

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.

GENERAL GLACIOLOGY

- BAUER, A. Travaux du groupe de glaciologie de la IX^e Expédition Antarctique Soviétique (été austral 1963-64). *TAAF (Territoire des Terres Australes et Antarctiques Françaises)*, No. 32, 1965, p. 46-62. [Report of work of French and Soviet party on traverse in Antarctica. Reports density, snow stratigraphy and temperature and first measurement of strain pentagons.]
- MILLER, M. M. Mount Everest and the Mahalangur Himal 1963. *Explorers Journal*, Vol. 43, No. 3, 1965, p. 130-48. [General results including glaciology, geomorphology and climatic change.]
- SHIPILOV, F. D. Ledyanye tsvety [Ice flowers]. *Priroda [Nature]*, 1965, No. 2, p. 127-28. [Study of ice formations on ground or water and conditions for their occurrence.]
- WHITE, A. Arctic Norway expedition 1964. Gicce Cokka ice-cap. *Exploration Review*, No. 6, 1965, p. 14-15, 20. [Imperial College, London.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- PHILBERTH, K. Sur la stabilisation de la course d'une sonde thermique. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris)*, Sér. B, Tom. 262, No. 6, 1966, p. 456-59. [Discusses tendency of some thermal boring probes to turn towards horizontal and methods of avoiding this.]
- STEVENS, P. R., and WILLIAMS, J. D. H. Soil studies in the Antarctic. *Antarctic (Wellington)*, Vol. 4, No. 3, 1965, p. 120. [Studies on morainic samples. Possible use as age indicator.]
- VON BRUNN, V. Ice crystal photography—Norway Station, 1960. *Antarktische Bulletin (Pretoria)*, No. 12, 1965, p. 3-4. [Technique for photographing snow crystals.]

PHYSICS OF ICE

- ADAMSON, A. W., and DORMANT, L. M. Adsorption of nitrogen on ice at 78°K. *Journal of the American Chemical Society*, Vol. 88, No. 9, 1966, p. 2055-57. [Data suggest non-polar ice surface. Annealing attributed to surface migration.]
- AGARWAL, V. K., and GILRA, N. K. Crystal density in supercooled radiation detector. *Nuclear Instruments and Methods*, Vol. 40, No. 2, 1966, p. 238-40. [Calculation of density of ice nuclei formed in supercooled water by passage of high energy charged particle. Possible use as particle detector.]
- ANTONOV, A. V., and others. Temperatur'naya zavisimost' diffuzionnykh parametrov neytronov v vode i vo l'du [Temperature dependence of neutron diffusion parameters in water and ice], [by] A. V. Antonov, B. V. Granatkin [and] Yu. A. Merkul'yev. *Atomnaya Energiya [Atomic Energy]*, Tom 20, Vyp. 2, 1966, p. 164-65. [Letter. Discussion of reasons why theory does not fit experiments.]
- BULLEMER, B., and RIEHL, N. Bulk and surface conductivity of ice. *Solid State Communications*, Vol. 4, No. 9, 1966, p. 447-48. [Activation energy for surface currents in ice is much larger than that for bulk conductivity.]
- BULLEMER, B., and RIEHL, N. Hall-effect on protons in ice. *Physics Letters*, Vol. 22, No. 4, 1966, p. 411-12. [Measurement confirms positive sign of charge carriers and gives value for mobility and lifetime.]
- CAMP, P. R., and CREAMER, J. Rate of growth of ice at water-metal interfaces. *Journal of Chemical Physics*, Vol. 45, No. 7, 1966, p. 2709-10. [Letter. Measurement for various different substrates and modes of crystal orientation.]
- DE ACHAVAL, E. M., and others. Chemical etching in ice crystals, by E. M. De Achaval, L. Levi and E. Suraski. *Physica Status Solidi*, Vol. 5, No. 2, 1964, p. K61-K63. [Study of etch pits and effect of stress.]
- DELIBALTAS, P., and others. Diffusion von ¹⁸O in Eis-Einkristallen, [von] P. Delibaltas, O. Dengel, D. Helmreich, N. Riehl and H. Simon. *Physik der kondensierten Materie*, Bd. 5, Ht. 3, 1966, p. 166-70. [Measurement of diffusion coefficient of ¹⁸O in ice single crystals gives result that shows diffusion is by whole H₂O molecules. Vacancy mechanism suggested.]
- DE MICHELI, S. M. DE, and LUBART, L. Thermal etching of ice in vacuum. *Physica Status Solidi*, Vol. 5, No. 2, 1964, p. K57-K59. [Experimental study on various faces of ice single crystals.]
- DENGEL, O., and others. Diffusion von Tritonen in NH₄F-dotierten Eis-Einkristallen, [von] O. Dengel, E. Jacobs und N. Riehl. *Physik der kondensierten Materie*, Bd. 5, Ht. 1, 1966, p. 58-59. [Diffusion of tritons in NH₄F-doped ice found to be independent of doping.]
- DENGEL, O., and others. Messungen der Dielektrizitätskonstanten von reinem und NH₄F-dotiertem Eis, [von] O. Dengel, N. Riehl und A. Schleippmann. *Physik der kondensierten Materie*, Bd. 5, Ht. 2, 1966, p. 83-88. [Measurement of dielectric constant of pure and NH₄F-doped ice as a function of frequency.]
- ENGELHARDT, H., and RIEHL, N. Zur protonischen Leitfähigkeit von Eis-Einkristallen bei tiefen Temperaturen und hohen Feldstärken. *Physik der kondensierten Materie*, Bd. 5, Ht. 2, 1966, p. 73-82. [Current-voltage characteristics of ice single crystals under high electric fields used to determine number and depth of proton traps and temperature dependence of proton mobility.]

