

## 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

- ADAMS, W. P., and HELLEINER, F. M., ed. *International geography 1972. Papers submitted to the 22nd International Geographical Congress, Canada, . . . Montréal, 1972*. Toronto and Buffalo, University of Toronto Press, [©1972]. 2 vols.: xii, 694, xiii-xxvi p.; xii, 695-1354, xiii-xxvi p. [For details of papers see elsewhere in this list.]
- ADIE, R. J., ed. *Antarctic geology and geophysics. Symposium on Antarctic geology and solid earth geophysics, Oslo, 6-15 August 1970, organized by the Scientific Committee on Antarctic Research and sponsored by the International Union of Geological Sciences*. Oslo, Universitetsforlaget, 1971. [xii], 876 p. (International Union of Geological Sciences, Ser. B, No. 1.) [Includes the following papers: E. F. Silva, "Geomorphological observations and generalizations on the coasts of the South Shetland Islands and Antarctic Peninsula", p. 99-103; R. Araya and F. Hervé, "Periglacial phenomena in the South Shetland Islands", p. 105-09; R. Araya and F. Hervé, "Patterned gravel beaches in the South Shetland Islands", p. 111-14; C. R. Bentley and J. W. Clough, "Seismic refraction shooting in Ellsworth and Dronning Maud Lands", p. 169-72; R. H. Rutford, "Glacial geomorphology of the Ellsworth Mountains", p. 225-32; R. H. Rutford, "Drainage systems of the Ellsworth Mountains", p. 233; R. H. Rutford, C. Craddock, C. M. White and R. L. Armstrong, "Tertiary glaciation in the Jones Mountains", p. 239-43; D. A. Coates, "Pagoda Formation: evidence of Permian glaciation in the central Transantarctic Mountains", p. 359-64; J. H. Mercer, "Some observations on the glacial geology of the Beardmore Glacier area", p. 427-33; C. [B. B.] Bull and P. E. Calkin, "Interaction of the east Antarctic ice sheet, alpine glaciations and sea-level in the Wright Valley area, southern Victoria Land", p. 435-40; P. E. Calkin and R. L. Nichols, "Quaternary studies in Antarctica", p. 625-43; V. I. Bardin, "Moraines of Antarctica", p. 663-67; G. de Q. Robin, "Radio-echo sounding applied to the investigation of the ice thickness and sub-ice relief of Antarctica", p. 675-82; C. R. Bentley and J. W. Clough, "Antarctic subglacial structure from seismic refraction measurements", p. 683-91; D. J. Drewry, "Subglacial morphology between the Transantarctic Mountains and the South Pole", p. 693-703; D. C. Neethling, "Submarine and subglacial morphology, Kronprinsesse Märtha Kyst, Dronning Maud Land", p. 705-11; T. van Autenboer and H. Declair, "Ice thickness and subglacial relief of the Jelbartisen-Trolltunga area, Dronning Maud Land", p. 713-22; R. Houtz and R. Meijer, "Structure of the Ross Sea shelf from profiler data", p. 745; T. M. Chriss and L. A. Frakes, "Glacial marine sedimentation in the Ross Sea", p. 747-62.]

### GENERAL GLACIOLOGY

- BOCHKOV, A. P., and others. Water resources and water balance of the U.S.S.R.. [by] A. P. Bochkov, A. I. Chebotarev, K. P. Voskresensky. (*In World water balance. Proceedings of the Reading symposium, July 1970*. Vol. 2. Gentbrugge, etc., IASH-UNESCO-WMO, 1972, p. 324-30. (Studies and Reports in Hydrology, 11.)) [Includes reference to glaciers and snow cover, and to river ice fields.]
- CRARY, A. P. Exploration of the polar regions. Swedish Society for Anthropology and Geography 24 April 1972. *Ymer*, Årg. 92, 1972, [pub.] 1973, p. 246-58. [Lecture on author's glaciological research in the polar regions, delivered on the occasion of the award of the Vegamedaljen.]
- ISHIDA, T., ed. *Glaciological research program in Mizuho Plateau—west Enderby Land. Part 1, 1969-1971*. Tokyo, Polar Research Center, National Science Museum, 1972. ii, 217 p. (Japanese Antarctic Research Expedition. JARE Data Reports, No. 17 (Glaciology).) [Contents include: H. Shimizu, R. Naruse, K. Omoto and A. Yoshimura, "Position of stations, surface elevation and thickness of the ice sheet, and snow temperature at 10 m depth in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1971", p. 12-37; Y. Ageta and O. Watanabe, "Net accumulation of snow by stake measurements in Mizuho Plateau, east Antarctica, 1968-1971", p. 38-47; O. Watanabe and Y. Ageta, "Surface condition of the ice sheet in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1971", p. 48-76; R. Naruse, "Stratigraphic observation of the surface snow cover in Mizuho Plateau, east Antarctica, 1969-1970", p. 77-87; O. Watanabe, "Stratigraphic observation of the surface snow cover in west Enderby Land, east Antarctica, 1970-1971", p. 88-110; R. Naruse, A. Yoshimura and H. Shimizu, "Installation of a triangulation chain and a traverse survey line on the ice sheet in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1970", p. 111-31; M. Murozumi and H. Shimizu, "Chemical constituents in the surface snow cover in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1970-1971", p. 132-34; Y. Ageta and Y. Fukushima, "Surface meteorological data of the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1971", p. 135-67; M. Yoshida and A. Yoshimura, "Gravimetric survey in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1971", p. 168-203; M. Yoshida and A. Yoshimura, "Geomagnetic survey in the Mizuho Plateau—west Enderby Land area, east Antarctica, 1969-1971", p. 204-17.]

- KERFOOT, D. E., ed. *Mackenzie Delta area monograph*. St. Catharines, Ontario, Brock University, [1972]. [vi], 174 p. [Includes the following papers: V. Rampton, "An outline of the Quaternary geology of the lower Mackenzie region", p. 7-14; V. Rampton, "Surficial deposits of portions of the Mackenzie Delta (107C), Stanton (107D), Cape Dalhousie (107E) and Malloch Hill (97F) map-sheets", p. 15-27; J. C. Ritchie, "Pollen analyses of late-Quaternary sediments from the Arctic treeline of the Mackenzie River Delta region, Northwest Territories", p. 29-50; D. K. MacKay and J. R. Mackay, "Break-up and ice jamming of the Mackenzie River, Northwest Territories", p. 87-93; M. W. Smith, "Observed and predicted ground temperatures, Mackenzie Delta, N.W.T.", p. 95-106; J. R. Mackay and D. K. MacKay, "Ground temperatures at Garry Island, N.W.T.", p. 107-14; D. E. Kerfoot and J. R. Mackay, "Geomorphological process studies, Garry Island, N.W.T.", p. 115-30; J. R. Mackay, "Some observations on ice-wedges, Garry Island, N.W.T.", p. 131-39; J. R. Mackay, "Some observations on the growth of pingos", p. 141-47; J. A. Heginbottom, "Some effects of a forest fire on the permafrost active layer at Inuvik, N.W.T.", p. 149-56.]
- SHIMIZU, H., and others. General report of the glaciological research work of the 11th Japanese Antarctic Research Expedition, 1970-1971, [by] H. Shimizu, O. Watanabe and A. Yoshimura. *Nankyoku Shiryō: Antarctic Record*, No. 45, 1972, p. 12-19.
- WILLIAMS, G. P., ed. Summary of current research on snow and ice in Canada. *Canada. National Research Council. Associate Committee on Geotechnical Research. Technical Memorandum No. 106, 1972, [iv], 30 p.*
- ZELLER, E. J., and others. Putting radioactive wastes on ice. A proposal for an international radionuclide depository in Antarctica, [by] E. J. Zeller, D. F. Saunders and E. E. Angino. *Bulletin of the Atomic Scientists*, Vol. 29, No. 1, 1973, p. 4-9, 50-52. [Practical and political considerations.]

## GLACIOLOGICAL INSTRUMENTS AND METHODS

- AHMED, F., and others. A modified variational method for the pulsed-neutron problem, [by] F. Ahmed, L. Ranga-swamy and L. S. Kothari. *Transport Theory and Statistical Physics*, Vol. 2, No. 3, 1972, p. 197-209. [Theory of decay of a neutron pulse in, among other things, ice.]
- WARNER, T. B., and BRESSAN, D. J. Direct measurement of less than 1 part-per-billion fluoride in rain, fog, and aerosols with an ion-selective electrode. *Analytica Chimica Acta*, Vol. 63, No. 1, 1973, p. 165-73. [Method used for snow samples.]
- WOODRIF, R., and others. Determination of sub-nanogram quantities of silver in snow by furnace atomic absorption spectroscopy, by R. Woodriff, B. R. Culver, D. Shrader and A. B. Super. *Analytical Chemistry*, Vol. 45, No. 2, 1973, p. 230-34. [Method described.]

## PHYSICS OF ICE

- BUONTEMPO, U. Infrared spectra of amorphous ice. *Physics Letters*, Vol. 42A, No. 1, 1972, p. 17-18. [Measurement and comparison with spectrum of water.]
- CASSETTARI, M., and SALVETTI, G. Thermodielectric effect and freezing potential in growing ice. *Nuovo Cimento della Società Italiana di Fisica*, Vol. 12B, No. 1, 1972, p. 95-100. [Electrical effects on ice formation from vapour and liquid observed and attributed to piezoelectric transient structure in growing ice.]
- CUMMINS, P. G., and DUNMUR, D. A. Local electric field in ice I. *Journal of Physical Chemistry*, Vol. 77, No. 3, 1973, p. 423-24. [Lorenz-Lorentz equation is not valid in anisotropic crystals. Birefringence of ice is due mainly to anisotropy in local field.]
- DRAKE, L. D., and SHREVE, R. L. Pressure melting and regelation of ice by round wires. *Proceedings of the Royal Society of London*, Ser. A, Vol. 332, No. 1588, 1973, p. 51-83. [Observations of the speeds with which wires of various thermal conductivities can be pulled through ice and explanation of the deviations from simple theory.]
- ELZBUTAS, H., and SASNAUSKAS, K. Dielektricheskiye kharakteristiki l'da iz obychnoy i obrabotannoy magnitnym polem vody [Dielectric characteristics of ice made from ordinary water and magnetic-field-treated water]. *Lietuvos TSR Aukštųjų mokslų Mokslų Darbai, Chemija ir Cheminė Technologija*, [No.] 13, 1971, p. 345-52. [Magnetic field applied prior to freezing affected dielectric parameters of resulting ice when made from hard tap water but not pure water.]
- EVANS, L. F., and LANE, J. E. Line tension and ice nucleation theory. *Journal of the Atmospheric Sciences*, Vol. 30, No. 2, 1973, p. 326-31. [Theory of heterogeneous nucleation is refined to include line tension at perimeter of embryo-substrate interface.]
- FAURE, P., and CHOSSON, A. Low frequency Raman spectrum of ice Ih. Tentative interpretation with a mixed Coulomb-valence dynamical model. (*In* Balkanski, M., ed. *Proceedings of the second international conference on light scattering in solids (Paris, July 19-23, 1971)*. Paris, Flammarion Sciences, [c1971], p. 272-77.) [Laser excited low-frequency Raman spectra 30-250 K suggest existence of polar domains.]
- FOSS, S. D., and FAN, S. S. T. Approximate solution to the freezing of the ice-water system. *Water Resources Research*, Vol. 8, No. 4, 1972, p. 1083-86. [Approximate solution to Stefan problem assuming freezing process is rate-controlling.]
- FUKUTA, N., and PAIK, Y. Water adsorption and ice nucleation on silver iodide surfaces. *Journal of Applied Physics*, Vol. 44, No. 3, 1973, p. 1092-100. [Calculation which accounts for mechanism of activation of nuclei, also tendency for random orientation as adsorption proceeds which explains why entropy is not a problem in ice nucleation.]
- GANGWANI, G. S., and others. Neutron thermalization in various H<sub>2</sub>O-D<sub>2</sub>O mixtures in the temperature range 253 to 4° K, [by] G. S. Gangwani, S. P. Tewari and L. S. Kothari. *Nuclear Science and Engineering*, Vol. 50, No. 4, 1973, p. 337-44. [Theoretical study of thermalization of neutron pulses and of a steady neutron beam in ice of different D<sub>2</sub>O concentrations.]

