires," *Comptes rendus*, **188**, No. 10, 725-726, Paris, 1929.

A review by Ebert appears in *Physikalische Berichte*, **11**, Heft 19, 2066, Braunschweig, October 1, 1930.

— NORDHEIM, L., "Die Prinzipe der Dynamik." See No. 837 of this list.

— NORDHEIM, L. and FUES, E., "Die Hamilton-Jacobische Theorie der Dynamik." See No. 837 of this list.

872. OBRUTCHEV, V. A., "Is a Downfall of the Crimea Possible?" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 3-15, Simpheropol, 1928.

The paper is called forth by the rumours which circulated among the population as to the possibility of a sudden sinking of the Crimean peninsula. N.V.R.

873. ODDONE, Emilio, "Sulla termicità delle acque sotterranee," *Memorie del Reale Ufficio Centrale di Meteorologia e Geofisica*, Serie III, **2**, 34 pages, Rome, 1929.

Section vi deals with the subject "Correlazione tra le sorgenti termali e le aree sismiche?"

874. ODDONE, Emilio, "Sul come rimediate, nella emissione dei radiogrammi, alle perturbazioni dovute alle oscillazioni meccaniche dei fili ad incandescenza per via degli alternatori ad alto frequenza," *Bollettino della Società Sismologica Italiana*, **28**, No. 3-4, 107-116, Rome, 1929.

875. PERRIER, Georges, "La quatrième Assemblée générale de l'Union géodésique et géophysique internationale, Stockholm, août 1930," *Comptes rendus*, **191**, No. 16, 631-634, Paris, October 20, 1930.

A brief account is given of the action taken at the Stockholm meeting with regard to organization details.

— PFEIFFER, F., "Elastokinetik." See No. 838 of this list.

876. POPOV, S. P., "Mud Volcanoes" (in Russian), *Priroda* (*Nature*), **17**, No. 6, 542-554, 6 figures, Leningrad, 1928.

The author gives a brief description of the characteristics of the mud-volcanic process and its manifestation in the Caucasus, dwelling in particular upon the Crimean mud-volcanoes in connection with the earthquakes of 1927. N.V.R.

— PÖSCHL, Th., "Technische Anwendungen der Stereomechanik." See No. 837 of this list.

— PÖSCHL, Th., "Der Stoss." See No. 838 of this list.

877. RAÏKO, N. V., "Zone épicentrale des tremblements de terre en Crimée," *Académie des Sciences de l'Union des Republiques Sovietiques Socialistes*. No. 3, 13 pages, 5 figures, 5 tables, 1 plate, Leningrad, 1930. N.V.R.

The publication is in Russian with a lengthy abstract in French. The author describes the establishment of four stations in the Crimea, equipped with horizontal seismographs of the Nikiforoff pattern. The records obtained are listed and the actively seismic section of the Crimea defined. This is shown to be very limited in extent, the centre being approximately 44°·5 N., 54°·5 E.

878. RAÏKO, N. V., "Sur la possibilite d'observer la phase de Mohorovičić dans les tremblements de terre au Caucase," *Academie des Sciences de l'Union des Republiques Sovietiques Socialistes*, No. 12, 10 pages, 5 tables, bibliography, 2 plates, Leningrad, 1930. N.V.R.

The paper is in Russian with the following abstract in English: "On the Possibility of Observing the Phase of A. Mohorovičić in the Seismograms of Earthquakes in the Caucasus: The phases of A. Mohorovičić,...$P_m$, have been revealed by the two Leninakan earthquakes of 22 October, 1926. That this phase is really that of A. Mohorovičić is confirmed by a computation of the velocity of propagation of the wave $P_m$ recorded in table 4. . . The mean value of this velocity proved to be 5.75 km./sec. whereas the foreign authors have found for the velocity of propagation of seismic waves in the surface layer of Middle Europe some smaller values as shown in table 5. This may be explained by the fact that the surface layer in the Caucasus is composed of more elastic rocks than is that of Middle Europe. . . ."

— REICH, H. and BARSCH, O., "Ergebnisse seismischer Unterschungen über den Schichtenaufbau von Norddeutschland." See No. 807 of this list.

879. REID, Harry Fielding, "On Mass Movements in Tectonic Earthquakes and the Depth of Focus," *Gerlands Beiträge zur Geophysik*, **10**, 318-350, 9 figures, Leipzig, 1910.

— RIEKERT, P., "Tafeln der Elastizitätskonstanten und Festigkeitszahlen." See No. 838 of this list.