- FUKUTA, N. Experimental studies of organic ice nuclei. *Journal of the Atmospheric Sciences*, Vol. 23, No. 2, 1966, p. 191-96. [329 compounds investigated.]
- GOLD, L. W. Dependence of crack formation on crystallographic orientation for ice. *Canadian Journal of Physics*, Vol. 44, No. 11, 1966, p. 2757-66. [Observations of both transcrystalline and grain-boundary cracks in columnar-grained ice compressed perpendicular to the columnar axis.]
- GOYER, G. G., and others. Shock induced freezing of supercooled water, by G. G. Goyer, T. C. Bhadra and S. Gitlin. *Journal of Applied Meteorology*, Vol. 4, No. 1, 1965, p. 156-60. [Experimental study.]
- HARRISON, J. D., and TILLER, W. A. Ice interface morphology and texture developed during freezing. *Journal of Applied Physics*, Vol. 34, No. 11, 1963, p. 3349-55. [Study of formation cells during freezing of solutions. Textures formed are similar to those for pure water, but cause is different.]
- HAYWARD, A. T. J. Growth of ice tubes. *Nature*, Vol. 211, No. 5045, 1966, p. 172-73. [Letter. Water under vacuum with no air nuclei for boiling can be simultaneously supercooled and superheated. When such water freezes tubes of ice are frequently ejected from surface. Their mode of growth is reported. A film of the phenomenon is available on loan.]
- HIGUCHI, K., and FUKUTA, N. Ice in the capillaries of solid particles and its effect on their nucleating ability. *Journal of the Atmospheric Sciences*, Vol. 23, No. 2, 1966, p. 187-90. [Pre-cooling on nuclei between -35° to -78° C. made them much more effective nuclei when at -2° to -3° C.]
- HOBBS, M. E., and others. The dielectric constant of liquid water and various forms of ice according to significant structure theory, by M. E. Hobbs, M. S. Jhon and H. Eyring. *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 56, No. 1, 1966, p. 31-38. [Discussion based on modified version of Onsager's model.]
- IDA, M., and KAWADA, S. Dielectric dispersion of KOH-doped ice at low temperatures. *Journal of the Physical Society of Japan*, Vol. 21, No. 3, 1966, p. 561. [Evidence for KOH molecules substituting for H₂O molecules in the ice structure.]
- ISAKA, H., and SOULAGE, G. Étude expérimentale de l'action glaçogène de l'iodure d'argent à la sous-saturation par rapport à l'eau. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris)*, Sér. B., Tom. 262, No. 21, 1966, p. 1405-08. [Decrease in number of active nuclei and increase in size when humidity goes unsaturated with respect to water.]
- JACCARD, C. Solute segregation at the curved surface of a growing crystal (steady state). *Physik der kondensierten Materie*, Bd. 4, Ht. 5, 1966, p. 349-54. [Explanation of why impurities concentrate near outside of cylindrical crystal.]
- JOSS, J. Die Bestimmung der Rückstreuquerschnitte von Eis-Wasser-Gemischen bei einer Wellenlänge von 5,95 cm. *Zeitschrift für angewandte Mathematik und Physik*, Vol. 15, Fasc. 5, 1964, p. 509-39. [Laboratory tests on radar reflexion from ice-water mixtures. Possible use to distinguish hail from rain.]
- KAISER, G. Die Schmelzkeimbildung in Eis unter erhöhtem Druck. *Berichte der Bunsengesellschaft für physikalische Chemie*, Bd. 70, Nr. 6, 1966, p. 635-39. [Observations of size of melt figures formed in ice thermodynamically superheated by pressure, and deduction that their nucleation is at defects.]
- KEEGAN, H. J., and WEIDNER, V. R. Infrared spectral reflectance of frost. *Journal of the Optical Society of America*, Vol. 56, No. 4, 1966, p. 523-24 [Letter. Measurement from 4000 to 450 cm.⁻¹.]
- LATHAM, J., and STOW, C. D. The mechanism of charge transfer associated with evaporation of ice. *Journal of the Atmospheric Sciences*, Vol. 23, No. 2, 1966, p. 245-47. [Experimental data already reported are shown to be inconsistent with Mason's theory that individual charged molecules are evaporated.]
- LOBODIN, T. V. O prichinakh elektrizatsii snezhnykh kristallov vo vremya meteley [Causes for electrification of snow crystals during blizzards]. *Antarktika. Doklady Komissii 1964 g.* [Antarctica. Reports of the Commission, 1964]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1965, p. 110-15.
- NAGLE, J. F. Lattice statistics of hydrogen bonded crystals. I. The residual entropy of ice.—II. The Slater KDP model and the Rys F-model. *Journal of Mathematical Physics*, Vol. 7, No. 8, 1966, p. 1484-91; No. 8, 1966, p. 1492-96. [I: calculation of residual entropy giving better agreement with experiment than Pauling's approximation. II: calculation of thermal properties of an ice-type lattice which shows proton ordering at low temperatures.]
- NATORI, M., and WATANABE, T. Structural model of the hydrated electron. *Journal of the Physical Society of Japan*, Vol. 21, No. 8, 1966, p. 1573-78. [Calculation of energy levels of a trapped electron by itself or associated with a vacancy in ice.]
- NIVEN, C. D. *The magic surface. A discussion on the remarkable sliding quality of ice.* New York, Pageant Press, 1963. 74 p. [Popular discussion of ice friction and its explanation.]
- RUNNELS, L. K. Ice. *Scientific American*, Vol. 215, No. 6, 1966, p. 118-24, 126. [Popular account of present knowledge on the crystal structure of ice and of point defects in ice.]
- RUSH, J. J., and others. Motions of water molecules in potassium ferrocyanide trihydrate, water, and ice: a neutron scattering study, [by] J. J. Rush and P. S. Leung and T. I. Taylor. *Journal of Chemical Physics*, Vol. 45, No. 4, 1966, p. 1312-17. [Measurement of inelastic scattering spectra; comparison with N.M.R. and infra-red results.]
- SUZUKI, Y. Disorder entropy of ice. *Contributions from the Institute of Low Temperature Science (Sapporo)*, Ser. A, No. 21, 1966, p. 1-44. [Calculation of the entropy of finite ice crystal due to random arrangement of hydrogen atoms.]
- TAO, S. J., and GREEN, J. H. Positron annihilation in materials under ionizing radiation. *Journal of Chemical Physics*, Vol. 44, No. 10, 1966, p. 4007-09. [Study of effect of irradiation on positron annihilation rates in water and ice. In ice at 77°K. free radicals frozen in the lattice are important.]

- UKHOV, S. B. Sticheskiy metod issledovaniya uprugo-elasticheskikh deformatsiy l'da [Static method of studying elastic deformation of ice]. *Merzlotnyye Issledovaniya. Sbornik Statey* [Frozen Ground Investigations. Collected Papers], No. 3, 1963, p. 354-61. [Use of bending tests to determine elastic modulus of ice.]
- VONNEGUT, B. Orientation of ice crystals in the electric field of a thunderstorm. *Weather*, Vol. 20, No. 10, 1965, p. 310-12. [Laboratory study of orientation of ice crystals by electric field.]
- WHIPPLE, H. E., ed. Forms of water in biologic systems. *Annals of the New York Academy of Sciences*, Vol. 125, 1965, 772 p. [Includes the following papers: P. R. Camp, "The formation of ice at water-solid interfaces", p. 317-43; F. Heinmets, "The effect of various biologic compounds on proton conductivity and activation energy in ice", p. 355-64; G. W. Gross, "Ion incorporation and activation energies of conduction in ice", p. 380-89; C. Jaccard, "Mechanism of the electrical conductivity in ice", p. 390-400; B. J. Luyet, "Phase transitions encountered in the rapid freezing of aqueous solutions", p. 502-21; M. D. Persidsky and R. Victor, "New approaches in measuring the linear rate of ice crystallization in water and aqueous solutions", p. 677-88.]