- GARVEY, D. M. Photolytic activation of the ice-nucleating properties of silver iodide hydrosols. *Journal of the Atmospheric Sciences*, Vol. 30, No. 1, 1973, p. 165-67. [Irradiation produces reversible enhancement of nucleating activity.]
- GOLD, L. W. The failure process in columnar-grained ice. *Canada. National Research Council. Division of Building Research. Technical Paper No. 369 (NRCC 12637)*, 1972, [vi]. [168] p. [Study of stress, strain, temperature and time dependence of crack formation in columnar-grained ice.]
- GUDMANDSEN, P. Electromagnetic probing of ice. (In Wait, J. R., ed. *Electromagnetic probing in geophysics*. Boulder, Colorado, Golem Press, 1971, p. 321-48.) [Review.]
- HINDMAN, E. E., II, and JOHNSON, D. B. Numerical simulation of ice particle growth in a cloud of supercooled water droplets. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1313-21. [Empirical model for estimating growth of ice crystals by diffusion.]
- HUANG, T. Y.-C. Energy level structure and mobilities of electrons in aqueous and organic glasses—alkaline ice, methanol-water mixtures, 2-methyltetrahydrofuran and 3-methylhexane. *Dissertation Abstracts International*, B, Vol. 33, No. 5, 1972, p. 2012-B. [State of trapped electrons in  $\gamma$ -irradiated alkaline ice and measurement of drift mobilities. Abstract of Ph.D. thesis, Wayne State University, 1972. University Microfilms order no. 72-28444.]
- JINDAL, B. K., and TILLER, W. A. Freezing potentials—effect of substrate on potential during the freezing of aqueous solutions at a uniform rate. *Journal of Colloid and Interface Science*, Vol. 39, No. 2, 1972, p. 339-48. [Curves of electrical potential against length of crystal are quite different when ice is nucleated on glass or on Hg substrate.  $\text{NH}_4\text{Cl}$  and  $\text{NH}_4\text{I}$  solutions used.]
- JINDAL, B. K., and WALLACE, R. A. Transient electrical potentials at ice-sodium polystyrene sulfonate solution interface. *Journal of Colloid and Interface Science*, Vol. 43, No. 1, 1973, p. 211-12. [Observation of large potential not due to freezing, which builds up to maximum in a few minutes and then decays.]
- JONES, S. J., and GILRA, N. X-ray topographical study of dislocations in pure and HF-doped ice. *Philosophical Magazine*, Eighth Ser., Vol. 27, No. 2, 1973, p. 457-72. [Dislocation density increases as HF is diffused into ice monocrystals.]
- JOVIĆ, D., and others. Dispersion relations in heavy ice, by D. Jović, M. Davidović, M. Živanović. *Physics Letters*, Vol. 42A, No. 7, 1973, p. 509-10. [Neutron inelastic scattering used to obtain phonon dispersion along  $c$ -axis.]
- KAPUR, S., and others. A mechanism for the  $\beta$  relaxation of wet nylon 6, [by] S. Kapur, C. E. Rogers, E. Baer. *Journal of Polymer Science, Polymer Physics Edition*, Vol. 10, No. 11, 1972, p. 2297-300. [Suggests tightly bound water in wet nylon 6 has Bjerrum defects and that mechanism of this transition is same as for ice.]
- KNIGHT, C. A. Two-dimensional phase changes and the heterogeneous nucleation of ice. *Journal of the Atmospheric Sciences*, Vol. 30, No. 2, 1973, p. 324-26. [Examination of two-dimensional surface phase change theory of activation and memory effects in heterogeneous nucleation.]
- KRASTANOV, L. Ob odnom vozmozhnom mekhanizme sil'noy ledoobrazuyushchey aktivnosti nekotorykh neorganicheskikh soedineniy [Possible mechanism of strong ice-forming activity of some inorganic compounds]. *Doklady Bolgarskoy Akademii Nauk*, Tom. 25, No. 11, 1972, p. 1515-18. [Mechanisms of ice nucleation discussed.]
- KRAUSZ, A. S. The activation volume associated with the plastic deformation of ice. *Applied Scientific Research*, Vol. 26, No. 1-2, 1972, p. 86-92. [Stress relaxation experiments on ice tubes and needles which grow from the surface of freezing water as single, bi-, tri- and quadri-crystals.]
- LAYTON, R. G. Ice nucleation by silver iodide: influence of an electric field. *Journal of Colloid and Interface Science*, Vol. 42, No. 1, 1973, p. 214-17. [Temporary change in nucleating ability due to electric field. Effect attributed to electrostatic interaction between filled surface states and water molecules.]
- MILOSHEV, G. N. Formation of crystal nuclei in liquids with incomplete crystal wetting. *Doklady Bolgarskoy Akademii Nauk*, Tom. 25, No. 9, 1972, p. 1197-99. [Change in energy involved in nucleus formation when it is not wetted by its melt is used to explain a number of phenomena of ice formation in clouds and fog.]
- MOTOC, C., and BADEA, M. Epitaxial growth and the electrical properties of the substrates. *Journal of Crystal Growth*, Vol. 17, 1972, p. 337-41. [Includes study of epitaxy of ice on muscovite mica and NaCl.]
- MURTY, A. S. RAMACHANDRA, and MURTY, BH. V. RAMANA. Conditions governing drop freezing at warm temperatures. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1322-28. [Experiments show supercooled droplets freeze more readily when they are evaporating.]
- NILSSON, G. The absorption spectrum of the hydrated electron at high pressures. A calculation of the pressure shift of the absorption peak. *Chemical Physics Letters*, Vol. 17, No. 4, 1972, p. 539-42. [Structure of excess electron localization centre is identified with dodecahedral cavities in ice Ih.]
- NISHIBATA, K. Growth of ice IV and equilibrium curves between liquid water, ice IV, ice V and ice VI. *Japanese Journal of Applied Physics*, Vol. 11, No. 11, 1972, p. 1701-08. [Dielectric method used to study phase diagram of ice including range of metastable ice IV.]
- ROGERS, J. C. A measurement technique for determining the VLF permittivity of deep Antarctic ice using a dipole probe. *Dissertation Abstracts International*, B, Vol. 33, No. 5, 1972, p. 2087-B. [Design of probe to make *in situ* measurements between 1.25 and 20 kHz and results from bore hole at "Byrd" station. Abstract of Ph.D. thesis, University of Washington, 1972. University Microfilms order no. 72-28655.]
- RÖMKENS, M. J. M., and MILLER, R. D. Migration of mineral particles in ice with a temperature gradient. *Journal of Colloid and Interface Science*, Vol. 42, No. 1, 1973, p. 103-11. [Attributed to osmosis in liquid film around particles. Two such models formulated.]
- SANTRY, D. P. Molecular orbital studies on hexagonal ice. *Journal of the American Chemical Society*, Vol. 94, No. 24, 1972, p. 8311-17. [Calculations which agree well with experiment. Difference in bond angles compared with gas phase attributed to crystal polarization energy.]

- SCHROEDER, R. C., and McMASTER, W. H. Shock-compression freezing and melting of water and ice. *Journal of Applied Physics*, Vol. 44, No. 6, 1973, p. 2591-94. [Experimental curves for behaviour of ice and water when a shock wave passes through are compared with theory in which melting of ice VII occurs.]
- SHIFRIN, K. S., and others. Investigations from aircraft for sounding the atmosphere by means of microwave radiation, [by] K. S. Shifrin, Yu. I. Rabinovich and G. G. Shchoukin [i.e. G. G. Shchukin]. *Space Research XI*, Vol. 1, 1971, p. 601-07. [Includes airborne determination of temperature of lake and sea ice and study of radio brightness temperature over lake ice and its relation with ice thickness.]
- SMITH, K. A., and others. Melter-condenser operation: theory and experiment, [by] K. A. Smith, L. W. Petri and L. T. Brian. *Industrial and Engineering Chemistry. Process Design and Development*, Vol. 11, No. 4, 1972, p. 485-90. [Design problem for plant to melt ice economically by condensation of refrigerant vapour.]
- SOKOLOFF, J. B., and LOVELUCK, J. M. Theory of inelastic neutron scattering from orientationally disordered molecular crystals, with particular application to  $\text{ND}_4\text{Br}$  and  $\text{ND}_4\text{Cl}$ . *Physical Review, B*, Ser. 3, Vol. 7, No. 4, 1973, p. 1644-50. [Results of this theoretical study should be applicable to ice.]
- SOUCHEZ, R. A., and LORRAIN, R. D. Influence de la désorption sur les propriétés chimiques de la glace profonde du glacier d'Argentière (Massif du Mont Blanc). *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Sér. D, Tom. 276, No. 13, 1973, p. 1969-71. [Effect of desorption of ions from surface of mineral particles within glacier ice.]
- STILLINGER, F. H., and COTTER, M. A. Local orientational order in ice. *Journal of Chemical Physics*, Vol. 58, No. 6, 1973, p. 2532-41. [Cluster expansion approach to calculation of Kirkwood orientational correlation factor  $g_k$  examined. Orientational order in ice Ih and Ic has long range.]
- TANTSYREV, G. D., and NIKOLAYEV, YE. N. O dvukh mekhanizmax obrazovaniya klasterov vody pri ionnoy bombardirovke plenki l'da [Two mechanisms for the formation of water clusters during the ion bombardment of an ice film]. *Doklady Akademii Nauk SSSR*, Tom 206, No. 1, 1972, p. 151-54. [Explanation for emission of clusters of 1-40 water molecules when ice film, deposited at liquid nitrogen temperature, is bombarded by 20 keV  $\text{A}^+$  ions.]
- TEWARI, S. P. Thermal neutron diffusion at the ice-water phase transition. *Nuclear Science and Engineering*, Vol. 50, No. 2, 1973, p. 182. [Letter. Discussion of observation that neutron diffusion coefficient does not change at ice melting point.]
- UNWIN, P. N. T., and MUGURUMA, J. Electron microscope observations on the defect structure of ice. *Physica Status Solidi, A*, Vol. 14, No. 1, 1972, p. 207-16. [Observation of cavities and dislocations, and explanation of cavity formation as due to electron beam.]
- VON HIPPEL, A. R., and FARRELL, E. F. A molecular interpretation of the phase diagram of ice by model studies. *Materials Research Bulletin*, Vol. 8, No. 1, 1973, p. 127-45. [Review.]
- YEN, Y.-C., and ZEHNDER, A. Melting heat transfer with water jet. *International Journal of Heat and Mass Transfer*, Vol. 16, No. 1, 1973, p. 219-23. [Experimental study during melting of cylinder ice by vertical water jet from below.]
- YOSHIDA, H., and others. Electron-electron double resonance study of trapped electrons in 10M NaOH alkaline ice glass, by H. Yoshida, D.-F. Feng and L. Kevan. *Journal of Chemical Physics*, Vol. 58, No. 8, 1973, p. 3411-19. [Structure in spectra and quantitative details do not agree with spin-packet model. Results support tetrahedral model of oriented water molecules around trapped electron in alkaline ice.]
- ZHELEZNYI, B. V. Zakuporka vody l'dom pri zamerzanií v porakh [Compression of ice by water freezing in pores]. *Inzhenerno-Fizicheskiy Zhurnal*, Tom 23, No. 5, 1973, p. 925-26. [Theory of maximum possible stress that can be applied to ice when water freezes in capillaries. Results imply coexistence of water and ice to negative temperatures.]

