

GLACIOLOGICAL LITERATURE

THIS selected list of glaciological literature has been prepared by J. W. Glen with the assistance of T. H. Ellison, W. B. Harland, Miss D. M. Johnson, and the Staff of the Scott Polar Research Institute. Its field is the scientific study of snow and ice and of their effects on the earth; for the literature on polar expeditions, and also on the "applied" aspects of glaciology, such as snow ploughs, readers should consult the bibliographies in each issue of the *Polar Record*. For Russian material the system of transliteration used is that agreed by the U.S. Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use in 1947. Readers can greatly assist by sending reprints of their publications to the Society, or by informing Dr. Glen of publications of glaciological interest.

GENERAL GLACIOLOGY

- AMBACH, W. Das wissenschaftliche Programm der Internationalen Glaziologischen Grönlandexpedition 1957-1960. *Die Pyramide* (Innsbruck), 1960, Nr. 2, p. 49-51. [Scientific programme of International Glaciological Expedition to Greenland, 1957-60; geodesy, glaciology, geophysics, oceanography.]
- AVSYUK, G. A. Glyatsiologicheskiiye issledovaniya v period Mezhdunarodnogo Geofizicheskogo Goda 1957-1958-1959 gg. [Glaciological studies during the International Geophysical Year, 1957-59]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya* [News of the Academy of Sciences of the U.S.S.R. Geographical Series], 1960, No. 5, p. 11-21. [Summary of results.]
- [CONFERENCES.] Antarctic symposium. Buenos Aires 17-25 November 1959. *Union Géodésique et Géophysique Internationale, Monographie* No. 5, 1960, 95 p. [Synopsis of communications read.]
- [GLACIOLOGY: PERIODICALS.] *Glaciological Notes* (New York, I.G.Y. World Data Center A, Glaciology), No. 1, 1960, 20 p. [New quarterly bulletin dealing with current activities and publications.]
- HATTERSLEY-SMITH, G. Research in the Lake Hazen region of northern Ellesmere Island in the International Geophysical Year. *Arctic Circular*, Vol. 12, No. 1, 1959, p. 2-12. [Expedition organized by Defence Research Board, Canada, to carry out meteorological, glaciological, geophysical and geological investigations in northern Ellesmere Island, 1957-58.]
- PALOSUO, E., and SCHYTT, V. Till Nordostlandet med den svenska glaciologiska expeditionen. *Terra*, Årg. 72, No. 1, 1960, p. 11-29. [Swedish glaciological expedition to Nordaustlandet, Spitsbergen, under Schytt, 1957 and 1958, and results. English summary.]
- SHUMSKIY, P. A., ed. *Vtoraya kontinental'naya ekspeditsiya 1956-1958 gg. Glyatsiologicheskiiye issledovaniya* [Second continental expedition, 1956-58. Glaciological studies]. Leningrad, Izdatel'stvo "Morskoy Transport" ["Morskoy Transport" Publishing House], 1960. 366 p. [Numbered "10".] [Collected papers on all aspects of Soviet glaciological work in Antarctica.]