880. RODÈS, L., "Périodes diurne et annuelle dans la distribution de 1944 tremblements de terre enregistrés par un même sismographe," *Comptes rendus*, **190**, No. 7, 422-424, Paris, 1930.

A review by A. Blanc is given in *Le Journal de Physique et le Radium*, Série VII, Tome I, No. 9, 755D, Paris, September, 1930. It reads as follows: "L'enregistrement de 1944 tremblements de terre, fait à l'observatoire de l'Ebre pendant seize années, manifeste un maximum diurne correspondant aux heures durant lesquelles la zone sismique qui s'étend des Andes à l'Alaska atteint sa température maxima, et un minimum diurne correspondant aux heures où les rayons solaires tombent sur l'Océan Indien et sur une grande partie des continents européen et africain. Pendant l'année, on enregistre plus de temblements de terre quand le soleil se trouve dans l'hémisphère nord que lorsuqu'il est dans l'hémisphère sud. On ne peut mettre en doute l'influence directe du soleil dans la genèse des tremblements de terre."

881. ROTHÉ, E., "Conférence sur les travaux de Emil Wiechert," *Gerlands Beiträge zur Geophysik*, **28**, Heft 4, 390-412, bibliography, Leipzig, 1930.

The above review of Wiechert's work by Rothé was presented at the Stockholm conference of the International Geodetic and Geophysical Union, August 22, 1930.

— SCHEEL, Karl and GEIGER, H., "Handbuch der Physik." See No. 833 of this list.

882. SCHWINNER, Robert, "Die Makroseismen vom 14. Mai 1930, bezogen auf den Bau der Ostalpen," *Gerlands Beiträge zur Geophysik*, **28**, Heft 4, 413-438, 3 text figures, Leipzig, 1930.

Non-uniformity in the diminution of intensity as estimated at 160 places distributed about the epicentre of the earthquake of the above indicated date was found to bear no relation to the surface formation. From a study of the intensity estimates (on the Forel-Mercalli scale) the author deduces the structure of the eastern Alps.

883. SCIENCE SERVICE, "A Newly-found Submarine Valley Will Guide Ocean Liners," *Science News Letter*, No 504, **18**, 355–356, Washington, December 6, 1930. (Also in *Science* No. 1875, **72**, x, New York, December 5, 1930.)

The article announces the discovery by the United States Coast and Geodetic Survey of a deep rift running through Georges Bank near its eastern end. The valley is about eight miles long and nearly half a mile deeper than the adjacent ocean floor. In view of the fact that it is some 500 miles distant from the epicentre of the Grand Banks Earthquake of November 18, 1929, it is concluded that there is no connection between them, the valley having been missed in the earlier soundings over this region.

884. Scientific Research Institute of the Crimea, "The Black Sea Quakes of 1927 and the Fate of the Crimea" (in Russian), State Publishing Office of the Crimea, 112 pages. Price 1.40 rub. Simpheropol, 1928.

The publication of collected scientific papers of a popular nature referring to the earthquakes which occurred in the Crimea was undertaken in order to furnish reliable information with regard to the quakes and their effects in the Crimea, as well as to secure funds to lend assistance to those who suffered in the disaster. See also Nos. 827, 828 (1), 849, 862, 870, 872, 886 and 889 of this issue of the Bibliography. N.V.R.

885. Sieberg, A., "Geologie der Erdbeben," *Handbuch der Geophysik*, **4**, Lieferung 2, Chapters 13-28, 160 pages, 107 figures, 35 tables, Berlin, 1930. R.R.B.

See note at end of item 843 of this list.

886. Skvortzov, E. J., "Some Results of an Expedition for the Purpose of Investigating the Bottom of the Black Sea, in Connection with the Earthquake" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 50-63, Simpheropol, 1928.

In connection with the earthquakes, an investigation of the bottom of the Black sea was undertaken to the depth of 100 to 1000 fathoms, between the meridians of the Tarkhankut Lighthouse and Alushta, by means of Ekman's deep sounding pipes 1.75 m. long. Two kinds of silt were discovered; the density of the former gradually increases downwards; that of the second is almost equal to stone. The latter variety occurs but at few places; it constitutes a narrow border along the southern part of the Crimea at a depth of about 700 fathoms. At about the meridian of Alushta this border seems to be torn, both extremities being displaced and overlying each other (A chart of the distribution of the latter kind of slime is annexed). According to the author, these phenomena are due to the recent earthquakes. N.V.R.