## LAND ICE. GLACIERS. ICE SHELVES

- ACHARYA, H. K. Surface-wave dispersion in Byrd Land, Antarctica. *Bulletin of the Seismological Society of America*, Vol. 62, No. 4, 1972, p. 955-59. [Theoretical study of the dispersion of surface waves arising out of the inhomogeneity of the medium. Comparison with actual dispersion curve obtained from seismograms indicates 8%-10% anisotropy in the ice cap.]
- ANDREWS, J. T. Glacier power, mass balances, velocities and erosion potential. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 1-17. [Attempts to derive order of magnitude estimates of total glacier power for a standard glacier of pre-set size.]
- BERRY, M. V. The statistical properties of echoes diffracted from rough surfaces. *Philosophical Transactions of the Royal Society of London*, Ser. A, Vol. 273, No. 1237, 1973, p. 611-54. [Statistical theory behind recent wide-angle pulsed radar experiments to determine the topography and roughness of polar glacier beds from measurements near the snow surface.]
- BJÖRNSSON, H. Bægisárjökull, North-Iceland. Results of glaciological investigations 1967-1968. Part 2. The energy balance. *Jökull*, ÁR 22, 1972, p. 44-61. [Determination of net radiation, sensible heat and latent heat. Icelandic summary, p. 59-61.]
- BJÖRNSSON, H. Um jökla. *Náttúrufræðingurinn*, ÁR 42, Ht. 3, 1972, p. 115-21. [General account of formation, development and characteristic features of glaciers.]
- BRADLEY, R. S. The problem of inversions in estimating the height of glaciation limits in Arctic regions. *Arctic and Alpine Research*, Vol. 4, No. 4, 1972, p. 359-60. [Letter. Points out that, when correlating glaciation limits in Arctic regions and mean July freezing level heights, only those climatic stations above the regional surface level should be used.]
- BUDD, W. F., and others. Derived physical characteristics of the Antarctic ice sheet, by W. F. Budd, D. Jenssen and U. Radok. *ANARE Interim Reports*. Ser. A(IV). Glaciology. Publication No. 120, 1971, xv, 178 p.,

- map, 36 figs. [in end-pocket]. [Characteristics calculated include temperature and velocity distributions, age of the ice, particle paths and patterns of flow, and the state of balance.]
- CHERNOGAYEVA, G. M. *Vodnyy balans materikov zemnogo shara. Vodnyy balans Yevropy* [Water balance of the world continents. Water balance of Europe]. Moscow, Akademii Nauk SSSR, Institut Geografii, Sovetskoy Geofizicheskoy Komitet, 1971. 140 p. [Surveys the general situation, mentioning effect of glaciation on run-off in the Alps. English summary, p. 127-36.]
- COPER, C. Differences in ablation of three adjacent alpine glaciers, Indian Peaks region, Front Range, Colorado. *Arctic and Alpine Research*, Vol. 4, No. 4, 1972, p. 349-53. [Differences depended on the amount of direct sunlight received by each glacier.]
- ESCRITT, E. A. The map of Falljökull. *Jökull*, ÁR 22, 1972, p. 62-64. [Describes survey of this glacier in south-east Iceland by parties from the Brathay Exploration Group in 1967 and 1968. Icelandic summary, p. 64.]
- FREYSTEINSSON, S. Jökulhlaup í Köldukvísl. *Jökull*, ÁR 22, 1972, p. 83-88. [Observations on ice-dammed lakes and jökulhlaups in the Hamarskriki area, western Vatnajökull, Iceland, including a flood in 1972. English summary, p. 83-84.]
- HALLGRÍMSSON, H. Hlaupid í Teigadalsjökli í Svarfaðardal 1971. *Jökull*, ÁR 22, 1972, p. 79-82. [Describes Teigadalsjökull, north Iceland, two months after sudden advance in May 1971. English abstract, p. 79.]
- HESS, M. A method of determining the influence of mountain glaciers on the climate. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 233-36.) [Assesses influence quantitatively under continental conditions, with reference to Lednik Fedchenko.]
- HOLLIN, J. T. Ice sheet surges and interglacial sea levels. *Dissertation Abstracts International*, B, Vol. 33, No. 1, 1972, p. 274-B-75-B. [Discusses evidence whether Antarctic ice sheet undergoes surges. Abstract of Ph.D. thesis, Princeton University, 1972. Copyrighted reprints not microfilmed at request of author.]
- [ICELAND: GLACIERS.] Adopt a glacier. *Geographical Magazine*, Vol. 45, No. 5, 1973, p. 348. [Describes expedition programme for young people, designed to provide information on glaciers in Tröllaskagi area of northern Iceland.]
- JOHNSON, P. G. A possible advanced hypsithermal position of the Donjek Glacier. *Arctic*, Vol. 25, No. 4, 1972, p. 302-05. [Evidence from terminus and lower part of glacier valley, Yukon Territory.]
- KOTLYAKOV, V. M. Land glaciation part in the Earth's water balance. (In *World water balance. Proceedings of the Reading symposium, July 1970*. Vol. 1. Gentbrugge, etc., IASH-UNESCO-WMO, 1972, p. 54-57. (Studies and Reports in Hydrology, 11.)) [Discusses importance of land ice. Discussion, Vol. 3, p. 667.]
- LAGAREC, D., and CAILLEUX, A. Corrélation entre épaisseur moyenne, épaisseur maximale et surface des glaciers. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 18-25. [Results of studies on glaciers in all regions of the world indicate that it is possible to estimate their volumes from this correlation.]
- MARANGUNIĆ, Č. D. Effects of a landslide on Sherman Glacier, Alaska. *Ohio State University. Institute of Polar Studies. Report No. 30*, 1972, xi, 137 p. [Reports observations on regime of glacier.]
- MÜLLER, F., and OMMANNEY, C. S. L. The contribution of glacier ice to the world water balance. (A status report on the world glacier inventory.) (In *World water balance. Proceedings of the Reading symposium, July 1970*. Vol. 3. Gentbrugge, etc., IASH-UNESCO-WMO, 1972, p. 539-53. (Studies and Reports in Hydrology, 11.)) [Discusses problems in compiling inventory, referring to experiences in Canada.]
- OHMURA, A. Ocean-tundra-glacier interaction model. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 919-20.) [Describes structure of model by means of which the regional distribution of sensible heat flux on the glacier can be computed and the source region of the heat identified.]
- OMMANNEY, C. S. L. Application of the Canadian glacier inventory to studies of the static water balance. 1. The glaciers of Vancouver Island. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 1266-68.) [Discusses data obtained from Vancouver Island, showing the type of information that will be available for all Canadian glaciers and its use.]
- OMMANNEY, C. S. L., and GAGNON, D. Data acquisition and presentation for the glacier inventory of Canada. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 980-82.) [Method of obtaining and presenting information described.]
- ORHEIM, O. A 200-year record of glacier mass balance at Deception Island, southwest Atlantic Ocean, and its bearing on models of global climatic change. *Ohio State University. Institute of Polar Studies. Report No. 42*, 1972, x leaves, 118 p. + errata sheet. [Concludes that mass-balance history is representative of climatic changes on the island. Seems likely that global atmospheric warming from the nineteenth to the present century, with cooling after 1940, occurred.]
- ORVIG, S. The hydrological cycle of Greenland and Antarctica. (In *World water balance. Proceedings of the Reading symposium, July 1970*. Vol. 1. Gentbrugge, etc., IASH-UNESCO-WMO, 1972, p. 41-49. (Studies and Reports in Hydrology, 11.)) [General review of behaviour of respective ice sheets. Discussion, *ibid.*, Vol. 3, p. 664-65.]
- OULIANOFF, N. À propos de la catastrophe de Mattmark. *Les Alpes. Bulletin Mensuel du Club Alpin Suisse*, 1972, No. 8, p. 160. [Criticizes use of term "glacier suspendu" in article by Pont, *Les Alpes. Revue du Club Alpin Suisse*, 48<sup>e</sup> An., 2<sup>e</sup> Trimestre, 1972, p. 124-28.]
- PATZELT, G. Venedigergruppe, Hohe Tauern, Austria. *Arctic and Alpine Research*, Vol. 4, No. 4, 1972, p. 361-62. [Letter. Criticizes paper by J. A. T. Young, *ibid.*, Vol. 4, No. 1, 1972, p. 73-83. Reply by author, p. 363-64.]
- REID, I. A., and CHARBONNEAU, J. O. G. *Glacier surveys in Alberta*. Ottawa, Dept. of the Environment, Inland Waters Directorate, Water Resources Branch, 1972. v, 17 p., 2 maps [in end-pocket]. (Report Series, No. 22.) [Athabasca and Saskatchewan glaciers.]
- SEPPÄLÄ, M. Glacier cave observations on Llewellyn Glacier, British Columbia. *Acta Geographica* (Helsinki), 27, 1972, 15 p. [Morphological, glaciological and sedimentological observations, made in 1971.]

- SHCHEGLOVA, O. P., ed. *Sovremennyye oledneniye v bassejnye r. Zarafshan* [Contemporary glaciation in the river Zarafshan basin]. Tashkent, Izdatel'stvo "Fan" Uzbekskoy SSR, 1972. 84 p. [Ten articles on glaciers of Zeravshan basin (Tadzhikskaya A.S.S.R.).]
- SIEGEL, B. Z., and others. Icelandic geothermal activity and the mercury of the Greenland ice cap, [by] B. Z. Siegel, S. M. Siegel [and] F. Thorarinnsson. *Nature*, Vol. 241, No. 5391, 1973, p. 526. [Suggests that mercury originates from Icelandic volcanic ejecta and not from man's agency.]
- SVITOCHE, A. A., and others. O skorosti ostupaniya lednikov Yuzhno-Chuyskikh Belkov Gornogo Altaya [The rate of retreat of the Yuzhno-Chuyskiy Krebet glaciers in Altayskiy Krai]. [By] A. A. Svitoch, V. S. Khorev [and] O. B. Parunin. *Vestnik Moskovskogo Universiteta*, Ser. 5, 27 God, No. 5, 1972, p. 103-06. [Compares rate of retreat of glaciers in late Pleistocene and Holocene with that in the last hundred years.]
- THAKE, H. R. Analyse eines Höhenprofils über das grönländische Inlandeis. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 110-21. [Analysis of a height profile across the Greenland ice cap.]
- VEYRET, Y. Note préliminaire à l'étude morphologique des marges du glacier de l'Artense (Massif Central). *Revue de Géographie Alpine*, Tom. 61, Fasc. 2, 1973, p. 203-21. [Many glacio-fluvial formations were noted, but a sequence of glacial events leading to their development was difficult to follow.]
- VILENSKIY, V. D. Radioaktivnyye izotopy v lednikovom pokrove Antarktidi [Radioactive isotopes in the Antarctic ice sheet]. *Antarktika. Doklady Komissii*, Vyp. 11, 1972, p. 167-73. [Mentions various isotopes found near Russian stations in Antarctica.]
- VIVIAN, R., and BOUQUET, G. Fiche des glaciers français. Les grandes groupes glaciaires. Les glaciers de la Vanoise. *Revue de Géographie Alpine*, Tom. 61, Fasc. 2, 1973, p. 327-33. [Summary of knowledge of this group of French glaciers.]
- VIVIAN, R., and BOREL, G. Fiches des glaciers français. Les glaciers de Miage et des Dômes. *Revue de Géographie Alpine*, Tom. 59, Fasc. 4, 1971, p. 611-14. [Summary of knowledge of these French glaciers.]
- VIVIAN, R., and COLLIGARD, J.-P. Fiches des glaciers français. Les glaciers du groupe des Volnets. *Revue de Géographie Alpine*, Tom. 59, Fasc. 4, 1971, p. 607-10. [Summary of knowledge of this group of French glaciers.]
- VIVIAN, R., and others. Phénomène de cavitation régressive sous le glacier d'Argentière, Massif du Mont-Blanc, [par] R. Vivian, G. Bouquet, C. Ponson. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Sér. D, Tom. 276, No. 4, 1973, p. 485-88. [Discusses phenomenon of subglacial cavitation, caused by irregularities at the ice-rock interface.]
- WEERTMAN, J. Coalescence of magma pockets into large pools in the upper mantle. *Geological Society of America. Bulletin*, Vol. 83, No. 11, 1972, p. 3531-32. [Theory of bubble coalescence in glacier ice is used to explain why small pools of magma in the upper mantle can coalesce into large pools.]
- WÓJCIK, G. The problem of asymmetrical recession of the Skeidarárjökull head (Iceland). *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences de la Terre*, Vol. 20, No. 2, 1972, p. 145-52. [Reason for western part of glacier receding more rapidly may be more intensive ablation due to a warmer climate here.]
- ZOTIKOV, I. A., and others. Termicheskoye bureniye lednikovykh pokrovov [Thermal drilling of ice sheets]. [By] I. A. Zotikov, A. P. Kapitsa, Ye. V. Kudryavtsev, L. A. Sukhanov. *Antarktika. Doklady Komissii*, Vyp. 11, 1972, p. 141-56. [Describes methods and discusses effect of boring on ice temperature at sides of bore hole.]