- TUSHINSKIY, G. K., ed. *El'brusskaya ekspeditsiya Moskovskogo Gosudarstvennogo Universiteta i Instituta Prikladnoy Geofiziki Akademii Nauk SSSR* [El'brus expedition of Moscow State University and the Institute of Applied Geophysics of the Academy of Sciences of the U.S.S.R.]. *Informatsionnyy Sbornik o Rabotakh po Mezhdunarodnomu Geofizicheskomu Godu* [Information Handbook on Work for the International Geophysical Year], No. 4, 1959, 230 p. [Results of I.G.Y. expedition in glaciology, glacial geology, frozen ground studies and meteorology.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- ANDERSON, V. H. A technique for photographing snow-pit stratigraphy. *Journal of Geophysical Research*, Vol. 65, No. 3, 1960, p. 1080-82.
- AVEVITCH, V. I. The application of photogrammetry in I.G.Y. glaciological research. *Journal of Photographic Science*, Vol. 8, No. 2, 1960, p. 58-68. [Methods used on U.S.S.R. Antarctic expedition.]
- CLARK, D. B. A strain gauge technique for the dynamic measurement of ice. *Arctic*, Vol. 13, No. 2, 1960, p. 123-31.
- KASSER, P. Ein leichter thermischer Eisbohrer als Hilfsgerät zur Installation von Ablationsstangen auf Gletschern. *Geofisica Pura e Applicata*, Vol. 45, No. 1, 1960, p. 97-114. [Description of a light thermic ice drill to assist in the installation of ablation stakes on glaciers; also some data of ablation.]
- KUDRYAVTSEV, V. A., ed. *Izucheniyeye mekhanicheskikh i fizicheskikh svoystv l'da* [Study of the mechanical and physical properties of ice]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1957. 63 p. [Recommended methods for laboratory study of structure, density, strength and thermal properties.]
- LACLAVÈRE, G., and FISCHER, J. C. *La représentation cartographique du relief polaire*. Paris, Ministère des Travaux Publics et des Transports, Institut Géographique National, 1960. 11 p. [Proposals for standard designation of relief features in polar regions. Paper presented to 19^e Congrès International de Géographie, Stockholm, August 1960.]
- MELLOR, M. Gauging Antarctic drift snow. (*In Antarctic meteorology. Proceedings of the symposium held in Melbourne, February 1959*. London, Pergamon Press, [1960], p. 347-55.) [Description of author's two new types of drift snow-traps.]
- PAINTER, P. R., and SCHAEFER, V. J. Permanent replicas of the crystalline structure of hailstones. *Zeitschrift für Angewandte Mathematik und Physik*, Vol. 11, Fasc. 4, 1960, p. 318-26. [Technique.]
- RUDAKOV, V. N., and BOGORODSKIY, V. V. K voprosu ob izmerenii tolshchiny lednikov elektromagnitnymi metodami [Problem of measuring glacier thickness by electromagnetic methods]. *Zhurnal Tekhnicheskoy Fiziki* [Journal of Technical Physics], Tom 30, No. 1, 1960, p. 82-89. [Theoretical discussion of method.]
- SHLYAKHOV, V. I. Metodika izmereniya balansa radiatsii s samoleta [Method of measuring radiation balance from aircraft]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 21, 1960, p. 31-33. [Method successfully used in Antarctica.]

