

# GLACIOLOGICAL LITERATURE

THIS is a selected list of glaciological literature on 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. J. W. Glen of publications of glaciological interest. It should be noted that the Society does not necessarily hold copies of the items in this list, and also that the Society does not possess facilities for microfilming or photocopying.

## CONFERENCES

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- [UNION GÉODÉSIQUE ET GÉOPHYSIQUE INTERNATIONALE.] Symposium International sur les Aspects Scientifiques des Avalanches de Neige et de Glace. Davos (Suisse), 5-10 Avril 1965. *Bulletin de l'Association Internationale d'Hydrologie Scientifique*, 10e An., No. 2, 1965, p. 103-08. [Day by day programme.]

## GENERAL GLACIOLOGY

- CHANG CHUNG-YING. Huo-hsing ti ti-hsia ping-hai [A subterranean glacier on Mars]. *K'o-hsiieh Ta-chung* [Popular Science], 1963, No. 9, p. 29. [Suggests ice layer with maximum thickness 2 km. covering Mars.]
- DAUVILLIER, A. Albedos planétaires et périodes glaciaires. La glaciation de Vénus. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 256, No. 4, 1963, p. 836-38. [Infers that Venus is permanently glaciated.]
- GRAVE, N. A., and others. Promerzaniye zemnoy poverkhnosti i oledeniye Khrebtta Suntar-Khayata (vostochnaya Yakutiya) [Freezing of the earth's surface and glaciation of Khrebet Suntar-Khayata (eastern Yakutiya)]. [By 8 authors.] *Rezultaty Issledovaniy po Programme Mezhdunarodnogo Geofizicheskogo Goda. Glyatsiologiya. IX Razdel Programmy MGG* [Results of Investigations in the Programme of the International Geophysical Year. Glaciology. IX Section of Programme for the I.G.Y.], No. 14, 1964, 143 p. [Permafrost and glaciological results of I.G.Y. expedition to this area.]
- KALESNIK, S. V. *Ocherki glyatsiologii* [Survey of glaciology]. Moscow, Izdatel'stvo "Geografiz" [Publishing House "Geografiz"], 1963. 551 p. [Summary of present knowledge on ice and glaciers.]
- POUNDER, E. R. *The physics of ice*. Oxford, etc., Pergamon Press, 1965. vii, 151 p. (The Commonwealth and International Library. Geophysics Division.) [Book primarily concerned with physics of lake, river and sea ice.]
- THEAKSTONE, W. H. Recent studies in the Svartisen area. *Norsk Geografisk Tidsskrift*, Bd. 19, Ht. 7-8, 1963-64, [pub. 1965], p. 318-34. [Summary of geomorphological and glaciological researches in this area between 1956 and 1963.]

## GLACIOLOGICAL INSTRUMENTS AND METHODS

- HENNING, H. Zur Bestimmung des Wassergehaltes einer Schneedecke unter Benutzung von Gamma-Strahlen an der meteorologischen Station Fichtelberg. *Zeitschrift für Meteorologie*, Bd. 17, Ht. 7-8, 1964, p. 229-33. [Study of suitability of M-31 Gamma Snow Sonde made in U.S.S.R.]
- WILLIAMS, G. P. Use of a thermopile to measure the supercooling of water. *Canada. National Research Council. Division of Building Research. Building Research Note* No. 49, 1965, 6 p. [The thermopile has one side coated with a non-ice-nucleating material, the other side is uncoated. In supercooled water ice will grow on the uncoated side only.]

## PHYSICS OF ICE

- BACHASSON, B., and CHAILLOU, A. Thermoluminescence de la glace déformée artificiellement. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 260, No. 6, 1965, p. 1709-11. [Up to four peaks found.]
- BOGORODSKIY, V. V. Uprugiy moduli kristalla l'da [Elastic moduli of ice crystals]. *Akusticheskiy Zhurnal* [Acoustic Journal], Tom 10, No. 2, 1964, p. 152-55. [Calculated from velocity of longitudinal and shear waves at 4 Mc./sec. and 0°, -10° and -15°C. Translation in *Soviet Physics—Acoustics*, Vol. 10, No. 2, 1964, p. 124-26.]
- BURLEY, G. Ice nucleation by photolyzed silver iodide. *Philosophical Magazine*, Eighth Ser., Vol. 10, No. 105, 1964, p. 527-34. [Change of shape of ice crystals with time for which silver iodide has been exposed to light.]
- COBB, A. W. Salt incorporation in natural ices. *Science*, Vol. 141, No. 3582, 1963, p. 733. [Difference in ion concentration in lake ice with horizontal and vertical *c*-axes.]
- CREMERS, A., and LAUDELOUT, H. Conductivité électrique des gels argileux en fonction de la température. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 259, No. 12, 1964, p. 1975-77. [Electrical conductivity measurements in frozen water-clay systems. Variation of activation energy with porosity of ice.]
- DELANEY, L. J., and others. The rate of vaporization of water and ice, by L. J. Delaney, R. W. Houston and L. C. Egleton. *Chemical Engineering Science*, Vol. 19, No. 2, 1964, p. 105-14. [Measurement of condensation coefficient from -13°C. to -2°C. for ice.]
- DE MICHELI, S. M. DE, and IRIBARNE, J. V. La solubilité des électrolytes dans la glace. *Journal de Chimie physique et de Physico-chimie biologique*, Tom. 60, No. 6, 1963, p. 767-74. [Experimental study of extent to which various electrolytes freeze into ice.]