## ICEBERGS. SEA, RIVER AND LAKE ICE

- ABER, P. G., and VOWINCKEL, E. Evaluation of North Water spring ice cover from satellite photographs. *Arctic*, Vol. 25, No. 4, 1972, p. 263-71. [Photographs for two years (March to September) were used to study ice in this polynya and to determine whether reliable ice maps could be made from satellite data without computer analysis.]
- ADAMS, W. P., and BRUNGER, A. G. Sampling a subarctic lake cover. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 222-26.) [Discusses problem of obtaining a meaningful sample of the components of a lake cover (to include white and black ice, snow and hydrostatic water level), and the limitations of small samples of such a cover.]
- ANDERSEN, P. F. Ice free harbours. *Engineering Journal*, Vol. 55, Nos. 7-8, 1972, p. 23-31. [Describes model and small-scale lake tests on wave machines placed at the rear of a harbour, producing waves which prevent formation of solid ice and move formed slush ice out of the harbour.]
- ASHTON, G. D., and KENNEDY, J. F. Ripples on underside of river ice covers. *Journal of the Hydraulics Division, Proceedings of the American Society of Civil Engineers*, Vol. 98, No. HY9, 1972, p. 1603-24. [Develops analytical model for formation of ice ripples and compares results with experimental data from laboratory and field investigations.]
- BULATOV, S. N., ed. Raschety i prognozy ledovykh yavleniy na rekakh i vodokhranilishchakh [Calculating and forecasting the appearance of ice on rivers and reservoirs]. *Ordena Lenina Gidrometeorologicheskii Nauchno-Issledovatel'skiy Tsentr SSSR. Trudy*, Vyp. 49, 1972, 108 p. [Nine articles.]
- DIONNE, J.-C. *Vocabulaire du glaciol (Drift ice terminology)*. Québec, Environnement Canada. Service des Forêts. Centre de Recherches Forestières des Laurentides Région de Québec, 1972. 47 leaves. (Rapport d'Information Q-F-X-34.) [Includes definitions of terms and expressions in French and their English equivalents.]
- DUNBAR, MOIRA. *Winter ice reconnaissance in Nares Strait, 1971-72*. Ottawa, Defence Research Board. Defence Research Establishment Ottawa, 1972. iii, [24] p. (DREO Technical Note No. 72-30.) [Ice consolidated much earlier than in the previous year, apparently as a result of a much lower incidence of strong winds.]
- FABRICIUS, J. S. Drivisen ved Nordøstgrønland. *Grønland*, Årg. 21, No. 2, 1973, p. 70-72. [Brief note on occurrence of floating ice off north-east Greenland.]

- FINKE, S. Untersuchungen zum Verformungsverhalten des Meereises im Eclipse Sound (Baffin Island) und Messungen des Reibungskoeffizienten Stahl-Eis. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 75-81. [Observations on the plastic behaviour of sea ice, samples being subjected to various methods of deformation. Describes measurement of the friction parameter steel-ice, referring to drilling holes.]
- HIBLER, W. D., III. Removal of aircraft altitude variation from laser profiles of the Arctic ice pack. *Journal of Geophysical Research*, Vol. 77, No. 36, 1972, p. 7190-95. [Technique is to carry out a conventional high-pass-filtering operation and then to estimate minimum points, which can then be used to estimate an ice roughness base-line.]
- KOHNEN, H. Seismic and ultrasonic measurements on the sea ice of Eclipse Sound near Pond Inlet, N.W.T., in northern Baffin Island. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 66-74. [Seismic determination of elastic moduli of sea ice. Distribution of velocity and elasticity within the ice cover and its relation to the brine volume deduced from ultrasonic measurements.]
- KOHNEN, H., and THYSSEN, F. Canadian Arctic Channel Project 1972, Pond Inlet, N.W.T. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 65. [Short outline of aim of project, which is to gather information on relevant parameters necessary for ship construction and navigation in Arctic waters. In German.]
- KOVACS, A., and others. Structure of a multi-year pressure ridge, [by] A. Kovacs, W. F. Weeks, S. Ackley and W. D. Hibler III. *Arctic*, Vol. 26, No. 1, 1973, p. 22-31. [Observations from three transverse profiles across a large pressure ridge in the Beaufort Sea.]
- LARSEN, P. Hydraulic roughness of ice covers. *Journal of the Hydraulics Division, Proceedings of the American Society of Civil Engineers*, Vol. 99, No. HY1, 1973, p. 111-19. [Study of effect on head losses of ice covering channels and natural watercourses in northern Sweden where the ice might be present for four months of the year.]
- MCCCLAIN, E. P. Quantitative use of satellite vidicon data for delimiting sea ice conditions. *Arctic*, Vol. 26, No. 1, 1973, p. 44-57. [In a newly developed procedure, the satellite brightness measurements taken over selected areas are used for external calibration, and the calibrated data used to study sea ice conditions in the North American Arctic.]
- MACDONALD, E. G., and HOPPER, H. R. Hydraulic model simulation of ice jamming during diversion of the Nelson River. *Engineering Journal*, Vol. 55, No. 10, 1972, p. 42-49. [Describes prototype operation, following model tests, and difficulties encountered with a sudden rise in air temperature.]
- MARSH, W. M., and others. Formation, structure, and geomorphic influence of Lake Superior icefoots, [by] W. M. Marsh, B. D. Marsh and J. Dozier. *American Journal of Science*, Vol. 273, No. 1, 1973, p. 48-64. [Field investigations described and discussed.]
- MENDEL'SON, V. L., and others. Issledovaniye nekotorykh elektrodinamicheskikh modeley l'da v zadachakh radiolokatsionnogo zondirovaniya [Investigation of some electrodynamic models of ice [sheets useful] in radar-sounding problems]. [By] V. L. Mendel'son, A. I. Kozlov, M. I. Finkel'shteyn. *Izvestiya Akademii Nauk SSSR. Fizika Atmosfery i Okeana*, Tom 8, No. 4, 1972, p. 396-402. [Method developed for estimating intensities of signals reflected from upper and lower interfaces of floating ice sheets, assuming a variety of models. English translation in *Izvestiya. Academy of Sciences, U.S.S.R. Atmospheric and Oceanic Physics*, Vol. 8, No. 4, 1972, p. 225-29.]
- MORGAN, V. I. Oxygen isotope evidence for bottom freezing on the Amery Ice Shelf. *Nature*, Vol. 238, No. 5364, 1972, p. 393-94. [Isotope analysis of ice core enables origins of ice to be established.]
- MURZIN, A. I. Ekonomicheskaya effektivnost' ledovoy aviatsionnoy razvedki v arkticheskom moreplavanii [Economic evaluation of aircraft reconnaissance of ice conditions in navigation in the Arctic]. *Meteorologiya i Gidrologiya*, 1972, No. 9, p. 59-62. [Observations from the Soviet Arctic and the Northern Sea Route.]
- PANFILOV, D. F. Usloviya obrazovaniya termicheskikh treshchin v ledyanom pokrove rek i vodoyemov [Conditions of thermal crack formation in the ice cover of rivers and water bodies]. *Meteorologiya i Gidrologiya*, 1972, No. 9, p. 72-76. [Outlines general approach to problem, based on deformation properties of ice. Analyses cases where intensive and slow changes in surface temperature occur. English abstract, p. 76.]
- SIGTRYGGSSON, H. An outline of sea ice conditions in the vicinity of Iceland. *Jökull*, Ár 22, 1972, p. 1-11. [Historical survey, with greater details presented for 1940 onwards.]
- SISSALA, J. E., and others. Nimbus satellite data for polar ice survey, by J. E. Sissala, R. R. Sabatini and H. J. Ackermann. *Polar Record*, Vol. 16, No. 102, 1972, p. 367-73. [Some applications of data on distribution, variability and behaviour of sea ice in polar regions obtained from polar-orbiting meteorological satellites.]
- STRÜBING, K. Die Eisbergsaison 1972 im Bereich der Grand Banks. *Der Wetterlotse*, Jahrg. 25, No. 313-14, 1973, p. 10-14. [Icebergs in the Grand Banks region off Newfoundland, 1972 season.]
- TESAKER, E. Hydrauliske forhold i islagte elver. *Norges Vassdrags- og Elektrisitetsvesen. Vassdragsdirektoratet. Hydrologisk Avdeling. Rapport*, 1971, No. 1, 55 p. [Study of water flow and ice accumulation in three south Norwegian rivers, 1969-70. English summary, p. 53-55.]
- THIELE, P., and ZICK, W. Studien zur trigonometrischen Höhenmessung über Meereis. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 90-96. [Trigonometric measurements on the height of sea ice near Pond Inlet, N.W.T., Canada.]
- THOMSEN, H. Maritim meteorologi og fysisk oceanografi. (In Denmark. Dansk Meteorologisk Institut. *Meteorologisk Institut gennem hundrede år, 1872-1972*. [København, 1972], p. 165-98.) [Meteorological and oceanographical work in the North Atlantic by Dansk Meteorologisk Institut since 1879, including ice observations in Greenland waters. English summary, p. 196-98.]
- TIMCHENKO, V. M. K voprosu o pogloshchenii solnechnoy radiatsii tayushchim ledyanym pokrovom rek i vodokhranilishch [Solar radiation absorption by the melting ice cover of rivers and reservoirs]. *Meteorologiya i Gidrologiya*, 1972, No. 8, p. 97-98.
- UZUNER, M. S., and KENNEDY, J. F. Stability of floating ice blocks. *Journal of the Hydraulics Division, Proceedings of the American Society of Civil Engineers*, Vol. 98, No. HY12, 1972, p. 2117-33. [Discusses problems associated with ice jams.]

- WALKER, H. J. Ice breakup in an Arctic delta. *Naval Research Reviews*, Vol. 25, No. 12, 1972, p. 23–28. [Describes sequence of events in the Colville River, Alaska.]
- WALTER, R., and BLEWITT, K. Strukturkartierung und Profilaufnahme im Meereis des Eclipse Sound (Baffin Island). *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 97–101. [Investigation of morphology and surface structure of sea ice along a traverse across Eclipse Sound between Baffin and Bylot islands, N.W.T., Canada.]
- YAKOVLEV, G. N., ed. *Studies in ice physics and ice engineering*. Translated by R. Hardin. Jerusalem, Israel Program for Scientific Translations, 1973. v, 192 p. [Sea ice and hydraulic engineering. Translation of *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta*, Tom 300, 1971. For details of papers, see *Journal of Glaciology*, Vol. 11, No. 63, 1972, p. 467, second entry.]
- ZICK, W., and THIELE, P. Geodätische Arbeiten im Rahmen des Canadian Arctic Channel Project 1972. *Polarforschung*, Bd. 7, Jahrg. 42, Nr. 2, 1972, p. 82–89. [Study of horizontal and vertical movement of sea ice along a traverse between Baffin and Bylot islands, N.W.T., Canada.]

## GLACIAL GEOLOGY

- AARTOLAHTI, T. On deglaciation in southern and western Finland. *Fennia*, 114, 1972, 84 p. [Evidence from study of end moraines.]
- ANDERSEN, B. G. Quaternary geology at Guolasjav'ri in Troms, north Norway. *Acta Borealia. A. Scientia* (Tromsø), No. 29, 1972, 40 p. [Description of glacial geology of this region, based on 1969 field work.]
- ANDREWS, J. T. Maps of the maximum post-glacial marine limit and rebound for the former Laurentide ice sheet (*The national atlas of Canada*). *Arctic and Alpine Research*, Vol. 5, No. 1, 1973, p. 41–48, map. [A revised map, which is included unbound in this paper, in the fourth edition of the atlas, to be completed in 1973, illustrates the maximum post-glacial marine limit and rebound for the area formerly covered by the Laurentide ice sheet.]
- ANDREWS, J. T., and MILLER, G. H. Chemical weathering of tills and surficial deposits, east Baffin Island, N.W.T., Canada. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 5–7.) [Very slow rate means that chemical changes may be used to distinguish between the ages of surficial deposits in this area.]
- ANDREWS, J. T., and others. Comparison of elevations of archaeological sites and calculated sea levels in Arctic Canada, [by] J. T. Andrews, R. McGhee and L. McKenzie-Pollock. *Arctic*, Vol. 24, No. 3, 1971, p. 210–28.
- ANUNDSSEN, K. Glacial chronology in parts of southwestern Norway. *Norges Geologiske Undersøkelse*, Nr. 280, 1972, p. 1–24. [Systematic mapping of the ice-terminal deposits in the area and correlation of the various glacial deposits of the region.]
- ASHWORTH, A. C., and others. The Mosbeck site: a paleoenvironmental interpretation of the late Quaternary history of Lake Agassiz based on fossil insect and mollusk remains, [by] A. C. Ashworth, L. Clayton, and W. B. Bickley. *Quaternary Research*, Vol. 2, No. 2, 1972, p. 176–88. [Sequence of events suggested in this region of north-western Minnesota.]
- BARDIN, V. I. Lednikovaya shtrikhovka v Antarktide i yeye paleogeograficheskoye znacheniye [Glacial striations in Antarctica and its palaeogeographical significance]. *Antarktika. Doklady Komissii*, Vyp. 11, 1972, p. 84–92. [Enderby Land and Dronning Maud Land.]
- BARTOSIK, J. Geomorfologia obrzeżenia Gór Świętokrzyskich w okolicach Iłży [Geomorphology of the fringe of Góry Świętokrzyskie in the environs of Iłża]. *Acta Geographica Lodziensia*, 29, 1972, 87 p. [Discusses probable course of Pleistocene glaciation in this region of Poland, with reference to existing evidence. French summary, p. 80–87.]
- BEHLING, R. E. Calculated dates of selected glacial events in Wright Valley. *Antarctic Journal of the United States*, Vol. 7, No. 6, 1972, p. 247–48. [Quantitative approach to study of glacial chronology.]
- BLACKADAR, R. G., and VINCENT, L. E. Focus on Canadian landscapes. *Canada. Geological Survey. Miscellaneous Report* 19, 1973, iv, 178 p. [Selection of photographs from the Geological Survey's collection, including Arctic and glaciated landforms.]
- BOCKHEIM, J. G., and UGOLINI, F. G. Chronosequence of soils in the Beacon Valley, Antarctica. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 301–03.) [Three major glaciations recognized, the interval between the youngest and the intermediate being much longer than that between the intermediate and the oldest.]
- BROOKS, H. K. A fjord deposit in Wright Valley, Antarctica. *Antarctic Journal of the United States*, Vol. 7, No. 6, 1972, p. 241–43. [Presents evidence against the existence of the Pecten glaciation.]
- BURKE, K., and WATERHOUSE, J. B. Saharan glaciation dated in North America. *Nature*, Vol. 241, No. 5387, 1973, p. 267–68. [Evidence from the northern Appalachians.]
- CAVIEDES, C. N. Quaternary geomorphology of the Aconcagua valley. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 13–15.) [Glacial and periglacial action, and the influence of sea-level changes on coastal morphology, may be distinguished. Chile.]
- CESTRE, G. Plans d'eau glaciaires et isostasie dans les bassins de la Haute Ware et de la rivière Otter, Massachusetts (1ère partie). *Cahiers de Géographie de Québec*, Vol. 16, No. 39, 1972, p. 419–58. [Discusses water level of ancient glacial lakes in Massachusetts in relation to isostatic changes.]
- CHURCH, M. Baffin Island sandurs: a study of Arctic fluvial processes. *Canada. Geological Survey. Bulletin* 216, 1972, [xvi], 208 p., illus. [Glacio-fluvial landforms below Lewis Glacier.]
- COTTON, C. A., and WILSON, A. T. Pared-down landscapes in Antarctica. *Earth Science Journal*, Vol. 5, No. 1, 1971, p. 1–15. [Discusses replacement of glaciated landforms by others of different origin in ice-free parts of Victoria Land, where a frigid-arid climate prevails.]



