

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

- AVER'YANOV, V. G. Pervoye zasedaniye Soveta Mezhdunarodnogo antarkticheskogo glyatsiologicheskogo proyekta [First meeting of the Council of the International Antarctic Glaciological Project]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii*, No. 82, 1971, p. 80-82. [Held in Paris, 26-28 May 1970.]
- BROWN, R. J. E., ed. Proceedings of a seminar on the permafrost active layer, 4 and 5 May 1971. Canada. National Research Council. Associate Committee on Geotechnical Research. Technical Memorandum No. 103, 1971, ii, 63 p. [The following papers were presented: R. J. E. Brown, "Characteristics of the active layer in the permafrost region of Canada", p. 1-7; G. P. Williams, "Surface heat exchange and permafrost", p. 8-11; J. D. Mollard, "Photo interpretation and the active layer", p. 13-19; A. Cailleux, "Observations", p. 20-25; J. R. Mackay, "Ground ice in the active layer and the top portion of permafrost", p. 26-30; A. Heginbottom, "Some effects of a forest fire on the permafrost active layer at Inuvik, N. W. T.", p. 31-36; L. C. Bliss and R. W. Wein, "Changes to the active layer caused by surface disturbance", p. 37-46; J. R. Radforth, "Effects of off-road vehicle trials on the active layer in tundra", p. 48-49; J. Y. C. Quong, "Highway construction and permafrost with special reference to the active layer", p. 50-53; K. L. Hall, "Performance of experimental pipeline at Inuvik, N.W.T. in relation to active layer", p. 54-62.]
- [CONFERENCE: ICEBERGS.] *Proceedings of the Canadian seminar on icebergs held at the Canadian Forces Maritime Warfare School, CFB Halifax, Halifax, Nova Scotia, Canada, December 6-7, 1971, under auspices of the Commander, Maritime Command, Canadian Forces*. [Ottawa, Dept. of National Defence, 1971.] [viii], 175 p. [For details of individual papers see elsewhere in this list.]
- GOLUBEV, G. N., and KOTLYAKOV, V. M. Mezhdunarodnyy simpozium po gidrologii lednikov v Kembriidzhe [International symposium on the hydrology of glaciers at Cambridge]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 15-20. [Glaciological Society symposium, 8-12 September 1969.]

GENERAL GLACIOLOGY

- GAYEVSKAYA, O. V. Izobrazheniye oblachnosti nad l'dom na televizionnykh snimkakh, poluchennykh so sputnikov sistemy "Meteor" [Cloud cover over ice shown in photographs obtained from "Meteor" satellites]. *Antarktika. Doklady Komissii*, 1969, [pub.] 1971, p. 122-28.
- [INTERNATIONAL HYDROLOGICAL DECADE.] *Scientific framework of world water balance*. Paris, UNESCO, 1971. 27 p. (Technical Papers in Hydrology, 7.) [Frozen water is included as a parameter of the hydrological cycle.]
- [INTERNATIONAL HYDROLOGICAL DECADE.] *Textbooks on hydrology. Analyses and synoptic tables of contents of selected textbooks. A contribution to the International Hydrological Decade*. Paris, UNESCO, 1970. 185 p. (Technical Papers in Hydrology, 6.) [Part A contains the detailed analysis of 19 different works published in English, French, Russian, Spanish, German and Italian. Part B compares the contents of the hydrological textbooks available to the compilers, regardless of language.]
- KOTLYAKOV, V. M., and CHERNOVA, L. P., comp. Annotirovannyi spisok sovetskoy literatury po glyatsiologii (1967-1968 gg.) [Annotated list of Soviet publications in glaciology (1967-68)]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 219-319. [Papers dealing with glaciers and ice cover in the U.S.S.R. and Antarctica, mechanical properties of snow and avalanches, and distribution of seasonal snow cover in non-glaciated areas of the U.S.S.R. English summary, p. 219.]
- VINOGRADOV, O. N., and KRENKE, A. N. Glyatsiologicheskiye issledovaniya Instituta Geografii AN SSSR na Kavkaze po programme Mezhdunarodnogo Gidrologicheskogo Desyatiletia v 1966-1968 gg. [Glaciological investigations of the Institute of Geography of the Academy of Sciences of the U.S.S.R. in the Caucasus within the International Hydrological Decade in 1966-68]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 243-52. [Main aim is to investigate run-off from representative glaciers, and changes in this caused by climatic variations. English summary, p. 303-04.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- MIKHEYEV, S. V. O bureanii l'da ognemym sposobom [On the drilling of ice by the thermic method]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 160-63. [Describes method of thermal drilling. English summary, p. 163.]