LAND ICE. GLACIERS. ICE SHELVES

- ADAMS, W. P. Glaciology, No. 1. Ablation and run-off on the White Glacier, Axel Heiberg Island, Canadian Arctic Archipelago. *Axel Heiberg Island Research Reports, McGill University, Montreal. Jacobsen-McGill Arctic Research Expedition 1959-1962*, 1966, [iii], v, 77 p. [Detailed study over two seasons which adds considerably to the quantitative knowledge of the melt process on High Arctic glaciers.]
- AVSYUK, G. A. Obshchaya programma mezhdunarodnykh postoyannykh nablyudenyi za kolebaniyami sovremennykh lednikov [General programme of international permanent observations of the variations of existing glaciers]. *Trudy Zakavkazskogo Nauchno-Issledovatel'skogo Gidrometeorologicheskogo Instituta* [Transactions of the Transcaucasian Scientific Research Hydrometeorological Institute] (Tiflis), Vyp. 13, 1963, p. 10-17. [Reports the Soviet part in the international programme.]
- BARDIN, V. I., and SUYETOVA, I. A. Perimetr Antarktidi i byudzhet Antarkticheskogo lednikovogo pokrova [The perimeter of Antarctica and the budget of the Antarctic ice cover]. *Antarktika. Doklady Komissii 1964 g.* [Antarctica. Reports of the Commission, 1964]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1965, p. 67-75. [Dimensions of continent and its ice cover.]
- BAUSSART, M., and others. Étude photogramétrique des glaciers du massif du Mont Blanc, par M. Baussart, M. Carbone et C. Cazabat. *Annales de Géophysique*, Vol. 21, No. 3, 1965, p. 450-61. [Discusses methods used in photogrammetric surveys of Mt. Blanc glaciers, and results obtained including movement and mass balance.]
- BELLAIR, P. Un exemple de glaciation aberrante: les Îles Kerguelen. *CNFRA* [Comité National Français des Recherches Antarctiques]. *Bulletin d'Information*, No. 11, 1965, p. 1-27. [Review of knowledge of Quaternary, and especially the glacial deposits of the Courbet peninsula, Kerguelen.]
- BENTLEY, C. R., and GIOVINETTO, M. B. Studies in surface glaciology. *Antarctic Journal of the U.S.*, Vol. 1, No. 5, 1966, p. 209. [An analysis is in progress of annual snow accumulation in Antarctica where annual snow layers have been dated back 15 years or more.]
- BESCHEL, R. E., and EGAN, C. P. Geobotanical investigation of a 16th-century moraine on the Bucher Glacier, Juneau Icefield, Alaska. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 114-15. [Date of formation of this moraine is considered to be near or slightly prior to A.D. 1600.]
- BRECHER, H. H. Surface velocity measurements on the Kaskawulsh Glacier, Yukon Territory, Canada. *Ohio State University. Institute of Polar Studies. Report No. 21*, 1966, ix, 73 p. [In this accumulation area there are no significant differences from mean seasonal velocities over the short time intervals.]
- BROCKAMP, B. Das grönländische Inlandeis. *Erdkunde*, Bd. 20, Ht. 3, 1966, p. 208-11. [Comments on F. Loewe's article in *Erdkunde*, Bd. 18, Ht. 3.]
- BUDD, W. F. Glaciological studies in the region of Wilkes, Eastern Antarctica, 1961. *ANARE Scientific Reports, Ser. A (IV)*, Publication No. 88, 1966, 152 p. [Work started by U.S. glaciologists 1957-58 continued by Australian scientists. Accumulation, wind speed and snow drift, ice temperatures, snow compaction, surface strain-rate and mass budget studies.]
- BUGH, J. E. Glacio-hydrological studies on the Lemon Creek Glacier near Juneau, Alaska. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 112-13. [Glacier has been gradually diminishing in size over the past four decades. Present observations suggest that this trend is reversing itself.]
- COLQUI, B. S. Comparative earthquake-glacier observations in the southern Andes and Alaska. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 116-17. [The peculiar conditions on the Agua Negra glacier, Argentina, are believed to represent conditions which may eventually be found on some Alaskan glaciers following the major earth tremors of 27 March 1964.]
- EGAN, C. P. Regime trends on the Juneau Icefield névé. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 109-10. [Brief report.]
- GLOSS, G., and others. Photogrammetric and glacier movement surveys in the Taku district, Alaska, by G. Gloss, G. Konecny, A. Chrzanowski, A. Al-Naqash, and M. M. Miller. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 108-09. [Brief details.]
- GOLD, T. The moon's surface. (In Hess, W. N., and others, ed. *The nature of the lunar surface: proceedings of the 1965 IAU-NASA symposium*, edited by W. N. Hess, D. H. Menzel and J. A. O'Keefe. Baltimore, Johns Hopkins Press, 1966, p. 107-21.) [Suggests water slowly comes up from interior of moon to underlie low regions forming lunar glaciers whose flow may have produced observed distortion of mare ground.]