- COX, F. C., and NICKLESS, E. F. P. Some aspects of the glacial history of central Norfolk. *G.B. Geological Survey. Bulletin*, No. 42, 1972, p. 79-98. [Deposits are largely the product of a single glacial episode, probably Walstonian.]
- DAUVILLIER, A. Sur la théorie astronomique des périodes glaciaires. *Cahiers de Géographie de Québec*, Vol. 16, No. 39, 1972, p. 461-64. [Discusses astronomical theory of Milankovitch in relation to occurrence of glacial periods.]
- DAUVILLIER, A. Sur les rapports existant entre les chronologies des inversions géomagnétiques, des extinctions biologiques et des glaciations. *Cahiers de Géographie de Québec*, Vol. 16, No. 39, 1972, p. 465-68. [Further discussion of these events.]
- DENIS, R. Commentaires relatifs à une coupe transversale de la moraine terminale de Saint-Narcisse à Saint-Gabriel-de-Brandon, Québec. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 79-82.) [Discusses conclusions drawn from study of this moraine.]
- DIONNE, J.-C. Micro-craters in muddy tidal flats of cold regions. *Cahiers de Géographie de Québec*, Vol. 16, No. 39, 1972, p. 495-98. [Describes shallow depressions in muddy sediments produced by melt-water drips falling from overhanging ice cakes stranded in the intertidal zone.]
- DIONNE, J.-C., and CAILLEUX, A. Faulted calcareous concretions in Pleistocene sediments. *Journal of Geology*, Vol. 80, No. 6, 1972, p. 744-48. [These suggest a cold environment during and shortly after their formation, with a ground temperature near 0° C. Laurentides Park, near Quebec, Canada.]
- EVANS, I. S. Inferring process from form: the asymmetry of glaciated mountains. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 17-19.) [Information from photogrammetric contour maps used to study development of asymmetry between opposing slopes in glaciated mountains.]
- EZER, D., and CAMERON, A. G. W. Effects of sudden mixing in the solar core on solar neutrinos and ice ages. *Nature, Physical Science*, Vol. 240, No. 104, 1972, p. 180-82. [Possible cause of glacial periods.]
- FALCONER, A., and YATSU, E. Objectives and methods in the study of glacier depositional landforms. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 19-21.) [Study of Wentworth till in the Guelph area, Ontario.]
- FLECK, R. J., and others. K-Ar dates of the McMurdo volcanics and their relation to the glacial history of Wright Valley, by R. J. Fleck, L. M. Jones and R. E. Behling. *Antarctic Journal of the United States*, Vol. 7, No. 6, 1972, p. 244-46. [Glacial chronology of region.]
- FOLLESTAD, B. A. The deglaciation of the south-western part of the Folgefonn peninsula, Hordaland. *Norges Geologiske Undersøkelse*, Nr. 280, 1972, p. 31-64. [Describes progress of ice recession and two glacial readvances in this part of western Norway on the basis of observations on glacial striations and marginal deposits.]
- FUNDER, S. Remarks on the Quaternary geology of Jameson Land and adjacent areas, Scoresby Sund, east Greenland. *Grønlands Geologiske Undersøgelse. Rapport* Nr. 48, 1972, p. 93-98.
- GRIPP, K. Über die Entstehung der Fjorde. Untersucht am Bokn-Fjord (Südwest-Norwegen). *Eiszeitalter und Gegenwart*, Bd. 22, 1971, p. 131-47. [Factors affecting the formation of fjords with reference to Boknfjorden, south-west Norway.]
- GUSTAVSON, T. C. *Sedimentation and physical limnology in proglacial Malaspina Lake, Alaska*. Amherst, Mass., University of Massachusetts, Coastal Research Center, 1972. iii, 48 p. (Technical Report No. 5-CRC.) [Determination of limnological conditions under which varves were deposited and of sedimentary processes that lead to formation of glacio-lacustrine varves.]
- HELLBERG, K. Glacifluviala sediment i Holjeåns dalgång och i Vångasänkan norr om Ivösjön. *Svensk Geografisk Årsbok*, Årg. 48, 1972, p. 122-28. [Study of glacio-fluvial deposits in Skåne, southern Sweden.]
- HELLBERG, K. De senglaciala strandbildningarna på Listerlandet och Ryssberget. *Svensk Geografisk Årsbok*, Årg. 47, 1971, p. 53-61. [The late-glacial shore formations on the peninsula of Listerlandet and Ryssberget, south-east Sweden. Mentions drumlins. English abstract, p. 53.]
- JENSEN, H. Holocene sea-level and geoid-deformation. *Bulletin of the Geological Society of Denmark*, Vol. 21, Pt. 4, 1972, p. 374-81. [Different eustatic curves from different areas may be due to changes in the shape of the geoid due to deglaciation.]
- JOHNSON, P. G. Variations in the degradation of Neoglacial ice-cored moraines, St. Elias Mountains, Yukon Territory. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 29-31.) [Investigation of the moraines of the Donjek and Kaskawulsh glaciers to determine factors affecting degradational processes and variations in degree of degradation.]
- KLATKOWA, H. Paleogeografia Wyżyny Łódzkiej i obszarów sąsiednich podczas zlodowacenia warciańskiego [Palaeogeography of the plateau of Łódź and of the neighbouring area during the Warta glaciation]. *Acta Geographica Lodziana*, 28, 1972, 220 p. [Discusses probable course of Warta glaciation in this region of Poland, with reference to existing evidence. French summary, p. 204-20.]
- KLIMEK, K. Współczesne procesy fluwialne i rzeźba równiny Skeidarársandur (Islandia) [Present-day fluvial processes and relief of the Skeidarársandur plain (Iceland)]. *Prace Geograficzne*, Nr. 94, 1972, 139 p. [Observations on this outwash plain and on the action of proglacial rivers in producing landforms. English summary, p. 129-36.]
- KUGLER, M., and ST-ONGE, D.-A. Composantes du mouvement de rebondissement isostatique d'après des données de remblaiements alluviaux. (Exemple de la Rivière Saskatchewan Sud.) *Canadian Journal of Earth Sciences*, Vol. 10, No. 4, 1973, p. 551-56. [Observations on evidence of isostatic rebound with reference to the South Saskatchewan River valley at Elbow, Saskatchewan.]
- LA SALLE, P., and others. *Une position du front-glaciaire au nord et au nord-est de la ville de Québec*, [par] P. La Salle, L. Hardy et P. Poulin. [Québec], Ministère des Richesses Naturelles. Direction Générale des Mines. Service de l'Exploration Géologique, 1972. 8 p. [Shows probable extension of the St.-Narcisse morainic system from St.-Léonard-de-Portneuf to the St.-Simeon area north-east of the Saguenay river. In French and English.]

- LAZUKOV, G. I. Problema pleystotsenovykh oledeneniy shel'fovykh morey arkticheskogo basseyna [Problems of Pleistocene glaciation of shelf seas of the Arctic basin]. *Vestnik Moskovskogo Universiteta*, Ser. 5, 27 God, No. 5, 1972, p. 38-44. [Discusses moraine-like beds on sea bottom.]
- LÖFFLER, E. Pleistocene glaciation in Papua and New Guinea. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 32-58. [Summarizes evidence of glaciation and attempts to reconstruct sequence of events and the Pleistocene climate.]
- LOUGEAY, R. Thermal contrasts between ice-cored detrital surfaces. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 159-61.) [Techniques described for monitoring surface temperatures are useful in predicting the applicability of thermal remote sensing and in indicating the best time and conditions in which thermal contrasts may be detected.]
- MACKAY, J. R., and MATHEWS, W. H. Geomorphology and Quaternary history of the Mackenzie River valley near Fort Good Hope, N.W.T., Canada. *Canadian Journal of Earth Sciences*, Vol. 10, No. 1, 1973, p. 26-41. [Description based on field observations.]
- McSAVENEY, M. J., and McSAVENEY, E. R. A reappraisal of the Pecten glacial episode, Wright Valley, Antarctica. *Antarctic Journal of the United States*, Vol. 7, No. 6, 1972, p. 235-40. [Presents evidence against the existence of the Pecten glaciation.]
- MAHANEY, W. G. Audubon: new name for Colorado Front Range Neoglacial deposits formerly called "Arikaree". *Arctic and Alpine Research*, Vol. 4, No. 4, 1972, p. 355-57. [Suggestion.]
- MICKELSON, D. M. Nature and rate of basal till deposition in a stagnating ice mass, Burroughs Glacier, Alaska. *Arctic and Alpine Research*, Vol. 5, No. 1, 1973, p. 17-27. [Calculations indicate rates of deposition range from 0.5 to 2.5 cm year<sup>-1</sup>.]
- MÖRNER, N.-A. The first report on till wedges in Europe and late Weichselian ice flows over southern Sweden. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 94, Pt. 4, No. 551, 1972, p. 581-87. [Describes location and appearance of these till wedges, and, from their presence, deduces direction of glacial movements in this area.]
- MÖRNER, N.-A. Isostasy, eustasy and crustal sensitivity. *Tellus*, Vol. 24, No. 6, 1972, p. 586-92. [Studies in southern Scandinavia.]
- NORDSETH, K. Floodplain construction on a braided river. The islands of Koppangøyene on the river Glomma. *Norsk Geografisk Tidsskrift*, Bd. 27, Ht. 2, 1973, p. 109-26, 2 maps [unbound]. [Study of this river in south-eastern Norway mentions effect of ice damming.]
- NORDSETH, K. Fluvial processes and adjustments on a braided river. The islands of Koppangøyene on the river Glomma. *Norsk Geografisk Tidsskrift*, Bd. 27, Ht. 2, 1973, p. 77-108, 2 maps [unbound]. [Includes effects of drift ice.]
- PATERSON, W. S. B. Laurentide ice sheet: estimated volumes during late Wisconsin. *Reviews of Geophysics and Space Physics*, Vol. 10, No. 4, 1972, p. 885-917. [Interpretation of new calculation.]
- PERSSON, T. Några HK-indikationer i södra Sverige. *Svensk Geografisk Årsbok*, Årg. 47, 1971, p. 73-91. [Discusses Baltic shore-line of southern Sweden during the Quaternary. English abstract, p. 73.]
- POTROVSKIY, M. V., and KONDRAT'YEVA, K. A. O termoerozionno-peshchernykh l'dakh v chetvertichnykh otlozheniyakh basseyna r. Khromy [On thermo-erosional cave ice in Quaternary deposits of the river Khroma basin]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 111-17. [Describes recent research on thermo-karst cave ice in the Yana-Indigirka lowland.]
- PRICE, R. J. *Glacial and fluvioglacial landforms*. Edinburgh, Oliver and Boyd, [c1973]. viii, 242 p. (Geomorphology Text 5.) [Textbook, referring to many examples from northern Europe and North America.]
- REEVES, B. O. K. The nature and age of the contact between the Laurentide and Cordilleran ice sheets in the western interior of North America. *Arctic and Alpine Research*, Vol. 5, No. 1, 1973, p. 1-16. [Evidence suggests that the last coalescence of these ice sheets occurred only at Athabasca Valley for perhaps one or two thousand years.]
- REGENHARDT, H. Das Kehlgeschiebe, eine neue Form der Gletschererosion. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 26-31. [Describes furrowed boulders (stones displaying indentations on both sides of a tapering front), which occur especially in ground moraine, and discusses their significance as indicators of glaciation.]
- ROBINSON, G. Trials on trends through clusters of cirques. *Area* (London), Vol. 4, No. 2, 1972, p. 104-13. [Reports investigations into the effects of different sample distributions on the Pleistocene climatic snow-line modelled for Tasmania.]
- ROGNON, P. Formes particulières de l'érosion différentielle dans les tillites. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 86-87.) [Discusses observations in North Africa and their relation to glaciation.]
- RUI, I. J. A note on boulder trains from the Roros district, Sør-Trøndelag. *Norges Geologiske Undersøkelse*, Nr. 277, 1972, p. 17-18. [Traced northwards for about 40 km, indicating constancy of ice movement direction during a late stage of glaciation.]
- RYE, N., and FOLLESTAD, B. A. The ice movement and the ice divide in the Hardangervidda area. *Norges Geologiske Undersøkelse*, Nr. 280, 1972, p. 25-30. [Observations on flow direction of ice sheet by studying glacial striations, fluted surfaces and drumlinoid forms.]
- SHAW, J., and FRESCHAUF, R. C. A kinematic discussion of the formation of glacial flutings. *Canadian Geographer*, Vol. 17, No. 1, 1973, p. 19-35. [Kinematic hypothesis of secondary flow supported by field observations.]
- SISSONS, J. B. The last glaciers in part of the south east Grampians. *Scottish Geographical Magazine*, Vol. 88, No. 3, 1972, p. 168-81. [The limits of former corrie and valley glaciers and a plateau ice cap with associated outlet glaciers have been mapped and are discussed.]