PHYSICS OF ICE

- AUER, A. H., jr. Inferences about ice nucleation from ice crystal observations. *Journal of the Atmospheric Sciences*, Vol. 29, No. 2, 1972, p. 311-17. [Study of freezing nuclei and deposition nuclei as causes of ice crystals in natural cap clouds.]
- BRUNEAUX-POULLE, J., and others. Contribution à l'étude des dépôts amorphes obtenus à basse température. I. Formation des dépôts amorphes, par. J. Bruneaux-Pouille, A. Defrain et N. T. Linh. *Journal de Chimie Physique et Physico-chimie Biologique*, Tom. 69, No. 1, 1972, p. 71-75. [Formation of amorphous ice at low temperature shown to be due to low mobility of molecules of vapour absorbed on the substrate. Effect of polymorphism on formation of amorphous ice. Preferred orientation of crystalline deposits of ice Ih and ice Ic.]
- CROWTHER, A. G. Preliminary investigation into the growth of ice crystals from the vapour in an electric field in the temperature range -11 to -15° C. *Journal of Crystal Growth*, Vols. 13-14, 1972, p. 241-43. [Needle-like crystals grow parallel to electric field. Explanation discussed.]
- DAVIS, B. L. An examination of the theory of heterogeneous nucleation of ice. *Journal of the Atmospheric Sciences*, Vol. 29, No. 3, 1972, p. 557-64. [Activity curves of AgI-bearing smoke used in theory of efficiency curve which are not in agreement with experiment.]
- DEVOTO, R., and others. Adjustment of double-minimum potentials by means of a sum of Hulburt-Hirschfelder potentials, by R. Devoto, O. M. Sorarrain and L. M. Boggia. *Zeitschrift für physikalische Chemie* (Leipzig), Bd. 247, Ht. 5-6, 1971, p. 282-88. [New theoretical results obtained and compared with existing data on hydrogen bond in ice.]
- ELDRUP, M., and others. Position lifetimes in pure and doped ice and in water, [by] M. Eldrup and O. Mogensen and G. Trumphy. *Journal of Chemical Physics*, Vol. 57, No. 1, 1972, p. 495-504. [Measurements in single crystal H_2O , polycrystalline H_2O , D_2O and HF-doped ice. Three components found in all cases and attributed to ortho- and para-positronium and free positrons.]
- GENADIEV, N. P. Über die Verringerung der Aktivität von AgI-Teilchen in Wassertropfen bei deren mehrfachen Einfrierung. *Doklady Bolgarskoy Akademii Nauk*, Tom. 24, No. 12, 1971, p. 1629-32. [Study of nucleation activity of AgI particles in water droplets on repeated freezing and melting.]
- GERBER, H. E. Size and nucleating ability of AgI particles. *Journal of the Atmospheric Sciences*, Vol. 29, No. 2, 1972, p. 391-92. [Experimental determination of minimum size for particles to act as nuclei.]
- HAAS, J., and others. Diffusion de l'hélium dans la glace monocristalline, [par] J. Haas, B. Bullemer et A. Kahane. *Solid State Communications*, Vol. 9, No. 23, 1971, p. 2033-35. [Measurement of solubility and diffusion of He in ice -20 to -100° C.]
- HASEGAWA, S., and others. Ice-crystal forming ability of the smoke emitted from the silver iodide-lead iodide system, by S. Hasegawa, T. Higashiyama, H. Fukuda. *Reports, Research Laboratory Surface Science, Okayama University*, Vol. 3, No. 5, 1971, p. 231-36. [Conditions of mixture of PbI_2 and AgI for most effective ice nucleus formation.]
- HASEGAWA, S., and others. Ice-crystal forming ability of the smoke emitted from the silver iodide-potassium iodide acetone system, by S. Hasegawa, T. Higashiyama, M. Shimada. *Reports, Research Laboratory Surface Science, Okayama University*, Vol. 3, No. 5, 1971, p. 237-42. [Study of effectiveness of various proportions and of effect of ultra-violet irradiation.]
- HIPOLITO, O., and LOBO, R. A study of Brout's model for ferroelectrics. Investigations on hexagonal ice. *Ferroelectrics*, Vol. 1, No. 3, 1970, p. 169-75. [Theoretical model developed and applied to ice where electrical susceptibility and transition temperature seem to agree well with experiments.]
- HO, K. K., and KEVAN, L. Laser bleaching of trapped electron optical bands in γ -irradiated alkaline ice. *International Journal for Radiation Physics and Chemistry*, Vol. 3, No. 3, 1971, p. 193-99. [Bleaching using narrow band laser light used to study nature of trapping sites.]
- HUANG, T., and others. Temperature dependence of the drift mobility of electrons in glassy 10 M sodium hydroxide ice, by T. Huang, I. Eisele, L. Kevan. *Journal of Physical Chemistry*, Vol. 76, No. 10, 1972, p. 1509-10. [Electrons generated by γ -irradiation and de-trapped by Xe light flash to give photoconductivity, and mobility determined 4-100 K.]
- HUBER, H., and others. Surface structure of ice studied by proton channeling, [by] H. Huber, C. Jaccard and M. Roulet. *Radiation Effects*, Vol. 12, Nos. 3-4, 1972, p. 241-45. [Study of surface disorder shows evaporating ice has a clean surface above -75° C. Below -110° C without evaporation, radiation damage occurs in the bulk, and channelled irradiation produces disordered surface layer. Water vapour deposition at -157° C gives disordered structure.]