- GOVORUKHA, L. S. O sootnoshenii prikhoda i raskhoda l'da na Ostrove Ushakova v sovremennykh klimaticheskikh usloviyakh [Mass balance of ice on Ostrov Ushakova in present climatic conditions]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva* [News of the All-Union Geographical Society], Tom 98, Vyp. 1, 1966, p. 62-64. [Ice cover diminishing on island in north Kara Sea.]
- HANSEN, B. L., and LANGWAY, C. C., jr. Deep core drilling in ice and core analysis at Camp Century, Greenland, 1961-1966. *Antarctic Journal of the U.S.*, Vol. 1, No. 5, 1966, p. 207-08.
- HASHIMOTO, S., and others. Glaciological studies of the Antler Glacier, Alaska, by S. Hashimoto, H. Shimizu and K. Nakamura. *Journal of the Faculty of Science, Hokkaido University*, Ser. 4, Vol. 13, No. 3, 1966, p. 237-56. [Studies with special emphasis upon the mechanism of formation of ogives. The Antler Glacier is in the Juneau Icefield.]
- HATTERSLEY-SMITH, G. Glacier research. *Canadian Geophysical Bulletin*, Vol. 18, 1965, p. 133-48. [Summary of work carried out in Canada during 1965; includes bibliography.]
- KENNETT, P. Gravity and magnetic measurements on Starbuck and Stubb Glaciers, Graham Land. *British Antarctic Survey Bulletin*, No. 9, 1966, p. 45-53. [Information on ice thickness of the glaciers and configuration of sub-ice topography.]
- KITTREDGE, T. F., and others. Structure and deformation study of wave-ogives on the Vaughan Lewis Glacier, Juneau Icefield, Alaska, by T. Kittredge, T. F. Freers and T. Havas. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 110-11. [It is concluded that wave-ogives are formed at the base of this ice fall by compressive pressure causing shearing along the foliation planes.]
- KONOVALOV, V. G. O primeneniі metoda N. N. Pal'gova dlya kosvennykh opredeleniy moshchnosti lednika [Use of N. N. Pal'gov's method for indirect determination of the thickness of a glacier]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva* [News of the All-Union Geographical Society], Tom 98, Vyp. 2, 1966, p. 157-60. [Limitations of Pal'gov's method.]
- KOTLYAKOV, V. M., and PLAM, M. YA. Izucheniye veshchestvennogo balansa poverkhnosti gornykh i pokrovykh lednikov [Study of the mass balance of the surface of mountain and plateau glaciers]. *Trudy Zakavkazskogo Nauchno-Issledovatel'skogo Gidrometeorologicheskogo Instituta* [Transactions of the Transcaucasian Scientific Research Hydrometeorological Institute] (Tiflis), Vyp. 13, 1963, p. 34-38. [Discussion of differing roles of wind-blown snow in East Antarctica and Mount El'brus.]
- KOTLYAKOV, V. M., and others. Novyye dannyye o rezhime snegonakopleniya vo vnutrennikh rayonakh vostochnoy Antarktidi [New data on the regime of snow accumulation in inland regions of eastern Antarctica], [by] V. M. Kotlyakov, G. Ye. Lazarev [and] M. M. Lyubarets. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 57, 1966, p. 85-96. [Analysis of measurements made during traverses in 1961-62.]
- LEDENEV, V. G., and YEVDOKIMOV, A. P. Izmeneniya shel'fovykh Lednikov Zapadnogo i Eymeri [Changes in the West and Amery Ice Shelves]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 55, 1965, p. 12-18. [New position of ice front recorded in 1965.]
- LOCKHART, L. B., jr., and others. Airborne radioactivity in Antarctica, by L. B. Lockhart, Jr., R. L. Patterson, Jr. and A. W. Saunders, Jr. *Journal of Geophysical Research*, Vol. 71, No. 8, 1966, p. 1985-91. [Results of measurements at "Little America" and South Pole.]
- MARTIN-CHAVANNES, J. Le glacier d'Aletsch. *Les Alpes. Revue du Club Alpin Suisse*, 41^e An., 1^e Trimestre, 1965, p. 53-59. [Discussion of present and former glaciation in the area in the context of 1960 edition of 1 : 10,000 map of the glacier.]
- MATSUO, S., and MIYAKE, Y. Gas composition in ice samples from Antarctica. *Journal of Geophysical Research*, Vol. 71, No. 22, 1966, p. 5235-41. [Glacier and iceberg ice contain more gases than sea or pond ice. Nitrogen shows greater retention in ice than other gaseous components.]
- MERLIVAT, L., and others. Étude isotopique d'un glacier en Antarctique, [par] L. Merlivat, C. Lorius et G. Nief. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Sér. B, Tom. 263, No. 5, 1966, p. 414-16. [Deuterium analysis of core from ice on edge of Antarctica used to deduce origin of different ice layers.]
- MILLER, M. M., and POTTER, D. M. Glacio-morphic effects of the Alaskan Good Friday earthquake, 1964. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29-September 1, 1965*, 1966, p. 118-22. [Brief report.]
- NOUGIER, J. Glaciers des Kerguelen. *Science de l'Avenir*, No. 206, 1964, p. 250-55, 283-84. [General description.]
- NUTT, D. C. The drift of ice island WH-5. *Arctic*, Vol. 19, No. 3, 1966, p. 244-62. [From 1962 to 1964 this island drifted south from the Arctic Ocean through Nares Strait and Baffin Bay.]
- PETROV, V. N., and others. Periodichnost' snegonakopleniya v Antarktide [Periodicity of snow accumulation in Antarctica], [by] V. N. Petrov, N. P. Smirnov [and] N. I. Barkov. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 57, 1966, p. 97-106. [Analysis of size of annual layers observed in seven pits.]
- REDPATH, B. B. Geophysics, No. 1. Seismic investigations of glaciers on Axel Heiberg Island, Canadian Arctic Archipelago. *Axel Heiberg Island Research Reports, McGill University, Montreal. Jacobsen-McGill Arctic Research Expedition 1959-1962*, 1965, [iii], iv, 26 p. [Surveys on the White Glacier and Thompson Glacier; description of instruments; and results by refraction and reflection methods, with conclusions.]
- SAVEL'YEV, B. A. Glyatsiologicheskiye issledovaniya 4-y kompleksnoy antarkticheskoy ekspeditsii v 1959 godu [Glaciological studies of the fourth Complex Antarctic Expedition of 1959]. *Merzlotnyye Issledovaniya. Sbornik Statey* [Frozen Ground Investigations. Collected Papers], No. 3, 1963, p. 18-36. [Report of glaciological work on Antarctic Ice Sheet.]
- SHUMSKIY, P. A. Ob izmeneniyakh antarkticheskogo lednikovogo pokrova [Changes in the Antarctic Ice Sheet]. *Antarktika. Doklady Komissii 1964 g.* [Antarctica. Reports of the Commission, 1964]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1965, p. 155-72.

- SWITHINBANK, C. W. M. Glaciology of the Ross Ice Shelf. *Antarctic Journal of the U.S.*, Vol. 1, No. 5, 1966, p. 208. [Analysis by University of Michigan field parties during 1959–60, 1960–61 and 1961–62 seasons, including the movement, regime and morphology of the principal valley glaciers flowing into the Ross Ice Shelf.]
- WEIDICK, A. Jakobshavn Isbræ i fortid og nutid. *Grønland*, 1966, Nr. 11, p. 361–86. [Former extent of Jakobshavn Isbræ and its current iceberg production.]
- WILSON, A. T. Variation in solar insolation to the South Polar region as a trigger which induces instability in the Antarctic Ice Sheet. *Nature*, Vol. 210, No. 5035, 1966, p. 477–78. [Evidence that changes in solar insolation in the polar regions, caused by periodic variation of obliquity of Earth's ecliptic, can be related to occurrence of ice ages.]
- WOOD, W. A. The Icefield Ranges Research Project. *Geographical Review*, Vol. 56, No. 4, 1966, p. 586. [Account of a major surge in Steele Glacier, Yukon Territory, Canada.]
- ZHANTUAROV, R. S., and MARKOV, K. K. O dinamike antarkticheskogo lednikovogo pokrova [Dynamics of the Antarctic Ice Sheet]. *Antarktika. Doklady Komissii 1964 g.* [*Antarctica. Reports of the Commission, 1964*]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1965, p. 138–54.