- SOROKHTIN, O. G., and others. Metodika i osnovnyye rezul'taty seismicheskikh i gravimetricheskikh issledovaniy stroyeniya vostochnoy Antarktidy [Methods and principal results of seismic and gravimetric studies of the structure of eastern Antarctica]. [By] O. G. Sorokhtin, O. K. Kondrat'yev [and] Yu. N. Avsyuk. *Izvestiya Akademii Nauk SSSR. Seriya Geofizicheskaya* [News of the Academy of Sciences of the U.S.S.R. Geophysical Series], 1960, No. 3, p. 396-401. [Translation in *Bulletin of the Academy of Sciences of the U.S.S.R. Geophysical Series*, 1960, No. 3, p. 265-68.]
- THOREN, R., comp. *Photographic interpretations of ice*. Washington, D.C., Office of Naval Research, 1960. 39 p. (ONR Report ACR-53.) [Papers by G. Teleki, T. E. Armstrong, M. Dunbar, E. Palosuo and V. Schytt on aspects of uses of air photography in floating and land ice studies.]
- [WAITE, A. H.] Antarctic ice depths measured by radio altimeter. *Antarctic*, Vol. 2, No. 5, 1960, p. 201-02. [New method giving depths very rapidly to accuracy of 7 m.]

PHYSICS OF ICE

- AMBACH, W. Beiträge zur Bestimmung des Extinktionskoeffizienten von Gletschereis. *Berichte des Deutschen Wetterdienstes*, Bd. 8, Nr. 54, 1959, p. 270-72. [Measurement of absorption coefficient of ice.]
- BERRY, R. J. The temperature-time dependence of the triple point of water. *Canadian Journal of Physics*, Vol. 37, No. 11, 1959, p. 1230-48. [Variations attributed to changes in ice crystals.]
- BRYANT, G. W., and others. The epitaxial growth of ice on single-crystalline substrates, by G. W. Bryant, J. Hallett and B. J. Mason. *Physics and Chemistry of Solids*, Vol. 12, No. 2, 1960, p. 189-95. [Study of temperature of formation and mode of growth of ice on surface.]
- COOK, J. C. RF electrical properties of salty ice and frozen earth. *Journal of Geophysical Research*, Vol. 65, No. 6, 1960, p. 1767-71. [Mainly laboratory measurements at 100 Mc/s.]
- DEUBNER, A., and others. Nachweis des Piezoeffektes am Eis. [By] A. Deubner, R. Heise and K. Wenzel. *Naturwissenschaften*, Bd. 47, Ht. 24, 1960, p. 600-01. [Effect observed in freshly formed ice crystals.]
- DOWELL, L. G., and RINFRET, A. P. Low-temperature forms of ice as studied by X-ray diffraction. *Nature*, Vol. 188, No. 4757, 1960, p. 1144-48. [Studies on cubic and "vitreous" ice and transformations.]
- DRESSLER, K., and SCHNEPP, O. Absorption spectra of solid methane, ammonia, and ice in the vacuum ultraviolet. *Journal of Chemical Physics*, Vol. 33, No. 1, 1960, p. 270-74. [Measurements on hexagonal and vitreous ice.]
- DUFOUR, L., and DEFAY, R. Sur l'impossibilité de nucléation homogène de glace dans l'air humide. *Institut Royal Météorologique de Belgique. Publications*, Ser. B, No. 28, 1960, p. 1-12. [Theoretical study suggesting that supercooled droplets are always formed first in absence of foreign nuclei.]
- FLETCHER, N. H. Entropy effect in ice crystal nucleation. *Journal of Chemical Physics*, Vol. 30, No. 6, 1959, p. 1476-82. [Theory of nucleation taking into account entropy of ice caused by orientation of surface molecules.]
