

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

SHCHUKINA, O. Ye. Chetvertyy obshchesoyuznyy glyatsiologicheskiy simpozium [Fourth all-Union glaciological symposium]. *Vestnik Moskovskogo Universiteta*, Ser. 5, God 24, No. 3, 1969, p. 122–23. [Report of symposium held in northern Caucasus at "El'brus", 21 September–5 October 1968.]

GENERAL GLACIOLOGY

BRYAZGIN, N. N., and KOPTEV, A. P. O spektral'nom al'bedo snezhno-ledyanogo pokrova [Spectral albedo of a snow or ice surface]. *Problemy Arktiki i Antarktiki*, Vyp. 31, 1969, p. 79–83.

FLIRI, F., ed. [Alpenkundliche Studien, 1.] *Festschrift für Hans Kinzl zum siebzigsten Geburtstag. Veröffentlichungen der Universität Innsbruck*, 1, 1968, xi, 160 p. [Papers include: F. Fliri, "Beiträge zur Hydrologie und Glaziologie der Cordillera Blanca (Peru)", p. 25–52; H. Heuberger, "Die Ötzalmündung (Inntal, Tirol)", p. 53–90; H. Heuberger and H. Penz, "Verzeichnis der wissenschaftlichen Arbeiten von Univ.-Prof. Dr. Hans Kinzl", p. 149–56.]

HOINKES, H. C. Raimund von Klebelsberg, 14.12.1886–6.6.1967. *Jahrbuch der Bayerischen Akademie der Wissenschaften* 1968, p. 212–20. [Obituary.]

KATTERFEL'D, G. N., and FROLOV, P. M. O sushchestvovanii vody na Lune [On the existence of water on the moon]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 3, 1969, p. 260–64. [Discussion of possibility of ice, water and water vapour on the moon.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

BERDNIKOV, V. V., and KOTYUKOV, V. A. Opyt primeneniya geofizicheskikh metodov pri izuchenii reliktovykh merzlotnykh obrazovanii [The use of geophysical methods for studying relict frozen ground formations]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1969, No. 5, p. 109–17.

BOGORODSKIY, V. V. *Fizicheskiye metody issledovaniya lednikov* [Physical methods of investigating glaciers]. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1968, 214 p. [Book summarizing basic principles of gravimetric, seismic, and radar techniques used in glaciology. English summary.]

EVANS, S., and SMITH, B. M. E. A radio echo equipment for depth sounding in polar ice sheets. *Journal of Scientific Instruments* (*Journal of Physics*, E), Ser. 2, Vol. 2, No. 2, 1969, p. 131–36. [Discusses need for depth-sounding in glaciers, ice sheets, and ice shelves, and describes v.h.f. radar, designed specifically to produce continuous profiles of ice depth. Practical problems and results.]

GLUCK, S. Épaisseur du Glacier Blanc (massif de l'Oisans) dans sa partie supérieure. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 268, Sér. D, No. 12, 1969, p. 1583–85. [Seismic reflexion technique used to determine glacier thickness in accumulation area of this French glacier.]

NELSEN, D. E. Radar sounding of glaciers in the Icefield Ranges. (*In Bushnell, V. C., and Ragle, R. H., ed. Icefield Ranges Research Project. Scientific results. Vol. 1.* New York, American Geographical Society; Montreal, Arctic Institute of North America, 1969, p. 107.) [Successful use of technique in divide region of ice field.]

PHYSICS OF ICE

ARNASON, B. Equilibrium constant for the fractionation of deuterium between ice and water. *Journal of Physical Chemistry*, Vol. 73, No. 10, 1969, p. 3491–94. [Accurate experimental determination.]

BAILEY, W. A., and others. Measuring heat losses through common greenhouse covering materials under different test conditions, [by] W. A. Bailey, R. C. Liu, H. H. Kluter and D. T. Krizek. (*In Ho, C. Y., and Taylor, R. E., ed. Thermal conductivity. Proceedings of the eighth conference held at Purdue University, West Lafayette, Indiana, October 7–10, 1968.* New York, Plenum Press, 1969, p. 941–48.) [Experiments show that ice or snow cover over the glass increases heat transmittance.]

BENNETT, J. E., and others. Trapped electrons produced by deposition of alkali-metal atoms on ice at 77°K. Part III. Invariance of electron spin resonance spectra with metal cation, by J. E. Bennett, B. Mile and A. Thomas. *Journal of the Chemical Society*, Sect. A, 1969, [No.] 10, p. 1502–05. [Identical e.s.r. spectra result from deposition of Li, K, Na, Rb or Cs, so the cation is not involved in the trap.]

BERTIE, J. E., and others. Absorptivity of ice I in the range 4 000–30 cm.⁻¹, [by] J. E. Bertie and H. J. Labbé and E. Whalley. *Journal of Chemical Physics*, Vol. 50, No. 10, 1969, p. 4501–20. [Measurements and interpretation.]