- HUIGE, N. J. J., and THIJSEN, H. A. C. Production of large crystals by continuous ripening in a stirrer tank. *Journal of Crystal Growth*, Vols. 13-14, 1972, p. 483-87. [Ice crystals grown from sucrose solution by feeding with small, subcritical crystals.]
- ISHMAYEV, S. N., and others. Termalizatsiya neytronov v H_2O pri 318 i 77° K [Thermalization of neutrons in H_2O at 318 and 77 K]. [By] S. N. Ishmayev, I. P. Sadikov, A. A. Chernyshov. *Atomnaya Energiya*, Tom 32, Vyp. 1, 1972, p. 33-38. [Determination of thermalization time in ice at 77 K.]
- ITAGAKI, K. HF diffusion in ice single crystals. *Bulletin of the American Physical Society*, Ser. 2, Vol. 17, No. 3, 1972, p. 264. [Abstract. HF diffusion through glacier ice single crystal has lower activation energy in strained than unstrained samples.]
- JACCARD, C. Transport properties of ice. (In Horne, R. A., ed. *Water and aqueous solutions: structure, thermodynamics, and transport processes*. New York, etc., Wiley-Interscience, [c1972], p. 25-64.) [Review of physical properties of ice including electrical conductivity, diffusion, and mass transport by plastic deformation.]
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- JONES, D. R. H. Determination of the kinetics of ice-brine interfaces from data on temperature gradient zone migration. *Philosophical Magazine*, Eighth Ser., Vol. 25, No. 1, 1972, p. 97-103. [Analysis of existing data for temperature-gradient migration of NaCl or KCl brine droplets through ice using properly calculated diffusivities.]
- JONES, S. J., and GILRA, N. K. Increase of dislocation density in ice by dissolved hydrogen fluoride. *Applied Physics Letters*, Vol. 20, No. 8, 1972, p. 319-20. [X-ray topography shows fivefold increase in dislocation density when HF is diffused into an ice crystal.]
- JUMAWAN, A. B., jr. An experimental study of self-diffusion in polycrystalline ice. *Dissertation Abstracts International*, B, Vol. 32, No. 9, 1972, p. 5163-B-64-B. [Tritium diffusion in polycrystalline ice studied -6 to -37° C. Grain-boundary diffusion predominates.]
- KAMB, W. B. Structure of the ices. (In Horne, R. A., ed. *Water and aqueous solutions: structure, thermodynamics, and transport processes*. New York, etc., Wiley-Interscience, [c1972], p. 9-24.) [Review.]
- KAWABATA, K., and others. Optical absorption spectrum of trapped electron in crystalline ice at -150° C. Pulse radiolysis study, [by] K. Kawabata, H. Horii and S. Okabe. *Chemical Physics Letters*, Vol. 14, No. 2, 1972, p. 223-25. [Single crystals of D₂O undergo pulse radiolysis at -150° C and visible and infra-red absorption studied with time.]
- KAWADA, S. Dielectric dispersion and phase transition of KOH doped ice. *Journal of the Physical Society of Japan*, Vol. 32, No. 5, 1972, p. 1442. [Observations of dielectric properties show a sudden drop of ϵ' and ϵ'' at 70 K and also anomaly in thermal analysis attributed to a phase change.]
- LACMANN, R., and STRANSKI, I. N. Growth of snow crystals. *Journal of Crystal Growth*, Vols. 13-14, 1972, p. 236-40. [Explanation of the constant spacing of dendrite branches as due to quasi-liquid film on ice surface and unwettability of edges at about -15° C.]
- LE PETIT, J.-P. Mise en évidence, en hyperfréquences, de phénomènes liés à la préfusion de la glace formée par voie irréversible. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris)*, Sér. B, Tom. 274, No. 24, 1972, p. 1313-15. [Dielectric anomalies on heating ice formed from supercooled water above -10° C.]
- LE PETIT, J.-P. Mise en évidence et comportement de "molécules d'eau libres" et de "solution interstitielle" dans la glace formée par voie irréversible à partir de solutions salines aqueuses. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris)*, Sér. B, Tom. 274, No. 23, 1972, p. 1270-73. [Discontinuities in permittivity observed when aqueous solutions of NH₄Cl and KCl are cooled through the freezing process and when they are reheated.]
- LEVKOV, L. K. Étude de la température de congélation des gouttelettes surrefroidies contenant du CuS soumises à une congélation répétée. *Doklady Bolgarskoy Akademii Nauk*, Tom. 24, No. 12, 1971, p. 1625-27. [Formation properties of ice from droplets containing CuS are unaffected by repeated freezing and thawing.]
- LIN, D. P., and others. Paramagnetic relaxation study of spatial distribution of trapped radicals in γ -irradiated alkaline ice and organic glasses at 4.2° K, by D. P. Lin, P. Hamlet and L. Kevan. *Journal of Physical Chemistry*, Vol. 76, No. 8, 1972, p. 1226-27. [Spatial distribution of trapped radicals studied by measuring characteristic paramagnetic relaxation time versus radiation dose.]
- LIU, K.-N. Light scattering by ice clouds in the visible and infrared: a theoretical study. *Journal of the Atmospheric Sciences*, Vol. 29, No. 3, 1972, p. 524-36. [Theory of intensity and linear polarization for single scattering by long cylinders of ice.]