- FLETCHER, N. H. Nucleation and growth of ice crystals upon crystalline substrates. *Australian Journal of Physics*, Vol. 13, No. 2A, 1960, p. 408-18. [Theory of nucleation and growth.]
- GOLD, L. W. The cracking activity in ice during creep. *Canadian Journal of Physics*, Vol. 38, No. 9, 1960, p. 1137-48. [Observations of cracks formed under constant compressive load.]
- GRÄNIGER, H., and JONA, F. Physik des Eises. *Helvetica Physica Acta*, Suppl. 5, 1960, p. 50-60. [Review.]
- HUTCHINSON, W. C. A. Ice-crystal contact electrification. *Quarterly Journal of the Royal Meteorological Society*, Vol. 86, No. 369, 1960, p. 406-07. [Experiments show effects to be very small.]
- JACCARD, C., and LEVI, L. Ségrégation d'impuretés dans la glace. *Zeitschrift für Angewandte Mathematik und Physik*, Vol. 12, Fasc. 1, 1961, p. 70-76. [Theory of distribution of impurities along a growing ice crystal, and comparison with experiment.]
- KAMB, W. B., and DATTA, S. K. Crystal structures of the high-pressure forms of ice: ice III. *Nature*, Vol. 187, No. 4732, 1960, p. 140-41. [Measurements by X-rays.]
- KINGERY, W. D. Regelation, surface diffusion, and ice sintering. *Journal of Applied Physics*, Vol. 31, No. 5, 1960, p. 833-38. [Mechanism of regelation discussed.]
- LAPLACA, S., and POST, B. Thermal expansion of ice. *Acta Crystallographica*, Vol. 13, No. 6, 1960, p. 593-95. [New measurements of single crystal expansion coefficients and of changes of crystal lattice dimensions.]
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- MERYMAN, H. T. General principles of freezing and freezing injury in cellular materials. *Annals of the New York Academy of Sciences*, Vol. 85, 1960, p. 503-09. [Discussion of formation of ice in frozen biological structures and causes of damage.]
- PERSIDSKY, M. D., and LUYET, B. J. Periodicity in the freezing of aqueous solutions. *Biodynamica*, Vol. 8, No. 164, 1960, p. 165-80. [Periodic variation in rate of growth and of structure of ice formed from freezing solutions.]
- SCHULZ, W. Untersuchungen über das Wachstum der Eiskristalle. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Bd. 11, Ht. 4, 1960, p. 593-31. [Microscopical studies of ice grown by condensation and sublimation.]
- SMITH, M., and POUNDER, E. R. Impurity concentration profiles in ice by an anthrone method. *Canadian Journal of Physics*, Vol. 38, No. 3, 1960, p. 354-68. [Measurements of impurity concentrations in frozen solutions.]
- STEPHENSON, J. L. Ice crystal formation in biological materials during rapid freezing. *Annals of the New York Academy of Sciences*, Vol. 85, 1960, p. 535-40. [Nucleation and growth rates of ice in biological materials.]
- TURCOTTE, D. L. The melting of ice in a hot humid stream of air. *Journal of Fluid Mechanics*, Vol. 8, No. 1, 1960, p. 123-29. [Theoretical analysis including vaporization or condensation.]
- VYALOV, S. S. Zakonomenosti deformirovaniya l'da [Principles of ice deformation]. (In *Sbornik materialov rasshirenogo soveshchaniya Rabochey Gruppy po Glyatsiologii Sovetskogo Mezhduvedomstvennogo Komiteta Mezhdurodnogo Geofizicheskogo Goda 20-24 maya 1958 g. v Moskve* [Collection of materials of the [enlarged?] conference of the