BHADRA, T. C. Effects of physical stimuli, aeratign [*sic*], preheating, electric field on the supercooling and nucleation of water droplets. *Indian Journal of Physics*, Vol. 42, No. 8, 1968, p. 474–85. [Study of time to freeze droplets under various conditions. Shock waves had no effect, contrary to results for bulk water.]

- BHADRA, T. C. Induction of freezing of bulk samples of supercooled water by physical stimuli. *Indian Journal of Physics*, Vol. 42, No. 2, 1968, p. 91-102. [Experiments on effect of air content and of mechanical or electrical stimuli.]
- BHADRA, T. C. On the feasibility of inducing cavitation in hailstones and supercooled water by low-intensity shock wave. *Indian Journal of Physics*, Vol. 42, No. 10, 1968, p. 603-09. [No effect produced by ultrasonic waves on ice. Results used to discuss theory of hailstone break-up.]
- BLAIR, D. N., and DAVIS, B. L. Aging of silver iodide-sodium iodide generator effluent in moist dry air. *Journal of Applied Meteorology*, Vol. 8, No. 4, 1969, p. 551-55. [Effect of storage of aerosol particles on their efficiency as ice nuclei.]
- BOX, H. C., and others. Hydroxyl radicals of X-irradiated single crystals of ice, [by] H. C. Box, K. T. Lilga, E. E. Budzinski and R. Deer. *Journal of Chemical Physics*, Vol. 50, No. 12, 1969, p. 5422-23. [Letter. Electron spin resonance study at low temperatures.]
- CHIU, S.-Y., and others. Experimental study of the ice-making operation in the inversion desalination freezing process, [by] S.-Y. Chiu, L.-T. Fan, R. G. Akins. *Industrial and Engineering Chemistry. Process Design and Development*, Vol. 8, No. 3, 1969, p. 347-56. [Experimental study of shape of ice crystals formed.]
- CROSS, J. D., and SPEARE, P. A. Electrical aspects of the evaporation of ice. *British Journal of Applied Physics (Journal of Physics, D)*, Ser. 2, Vol. 2, No. 7, 1969, p. 1021-25. [Electrical charge due to evaporation of polycrystalline ice *in vacuo* found to be very small. Scanning electron microscopy suggests earlier results may be due to particles breaking off.]
- DAVIS, B. L., and BLAIR, D. N. Role of substrate strain in ice nucleation. *Journal of Geophysical Research*, Vol. 74, No. 18, 1969, p. 4571-80. [Deformed AgI, CuS and Al₂SiO₅(OH)₄ were much more efficient ice nuclei than undeformed specimens.]
- DEAN, P. Remarks on the vibrations of disordered systems. *Journal of the Physical Society of Japan*, Vol. 26, Supplement, 1968 [pub. 1969], p. 20-24. [Includes a discussion of vibrations of ice Ih on basis of two-dimensional theoretical model.]
- DILLARD, D. S., and TIMMERHAUS, K. D. Low temperature conductivity of selected dielectric crystalline solids. (*In Ho, C. Y., and Taylor, R. E., ed. Thermal conductivity. Proceedings of the eighth conference held at Purdue University, West Lafayette, Indiana, October 7-10, 1963.* New York, Plenum Press, 1969, p. 949-68.) [Includes results for ice from 80 to 273 K.]
- DILORENZO, J. V., and KAPLAN, M. Phase transformations in doped ice: concentration effect in frozen ferrous solutions. *Chemical Physics Letters*, Vol. 3, No. 4, 1969, p. 216-18. [Mössbauer studies of effect of Sn⁴⁺ and Eu³⁺ ions on ice with Fe⁺⁺ ions in solution.]