887. Somville, O., "A propos d'une onde longue dans la première phase de quelques séismogrammes," *Gerlands Beiträge zur Geophysik*, **27**, Heft 3-4, 437-442, 7 figures, Leipzig, 1930.

888. Steinmann, G., "Results of the Geotectonic Movements on the West Coast of South America with Prospects of Future Researches," *Proceedings of the Fourth Pacific Science Congress, Java, 1929*, Vol. 2B, 797-803. Batavia, 1930.

889. Szymanowski, S. V., "Communication on the Crimean Quake of September 12, 1927" (in Russian), *Collected Papers of the Crimean Scientific Research Institute, "The Crimean Quakes of 1927 and the Fate of the Crimea,"* 43-49, Simpheropol, 1928.

A chart of the isoseists of the earthquake and the records of mareographs of the Caucasian and Crimean coasts led the author to the conclusion that: (1) the epifocal zone is situated in the sea not far from the south coast of the Crimea and seems to correspond to that of the quake of June 26, 1927; (2) the epifocal zone is of linear shape and, to judge from the arrival of the tidal wave recorded by the mareographs, lies not farther than 40 km. from Sebastopol and 50 km. from Yalta. For the period from September 11 to December 31, 1927, 351 shocks were recorded at Yalta. N.V.R.

890. TAMS, E., "Das Epizentrum des südatlantischen Grossbebens vom 27. Juni 1929," *Zeitschrift für Geophysik*, **6**, Heft 8, 480-482, Göttingen, 1930.

The following is a translation of the German abstract furnished by Professor Tams:
The coördinates of the epicentre, by the P-time method of Geiger, are determined as Lat. 54°·0 S.; Long. 29°·6 W., with an uncertainty of about 40 kilometers in latitude and in longitude. The point so designated lies in the northwestern region of the South Sandwich Deep, presumably immediately to the north of the trough. E.T.

891. TIHANOVSKI, T. T., "The Simpheropol Seismic Station of the Academy of Sciences of the U.S.S.R. (at the Crimean Scientific Research Institute)," (in Russian), *Annals of the Crimean Scientific Research Institute*, 15-20, Simpheropol, 1929.

A description of the regional seismic station Simpheropol with brief results of observations according to which: (1) the epicentral distances of the Crimean earthquakes are between fifty and seventy-four km.; (2) the azimuths of the epicentres are in the SSE-SE sectors; (3) the first arrival of longitudinal waves produces a dilatation. A brief summary in German accompanies the paper. N.V.R.

892. TIMOSHENKO, S., "Vibration Problems in Engineering," Van Nostrand and Co., 351 pages, illustrated. Price $4.50. New York, 1928.

This publication, by Professor Timoshenko of the University of Michigan, deals with vibration essentials in combination with their application in the solution of practical problems. The subject matter ranges from harmonic and non-harmonic vibrations of a single degree of freedom, through systems of several degrees of freedom, vibrations of elastic bodies, and finally a section describing instruments used for recording vibrations. R.R.B.

— TREFFTZ, E., "Mathematische Elastizitätstheorie." See No. 838 of this list.

893. TSUBOI, Chuji, "Geophysical Significance of the Areal Deformation of the Base Line Rhombus at Mitaka," *Proceedings of the Imperial Academy*, **6**, No. 9, 367-370, Tokyo, November, 1930.

The introductory paragraph reads: "There is a special set of geodetic base lines in the compound of the Tokyo Astronomical Observatory at Mitaka. They form a rhombus whose four sides as well as one of the diagonals NS are 100 m. long. In the interval of twelve years from 1916 to 1927, the lengths of the lateral sides and the diagonal NS of the rhombus were measured fifteen times with the accuracy up to 0.01 mm. by the hands of the Land Survey Department of the Imperial Army under the supervision of the Imperial Japanese Geodetic Commission. It was found that these lengths did not remain exactly constant but were subject to small variations between two successive measurements which were usually less than 0.5 mm. An abnormally large elongation occurred at the time of the great Kwanto earthquake of 1923 in the length of the diagonal NS which was as much as 3.54 mm."

894. VAUGHAN, T. Wayland et al., "Report of the Committee on Submarine Configuration and Oceanic Circulation," published in mimeographed form by the United States National Research Council, of which body the above Committee is a part. The report was presented at the Annual Meeting of the Division of Geology and Geography of the National Research Council, May 3, 1930, 134 pages, Washington, 1930.