- MINTON, A. P. Relations between crystal structure, molecular electronic polarizability, and refractive properties of ice I. *Journal of Physical Chemistry*, Vol. 76, No. 6, 1972, p. 886-89. [Derivation of refractive index of ice from scalar molecular polarizability and a structure factor deduced for the ice Ih lattice.]
- MOORTHY, P. N., and RAO, K. N. Hydrogen peroxide yield in gamma-irradiated air-saturated ice at 77° K. *Radiation Effects*, Vol. 14, Nos. 1-2, 1972, p. 113-17. [Determination of yield as function of dose.]
- MUGURUMA, J. Kōri no denshinen shōsha sonshō [Electron irradiation damage in ice]. *Ōyō Butsuri*, [Vol.] 40, [No.] 5, 1971, p. 565-71.
- MUGURUMA, J. Kōri no sosei [Plasticity of ice]. *Nippon Kinzoku Gakkai Kaihō*, [Vol.] 10, [No.] 10, 1971, p. 653-66. [Review.]
- MURTY, A. S. RAMACHANDRA, and MURTY, V. RAMANA. A new effect of evaporation accelerating the ice phase in supercooled water. *Journal of the Atmospheric Sciences*, Vol. 29, No. 4, 1972, p. 781-84. [Experiments show rain-water drops freeze more readily if evaporating.]
- OFFENBACHER, E. L., and ROSELMAN, I. Hardness anisotropy of single crystals of ice I_h. *Bulletin of the American Physical Society*, Ser. 2, Vol. 16, No. 12, 1971, p. 1424. [Abstract. Orientational dependence of Knoop hardness on pyramidal and basal planes of ice.]
- PLUMB, R. C. Squeak, skid, and glide. Unusual properties of snow and ice. *Journal of Chemical Education*, Vol. 49, No. 3, 1972, p. 179. [Why snow squeaks only when it is very cold, and why sand and studded tyres lose their effectiveness at low temperatures, explained by pressure depression of melting point of ice.]
- POPOVA, S. I., and others. Opticheskiye postoyannyye zhidkom vody i l'da v oblasti 2000 ÷ 100 Å [Optical constants of liquid water and ice in the 100-2000 Å region]. [By] S. I. Popova, L. I. Al'perovich, V. M. Zolotarev. *Optika i Spektroskopiya*, Tom 32, Vyp. 3, 1972, p. 547-50. [Calculation from Kramers-Krönig relations. English translation in *Optics and Spectroscopy*, Vol. 32, No. 3, 1972, p. 288-89.]
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- Doklady Akademii Nauk SSSR*, Tom 196, No. 3, 1971, p. 641-44. [Concentration of OH radicals in ice according to speed of cooling to 77 K and concentration of various impurities. English translation in *Doklady of the Academy of Sciences of the U.S.S.R. Physical Chemistry Section*, Vol. 196, Nos. 1-3, 1971, p. 74-77.]
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- ROZENTAL', O. M. Voprosy obrazovaniya l'da v vode i rastvorakh. I. Perestroyka struktury vody i l'dozarozhdeniye pod deystviyem uneshnikh faktorov [Problem of the formation of ice in water and solutions. I. Rearrangement of the structure of water and ice formation under the action of external factors]. *Zhurnal Fizicheskoy Khimii*, Tom 46, Vyp. 1, 1972, p. 191-92. [On basis of Samoylov's model, nucleation of ice in supercooled water by shock waves or electrical or ultrasonic fields is explained as being due to an increase in the proportion of oriented molecules. English translation in *Russian Journal of Physical Chemistry*, Vol. 46, No. 1, 1972, p. 111.]
- ROZENTAL', O. M. Voprosy obrazovaniya l'da v vode i rastvorakh. II. Kinetika kristallizatsii vodnykh rastvorov elektrolitov [Problem of the formation of ice in water and solutions. II. Kinetics of crystallization in aqueous electrolyte solutions]. *Zhurnal Fizicheskoy Khimii*, Tom 46, Vyp. 3, 1972, p. 657-59. [Nucleation ability is related to ion hydration. Thus a solution of negatively hydrated ions is less able to freeze than one of positively hydrated ions. English translation in *Russian Journal of Physical Chemistry*, Vol. 46, No. 3, 1972, p. 376-77.]
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- SAVEL'YEV, I. B. Aktivnoye vozdeystviye merzlogo dispersnogo osnovaniya na strukturu prikontaktnogo sloya namorozhennogo l'da [Active action of a frozen dispersed base on the structure of a contact layer of frozen-on ice]. *Doklady Akademii Nauk SSSR*, Tom 201, No. 1, 1971, p. 86-89. [Experimental study of ice frozen on to various substrates.]
- SHAWYER, R. E., and DEAN, P. Atomic vibrations in orientationally disordered systems: II. Hexagonal ice. *Journal of Physics*, C, Vol. 5, No. 10, 1972, p. 1028-37. [Theoretical study of vibrations in H₂O and D₂O ice Ih. Broad agreement with experiment.]
- SOUTHERN, E., and WALKER, R. W. Friction of rubber on ice. *Nature, Physical Science*, Vol. 237, No. 78, 1972, p. 142-44. [Measurements -1°C to -40°C show friction-velocity curves at all temperatures are similar in shape, with maximum occurring. Results similar to friction of rubber on other smooth surfaces.]
- WHALLEY, E. The dipole moment derivative of the hydrogen bond in ice. *Canadian Journal of Chemistry*, Vol. 50, No. 3, 1972, p. 310-14. [Calculation gives value which is less than that found from far infra-red spectrum, most of intensity therefore attributed to specific H-bond interactions.]