- ENGELHARDT, H., and others. Detection of single collisions of fast neutrons by nucleation of Tyndall flowers in ice, [by] H. Engelhardt, H. Müller-Krumbhaar, B. Bulemer and N. Richl. *Journal of Applied Physics*, Vol. 40, No. 13, 1969 [pub. 1970], p. 5308-11. [Method of growing good single crystals of ice and of using them to detect neutrons by the nucleation of Tyndall flowers.]
- FUKUDA, A., and HIGASHI, A. X-ray diffraction topographic studies of dislocations in natural large ice single crystals. *Japanese Journal of Applied Physics*, Vol. 8, No. 8, 1969, p. 993-99. [Study of shape and Burgers vectors of dislocations in glacier ice from Mendenhall Glacier, Alaska.]
- GITLIN, S. N., and LIN, S.-S. Dynamic nucleation of the ice phase in supercooled water. *Journal of Applied Physics*, Vol. 40, No. 12, 1969, p. 4761-67. [Experiments which show that cavitation is a necessary but not a sufficient condition for dynamic nucleation of ice in supercooled water.]
- GOLD, L. W. Crack formation in ice during creep. *Scripta Metallurgica*, Vol. 3, No. 6, 1969, p. 367-70. [Correlation between density of cracks and creep deformation in columnar ice.]
- HARING, O. K. Slow neutron inelastic scattering study of light water and ice. *Journal of Chemical Physics*, Vol. 50, No. 12, 1969, p. 5279-96. [Study analysed to give proton motions in ice.]
- HASE, H., and KEVAN, L. Paramagnetic relaxation of radiation-produced electrons in annealed glassy and polycrystalline alkaline ices. *Journal of Physical Chemistry*, Vol. 73, No. 10, 1969, p. 3290-93. [Measurements show spin-spin relaxation time depends on annealing while spin-lattice does not. Explanation in terms of trap sites.]
- HIGASHI, A., and others. Hikiage hoo ni yoru hyōtankesshō no seisaku (dai 2 hō)—X-sen topogurafu ni yoru ten-i no kansatsu [Growth of large single crystals of ice from water (2)—X-ray diffraction topographic observations of dislocations]. [By] A. Higashi, M. Oguro, A. Fukuda. *Öyō Butsuri*, [Vol.] 38, [No.] 6, 1969, p. 567-73. [Observations interpreted in terms of mechanism of growth. English summary.]
- ISONO, K., and IWAI, K. Growth mode of ice crystals in air at low pressure. *Nature*, Vol. 223, No. 5211, 1969, p. 1149-50. [At low pressure ice crystals formed on solid nuclei are quasi-spherical with facets. Importance of these observations in study of noctilucent and nacreous clouds.]
- KAMB, W. B. Structural studies of the high-pressure forms of ice. *Transactions of the American Crystallographic Association*, Vol. 5, 1969, p. 61-80. [Review of knowledge of high-pressure forms of ice.]
- KRAUSZ, A. S. A rate theory of strain relaxation. *Materials Science and Engineering*, Vol. 4, No. 4, 1969, p. 193-97. [Theory of strain relaxation in better agreement with dislocation velocity measurements. Results compared with data on strain relaxation in ice.]
- KRISHNAN, P. N., and SALOMON, R. E. Solubility of hydrogen chloride in ice. *Journal of Physical Chemistry*, Vol. 73, No. 8, 1969, p. 2680-83. [Determination from diffusion of HCl into pure ice.]
- LAVROV, V. V. Osnovnyye zakonomernosti deformirovaniya l'da [Main principles in ice deformation]. *Problemy Arktiki i Antarktiki*, Vyp. 28, 1968, p. 42-45.
- LYASHCHENKO, A. K., and MALENKOV, G. G. Rentgenograficheskoye izuchenie sistemy florid ammoniya-lcd [X-ray diffraction study of the ammonium fluoride-ice system]. *Zhurnal Strukturnoy Khimii*, Tom 10, No. 4, 1969, p. 724-25. [Determination of phase diagram and of lattice constant variations with concentration of dissolved NH₄F in ice.]