ICEBERGS. SEA, RIVER AND LAKE ICE

- ANTONOV, V. S., and others. Tipovyye osobennosti ledovogo rezhima sudokhodnykh rek arkticheskoy zony [Type characteristics of the ice regime of navigable rivers in the Arctic region], [by] V. S. Antonov, V. V. Ivanov [and] Yu. V. Nalimov. *Problemy Arktiki i Antarktiki* [*Problems of the Arctic and Antarctic*], Vyp. 15, 1964, p. 11–17. [Three types of ice break-up.]
- AVGEVICH, V. I. Primeneniye aerometodov v izuchenii morskikh polyarnykh l'dov [Applying aerial methods to the study of polar sea ice]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva* [*News of the All-Union Geographical Society*], Tom 96, Vyp. 3, 1964, p. 197–205. [Discussion of method used to map Antarctic sea ice.]
- BROWN, J. R., and BROWN, D. W. Reverberation under Arctic sea-ice. *Journal of the Acoustical Society of America*, Vol. 40, No. 2, 1966, p. 399–404. [Strong dependence of under-ice back-scattering on surface roughness.]
- BULATOV, S. N., and GINZBURG, B. M., ed. Prognozy ledovykh yavleniy na rekakh i vodokhranilishchakh [Forecasts of ice on rivers and reservoirs]. *Trudy Tsentral'nogo Instituta Prognozov* [*Transactions of the Central Forecasting Institute*], Vyp. 151, 1965, 176 p. [Observations of break-up and freeze-up in various parts of U.S.S.R., and associated forecasting methods.]
- CHAPMAN, R. P., and SCOTT, H. D. Backscattering strengths of sea ice. *Journal of the Acoustical Society of America*, Vol. 39, No. 6, 1966, p. 1191–93. [Letter. Measurements for "point" sources of sound in sea-water scattered back from smooth young ice and heavily rafted winter ice.]
- DORONIN, YU. P. O teplovom balans tsentral'noy Arktiki [Thermal balance of the central Arctic]. *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta* [*Transactions of the Arctic and Antarctic Scientific Research Institute*], Tom 253, 1963, p. 178–84. [Heat balance of sea ice and of open leads.]
- KOROLCOWNA, H. Z obserwacji nad zamarzaniem Jeziora Mikołajskiego. *Przegląd Geograficzny*, Vol. 36, No. 4, 1964, p. 729–32. [Some observations of the formation of the ice sheet on Mikołajki lake. Observations of formation of ice sheet on this lake, which differs from year to year.]
- LUNDE, T. Ice conditions at Svalbard 1946–1963. *Norsk Polarinstitutt. Årbok*, 1963 [pub. 1965], p. 61–80. [Maps and statistics. Evidence for 3–4 yr. cycle.]
- MICHEL, B. Theory of formation and deposit of frazil ice. *Proceedings of the Eastern Snow Conference*, 20th annual meeting, 1963, p. 130–48. [Discussion, p. 143–48. Tests on conditions for formation and adhesion of frazil ice.]
- MILNE, A. R. Statistical description of noise under shore-fast sea ice in winter. *Journal of the Acoustical Society of America*, Vol. 39, No. 6, 1966, p. 1174–82. [Attempt to relate field measurements of noise to wind action and cracking origins.]
- NUSSER, F. Eisberge im Raum um Kap Farvel. *Der Wetterlotse*, Jahrg. 18, No. 233, 1966, p. 107–10. [Origin and occurrence of icebergs in waters off Kap Farvel, South Greenland.]
- PALOSUO, E. Ice in the Baltic. *Oceanography and Marine Biology*, Vol. 4, 1966, p. 79–90. [Survey of processes involved in formation and melting of sea ice and maps showing statistical data.]
- POPHAM, R. W., and SAMUELSON, R. E. Polar exploration with Nimbus. (*In* Observations from the Nimbus I meteorological satellite. *U.S. National Aeronautics and Space Administration. Special Report SP-89*, 1965, p. 47–59.) [Observations of extent of ice.]
- POPHAM, R. W., and SAMUELSON, R. E. Polar exploration with Nimbus meteorological satellite. *Arctic*, Vol. 18, No. 4, 1965, p. 246–55. [Photographs by an advanced vidicon camera system and a high-resolution infra-red system were used to make extensive ice reconnaissance in Arctic and Antarctic.]
- SCHULZE, O. Die Eisverhältnisse an der Prawda-Küste während der VI. sowjetischen Antarktisexpedition 1961/1962. *Abhandlungen des Meteorologischen Dienstes der Deutschen Demokratischen Republik*, Bd. 10, Ht. 75, 1965, p. 19–35. [Ice thickness measurements in Davis Sea.]
- SPICHKIN, V. A. Rol' ispareniya v poverkhnostnoy ablyatsii morskikh l'dov [Role of evaporation in surface ablation of sea ice]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [*Information Bulletin of the Soviet Antarctic Expedition*], No. 55, 1965, p. 34–36. [Greater in Antarctic than in Arctic, owing to lower relative humidity of air.]
- TSURIKOV, V. L. K voprosu o mezhdunarodnoy ledovoy nomenklature [On an international ice nomenclature]. *Okeanologiya* [*Oceanography*], Tom 6, Vyp. 2, 1966, p. 372–78. [Discussion of Canadian proposals to amend W.M.O. sea ice nomenclature.]
- UNTERSTEINER, N. A sonic device for measuring thickness changes at the bottom of floating ice. *Antarctic Journal of the U.S.*, Vol. 1, No. 5, 1966, p. 208–09.
- WOODCOCK, A. H. Melt patterns in ice over shallow waters. *Limnology and Oceanography*, Vol. 10 (Supplement), 1965, p. R290–R297. [Role of snow pressure and of convection cells in the water.]

GLACIAL GEOLOGY

- ANDREWS, J. T. Pattern of coastal uplift and deglaciation, West Baffin Island, N.W.T. *Geographical Bulletin* (Ottawa), Vol. 8, No. 2, 1966, p. 174-93. [Uplift of the west coast has been slow compared to adjacent glacial dispersal zones.]
- ANDREWS, J. T. Surface boulder orientation studies around the north-western margin of the Barnes Ice Cap, Baffin Island, Canada. *Journal of Sedimentary Petrology*, Vol. 35, No. 3, 1965, p. 753-58. [Orientation of surface boulders from ground and lateral moraines corresponds closely with known ice movement.]
- ANDREWS, J. T., and SHIMIZU, K. Three-dimensional vector technique for analyzing till fabrics: discussion and FORTRAN program. *Geographical Bulletin* (Ottawa), Vol. 8, No. 2, 1966, p. 151-65. [A programme for a three-dimensional vector analysis of till fabrics is presented.]
- ANDREWS, J. T., and SMITHSON, B. B. Till fabrics of the cross-valley moraines of north-central Baffin Island, Northwest Territories, Canada. *Geological Society of America. Bulletin*, Vol. 77, No. 3, 1966, p. 271-90. [Till fabric patterns show variations according to slope and location within valley. Origin of cross-valley moraines discussed.]
- BIK, M. J. J. New methods in alpine glacial geomorphology. *Zeitschrift für Geomorphologie*, Neue Folge, Bd. 10, Ht. 3, 1966, p. 303-10. [Suggestions by several authorities.]
- BROECKER, W. S. Absolute dating and the astronomical theory of glaciation. *Science*, Vol. 151, No. 3708, 1966, p. 299-304. [Modification of Milankovitch theory to allow for two stable states of ocean-atmosphere system.]
- BROECKER, W. S. Glacial rebound and the deformation of the shorelines of proglacial lakes. *Journal of Geophysical Research*, Vol. 71, No. 20, 1966, p. 4777-83. [Rate of glacial retreat before formation of shoreline derived from curvature of its uplifted portion. Deduction of shapes of continental ice sheets.]
- BRÖMSEN, U. von. Jordartsbildning och isavsmältning i Handölsåns dalgång i västra Jämtland. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 88, Pt. 1, No. 524, 1966, p. 90-112. [Formation of terraces and plains and ice recession in Handölsån valley, Jämtland, north Sweden.]
- COTTON, C. A. Antarctic scablands. *New Zealand Journal of Geology and Geophysics*, Vol. 9, Nos. 1-2, 1966, p. 130-33. [The scabland landscape has probably resulted from glacial erosion.]
- CRAIG, B. G. Glacial Lake McConnell, and the surficial geology of parts of Slave River and Redstone River map-areas, District of Mackenzie. *Canada. Geological Survey. Bulletin* 122, 1965, viii, 33 p. [Area was completely glaciated by Wisconsin Laurentide ice sheet, which extended westward into Mackenzie Mountains.]
- FALCONER, G. Preservation of vegetation and patterned ground under a thin ice body in northern Baffin Island, N.W.T. *Geographical Bulletin* (Ottawa), Vol. 8, No. 2, 1966, p. 194-200. [A thin ice body in northern Baffin Island is undergoing rapid recession. This supports previous estimates of the occurrence of a markedly more nival period in parts of Arctic Canada two to three centuries ago.]
- GERASIMOV, I., ed. *Posledniy evropeyskiy lednikovyy pokrov* [The last European glaciation]. Moscow, Izdatel'stvo "Nauka" [Publishing House "Nauka"], 1965. 220 p. [Volume of papers covering the last glaciation over the whole of Europe.]
- GJESSING, J. Some effects of ice erosion on the development of Norwegian valleys and fjords. *Norsk Geografisk Tidsskrift*, Bd. 20, Ht. 8, 1965-66, [pub.] 1966, p. 273-99. [Combined glacial and fluvial erosion must have increased rate of erosion and deepened valleys much more than a fluvial erosion alone in the same time.]
- KLOHN, E. J. The elastic properties of a dense glacial till deposit. *Canadian Geotechnical Journal*, Vol. 2, No. 2, 1965, p. 116-40. [Field and laboratory measurements. Discussion, p. 129-40.]
- MÜLLER, F., and BARR, W. Postglacial isostatic movement in north-eastern Devon Island, Canadian Arctic Archipelago. *Arctic*, Vol. 19, No. 3, 1966, p. 263-69. [The ¹⁴C dates of marine shells indicate that the area was clear of ice as early as 15,500 B.P. and that the most rapid isostatic uplift took place between 9,000 and 8,000 B.P.]
- RUDBERG, S. Morphological processes and slope development in Axel Heiberg Island, Northwest Territories, Canada. *Nachrichten der Akademie der Wissenschaften in Göttingen*, 2. Mathematisch-physikalische Klasse, Jahrg. 1963, Nr. 14, p. 211-28. [General physiography, former more extensive glaciation, assorting processes and mass movement, and influence of snow and ice.]
- RUTTEN, M. G., and others. Ice-pushed ridges, permafrost, and drainage: a discussion, by M. G. Rutten.—a reply, by W. H. Mathews and J. R. Mackay. *Journal of Geology*, Vol. 73, No. 6, 1965, p. 895-96. [Discussion by Rutten of objections raised by Mathews and Mackay to his ideas on role of permafrost in development of ridges and reply by Mathews and Mackay.]
- SMALLEY, I. J. Drumlin formation: a rheological model. *Science*, Vol. 151, No. 3716, 1966, p. 1379-80. [Theoretical explanation of separation of large clay particles from ice to form drumlins.]
- STEPANOV, I. N. O protsessakh vyvetrivaniya v ledovom tipe litogeneza [Weathering processes in glacial type lithogenesis]. *Litologiya i Poleznye Iskopyayeme* [Lithology and Useful Minerals], No. 5, 1964, p. 109-10. [Discussion of weathering processes on and in glaciers. English translation: *International Geological Reviews*, Vol. 7, No. 12, 1965, p. 2182-83.]
- SZUPRYCZYŃSKI, J. Eskers and kames in the Spitsbergen area. *Geographia Polonica*, 6, 1965, p. 127-40. [Summary of recent Polish research in Vestspitsbergen.]
- THEAKSTONE, W. H. A note on some features of Pleistocene deglaciation in the Svartisen area. *Norsk Geografisk Tidsskrift*, Bd. 20, Ht. 8, 1965-66, [pub.] 1966, p. 300-04. [Evidence was found to indicate that ice "died" and stagnated *in situ* in at least one area a little north of Svartisen.]
- WRIGHT, H. E., jr., and FREY, D. G., ed. *International studies on the Quaternary*. New York, Geological Society of America, Inc., 1965. 565 p. [Papers on Quaternary studies in parts of the world other than U.S.A. and U.S.S.R. prepared for seventh Congress of International Association for Quaternary Research, Boulder, Colorado, 1965.]