- DENGEL, O., and others. Small-angle scattering of subthermal neutrons on heavy ice, [by] O. Dengel, J. Christ and W. Schmatz. *Physics Letters*, Vol. 15, No. 3, 1965, p. 231–32. [Increase in scattering when ice samples are heated above  $-80^{\circ}\text{C}$ . suggests a low-temperature structure is re-arranging itself at this temperature.]
- EIGEN, M., and others. Über das kinetische Verhalten von Protonen und Deuteronen in Eiskristallen, von M. Eigen, L. de Maeyer und H.-C. Spatz. *Berichte der Bunsengesellschaft für physikalische Chemie*, Bd. 68, Nr. 1, 1964, p. 19–29. [Measurements of d.c. conductivity, saturation current and dissociation field effect used to deduce thermodynamic and kinetic parameters of reaction  $\text{H}^+ + \text{OH}^- \rightleftharpoons \text{H}_2\text{O}$  in ice. Large isotope effect attributed to difference in jump frequency of  $\text{H}^+$  and  $\text{D}^+$ .]
- ENGELHARDT, H., and RIEHL, N. Space-charge-limited proton currents in ice. *Physics Letters*, Vol. 14, No. 1, 1965, p. 20–21. [Observation of currents at high fields and low temperature. Evidence for proton traps.]
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- HALLETT, J. Experimental studies of the crystallization of supercooled water. *Journal of the Atmospheric Sciences*, Vol. 21, No. 6, 1964, p. 671–82. [Detailed study of number and orientation of grains formed when supercooled water freezes under various conditions. Also includes measurement of growth rates.]
- HALLETT, J. Field and laboratory observations of ice crystal growth from the vapor. *Journal of the Atmospheric Sciences*, Vol. 22, No. 1, 1965, p. 64–69.
- HALLETT, J. Growth mechanism of small ice crystals. *Philosophical Magazine*, Eighth Ser., Vol. 11, No. 113, 1965, p. 1093. [Discussion of paper by G. Burley, *ibid.*, Vol. 10, No. 105, 1964, p. 527–34, pointing out that small ice crystals must have special distribution of imperfections.]
- HAYGOOD, J. D. Steady-state sorption of gases during vapor deposition. *Journal of Physical Chemistry*, Vol. 67, No. 10, 1963, p. 2061–64. [Sorption of nitrogen and air during deposition of water vapour.]
- KOBAYASHI, T. The growth of ice crystals on covellite and lead iodide surfaces. *Contributions from the Institute of Low Temperature Science* (Sapporo), Ser. A, No. 20, 1965, p. 1–22. [Growth was studied photomicrographically under low supersaturations and at substrate temperatures to  $-42^{\circ}\text{C}$ . Thermoelectric elements were successfully adapted for cooling the substrates.]
- KORST, N. N., and others. Vtoroy moment signala YaMR i stroyeniye l'da [Second moment of the NMR signal and the structure of ice]. [By] N. N. Korst, V. A. Savel'yev [and] N. D. Sokolov. *Fizika Tverdogo Tela* [Physics of the Solid State], Tom 6, No. 4, 1964, p. 1242–43. [Comparison of calculations and experiment shows protons may exchange positions randomly in ice by quantum mechanical tunnel effect. Translation in *Soviet Physics—Solid State*, Vol. 6, No. 4, 1964, p. 965–66.]
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- LUCK, W. Beitrag zur Assoziation des flüssigen Wassers. I. Die Temperaturabhängigkeit der Ultrarotbänder des Wassers. *Berichte der Bunsengesellschaft für physikalische Chemie*, Bd. 67, Nr. 2, 1963, p. 186–89. [Includes data on infra-red absorption in ice.]
- MAGONO, C., and SHIOTSUKI, Y. On the effect of air bubbles in ice on frictional charge separation. *Journal of the Atmospheric Sciences*, Vol. 21, No. 6, 1964, p. 666–70. [Rod of bubbly ice becomes negatively charged when rubbed on less bubbly rod.]
- MATSUO, S., and others. Vapor pressure of ice containing  $\text{D}_2\text{O}$ , [by] S. Matsuo, H. Kuniyoshi [and] Y. Miyake. *Science*, Vol. 145, No. 3639, 1964, p. 1454–55. [Measured from  $0^{\circ}$  to  $-38^{\circ}\text{C}$ .]
- MOORTHY, P. N., and WEISS, J. J. Formation of colour centres in irradiated alkaline ice. *Philosophical Magazine*, Eighth Ser., Vol. 10, No. 106, 1964, p. 659–74. [Electron spin resonance used to study defects after  $\gamma$ -irradiation.]
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- SAVEL'YEV, V. A., and SOKOLOV, N. D. Raschet temperaturnoy zavisimosti chastoty mezhmolekulyarnykh kolebaniy l'da [Calculation of the temperature dependence of the intermolecular vibration frequency in ice]. *Optika i Spektroskopiya*, Tom 17, Vyp. 1, 1964, p. 35–37. [Translation in *Optics and Spectroscopy*, Vol. 17, No. 1, 1964, p. 17–18.]
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## LAND ICE. GLACIERS. ICE SHELVES