LAND ICE. GLACIERS. ICE SHELVES

- AGETA, Y., and NARUSE, R. Measurements of ice flow around Skallen Rock, south of Syowa station, Antarctica. *Nankyoku Shiryo: Antarctic Record*, No. 42, 1971, p. 61-64. [No significant differences in velocity were observed from stake measurements made in February-October-February.]
- BARKOV, N. I. *Shel'fovyye ledniki Antarktidi* [Ice shelves of Antarctica]. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1971, 226 p. [Based on 1960-61 observations on the West, Shackleton, Lazarev and Novolazarevskiy ice shelves.]
- BAZHEVA, V. YA., and KRENKE, A. N. Stroyeniye ledyanoy tolshchi Marukhskogo lednika (po rezul'tatam glubokogo bureniya letom 1967 g.) [The structure of Lednik Marukh ice body (according to the results of deep drilling in summer 1967)]. *Materiyaly Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 288-96. [Presents results from examination of core samples. Four zones of metamorphism found. English summary, p. 306.]
- BOGACKI, M. Eolian processes on the forefield of the Skeidarárjökull (Iceland). *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences Géologiques et Géographiques*, Vol. 18, No. 4, 1970, p. 279-87. [Study of activity of winds carrying volcanic dust.]
- BRADLEY, R. S., and MILLER, G. H. Recent climatic change and increased glacierization in the Canadian Arctic. *Nature*, Vol. 237, No. 5355, 1972, p. 385-87. [During the past decade, mean annual temperatures on Baffin Island have been increasing, but so has glacierization.]
- BROCHU, M. Observations de névés sur les côtes du nord-ouest du Nouveau-Québec. *Revue de Géographie de Montréal*, Vol. 26, No. 2, 1972, p. 220-23. [Describes types of firn patches observed from the sea on the coast between Ivujivik and Maricourt Fjord.]
- CHERKASOV, P. A., and FINANSOV, V. N. Metodika i programma rascheta insolyatsii fizicheskoy poverkhnosti lednikov na ETsVM tipa "M-20" [Methods and programme of calculating insolation of glacier surface by the computer "M-20"]. *Materiyaly Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 147-59. [Describes calculation of direct solar radiation on the horizontal or sloping surface of a glacier. English summary, p. 159.]
- CHURSKI, Z. Genesis and evolution of the river system in the forefield of the Skeidarárjökull (Iceland). *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences Géologiques et Géographiques*, Vol. 20, No. 1, 1972, p. 47-53. [River evolution here may result from ablation processes, ground water, dead ice melt water, or spring melt water.]
- CHURSKI, Z. Results of observations of water-level fluctuations in the Sandgigkvísl river (Iceland) in summer 1968. *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences Géologiques et Géographiques*, Vol. 18, No. 4, 1970, p. 259-68. [Investigations in the proglacial area of the receding Skeidarárjökull.]