WRIGHT, H. E., jr., and FREY, D. G., ed. *The Quaternary of the United States*. Princeton, N.J., Princeton University Press, 1965. 922 p. [Review volume prepared for seventh Congress of International Association for Quaternary Research, Boulder, Colorado, 1965. Includes the following papers: R. F. Flint, "Introduction: historical perspectives", p. 3-11; J. R. Curran, "Late Quaternary history, continental shelves of the United States", p. 723-35; W. S. Broecker, "Isotope geochemistry and the Pleistocene climatic record", p. 737-53; R. E. Wilcox, "Volcanic-ash chronology", p. 807-16; H. C. Fritts, "Dendrochronology", p. 871-79; J. M. Mitchell, Jr., "Theoretical paleoclimatology", p. 881-901.]

FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

- ANNERSTEN, L. Interaction between surface cover and permafrost. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 27-33. [Observations in the Labrador Peninsula.]
- BALL, D. F. Late-glacial scree in Wales. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 151-63. [Distribution of scree as indication of nature of periglacial action in late Pleistocene.]
- BLACK, R. F. Comments on periglacial terminology. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 329-33. [Replies to questionnaire circulated by Commission de Géomorphologie Périglaciaire.]
- BOUT, P. Réponses au questionnaire de la Commission de Géomorphologie Périglaciaire. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 335-55. [Notes on frozen soil and patterned ground terminology and replies to questionnaire circulated by Commission de Géomorphologie Périglaciaire.]
- CHAMBERS, M. J. G. Investigations of patterned ground at Signy Island, South Orkney Islands. I. Interpretation of mechanical analyses. *British Antarctic Survey Bulletin*, No. 9, 1966, p. 21-40. [Evidence from experimental work on Signy Island in assessing the relative importance of frost-heaving and solifluction in these processes.]
- CORTE, A. E. Particle sorting by repeated freezing and thawing. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 175-240. [Laboratory experiments described and used to distinguish three kinds of sorting which can occur as a result of freeze-thaw cycles.]
- COTEȚ, P. La répartition des cryostructures pléistocènes sur le territoire de la Roumanie. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 35-38. [Distribution of fossil frost structures in Rumania.]
- COTEȚ, P. Réponses à l'enquête sur le problème de la notion et du terme du "périglaciaire". *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 357-60. [Comments on terminology of periglacial.]
- DAHL, R. Block fields, weathering pits and tor-like forms in the Narvik mountains, Nordland, Norway. *Geografiska Annaler*, Vol. 48A, No. 2, 1966, p. 55-85. [Study of periglacial erosion processes. Discussion of use as indicator of lack of glaciation.]
- DILLON, H. B., and ANDERSLAND, O. B. Predicting unfrozen water contents in frozen soils. *Canadian Geotechnical Journal*, Vol. 3, No. 2, 1966, p. 53-60. [Simple method presented, depending on relationship between temperature and certain physical properties of soil.]
- DIRKSEN, C., and MILLER, R. D. Closed-system freezing of unsaturated soil. *Proceedings. Soil Science Society of America*, Vol. 30, No. 2, 1966, p. 168-73. [Experiments show that heaving is possible even without water transport from outside.]
- DYLIK, J. Problems of ice-wedge structures and frost-fissure polygons. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 241-91. [General discussion of causes of fissure polygons and ice wedges and their identification. French abstract.]
- DYLIK, J. Right and wrong in sceptical views on the problem of periglacial phenomena revealed in Pleistocene deposits. *Bulletin de la Société des Sciences et des Lettres de Łódź*, Classe 3, Vol. 16, No. 8, 1965, p. 1-28.
- DYLIK, J., and RAYNAL, R. Tendances nouvelles dans les recherches périglaciaires depuis le Congrès International de Géographie à Rio de Janeiro. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 5-26. [Review of work on periglacial phenomena, 1956-64.]
- EVERETT, K. R. Slope movement and related phenomena. (In Wilimovsky, N. J. and Wolfe, J. N., ed. *Environment of the Cape Thompson region, Alaska*. Oak Ridge, Tenn., U.S. Atomic Energy Commission, Division of Technical Information Extension, 1966, p. 172-220.) [Cape Thompson region, Alaska. Down-slope movements are most pronounced during freeze-up and thaw. The rate and amount is greater on the south-east-facing slope than on the north-west-facing slope by a factor of 2 or 3.]
- GREGORY, K. J. Aspect and landforms in north east Yorkshire. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 115-20. [Analysis of orientation of nivation benches.]
- HAMELIN, L.-E. Glaciers et modelé périglaciaire. *Cahiers de Géographie de Québec*, 9^e An., No. 18, 1965, p. 239-42. [Interrelation between glaciers and periglacial processes.]
- HOEKSTRA, P., and others. Frost-heaving pressures, by P. Hoekstra, E. Chamberlain and T. Frate. *Highway Research Record*, No. 101, 1965, p. 28-38. ([U.S.] National Research Council Publication No. 1318.) [Laboratory measurements.]
- JACKSON, A., and UHLMANN, D. R. Particle sorting and stone migration due to frost heave. *Science*, Vol. 152, No. 3721, 1966, p. 545-46. [Discussion of mechanism.]
- LEWIS, C. A. The nivalational landforms and the reconstructed snowline of Slaettaratindur, Faeroe Islands. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 293-302.
- MACKEY, J. R., and STAGER, J. K. Thick tilted beds of segregated ice, Mackenzie Delta area, N.W.T. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 39-43. [Observation and interpretation of these structures as horizontal layers of ground ice subsequently deformed by glacier action.]
- MORARIU, T., and SAVU, A. Quelques problèmes du périglaciaire en Roumanie. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 53-61. [General description of periglacial relief in Rumania.]
- PÉWÉ, T. L. Paleoclimatic significance of fossil ice wedges. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 65-73. [Observations in Alaska suggest that ice wedges form actively only when mean annual air temperature is below -6 to -8°C. Discussion, p. 72-73.]