- Working Group in Glaciology of the Soviet Interdepartmental Committee for the I.G.Y. 20-24 May 1958 in Moscow.* Moscow, 1959, p. 73-76.) [Results of mechanical tests on snow and ice made in the laboratory in Antarctica.]
- WATT, A. D., and MAXWELL, E. L. Measured electrical properties of snow and glacial ice. *Journal of Research. National Bureau of Standards* (Washington, D.C.), Sect. D, Vol. 64, No. 4, 1960, p. 357-63. [Conductivity as a function of frequency.]
- LAND ICE. GLACIERS. ICE SHELVES
- ALLEN, C. R., and others. Structure of the Lower Blue Glacier, Washington, [by] C. R. Allen, W. B. Kamb, M. F. Meier, and R. P. Sharp. *Journal of Geology*, Vol. 68, No. 6, 1960, p. 601-25, map insert. [General study of this glacier including the foliation, ogives, crevasses, and the various ice fabrics.]
- AMBACH, W. Investigations of the heat balance in the area of ablation on the Greenland Ice Cap. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. B, Bd. 10, Ht. 3, 1960, p. 279-88. [Radiation is more important for melting than heat convection; evaporation is insignificant.]
- AMBACH, W. Studium des Wärmehaushaltes im grönländischen Inlandeis. *Acta Physica Austriaca*, Bd. 13, Ht. 2/3, 1960, p. 231-33. [Measurements of regime.]
- AVER'YANOV, V. G. O tendentsii sovremennogo oledeniya Antarktidy [Tendency in the development of contemporary glaciation in Antarctica]. *Doklady Akademii Nauk SSSR* [Reports of the Academy of Sciences of the U.S.S.R.], Tom 134, No. 5, 1960, p. 1155-57. [Mass budget of Antarctic Ice Sheet deduced to be positive.]
- AVSYUK, G. A. Sovremennaya izuchennost' lednikov Sovetskoy Arktiki [Present knowledge on the glaciers of the Soviet Arctic]. *Problemy Severa* [Problems of the North], 1959, Vyp. 3, p. 180-89.
- BARDIN, V. I., and SHIL'NIKOV, V. I. "Produktivnost'" berega vostochnoy Antarktidy ["Productivity" of the coast of eastern Antarctica]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 23, 1960, p. 28-32. [Amount of ice lost to Antarctica annually through calving of icebergs.]
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- BERZON, I. S., and others. Seismicheskiye issledovaniya na lednike Tuyuksu [Seismic studies on Tuyuksu glacier]. [By] I. S. Berzon, L. I. Bokanenko, V. S. Isayev. *Akademiya Nauk SSSR. Mezhdudedomstvennyy Komitet po Provedeniyu Mezhdunarodnogo Geofizicheskogo Goda*, [Rezultaty Issledovaniy,] IX i XII Razdely Programmy MGG (Glyatsiologiya i Seysmologiya) [Academy of Sciences of the U.S.S.R. Interdepartmental Committee for Participation in the International Geophysical Year, [Results of Investigations,] IX and XII Sections of the Programme of I.G.Y. (Glaciology and Seismology)], No. 3, 1959, p. 1-67. [Seismic methods of observing thickness and properties of glaciers.]
- BOGOSLOVSKIY, V. N. Temperaturnyy rezhim lednikovogo shchita Antarktidy [Thermal regime of the Antarctic Ice Sheet]. (In *Sbornik materialov rasshirenogo soveshchaniya Rabochey Gruppy po Glyatsiologii Sovetskogo Mezhdudedomstvennogo Komiteta Mezhdunarodnogo Geofizicheskogo Goda 20-24 maya 1958 g. v Moskve* [Collection of materials of the [enlarged?] conference of the Working Group in Glaciology of the Soviet Interdepartmental Committee for the I.G.Y. 20-24 May 1958 in Moscow]. Moscow, 1959, p. 77-78.) [Interpretation of englacial temperatures in terms of ice flow.]
- BOTTER, R., and others. Sur la teneur en deutérium des précipitations en Terre de Victoria, Antarctique, [par] R. Botter, C. Lorius, G. Nief. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, Tom. 251, No. 4, 1960, p. 573-75. [Variation with level of precipitation formation.]
- BÜDEL, J. Gletscherfragen. *Die Umschau in Wissenschaft und Technik*, Jahrg. 60, Ht. 8, 1960, p. 225-28. [Discussion of mass and temperature regime of glaciers, particularly in polar regions.]
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- DOLGUSHIN, L. D. Sovremennoye oledneniye Nan'-Shanya (Tsilen'-Shanya) [Contemporary glacierization of Nan Shan (Kilian Shan)]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya* [News of the Academy of Sciences of the U.S.S.R. Geographical Series], 1959, No. 6, p. 33-43. [General description of glaciers in this region of China.]
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- FRISTRUP, B. Studies of four glaciers in Greenland. *Geografisk Tidsskrift*, Bd. 59, 1960, p. 89-102. [Morphology of Napassortssuaq Gletscher, south Greenland, Sermikavsak, west Greenland, Hurlbut Gletscher, north-west Greenland, and Mitdluagkat Gletscher, east Greenland, in relation to physiography, climate and change of climate.]

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- GALE, R. T. Geology of Lava Beds National Monument. *Bulletin of the National Speleological Society*, Vol. 21, Pt. 2, 1959, p. 61-66. [Brief account of origin of ice found in lava tubes in California.]
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- HANSON, K. J. Radiation measurement on the Antarctic snowfield: a preliminary report. *Journal of Geophysical Research*, Vol. 65, No. 3, 1960, p. 935-46. [Measurements at South Pole.]
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- KAZANSKIY, A. B. O teplovom balanse poverkhnosti lednika Fedchenko [Thermal balance of the surface of Fedchenko glacier]. *Doklady Akademii Nauk SSSR [Reports of the Academy of Sciences of the U.S.S.R.]*, Tom 134, No. 4, 1960, p. 806-09. [Measurement at various stations on the glacier.]
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