- DOLGUSHIN, L. D., and OSIPOVA, G. B. Novyye dannyye o pul'satsiyakh sovremennykh lednikov [New data on the recent glacier surges]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 191-217. [Discusses occurrence and causes of surging glaciers with reference to those in the U.S.S.R. English summary, p. 217-18.]
- DOROFYEV, I. G. Chto proizoshlo s lednikom Fedchenko za tridtsatiletniy period (1928-1958 gg.) [What happened to Lednik Fedchenko during the thirty years 1928-58]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 104, Vyp. 1, 1972, p. 36-39. [Recorded measurements of the shrinkage of this glacier in the Pamir.]
- DYURGEROV, M. B. Metodika opredeleniya sredney sutochnoy poverkhnostnoy abyatsii lednikov [Methods of determination of the mean surface ablation of glaciers]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 86-92. [Accuracy of stake method is discussed with particular reference to results from Lednik Dzhankuat. English summary, p. 91-92.]
- FLEISHER, P. J., and SALES, J. K. Laboratory models of glacier dynamics. *Geological Society of America. Bulletin*, Vol. 83, No. 3, 1972, p. 905-10. [Models of glaciers were produced by pouring a mixture of moulding plaster and water down a prefashioned trough of non-absorbent material.]
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ICEBERGS. SEA, RIVER AND LAKE ICE

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- HAMELIN, L.-E. Le glacier de Iakoutie en Sibérie nordique. *Biuletyn Peryglacjalny*, No. 21, 1972, p. 75–86. [Observations on the floating ice of the rivers Lena and Aldan, also on the structure of the non-tidal riverbanks.]
- HARWOOD, T. A. The iceberg problem. (*In Proceedings of the Canadian seminar on icebergs . . . 1971 . . .*, [1971], p. 1–2.) [Outline of main problems.]
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- VOYEVODIN, V. A. O razmerakh aysbergov v rayone Zemlya Frantsa-Iosifa i Shpitsbergena [On the measurements of icebergs in the region of Zemlya Frantsa-Iosifa and Spitsbergen]. *Problemy Arktiki i Antarktiki*, No. 39, 1972, p. 138-40. [Measurement of depth of icebergs by air photography.]
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GLACIAL GEOLOGY

- ALEXANDROWICZ, S. W. Formen der glazigenen Störungen miozäner Braunkohlenformation in Turoszów an der Nysa (Westpolen). *Bulletin de l'Académie Polonaise des Sciences. Série des Sciences de la Terre*, Vol. 19, No. 1, 1971, p. 45-54. [Forms of disturbances caused by static non-uniform loading with ice masses or dead ice of the Miocene brown coal formation in this region of Poland were investigated.]
- ANDREWS, J. T., and BARNETT, D. M. Analysis of strandline tilt directions in relation to ice centers and postglacial crustal deformation, Laurentide ice sheet. *Geografiska Annaler*, Vol. 54A, No. 1, 1972, p. 1-11. [Considers results and implications of projecting the directions of strandline tilts from 36 sites within this area toward the supposed areas of maximum ice thickness. Data examined for evidence to support hypothesis that centres of crustal uplift migrated as the form of the ice sheet changed.]
- ANDREWS, J. T., and DUGDALE, R. E. Quaternary history of northern Cumberland Peninsula, Baffin Island, N.W.T. Part 5. Factors affecting corrie glaciation in Okoa Bay. *Quaternary Research*, Vol. 1, No. 4, 1971, p. 532-51. [Each of 165 corries is described by 17 variables detailing shape, location and geometry, and having some relationship to the glaciological conditions in each corrie. Elevation and orientation were important factors.]
- BARDIN, V. I., and KONOPLEVA, V. I. O protsessakh vyvetrivanija i probleme geokhologii lednikovogo perioda Antarktity [Processes of weathering and the problem of geochronology of the ice age in Antarctica]. *Antarktika. Doklady Komissii*, 1969, [pub.] 1971, p. 102-12.
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- BORISOV, P. M., and GROSVAL'D, M. G. Nordkapskoye techeniye i oledneniye Barentseva shel'fa [The North Cape current and glacial history of the Barents shelf]. *Materialy Glytsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 179-83. [Effect of Pleistocene glaciation on continental shelf, and conditions in which it melted.]
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- DIONNE, J.-C. Caractéristiques des blocs erratiques des rives de l'estuaire du Saint-Laurent. *Revue de Géographie de Montréal*, Vol. 26, No. 2, 1972, p. 125-52. [Six types of accumulation of erratic blocks are distinguished and described.]