- SOYEZ, D. Några karaktäristiska landformer i de södra Västerbottensfjällen. *Till Fjälls*, Årg. 44, 1972, p. 12–20. [Describes some features of glacial geology in the southern Västerbotten mountains, north Sweden, that might be of interest to tourists and which are easily accessible.]
- SPENCER, A. M. Late Pre-Cambrian glaciation in Scotland. *Memoirs of the Geological Society of London*, No. 6, 1971, vii, 100 p. [Detailed study of depositional processes, environment and history of the Port Askaig tillite in the Dalradian succession.]
- SUGDEN, D. E. Delimiting Zone III glaciers in the eastern Grampians. *Scottish Geographical Magazine*, Vol. 89, No. 1, 1973, p. 63–64. [Reply to the comments of J. B. Sissons, *ibid.*, Vol. 88, No. 3, 1972, p. 168–81.]
- SVENSSON, H. Några drag i Varangerhalvöns geomorfologi i belysning av nya flygfotografier. *Svensk Geografisk Årsbok*, Årg. 47, 1971, p. 7–28. [Glacial geology of Varangerhalvøya, north Norway. English abstract, p. 7.]
- UREY, H. C. Cometary collisions and geological periods. *Nature*, Vol. 242, No. 5392, 1973, p. 32–33. [Suggests ice ages caused by cometary impact.]
- VELCEA, V. De l'existence d'une glaciation de type carpatique. *Revue de Géographie Alpine*, Tom. 61, Fasc. 2, 1973, p. 223–30. [Discusses landforms and Quaternary glaciation of the Carpathian mountains in Romania.]
- WEBB, P. N. Wright Fjord, Pliocene marine invasion of an Antarctic dry valley. *Antarctic Journal of the United States*, Vol. 7, No. 6, 1972, p. 225–34. [Casts doubt upon the existence of the Pecten glaciation and suggests a late Tertiary marine transgression, forming a fjord, and regression took place.]
- WHALLEY, W. B. A note on the fluctuations of the level and size of Strupvatnet, Lyngen, Troms, and the interpretation of ice loss on Strupbreen. *Norsk Geografisk Tidsskrift*, Bd. 27, Ht. 1, 1973, p. 39–45. [Recent chronology of ice-dammed lake reconstructed from report by discoverers of lake in 1898.]

## FROST ACTION ON ROCKS AND SOIL, FROZEN GROUND, PERMAFROST

- ARE, F. The reworking of shores in the permafrost zone. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 78–79.) [Discusses thermoabrasion, thermodenudation and thermokarst, with reference to conditions in the U.S.S.R.]
- BERTOUILLE, H. Effets du gel sur les sols fins. *Revue de Géomorphologie Dynamique*, 21<sup>e</sup> An., No. 2, 1972, p. 71–84. [Changes occurring in fine soils due to freezing are discussed.]
- BROWN, R. J. E. Permafrost in the Canadian Arctic Archipelago. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 103–30. [Reviews present information.]
- BROWN, R. J. E., and WILLIAMS, G. P. The freezing of peatland. *Canada. National Research Council. Division of Building Research. Technical Paper No. 381*, 1972, [vi], [41] p. [Practical appreciation of rate of freezing and thawing, depth of frost penetration and thaw, and the influence of climate and terrain on these processes. Includes field observations.]
- CAILLEUX, A. Principaux résultats géomorphologiques du projet Hudsonic. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 104–05.) [Some observations from a multidisciplinary study of a prescribed area of Canada.]
- CAINE, N. The distribution of sorted patterned ground in the English Lake District. *Revue de Géomorphologie Dynamique*, 21<sup>e</sup> An., No. 2, 1972, p. 49–56. [The distribution of polygons and stripes, generally found above 610 m, appears to depend on lithologic factors as well as on altitude and climate.]
- CHANDLER, R. J. The inclination of talus, Arctic talus terraces, and other slopes composed of granular materials. *Journal of Geology*, Vol. 81, No. 1, 1973, p. 1–14. [Minimum angle of shearing resistance of most materials comprising talus slopes is likely to be about 39°–40°, not, as hitherto thought, 35°.]
- CHIZHOV, A. B. Voprosy formirovaniya podozernykh talikov Yano-Indigirskoy nizmennosti i smezhnykh s ney territoriy [The formation of the taliks beneath lakes in the Yana-Indigirka lowland and adjoining territory]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 85–90. [Influence of the numerous lakes of this area on permafrost conditions.]
- CRAMPTON, C. R. The distribution and possible genesis of some organic terrain patterns in the southern Mackenzie River valley. *Canadian Journal of Earth Sciences*, Vol. 10, No. 3, 1973, p. 432–38. [Speculation on the probable evolution of organic terrain from frozen to unfrozen landscapes, with the long-term amelioration of climate during post-glacial times.]
- DAN'KO, V. K. Nekotoryye svedeniya o temperature mnogoletnemerzlykh gornyykh porod tsentral'nogo Yamala [Information about the temperature of permanently frozen rocks of the central part of Poluostrov Yamal]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 176–80. [Effects of microrelief.]
- DEMEK, J. Cryopedimentation: an important type of slope development in cold environment. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 15–17.) [Describes process, with reference to conditions in Eastern Siberia.]
- DEMIDYUK, L. M. Osnovnyye zakonmernosti formirovaniya temperaturnogo rezhima porod Oktyabr'skogo mestorozhdeniya [Basic relationships of the temperature regime formation of Oktyabr' deposits]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 161–68. [Permafrost conditions and geology of ore region north-west of Noril'sk.]
- DIONNE, J.-C. Caractéristiques des schorres des régions froides. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 1027.) [Characteristics of salt marshes in the St. Lawrence estuary, subjected to a long hard winter and the action of floating ice.]
- DIONNE, J.-C. Caractéristiques des schorres des régions froides, en particulier de l'estuaire du Saint-Laurent. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 131–62. [Describes tidal salt marshes along the St. Lawrence estuary where sedimentological and morphological features result from the action of drift ice.]

- FRENCH, H. M. The role of wind in periglacial environments, with special reference to northwest Banks Island, western Canadian Arctic. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 82–84.) [Effect on nivation, solifluction and fluvial processes.]
- FURRER, G. Bewegungsmessungen auf Soliflukionsdecken. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 87–101. [Discusses solifluction processes, with reference to observations in Switzerland, Svalbard, Bolivia and East Africa.]
- FURRER, G., and BACHMANN, F. Soliflukionsdecken im schweizerischen Hochgebirge als Spiegel der postglazialen Landschaftsentwicklung. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 163–72. [Summarizes results of an investigation of a post-glacial solifluction feature and discusses the climatic implications.]
- GARAGULYA, L. S., and others. Zakonomernosti formirovaniya temperaturnogo rezhima i glubiny sezonnogo protaivaniya porod v nizhnem techenii Yeniseya [Regularity of temperature regime formation and depth of seasonal thawing of rocks in the lower course of the Yenisey]. [By] L. S. Garagulya, G. I. Gordeyeva, N. F. Poltev. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 137–52. [Value of research for construction engineering in the area of the port of Dudinka.]
- GAVRILOV, A. V. K voprosu analiza temperaturnogo rezhima vozdukh kontinental'nykh oblastey dlya tseyly sostavleniya melkomasshtabnykh merzlotnykh kart (na primere Yano-Indigirskogo mezhdurech'ya) [Analysis of air temperature regime of continental areas for the drawing of small-scale permafrost maps (for example of the Yana-Indigirka interfluve)]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 118–29.
- GORDEYEVA, G. I., and others. Merzlotnyye fiziko-geologicheskiye protsessy i obrazovaniya v nizov'ye doliny Yeniseya [Permafrost physical and geological processes and formations in the lower reaches of the Yenisey valley]. [By] G. I. Gordeyeva, L. S. Garagulya, N. F. Poltev. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 153–60. [Solifluction, thermoerosion, frost mounds and thermokarst.]
- GRAY, J. T. Postglacial rock wall recession in the Ogilvie and Wernecke mountains, central Yukon Territory. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 24–26.) [Study of erosion rates in a periglacial region.]
- HANNELL, F. G. Subsurface temperatures on Arctic slopes. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 145–47.) [Study of depth of permafrost beneath slopes facing different directions and composed of different surface materials.]
- HENKIEL, A. Soliflukcja w polskich Karpatach [Solifluction in the Polish Carpathians]. *Czasopismo Geograficzne*, Tom 43, Zeszyt 3, 1972, p. 295–305. [Discusses Pleistocene and present-day solifluction processes in these mountains.]
- JAHN, A. Periglacial slopes. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 28–29.) [Discusses slope formation on ground subject to permafrost.]
- JØRGENSEN, G. An area of solifluction on Suduroy, the Faeroe Islands. *Bulletin of the Geological Society of Denmark*, Vol. 21, Pt. 4, 1972, p. 368–73. [Earth lobes were undisturbed by ice movements and so were probably formed in late glacial times by freezing and thawing.]
- JUDGE, A. The prediction of permafrost thickness. *Canadian Geotechnical Journal*, Vol. 10, No. 1, 1973, p. 1–11. [Uses available information for ground temperature variations, both spatially and with time, the thermal conductivity of rocks of various lithologies and the regional variation of the terrestrial heat flux.]
- KATASONOV, YE. M. Regularities in cryogenic phenomena development. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 34–35.) [Importance of geological nature of ground emphasized, rather than temperature.]
- KATASONOV, YE. M., and PUDOV, G. G. Kriolitologicheskiye issledovaniya v rayone Van'kinoy guby morya Laptevyykh [Cryolithological research in the Guba Van'kina area of the Laptev Sea]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 130–36.
- KHRUTSKIY, S. F., and others. Novyye dannyye po merzlotno-gidrogeologicheskomy stroyeniyu severnoy chasti Yano-Indigirskogo mezhdurech'ya [New data on the frozen hydrogeological structure of the northern part of the Yana-Indigirka interfluve]. [By] S. F. Khrutskiy, V. Ye. Afanasenko, K. A. Kondrat'yeva, V. A. Kudryavtsev, N. N. Romanovskiy. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 51–67. [Study of permafrost conditions, underground water and tabetisols in Yakutskaya A.S.S.R.]
- KOLASIŃSKA, J. Morfogenetyczne objawy mroźnego klimatu na Półwyspie Kolskim [Cold-climate morphogenetic phenomena of the Kola peninsula]. *Acta Geographica Lodziensia*, 30, 1972, 143 p. [Describes periglacial phenomena in Kol'skiy Poluostrrov, Murmanskaya Oblast'. French summary, p. 135–40.]
- KONDRAT'YEVA, K. A., and others. O mnogoyarusnosti povtorno-zhil'nykh l'dov v otlazheniyakh drevney ozeralyuvial'noy ravniny v yuzhnoy chasti Yano-Indigirskoy nizmennosti [On layers of multi-veined ice in deposits of the ancient lacustrine alluvial plain in the southern part of the Yano-Indigirka lowland]. [By] K. A. Kondrat'yeva, M. V. Piotrovskiy, S. F. Khrutskiy. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 101–10. [Discusses period of formation of multi-veined ice.]
- KONDRAT'YEVA, K. A., and others. O zonal'nosti srednegodovykh temperatur mnogoletnemerylykh porod Yano-Indigirskogo mezhdurech'ya [Annual average temperature zones of the permanently frozen rocks of the Yana-Indigirka interfluve]. [By] K. A. Kondrat'yeva, V. A. Kudryavtsev, S. F. Khrutskiy, A. V. Gavrilo. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 68–84. [New data collected and used to produce soil temperature zone map.]
- LUR'YE, I. S. K voprosu kartirovaniya l'distosti mnogoletnemerylykh porod pri melkomasshtabnykh merzlotnykh inzhenerno-geologicheskikh issledovaniyakh (na primere severa Zapadno-Sibirskoy nizmennosti) [On mapping the ice-covered frozen rocks in connection with small-scale permafrost engineering and geological research (for example in the north of the West Siberian lowland)]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 169–75. [Tyumenskaya Oblast'.]