Included in this report is an account of the oceanographic phases of the Fourth Pacific Science Congress at Java, 1929. The papers on oceanographic subjects are listed under various headings—Gravity, Physical Oceanography, etc. Although other papers listed will be of interest to seismologists, the only ones directly dealing with that science are: E. L. Jones, "The Relation of Earthquake Epicentra and Ocean Deeps," and S. Nakamura, "On the Topographical Changes in the Sea Bottom of Sagami-bay Preceding the Earthquake of 1923."

895. VAUTIER, Th., "Recherches expérimentales sur la propagation d'ondes aériennes dans un long tuyau cylindrique," *Annales de Physique*, **14**, 263-614, 69 figures, 30 plates, Paris, November, 1930.

896. WANNER, E., "Geschwindigkeit der Phasen der Erdbebenwellen im Alpengebiet," *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich*, **75**, 195-210, 8 tables, 9 plates, Zürich, 1930. E.W.

897. WILIP, J., "Über ein in Pulkovo registriertes künstliches Erdbeben," *Comptes rendus des seances de la Commission Sismique Permanente*, Tome 6, Livraison 2, 173-184, Petrograd, 1914. J.W.

898. WILIP, J., "Über Temperaturkompensation bei Vertikalseismographen," *Sitzungsberichte der Naturforscher-Gesellschaft*," **35**,, Heft 3-4, 147-154, Dorpat, 1930. J.W.

899. WILIP, J., "A Galvanometrically Registering Vertical Seismograph with Temperature Compensation," *Acta et Commentationes Universitatis Tartuensis (Dorpatensis)*, A. XX. 6, 54 pages, 8 figures, 10 tables, Dorpat, 1930.

The author's summary reads:

"A description is given here of a vertical seismograph with temperature compensation, which until now has only been constructed in Estonia.

"The theory of this apparatus is deduced and proved by means of measurements, the conformity being found to be sufficiently great.

"Directions are given for the adjustment of the apparatus and especially of the temperature compensation.

"The temperature compensation proves to be very correct with proper treatment, and the vertical seismograph will stand prolonged working in the pendulum room without any protection against heat.

"Methods are discussed for a more precise adjustment of the period symmetry.

"The pendulum shows a very regular oscillation with a weak proper damping, the period depending only very little on the amplitude.

"The principles of construction advocated by the author have proved very successful and allow a general application of them in the construction of vertical seismographs of different sensitiveness and methods of registration to be expected.

"With a loosely fitting cover the influence of variable atmospheric pressure is observed. The seismograph acts like a baroscope.

"The dependence of the proper period on the temperature is ascertained and a method is recommended for easily avoiding possible errors.

"The constants are determined and the sensitiveness is examined, which gives a maximum magnification of about 1500 times and may be increased at wish.

"A secondary phenomenon is observed in the apparatus and precautionary measures are indicated for removing the same.

"The difference of temperature outside and inside the glass cover is examined.

"Henceforth cellar rooms with small annual amplitude of temperature are found to be no longer necessary for the erection of seismographs.

"Any quiet room with provision for heating can be used as a room for a seismic station." J.W.

— WINKELMANN, M. and GRAMMEL, R., "Kinetik der starren Körper." See No. 837 of this list.

900. ZEPPIERI, Giuseppe, "L'Osservatorio sismico del Collegio Alberoni in Piacenza," *Bollettino della Società Sismica Italiana*, **29**, No. 1-2, 43-52, 3 diagrams, 2 plates, Rome, 1930.

The article describes the station at Piacenza. It announces the installation of the Wiechert obtained from Pola—a seismograph station formerly operated by the Austrian government. A description is given of the improvements introduced in the Vicentini seismographs. The gravity restoring force is left the dominating one but it is reduced by the introduction of a magnetic field, thus greatly increasing the sensitivity of the instruments. J.B.M.

## LIST OF COLLABORATORS

The items for this issue of the Bibliography were compiled while the editor was stationed at the Geophysical Laboratory of Saint Louis University. The compilation was made possible through the kindness of Rev. James B. Macelwane, S.J., Dean of the Graduate School and Director of the Department of Geophysics, who arranged that all incoming scientific journals containing articles on seismology or allied subjects should pass through the hands of the editor. Although but one of the listed items is marked with Dr. Macelwane's initials, his coöperation in the work of the entire issue is hereby gratefully acknowledged.

Attention is drawn to the large contribution by Dr. Raïko in reporting numerous papers (twenty-two titles) in Russian, and in preparing, in nearly every case, a comprehensive index of the nature of each.

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

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