- PORTMANN, J.-P. Sols gelés en permanence. *Les Alpes. Revue du Club Alpin Suisse*, 42^e An., 2^e Trimestre, 1966, p. 158–60. [Brief discussion of permafrost and problems of frozen-ground engineering, and of frozen ground in Neuchâtel region of Jura.]
- TRICART, J. Quelques aspects des phénomènes périglaciaires quaternaires dans la Péninsule Ibérique. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 313–27. [Description of periglacial phenomena in the Iberian Peninsula.]
- UGOLINI, F. C. Soils of the Mesters Vig district, northeast Greenland. 1. The Arctic Brown and related soils.—2. Exclusive of Arctic Brown and podzol-like soils. *Meddelelser om Grønland*, Bd. 176, Nr. 1, 1966, 22 p.; Nr. 2, 1966, 25 p. [1: Arctic Brown soil in Greenland is a link between the North American and Eurasian continents and establishes the Arctic Brown as a circumpolar soil. 2: cryopedogenic and gelification processes are very important factors affecting morphology and occurrence of the different types of soils.]
- WATSON, E. Two nivation cirques near Aberystwyth, Wales. *Biuletyn Peryglacjalny* (Łódź), No. 15, 1966, p. 79–101. [Description of small cirques believed to have been formed by motionless snow patches. Discussion, p. 98–101.]
- YAO, L. Y. C., and BROMS, B. B. Excess pore pressures which develop during thawing of frozen fine-grained sub-grade soils. *Highway Research Record*, No. 101, 1965, p. 39–56. ([U.S.] National Research Council Publication No. 1318.) [Method of calculation.]

METEOROLOGICAL AND CLIMATOLOGICAL GLACIOLOGY

- BASTIN, F. E. Observations météorologiques en surface. (a) A la base Roi Baudouin du 1 janvier 1959 au 31 janvier 1960. (b) En mer du 14 décembre 1958 au 14 février 1959. *Expédition Antarctique Belge 1959. Publications*, Sér. A, No. 1, 1966, 108 p.
- BENSON, C. S., and ROGERS, G. W. Alaskan air pollution—the nature of ice fog and its development and settlement implications. *Proceedings of the 16th Alaskan Science Conference, College, Alaska, August 29–September 1, 1965*, 1966, p. 233–45. [Ice fog is defined as low-temperature air pollution and will occur when air temperatures go below -35°C . The Fairbanks ice fog area vertical thickness varies between 10 and 30 m. The dynamics within the inversion layer associated with ice fog have been investigated.]
- CORONITI, S. C., ed. *Problems of atmospheric and space electricity. Proceedings of the third International Conference on Atmosphere and Space Electricity, Montreux, 1963*. Amsterdam, Elsevier Publishing Co., 1965, xiv, 616 p. [Includes the following papers in which the theory of thunderstorm electrification is discussed: B. J. Mason, "Charge generation in thunderstorms", p. 239–54; C. B. Moore, "Charge generation in thunderstorms", p. 255–62; D. Müller-Hillebrand, "Comment", p. 263–67; N. S. Shishkin, "The role of coagulation of charged cloud particles in the development of thunderstorm phenomena", p. 268–79; M. Brook, "Thunderstorm electrification", p. 280–83; J. Latham, "Possible reconciliation of the work of Reynolds et al. with the temperature-gradient theory", p. 284; B. Vonnegut, "Thunderstorm theory", p. 285–95; E. J. Workman, "Thunderstorm electricity", p. 296–303; J. A. Chalmers, "Charge generation in thunderstorms", p. 304–06; J. D. Sartor, "Induction charging thunderstorm mechanism", p. 307–10; P. B. MacReady, Jr., "Thunderstorm charging mechanisms", p. 311; A. Pühringer, "Comment", p. 312; "Discussions", p. 313–20.]
- DORT, W., jr. Rapid reconnaissance of heat-flow patterns in snow-covered thermal areas. *Journal of Geophysical Research*, Vol. 71, No. 18, 1966, p. 4439–40. [Use of pattern of snow depth to give information about local variations of heat flow.]
- GUNN, R. Thunderstorm electrification of hail and graupel by polar drizzle. *Science*, Vol. 151, No. 3711, 1966, p. 686–87. [Possible method of generating thunderstorm electrification.]
- HAVENS, J. M. Meteorology, No. 2. Meteorology and heat balance of the accumulation area, McGill Ice Cap, Canadian Arctic Archipelago—summer 1960. (Upper Ice Station I: $79^{\circ} 41' \text{N}$, $90^{\circ} 27' \text{W}$, 1530 m.). *Axel Heiberg Island Research Reports, McGill University, Montreal. Jacobsen–McGill Arctic Research Expedition 1959–1962*, 1964, [iii], viii, 87 p. + errata slip. [Includes sections on glacial-meteorology and heat balance at a melting snow surface. Also notes on fog and rime, snowfall amounts, and drifting and blowing snow.]
- HAVENS, J. M., and others. Meteorology, No. 4. Comparative meteorological survey and a short-term heat balance study of the White Glacier, Canadian Arctic Archipelago—summer 1962, [by] J. M. Havens, F. Müller and G. C. Wilmot. *Axel Heiberg Island Research Reports, McGill University, Montreal. Jacobsen–McGill Arctic Research Expedition 1959–1962*, 1965, [iii], vi, 68 p. [Includes result of measurements and analysis. Discusses validity of various methods of calculating heat balance for periods of 1–2 days.]
- HOWELL, W. E. Twelve years of cloud seeding in the Andes of northern Peru. *Journal of Applied Meteorology*, Vol. 4, No. 6, 1965, p. 693–700. [Report on success of project using silver iodide.]
- LACY, R. E. Frost patterns on brickwork. *Weather*, Vol. 21, No. 4, 1966, p. 135–37. [Photographs of effect and discussion of origin.]
- LIST, R., and others. Heat exchange ratios of hailstones in a model cloud and their simulation in a laboratory, [by] R. List, P. H. Scheupp and R. G. J. Methot. *Journal of the Atmospheric Sciences*, Vol. 22, No. 6, 1965, p. 710–18. [Theoretical studies of contribution of different terms to heat balance of hailstones.]
- LONGLEY, R. W., and THOMPSON, C. E. A study of the causes of hail. *Journal of Applied Meteorology*, Vol. 4, No. 1, 1965, p. 69–82. [Analysis of data for southern Alberta 1959–63.]
- MATHER, K. B., and MILLER, G. S. Wind drainage off the high plateau of eastern Antarctica. *Nature*, Vol. 209, No. 5020, 1966, p. 281–84. [Compilation of data for East Antarctica shows drainage wind determines predominant wind direction.]
- SANSOM, H. W. The use of explosive rockets to suppress hail in Kenya. *Weather*, Vol. 21, No. 3, 1966, p. 86–91. [Success reported. Discussion of theories.]
- SCHLEUSENER, R. A., and others. Hailfall data from a fixed network for the evaluation of a hail modification experiment, by R. A. Schleusener, J. D. Marwitz and W. L. Cox. *Journal of Applied Meteorology*, Vol. 4, No. 1, 1965, p. 61–68. [Detailed statistical study shows present data inadequate to allow effectiveness of hail modification to be assessed.]