- MCCANN, S. B. Magnitude and frequency of processes operating on Arctic beaches, Queen Elizabeth Islands, N.W.T., Canada. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [1972], p. 41-43.) [Considers effects of ice at sea and on the beach, wind and wave action, and tidal range.]
- MOTTERSHEAD, D. N. Some quantitative aspects of periglacial slope deposits in southwest England. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [1972], p. 43-45.) [Includes effect of frost.]
- PENNER, E. Influence of freezing rate on frost heaving. *Highway Research Record*, No. 393, 1972, p. 56-64. [Increasing the rate of heat removal causes the heaving rate to rise to a maximum followed by a reduction that intercepts the in-place pore water phase change expansion line.]
- PISSART, A. J. G. Mouvements de sols gelés subsistant des variations de température sous 0°: résultats de mesures dilatométriques. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [1972], p. 124-26.) [Discusses effect of variations in temperature below 0° C on the behaviour of soil.]
- POPOV, A. I., ed. *Problemy kriolitologii* [*Problems of cryolithology*]. Vyp. 2. Moscow, Izdatel'stvo Moskovskogo Universiteta, 1972. 148 p. [Seventeen articles on permafrost, mostly in the U.S.S.R.]
- PRICE, L. W. Solifluction rates in the Ruby Range, Yukon Territory: a preliminary report. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [1972], p. 56-58.) [Project for measuring long-term rates of mass wasting in a periglacial environment.]
- RUDOWSKI, S. Influence of freeze on active processes in shore zone and on beach structure under moderate climatic conditions. *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences de la Terre*, Vol. 20, No. 2, 1972, p. 139-44. [Long-term studies along the Polish shore of the Baltic Sea.]
- SELBY, M. J. Antarctic tors. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 73-86. [Describes tors in the Wright and Taylor dry valleys, Victoria Land, and suggests that they are actively developing as a result of differential weathering of igneous rocks by salt crystallization in the rock pores.]
- SHRODER, J. F. Rock glaciers on Aquarius Plateau, Utah. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . . Toronto and Buffalo, University of Toronto Press, [1972], p. 63-65.) [Study of 109 rock glaciers in this area, 30 in the field and 79 from maps and air photographs.]
- STRÖMQUIST, L. *Geomorfologiska studier av blockhav och blockfält i norra Skandinavien*. Uppsala, Uppsala Universitet. Naturgeografiska Institutionen. Avdelningen för Naturgeografi, 1973. 161 p. (UNGI Rapport 22.) [Geomorphological studies of block fields in three areas in north Norway and Sweden. English summary, p. 143-49.]
- TRUSH, N. I., and NISTRATOVA, T. A. Inzhenerno-geologicheskaya otsenka gornyykh porod severnykh sklonov khrebt Polousnogo i Pripolousnonskoy poligeneticheskoy ravniny [Engineering and geological evaluation of the rocks of the northern slopes of Khrebet Polousnyy and the adjoining Yana-Indigirka polygenetic lowland]. *Merzlotnyye Issledovaniya*, Vyp. 12, 1972, p. 91-100. [Permafrost conditions in different types of deposits.]
- VAUMAS, E. DE. Cryogénèse ancienne et actuelle au promontoire de Ras Chekka (Liban). *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 173-86. [Describes ancient and active cryogenic features in this part of Lebanon.]
- VELIČKO, A. A. La morphologie cryogène relicte: caractères fondamentaux et cartographie. *Zeitschrift für Geomorphologie*, Supplementbd. 13, 1972, p. 59-72. [Describes effect on morphology of the ground of relict cryogenic features dating from the Pleistocene, with particular reference to the U.S.S.R.]

## METEOROLOGICAL AND CLIMATOLOGICAL GLACIOLOGY

- BUSER, O., and AUFDERMAUR, A. N. The density of rime on cylinders. *Quarterly Journal of the Royal Meteorological Society*, Vol. 99, No. 420, 1973, p. 388-91. [Wind tunnel experiment on density and structure, and model experiment with spheres to deduce density if they are fixed at first contact.]
- DENNIS, A. S., and MUSIL, D. J. Calculations of hailstone growth and trajectories in a simple cloud model. *Journal of the Atmospheric Sciences*, Vol. 30, No. 2, 1973, p. 278-88. [Elaboration of model and examples of its predictions including hailstone diameter at ground and effectiveness of hail suppression by artificial glaciation.]
- HEYMSFIELD, A. J. Ice crystal terminal velocities. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1348-57. [Calculation for different crystal forms which gives results in good agreement with measurements.]
- HEYMSFIELD, A. J., and KNOLLENBERG, R. G. Properties of cirrus generating cells. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1358-66. [Measurements of ice particle concentration, size, shape, density, water content, reflectivity and precipitation rate.]
- ISAKA, H., and others. Relation between ice-forming ability and conditions of formation of silver iodide nuclei, [by] H. Isaka, R. Pejoux and G. Soulage. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1329-33. [Effect of stoichiometric ratio and rate of AgI consumption on size spectrum and ice-forming ability of nuclei. Acetone vapour seems to deactivate AgI nuclei.]
- KNIGHT, C. A., and KNIGHT, N. C. Conical graupel. *Journal of the Atmospheric Sciences*, Vol. 30, No. 1, 1973, p. 118-24. [Review of earlier theories of how it forms and proposal of a new mechanism.]
- KNOLLENBERG, R. G. Measurements of the growth of the ice budget in a persisting contrail. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1367-74. [Measurements of ice water content and total ice budget in contrail.]
- LADURIE, E. LE R. *Times of feast, times of famine: a history of climate since the year 1000*. Translated by B. Bray. London, George Allen and Unwin, [1972]. [xxiv], 428 p. [Original approach to history of climate in Europe, studied by reference to records of glacier fluctuations and dates of vintages.]

- MORGAN, G. M., jr., and LANGER, G. Ice nuclei from electrical discharges. *Quarterly Journal of the Royal Meteorological Society*, Vol. 99, No. 420, 1973, p. 387-88. [Evidence that sparks between clean electrodes in clean air do not produce nuclei.]
- PALUCH, I., and MASON, B. J. Electrification by collisions between hail pellets and cloud particles. *Quarterly Journal of the Royal Meteorological Society*, Vol. 99, No. 420, 1973, p. 395-400. [Comments by I. Paluch on treatment of this subject by B. J. Mason, *Proceedings of the Royal Society of London*, Ser. A, Vol. 327, No. 1571, 1972, p. 433-66, and reply by Mason.]
- VITTORI, O. Scavenging of atmospheric particles by growing ice crystals: a contribution to a proposed mechanism. *Journal of the Atmospheric Sciences*, Vol. 30, No. 2, 1973, p. 321-24. [Re-examination of mechanism due to Stefan flow around ice crystals.]
- ZIKMUNDA, J. Fall velocities of spatial crystals and aggregates. *Journal of the Atmospheric Sciences*, Vol. 29, No. 8, 1973, p. 1511-15. [Measurements for snow crystals and aggregates.]

## SNOW

- AMBACH, W. Floods caused by the melting of snow and ice. *Problemi Attuali di Scienza e di Cultura*, Quaderno No. 169, 1972, p. 121-36. [Describes and discusses typical flood situation at Vent, Ötztaler Alpen, Austria.]
- ASHWELL, I. Y. Remote view of snow and water. *Geographical Magazine*, Vol. 45, No. 6, 1973, p. 412-13. [Note on benefit to Canada offered by ERTS-1 (the first Earth Resources Technology Satellite).]
- BARTON, M., and PEARSON, G. L. Section 22, "Snow survey and water supply forecasting", of the SCS national engineering handbook. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 81-82. [Describes this publication of the U.S. Soil Conservation Service.]
- CHEN, SU. Keeping the road open in snow. *China Reconstructs* (Peking), Vol. 22, No. 1, 1973, p. 16-18. [Extracts from diary of member of team from Kansu province research institute for glaciers, frozen earth and deserts, studying snow drifting in the T'ien-shan (mountains), north-west China.]
- CHRISTNER, J. J. Snow, related activities and concerns on the Grand Mesa, western Colorado. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 49-52. [Effect of winter recreations on snow condition.]
- DELK, R. A wilderness snow course. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 53-57. [Discusses logistical difficulties associated with field measurements at the Holbrook snow course, located within an official "wilderness" in Montana.]
- DIKIKH, A. N. Snezhnyy pokrov Issyk-Kul'skoy kotloviny i yeye vysokogornogo obramleniya [Snow cover of the Issyk-Kul' basin and its bordering mountains]. *Izvestiya Vsesoyuznogo Geograficheskogo Obschestva*, Tom 105, Vyp. 1, 1973, p. 47-51. [Soviet Central Asia.]
- ELLIOTT, R. D., and HANNAFORD, J. F. Watershed hydrometeorological data required for weather modification. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 61-66. [Measurements of snow quantity and condition were among data needed for projects in western mountain watersheds in the United States.]
- FINDLAY, B. F., and MCKAY, G. A. Climatological estimation of Canadian snow resources. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 138-41.) [Discusses estimation of snow-derived water resources.]
- FINDLAY, B. F., and others. Networks in Arctic areas, by B. F. Findlay, D. Gray, G. A. McKay and H. A. Thompson. (In World Meteorological Organization. *Casebook on hydrological network design practice*. Geneva, Secretariat of the World Meteorological Organization, 1972, p. V-5.1-1-V-5.1-6. (WMO, No. 324.)) [Deals with problems in operating conventional hydrological networks in Arctic conditions.]
- GOOD, W. Optimaler Einsatz der Mittel zur Ortung Lawinenverschlütteter. *Winterbericht des Eidgenössischen Institutes für Schnee- und Lawinenforschung*, Nr. 35, 1972, p. 154-62. [Describes new devices for locating people buried by avalanches.]
- GRISHIN, I. S. Zavisimost' perenosy snega ot ploshchadi snegosbora v razlichnykh prirodnykh usloviyakh [The dependence of snow transfer on the snow accumulation area in various natural conditions]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1972, No. 6, p. 106-12. [Conditions in the mountain region of Polyarnyy Ural compared with those in the low-lying Vasugan'ye, Omskaya Oblast'.]
- HANNAFORD, J. F. Influence of late season precipitation on runoff of the Kings River. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 67-74. [Describes some substantial late season storms and their considerable effects on the run-off of this Californian river.]
- HARE, F. K. The observed water balance of North America. (In Adams, W. P., and Helleiner, F. M., ed. *International geography 1972*. . . Toronto and Buffalo, University of Toronto Press, [c1972], p. 147-48.) [Discusses indications that in northern latitudes precipitation may be underestimated because of errors in snowfall measurement.]
- HOEKSTRA, P., and SPANOGLE, D. Backscatter from snow and ice surfaces at near incident angles. *IEEE Transactions on Antennas and Propagation*, Vol. 20, No. 6, 1972, p. 788-90. [Radar backscatter of natural snow surfaces was measured at 10 and 35 GHz and at grazing angles from 1° to 0.3°, and of ice blocks placed on the snow surface at 10, 35, and 95 GHz.]
- HOLECEK, G. R., and NOUJAIM, A. A. Separation of the surface and subsurface flow from snowmelt by the use of radioactive tracers. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 43-48. [Method described for use in study of changes induced by land development in Alberta.]
- HOTCHKISS, W. R. Avalanche awareness and safety for snow scientists in the field. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 75-80. [Brief description of avalanches and how they may be classified, and techniques for evaluating avalanche hazards in the field.]