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- FILLON, R. H. Possible causes of the variability of postglacial uplift in North America. *Quaternary Research*, Vol. 1, No. 4, 1971, p. 522-31. [Discussion and conclusions drawn therefrom.]
- GAUNT, G. A. A temporary section across the Escribier moraine at Wheldrake, east Yorkshire. *Journal of Earth Sciences* (Leeds), Vol. 8, No. 1, 1970, p. 163-70. [Discusses composition and mode of formation of moraine.]
- GROSVAL'D, M. G., and SEREBRYANNYY, L. R. Geografiya materikogo oledeniya severa Yevropy v verkhnem pleystotsene [The geography of the late Pleistocene glaciations of northern Europe]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 223-31. [General survey of conditions giving rise to present geography. Suggests it is necessary to distinguish between ice sheets on land and those extending over the sea. English summary, p. 231.]
- GUIMONT, P. Broutures glaciaires sur grès de Potsdam, Saint-Hermas, Québec. *Revue de Géographie de Montréal*, Vol. 26, No. 2, 1972, p. 202-06. [Describes various types of glacial chattermarks in sandstone.]
- HYNE, N. J., and others. Quaternary history of Lake Tahoe, California-Nevada, [by] N. J. Hyne, P. Chelminski, J. E. Court, D. S. Gorsline, C. R. Goldman. *Geological Society of America. Bulletin*, Vol. 83, No. 5, 1972, p. 1435-48. [Sediments and structure of the lake reflect glacial activity during the Pleistocene.]
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- KORNILOV, G. A. Iz istorii pozdnego pleystotsena Chukotskogo poluoostrova [On the late Pleistocene of Chukotskiy Poluoostrov]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1972, No. 1, p. 118-23. [Based on field studies, 1955-65.]
- KORTSENSHTEYN, V. N. O vliyaniy periodicheskikh oledeniyy na formirovaniye unikal'nykh gazovykh mestorozhdeniy severa Tyumenskoy Oblasti [Effect of periodic glaciations on the formation of the unique gas fields in the northern part of Tyumenskaya Oblast']. *Doklady Akademii Nauk SSSR*, Tom 191, No. 6, 1970, p. 1366-69. [English translation in *Doklady of the Academy of Sciences of the U.S.S.R. Earth Science Sections*, Vol. 191, Nos. 1-6, 1971, p. 227-30.]
- LAPPARENT, A. F. DE, and others. Phénomènes glaciaires et périglaciaires dans la Montagne de Bamyán (Hindu Kuch occidental, Afghanistan), [par] A. F. de Lapparent, E. Bouyx, J. Pias. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Sér. D, Tom. 274, No. 15, 1972, p. 2141-44. [Describes glacial deposits and periglacial features in this region of the Hindu Kush.]
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- LUNDQVIST, J. Kvartärgeologisk forskning i Sverige 1946-70. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 93, Pt. 2, No. 545, 1971, p. 303-34. [Review of Quaternary research in Sweden during the period 1946-70.]
- MADOLE, R. F. Neoglacial facies in the Colorado Front Range. *Arctic and Alpine Research*, Vol. 4, No. 2, 1972, p. 119-30. [Describes the principal facies and estimates ages. Discusses distribution in relation to climatic changes.]
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- MONACO, A., and others. L'âge des dépôts quaternaires sur le plateau continental du Roussillon (Golfe du Lion), [par] A. Monaco, J. Thommeret, Y. Thommeret. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Sér. D, Tom. 274, No. 16, 1972, p. 2280-83. [Dating of deposits in this area enable them to be attributed to the various stages of Quaternary glaciation.]
- NAYLOR, D., and others. Pleistocene deposits exposed along the Yukon coast, [by] D. Naylor, D. J. McIntyre and N. F. McMillan. *Arctic*, Vol. 25, No. 1, 1972, p. 49-55. [Sediments are described and dates of deposition in relation to movements of the Pleistocene ice sheet discussed.]
- PAGE, N. R. On the age of the Hoxnian interglacial. *Geological Journal* (Liverpool), Vol. 8, Pt. 1, 1972, p. 129-42. [On the basis of new radiocarbon datings, the chronology for East Anglia is reappraised. Suggests the Hoxnian interglacial is dated between 25 000 and 21 000 B.P.]
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- PRICE, R. J. The unquiet landscape. Legacy of the Pleistocene ice sheets. *Geographical Magazine*, Vol. 44, No. 10, 1972, p. 687-71. [General description of glacial deposits and landforms, illustrated by photographs of Iceland.]
- SAINT-ONGE, D.-A. La stratigraphie du Quaternaire des environs de Fort-Assiniboine, Alberta, Canada. *Revue de Géographie de Montréal*, Vol. 26, No. 2, 1972, p. 153-63. [Study of sequence of deposits filling ancestral valley system. Effect of Wisconsin glaciation was followed and dated.]

- SISSONS, J. B. Dislocation and non-uniform uplift of raised shorelines in the western part of the Forth valley. *Institute of British Geographers. Transactions*, No. 55, 1972, p. 145-59. [Results suggest that the hypothesis that raised shorelines in areas of glacial rebound have uniform or gradually changing gradients does not apply to this area.]
- TROITSKIY, L. S. O golotsenovykh stadiyakh oledneniya na Shpitsbergene [On the Holocene glaciation stages in Svalbard]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 18, 1971, p. 63-68. [Study of moraines, and conclusions drawn from this. English summary, p. 67-68.]
- VORTISCH, W. Untersuchungen im Pleistozän SO-Schonens. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 94, Pt. 1, No. 548, 1972, p. 35-68. [A study of the geology of south-east Skåne, Sweden, enables Quaternary ice movements in this region to be followed.]
- WEIDICK, A. Holocene shore-lines and glacial stages in Greenland—an attempt at correlation. *Grönlands Geologiske Undersøgelse. Rapport* No. 41, 1972, 39 p. [Dates of former sea-levels were determined by dating shells collected in west Greenland, the results being compared to published information from other parts of Greenland in order to check the deduced uplift. The result was then used to determine the extent of the inland ice.]
- WHITE, W. A. Deep erosion by continental ice sheets. *Geological Society of America. Bulletin*, Vol. 83, No. 4, 1972, p. 1037-56. [Suggests that ice sheets effected great erosion and shaped the major topographic features of the areas they covered.]
- WRIGHT, F. F. Yakutat Bay, Alaska—a product of coastal plain deglaciation. *Proceedings of [the] 21st Alaska Science Conference. . . College, Alaska, August 16-19, 1970, [1970]*, p. 107. [Abstract. Describes formation and glacial geology of bay.]

FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

- AFANASENKO, V. YE. Dinamichnost' dolinnykh talikov v predelakh Polousnogo Kryazha [Valley taliks within the Polousnyy Kryazh]. *Merzlotnyye Issledovaniya*, Vyp. 11, 1971, p. 124-29. [Study of tabetisols (unfrozen layers within permafrost) in Yakutskaya A.S.S.R.]
- AKILI, W. Stress-strain behavior of frozen fine-grained soils. *Highway Research Record*, No. 360, 1971, p. 1-8. [Investigation of effect of below-freezing temperature, constant axial deformation rates and soil type.]
- ALEKSEYEV, V. R. Naledi kak forma oledneniya i ikh geneticheskaya klassifikatsiya [Icings as a glaciation form and their genetic classification]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 145-54. [Characteristics of icings described with reference to those of Siberia and the Far East. English summary, p. 172.]
- ALESHINSKAYA, Z. V., and others. Periglacial phenomena and some paleogeographical problems of central Tian-Shan, [by] Z. V. Aleshinskaya, L. G. Bondarev, A. P. Gorbunov. *Biuletyn Peryglacjalny*, No. 21, 1972, p. 5-13. [Detailed study of the Taragay basin.]
- ANANYAN, A. A., and POLTEV, N. F. Rezul'taty laboratornykh issledovaniy nekotorykh teplofizicheskikh svoystv rykhlykh gornyykh porod po rayonam Bodaybo i Aldana [Results of laboratory research on heat properties of friable soils in the Bodaybo and Aldan regions]. *Merzlotnyye Issledovaniya*, Vyp. 11, 1971, p. 192-98. [Freezing and thawing experiments.]
- BASHLAKOV, YA. K. Formirovaniye i ablyatsiya naledey v usloviyakh Zabaykal'ya [Formation and ablation of icings in the conditions of Zabaykal'ye]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 17, 1970, p. 154-58. [Distinguishes between icings of mountains and those of intermountain basins. Presents observations on formation and melting of a large icing in the Ingamakit river basin, Buryat-Mongol'skaya A.S.S.R. English summary, p. 172.]
- BAULIN, V. V., and others. Rasprostraneniye vechnomerzlykh porod v rayone shirotnogo techeniya r. Obi [Distribution of permanently frozen soils near the middle course of the river Ob']. [By] V. V. Baulin, I. V. Yefimov, V. G. Timofeyev. *Merzlotnyye Issledovaniya*, Vyp. 11, 1971, p. 142-51. [West Siberian lowland.]
- BELOPUKHOVA, YE. B. Otrazheniye klimaticheskikh izmeneniy v morfologii povtorno-zhil'nykh l'dov [The reflection of climatic variations in the morphology of veined ice]. *Merzlotnyye Issledovaniya*, Vyp. 11, 1971, p. 173-78. [Studies in the northern part of the West Siberian lowland.]
- BOGORODSKIY, V. V., and others. Elektricheskiye kharakteristiki sistem gornaya poroda-led [Electrical properties of rock-ice systems]. [By] V. V. Bogorodskiy, G. P. Khokhlov, B. A. Fedorov, G. V. Trepov. *Doklady Akademii Nauk SSSR*, Tom 190, No. 1, 1970, p. 88-90. [Laboratory study. Also assesses feasibility of using radio methods for permafrost introspection. English translation in *Doklady of the Academy of Sciences of the U.S.S.R. Earth Science Sections*, Vol. 190, Nos. 1-6, 1970, p. 1-3.]
- BOURNÉRIAS, M. Pyramides rocheuses d'éjection en milieu périglaciaire, Puvirnituk, Nouveau-Québec. *Revue de Géographie de Montréal*, Vol. 26, No. 2, 1972, p. 214-19. [Describes process of frost heaving of large angular stones around this region of the eastern coast of Hudson Bay.]
- BROCHU, M. Premières observations de dépôts de solifluxion fossiles en Gaspésie. *Biuletyn Peryglacjalny*, No. 21, 1972, p. 15-20. [Examination and subsequent dating of slope deposits, caused by solifluxion, observed in the Gaspé Peninsula, Quebec.]
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SNOW

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