- SOULAGE, G. Methods of measurement of ice nuclei concentrations. *Pure and Applied Geophysics*, Vol. 60, No. 1, 1965, p. 183-88. [Discussion of relative advantages of different methods and precautions necessary.]
- TAYLOR, C. B. Tritium in Southern Hemisphere precipitation 1953-1964. *Tellus*, Vol. 18, No. 1, 1966, p. 105-31. [Includes data from snow in various parts of Antarctica.]
- TSITOVICH, T. A. K voprosu o stokovom vetre [On the question of the gravity wind]. *Trudy Tsentral'noy Aerologicheskoy Observatorii*. [Transactions of the Central Aerological Observatory], No. 68, 1965, p. 67-75. [Observations in Antarctica.]
- VITTORI, O., and LIST, R. Comment on: "On the effect of explosion waves on hailstone models". *Journal of Applied Meteorology*, Vol. 5, No. 1, 1966, p. 132-34. [Comments by Vittori on List's article (*ibid.*, Vol. 2, No. 4, 1963, p. 494-97) and reply by List.]

SNOW

- DUCE, R. A., and others. Iodine, bromine, and chlorine in winter aerosols and snow from Barrow, Alaska, by R. A. Duce, J. W. Winchester and T. W. Van Nahl. *Tellus*, Vol. 18, No. 2, 1966, p. 238-48.
- DUNHAM, S. B. Electrostatic charging by solid precipitation. *Journal of the Atmospheric Sciences*, Vol. 23, No. 4, 1966, p. 412-15. [Measurement of charge produced when snow strikes various surfaces at high speed.]
- FUKUHARA, K. On the snowfall forecasting. Part 5. *Journal of Meteorological Research*, Vol. 17, No. 6, 1965, p. 396-400. [Study of condition of atmosphere leading to heavy falls of snow.]
- KOGAN, R. M., and others. Determination of water equivalent of snow cover by method of aerial gamma-survey, by R. M. Kogan, M. V. Nikiforov, Sh. D. Fridman, V. P. Chirkov and A. F. Yakovlev. *Soviet Hydrology. Selected Papers*, 1965, No. 2, p. 183-87. [Methods measuring natural γ -activity of soil.]
- KUMAI, M. Microspherules in snow and ice-fog crystals. *Journal of Geophysical Research*, Vol. 71, No. 14, 1966, p. 3397-404. [Spherules found in snow crystals, ice-fog crystals, fallout particles, and fly ash, from Greenland, the United States and Japan, described.]
- LACHAPPELLE, E. R. The control of snow avalanches. *Scientific American*, Vol. 214, No. 2, 1966, p. 92-101. [General survey of present knowledge.]
- MARTINELLI, M., jr. An estimate of summer runoff from alpine snowfields. *Journal of Soil and Water Conservation*, Vol. 20, No. 1, 1965, p. 24-26. [Uses aerial photographs of part of Front Range, central Colorado.]
- MARTINELLI, M., jr., and DAVIDSON, K. D. An example of damage from a powder avalanche. *Bulletin de l'Association Internationale d'Hydrologie Scientifique*, 11^e An., No. 3, 1966, p. 26-34. [Movement of a truck used to deduce air velocity.]
- MEIMAN, J. R., and SLAUGHTER, C. W. Spread of cetyl-1-C₁₄ alcohol on a melting snow surface. *Bulletin de l'Association Internationale d'Hydrologie Scientifique*, 11^e An., No. 3, 1966, p. 5-8. [Measurements of spread of substance used to reduce evaporation.]
- MORRIS, J. Y., and O'LOUGHLIN, C. L. Snow investigations in the Craigieburn Range. *Journal of Hydrology (New Zealand)*, Vol. 4, No. 1, 1965, p. 2-16. [Test of snow survey techniques.]
- NYBERG, A. A study of the evaporation and the condensation at a snow surface. *Arkiv för Geofysik*, Bd. 4, Ht. 25, 1966, p. 577-90. [Instrument to measure evaporation or condensation accurately.]
- RANTZ, S. E. Snowmelt hydrology of a Sierra Nevada stream. *U.S. Geological Survey. Water Supply Paper 1779-R*, 1964, 36 p. [Report of comparison between calculated and observed run-off.]
- VANNI, M. Pour une classification géographique des avalanches. *Bollettino del Comitato Glaciologico Italiano*, 2 Ser., No. 12, Pt. 2, 1961-62, [pub.] 1966, p. 39-54. [Classification based on distribution in altitude of formation in the various mountain regions.]
- YEFREMOV, P. V., and SHELEPOVA, G. S. K voprosu o tochnosti rascheta intensivnosti snegotainiya [On the question of accuracy of calculation of snow melt rate]. *Trudy Tsentral'nogo Instituta Prognozov* [Transactions of the Central Forecasting Institute], Vyp. 134, 1964, p. 77-84. [Comparison of various calculations with observation.]
- YEL'MESOV, A. M. K voprosu o mekhanicheskikh svoystvakh snezhnogo pokrova [On the problem of the mechanical properties of the snow cover]. *Trudy Zakavkazskogo Nauchno-Issledovatel'skogo Gidrometeorologicheskogo Instituta* [Transactions of the Transcaucasian Scientific Research Hydrometeorological Institute] (Tiflis), Vyp. 13, 1963, p. 52-60. [Formulae given to express results of experimental and theoretical studies.]

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In the entry in "Glaciological literature" on p. 474, the author's name in the seventh entry of the SNOW section should read HUTCHISON, B. A., not HUTCHINSON, B. A.