- ISHIZAKA, Y. On materials of solid particles contained in snow and rain water: part 1. *Journal of the Meteorological Society of Japan*, Ser. 2, Vol. 50, No. 4, 1972, p. 362-75. [Snow from Ota, Hokuriku district, contained solid particles from North China and Mongolia, which probably act as nuclei in the formation of snow crystals over Japan in winter.]
- IVES, J. D. INSTAAR's avalanche research project in southwestern Colorado. *Arctic and Alpine Research*, Vol. 4, No. 4, 1972, p. 289-90. [Outlines 1971-72 progress of the Institute of Arctic and Alpine Research in developing an avalanche forecasting system.]
- JAIL, M. Note préliminaire sur les chutes de neige dans la moyenne vallée du Rhône, du 26 au 29 décembre 1970. *Revue de Géographie Alpine*, Tom. 59, Fasc. 3, 1971, p. 351-62. [Describes meteorological conditions leading to this exceptionally heavy snowfall, and some of the consequences to the people living in this region.]
- JOHNSON, P., and ARCHER, D. R. Current research in British snowmelt river flooding. *Hydrological Sciences Bulletin*, Vol. 17, No. 4, 1972, p. 443-51. [Preliminary results suggest that the approximate degree-day method of analysis outlined may be useful in forecasting.]
- JONASSON, I. R. Migration of trace metals in snow. *Nature*, Vol. 241, No. 5390, 1973, p. 447-48. [Shows how trace metals in snow may have migrated from underlying mineral-containing soil or may have been scavenged from polluted air.]
- KAGAN, R. L. Snow cover—statistical principles. (In World Meteorological Organization. *Casebook on hydrological network design practice*. Geneva, Secretariat of the World Meteorological Organization, 1972, p. I-3.2-1-I-3.2-9. (WMO, No. 324.)) [Emphasizes importance of spatial and time variations in the measurement of snow cover.]
- KNIGHT, C. A., and KNIGHT, N. C. Elk Mountain snow crystal. *Bulletin of the American Meteorological Society*, Vol. 53, No. 12, 1972, p. 1174 and front cover. [Describes unusual crystal collected from cloud after seeding.]
- KNIGHT, C. A., and KNIGHT, N. C. Snow crystals. *Scientific American*, Vol. 228, No. 1, 1973, p. 100-07. [Popular account of nucleation and growth of snow crystals.]
- KOBAYASHI, D. Studies of snow transport in low-level drifting snow. *Contributions from the Institute of Low Temperature Science*, Ser. A, No. 24, 1972, 58 p. [Reports observations of low-level snow streams and on the mechanism of drifting when the wind speed is lower than 10 m/s at height of 1 m.]
- KOL, E. Snow algae from Signy Island (South Orkney Islands, Antarctica). *Annales Historico-Naturales Musei Nationalis Hungarici*, Tom. 64, No. 1, 1972, p. 63-70. [Review.]
- KOMAROV, V. D., and MAKAROVA, T. T. Issledovaniye vliyaniya glubiny promerzaniya pochvy i drugikh faktorov na talye stok rek stepnoy i lesostepnoy zon [Research into the influence of soil freezing depth and other factors on snow melt run-off of steppe and wooded steppe zone rivers]. *Meteorologiya i Gidrologiya*, 1972, No. 8, p. 67-74. [Effects of frozen soil on melt-water absorption. English abstract, p. 74.]
- KOMAROV, V. D., and POPOV, E. G. Snow cover on the territory of the U.S.S.R. as a water balance element. (In *World water balance. Proceedings of the Reading symposium, July 1970*. Vol. 1. Gentbrugge, etc., IASH-UNESCO-WMO, 1972, p. 49-54. (Studies and Reports in Hydrology, 11.)) [Discusses influence of snow cover on river water regime and hydrological cycle of the Earth, referring to methods used in the U.S.S.R. Discussion, Vol. 3, p. 666.]
- KULVIDZE, V. I., and USHAKOVA, L. A. Rol' zhidkopodobnogo sloya v protsesse metamorfizma snega [Role of a liquid-like layer in the metamorphism of snow]. (In Kiselev, V. F., and others, ed. *Svyazannaya voda v dispersnykh sistemakh [Bonded water in disperse systems]*. Vyp. 2. [Edited by] V. F. Kiselev, V. I. Kulvidze, P. I. Zlochevskoy. [Moscow], Izdatel'stvo Moskovskogo Universiteta, 1972, p. 168-74.) [Review.]
- LANG, T. E., and others. Buckling characteristics of a sloping snow slab, [by] T. E. Lang and R. L. Brown, W. F. St. Lawrence and C. C. Bradley. *Journal of Geophysical Research*, Vol. 78, No. 2, 1973, p. 339-51. [Avalanche mechanics. Two cases investigated: a viscoelastic slab above a similar viscoelastic sub-layer and a viscoelastic slab resting on a rigid base.]
- MARTINELLI, M., jr. Simulated sonic boom as an avalanche trigger. *U.S. Dept. of Agriculture. Forest Service. Research Note RM-224*, 1972, 7 p. [Study suggests that, during periods of frequent natural avalanches, three- to four-fold amplification of a normal sonic boom can be expected to release additional avalanches.]
- NARUSE, R., and others. A stratigraphic analysis of a 10 meter deep firn core from the inland area near Syowa station, east Antarctica, [by] R. Naruse, Y. Endō, H. Narita and T. Yamada. *Nankyoku Shiryo: Antarctic Record*, No. 45, 1972, p. 33-46. [Laboratory observations on stratigraphic features, density, hardness and grain size of firn, and on snow texture, density and specific surface. Japanese abstract, p. 33.]
- NEMANISHEN, W. Forecast study for Prairie Provinces Water Board. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 23-29. [Outlines Canadian scheme.]
- NYBERG, A., and HÄRSMAR, P.-O. Mätningar av avdunstning-kondensation samt snösmältning från en snöyta. *Sveriges Meteorologiska och Hydrologiska Institut. Notiser och Preliminära Rapport. Serie Meteorologi*, No. 25, 1971, 22 leaves. [Evaporation, condensation and melting of a snow surface observed in south Sweden, spring 1969.]
- ODENCRANTZ, F. K. Ice whiskers and the mosaic structure of snowflakes. *Journal of Geophysical Research*, Vol. 78, No. 6, 1973, p. 958-61. [Ice crystals etched during exposure to unsaturated air and then replicated with 2-cyanoacrylate indicate the existence of a mosaic structure.]
- PAYETTE, S., and LAGAREC, D. Observations sur les conditions d'enneigement à Poste-de-la-Baleine, Nouveau-Québec, hiver 1972. *Cahiers de Géographie de Québec*, Vol. 16, No. 39, 1972, p. 469-81. [Discusses studies on relation between snow cover and nature of the terrain, and snow cover and type of vegetation.]
- RICHARDS, T. L. Snow cover—North American experience. (In World Meteorological Organization. *Casebook on hydrological network design practice*. Geneva, Secretariat of the World Meteorological Organization, 1972, p. I-3.1-1-I-3.1-4. (WMO, No. 324.)) [Deals with estimates of water supply from snow melt.]
- RYCHETNIK, J. Mittlere und extreme Schneehöhen im Versuchsgebiet Stillberg 1959/60-1969/70. *Winterbericht des Eidgenössischen Institutes für Schnee- und Lawinenforschung*, Nr. 35, 1972, p. 168-78. [Discusses mean and maximum snow depths in the experimental area of Stillberg, near Davos, Switzerland.]

- SCHLATTER, T. W. The local surface energy balance and subsurface temperature regime in Antarctica. *Journal of Applied Meteorology*, Vol. 11, No. 7, 1972, p. 1048-62. [Simulation of physical processes within the snow cover compared with data from Mirny and "Pionerskaya".]
- SOMMERFELD, R. A., and WOLFE, F., jr. A centrifugal tensile tester for snow. *U.S. Dept. of Agriculture. Forest Service. Research Note RM-227*, 1972, 4 p. [New design, correcting many of the deficiencies of the original.]
- SPEERS, D. D. The application of snowmelt forecasting to combat Columbia River nitrogen supersaturation problems. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 17-22. [Forecasting of snow melt will assist in regulation of up-stream flood control reservoirs.]
- SPINK, P. C. Scottish snowbeds in summer 1972. *Weather*, Vol. 28, No. 4, 1973, p. 162-64. [Greatest amount of snow since 1965.]
- STEIDTMANN, J. R. Ice and snow in eolian sand dunes of southwestern Wyoming. *Science*, Vol. 179, No. 4075, 1973, p. 796-99. [Snow cornices on dune crests begin to melt, slide down lee slope and are later covered by sand. Burial may be rapid enough to provide insulation necessary to preserve ice and snow throughout the year.]
- STORR, D. On the inclusion of a snowfall term in the relationship between the energy and water balances over land. *Journal of Applied Meteorology*, Vol. 11, No. 7, 1972, p. 1151-52. [Effects of snowfall in calculating annual precipitation.]
- TOLLNER, H. Suchgeräte zur Auffindung von Lawinenserschütteten. *Wetter und Leben*, Jahrg. 24, Ht. 9-10, 1972, p. 208-11. [Describes some instruments for detecting people buried in avalanches.]
- VILENSKIY, V. D., and others. Ispol'zovaniye izotopnykh metodov dlya opredeleniya sovremennoy skorosti nakopleniya snega v Antarktide [Use of isotopic methods for the determination of the present rate of snow accumulation in Antarctica]. [By] V. D. Vilenskiy, R. V. Teys, V. V. Yemel'yanov, S. N. Kochetkova. *Geokhimiya*, 1972, No. 9, p. 1071-82. [English abstract, p. 1082.]
- WAKABAYASHI, R. Schnee und Lawinen in Japan. *Winterbericht des Eidgenössischen Institutes für Schnee- und Lawinenforschung*, Nr. 35, 1972, p. 163-67. [Outlines current research.]
- WATANABE, O., and YOSHIMURA, A. Mizuho kansoku kyoten fukin no seppyōgaku-teki jōtai ni tsuite [Glaciological observations in the vicinity of "Mizuho" camp. [Enderby Land, east Antarctica, 1970]]. *Nankyoku Shiryo: Antarctic Record*, No. 45, 1972, p. 20-32. [Studies on snow stratigraphy and temperature. English abstract, p. 20.]
- WEBB, M. S., and PHILLIPS, D. W. An estimate of the role of lake effect snowstorms in the hydrology of the Lake Erie basin. *Water Resources Research*, Vol. 9, No. 1, 1973, p. 103-17. [Found to have only a small effect.]
- WILLIAMS, K. Avalanches in our western mountains: what are we doing about them? *Weatherwise*, Vol. 25, No. 5, 1972, p. 220-27. [Describes weather patterns leading to avalanche conditions in the western United States and protective measures and avalanche control.]
- ZIMMERMAN, A. L. Air temperature observations and forecasts—their relationship to the prediction of spring snowmelt in the Eagle River basin, Colorado. *Proceedings of the Western Snow Conference*, 40th annual meeting, 1972, p. 30-36. [Discusses problems in forecasting snow melt.]
- ZIKMUNDA, J., and VALI, G. Fall patterns and fall velocities of rimed ice crystals. *Journal of the Atmospheric Sciences*, Vol. 29, No. 7, 1972, p. 1334-47. [Determination of relation between fall velocity and crystal dimensions for rimed snow crystals of various types.]

## ERRATA

Vol. 9, No. 56, p. 270. Equation (5) should read  $K^- - K^+ \approx \frac{I'}{C_L^-}$ .

Vol. 9, No. 56, p. 276. The value given for  $C_L^-$  near the bottom of the page should read  $C_L^- \approx 1.4 \times 10^5 \text{ C/m}^3$ .

Vol. 12, No. 64, p. 160. In the eighth entry the second author's name should read Y. Yusa, not S. Yoshisa.

Vol. 12, No. 65, p. 347. In the fourth entry the volume number should read Vol. 327, not Vol. 237.