- ABBASI, A. A. A study of Minapin Glacier. *Indus. Journal of the West Pakistan Water and Power Development Authority, Lahore*, Vol. 3, No. 9, 1962, p. 29–34. [Brief description, summaries of earlier accounts, retreat of snout.]



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- BENNETT, H. F. A gravity and magnetic survey of the Ross Ice Shelf area, Antarctica. *University of Wisconsin, Geophysical and Polar Research Center, Research Report Series*, 64-3, 1964, vi, 97 p. [Results of recent ground traverses and of 1947 airborne magnetic flight. Map gives traverse routes.]
- BENTLEY, C. R. The structure of Antarctica and its ice cover. (In Odishaw, H., ed. *Research in geophysics. Vol. 2. Solid earth and interface phenomena*. Cambridge, Mass., Massachusetts Institute of Technology Press, [c1964], p. 335-89.) [Review of I.G.Y. work and estimations of accuracy. Emphasis on surface elevation and ice thickness measurements.]
- BENTLEY, C. R., and others. Physical characteristics of the Antarctic Ice Sheet, by C. R. Bentley, R. L. Cameron, C. Bull, K. Kojima and A. J. Gow. *Antarctic Map Folio Series* (New York, American Geographical Society), Folio 2, 1964, 10 p., 10 maps.
- BLACK, R. F., and BERG, T. E. Glacier fluctuations recorded by patterned ground, Victoria Land. (In Adie, R. J., ed. *Antarctic geology*. Amsterdam, North-Holland Publishing Co., 1964, p. 107-22.)
- BRYAN, R. Observations on snow accumulation patterns at Adelaide Island. *British Antarctic Survey Bulletin*, No. 6, 1965, p. 51-62. [An ice piedmont of about 1,400 km.<sup>2</sup> on the west coast. Rime deposits play a large part in its regime which is now at last thought to be positive.]
- CHIZHOV, O. P., and KORYAKIN, V. S. Sovremennyye izmeneniya rezhima Novozemel'skogo lednikovogo pokrova [Present changes in the regime of the Novaya Zemlya ice cap]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya* [Materials of Glaciological Studies. News. Discussions], 10, 1964, p. 172-74. [Amplifies paper by same authors in [No.] 8 of same journal.]
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- FLEET, M. The occurrence of rifts in the Larsen Ice Shelf near Cape Disappointment. *British Antarctic Survey Bulletin*, No. 6, 1965, p. 63-66. [Short description and discussion.]
- GILMOUR, A. E. Hydrological heat and mass transport across the boundary of the ice shelf in McMurdo Sound, Antarctica. *New Zealand Journal of Geology and Geophysics*, Vol. 6, No. 3, 1963, p. 402-22. [Estimate of heat brought in by sea-water currents.]
- HEWITT, K. Glaciers and the Indus. *Indus. Journal of the West Pakistan Water and Power Development Authority, Lahore*, Vol. 2, No. 9, 1961, p. 4-14. [Account of visit to Biafo Gyang Glacier.]
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- KLYUKIN, N. K. Klimaticheskiye usloviya akkumulatsii na lednikakh Khrebtu Suntar-Khayata [Climatic conditions for accumulation on the glaciers of Khrebet Suntar-Khayata]. *Rezultaty Issledovaniy po Programme Mezhdunarodnogo Geofizicheskogo Goda. Glyatsiologiya. IX Razdel Programmy MGG* [Results of Investigations in the Programme of the International Geophysical Year. Glaciology. IX Section of Programme for the I.G.Y.], No. 13, 1964, p. 90-92. [Yakutskaya A.S.S.R.]
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- [SOVIET CENTRAL ASIA: MASS BALANCE OF GLACIERS.] Rezul'taty meteorologicheskikh i gidrologicheskikh issledovaniy Leningradskogo Universiteta na Lednike Fedchenko [Results of meteorological and hydrological studies by Leningrad University on Lednik Fedchenko]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya [Materials of Glaciological Studies. News. Discussions]*, 10, 1964, p. 227-50. [Heat balance and runoff.]
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## ICEBERGS, SEA, RIVER AND LAKE ICE

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VALDEZ, A. J., and NAWRATIL, R. Fenómeno glaciológico en el mar de Bellingshausen durante la campaña Antártica 1959-60. *Contribución del Instituto Antártico Argentino*, No. 59, 1961, 26 p. [Effect of north-easterly gale on pack ice off Adelaide Island.]

## GLACIAL GEOLOGY

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