- MACKLIN, W. C., and PAYNE, G. S. The spreading of accreted droplets. *Quarterly Journal of the Royal Meteorological Society*, Vol. 95, No. 406, 1969, p. 724-30. [Measurement of amount of spreading of supercooled droplets accreting on an ice surface.]
- MAYORAL, J. R., and ISAKA, H. Action glaciogène de substances organiques à la sous-saturation par rapport à l'eau. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 269, Sér. B, No. 3, 1969, p. 145-48. [Evidence that phloroglucinols act as sublimation agents below water super-saturation.]
- MILLER, S. L. Clathrate hydrates of air in Antarctic ice. *Science*, Vol. 165, No. 3892, 1969, p. 489-90. [Calculations show these should form at pressure corresponding to 800 m depth. This explains gas bubble disappearance in cores at 1 200 m.]
- NAKAHARA, Y. Phonon spectrum and thermal neutron scattering in light water ice. *Journal of Nuclear Science and Technology* (Tokyo), Vol. 5, No. 12, 1968, p. 635-42. [Calculation of phonon spectrum and thermal neutron scattering law.]
- ODENCRANTZ, F. K. Freezing of water droplets: nucleation efficiency at temperatures above -5°C. *Journal of Applied Meteorology*, Vol. 8, No. 3, 1969, p. 322-25. [Laboratory studies show efficiency depends strongly on experimental conditions.]
- OREM, M. W., and ADAMSON, A. W. Physical adsorption of vapor on ice. II. n-Alkanes. *Journal of Colloid and Interface Science*, Vol. 31, No. 2, 1969, p. 278-86. [Adsorption isotherms of simple non-polar hydrocarbon vapours on ice.]
- PELAH, I., and RUBY, S. L. Conductivity and Mössbauer measurements in doped ice. *Journal of Chemical Physics*, Vol. 51, No. 1, 1969, p. 383-87. [Conductance anomalies in ice with Sn⁴⁺ ions at same temperature as Mössbauer anomalies.]
- RYAN, B. F. The growth of ice parallel to the basal plane in supercooled water and supercooled metal fluoride solutions. *Journal of Crystal Growth*, Vol. 5, No. 4, 1969, p. 284-88. [Measurements of dendritic growth rates.]
- SMITH-JOHANSEN, R. I. Ice crystal agglomeration: T formation. *Journal of the Atmospheric Sciences*, Vol. 26, No. 3, 1969, p. 532-34. [Agglomerates collected from laboratory ice clouds frequently had T shape. Possible explanations discussed.]
- STEIN, G. D. Angular and wavelength dependence of the light scattered from a cloud of particles formed by homogeneous nucleation. *Journal of Chemical Physics*, Vol. 51, No. 3, 1969, p. 938-42. [Experiments using laser light to study light scattering from ice particles formed via condensation by homogeneous nucleation.]
- STOW, C. D. The charging of ice surfaces by natural ice particles. *Quarterly Journal of the Royal Meteorological Society*, Vol. 95, No. 406, 1969, p. 797-800. [Letter commenting on paper by W. D. Scott and P. V. Hobbs, ibid., Vol. 94, No. 402, 1968, p. 510-22, with reply by authors p. 799-800.]
- WARDMAN, P., and SEDDON, W. A. Electron spin resonance studies of radicals condensed from irradiated water vapor: reactions of the radicals. *Canadian Journal of Chemistry*, Vol. 47, No. 12, 1969, p. 2149-54. [Studies in both H₂O and D₂O condensed after irradiation at 77 K.]
- WARDMAN, P., and SEDDON, W. A. Electron spin resonance studies of radicals condensed from irradiated water vapor: paramagnetic relaxation of trapped electrons in ice. *Canadian Journal of Chemistry*, Vol. 47, No. 12, 1969, p. 2155-60. [Studies in both H₂O and D₂O condensed after irradiation at 77 K.]
- WEERTMAN, J. Dislocation climb theory of steady-state creep. *Transactions of American Society for Metals*, Vol. 61, No. 4, 1968, p. 681-94. [Critical review of high temperature creep theories. Includes hitherto unpublished data on creep of polycrystalline H₂O and D₂O ice.]
- WEISWEILER, W. Bemerkungen zur Bildung der Eisdendriten. *Zeitschrift für Meteorologie*, Bd. 21, Ht. 3-4, 1969, p. 108-12. [Conditions of growth of different shapes of ice dendrites (snow crystals) from the vapour. Theory depending on vapour pressure difference between water and ice.]
- WHALLEY, E. Change of high-frequency permittivity at an orientational order-disorder transformation: a method of detecting very slow transformations. *Journal of Chemical Physics*, Vol. 51, No. 1, 1969, p. 471-72. [Letter. Measurement of high-frequency permittivity used to detect presence of ice III-IX phase change.]
- WÖRZ, O., and COLE, R. H. Dielectric properties of ice I. *Journal of Chemical Physics*, Vol. 51, No. 4, 1969, p. 1546-50. [Measurements from 0° to -80°C. Deviations from Arrhenius rate equation below -50°C.]
- ZATSEPINA, G. N. K voprosu o mekhanizme dvizheniya ionov H₃O⁺ i OH⁻ vo l'du i vode [On the question of the movement of H₃O⁺ and OH⁻ ions in ice and water]. *Zhurnal Strukturnoy Khimii*, Tom 10, No. 2, 1969, p. 211-17. [Discussion of ionic mobility in ice assuming H₃O⁺ moves along voids and OH⁻ moves along hexagonal framework in ice.]

LAND ICE. GLACIERS. ICE SHELVES

- AMBACH, W. Ein Beitrag zur Kenntnis des Wärmehaushaltes des grönlandischen Inlandeises. *Polarforschung*, Bd. 6, Jahrg. 38, Nr. 1-2, 1968 [publ. 1969], p. 207-11. [Measurement of nearly balanced heat budget in May-July on Greenland ice sheet. English abstract.]
- ANDERTON, P. W. Structural geology of a glacier confluence, Kaskawulsh Glacier, Yukon Territory, Canada. *Dissertations Abstracts*, B, Vol. 28, No. 9, 1968, p. 3747-B. [Strain-rate measurements and fabric studies. Abstract of dissertation submitted to Ohio State University, 1967. Microfilm order (University Microfilms, Ann Arbor, Mich., U.S.A.) no. 68-2945.]
- BAILEY, J. T., and EVANS, S. Radio echo-sounding on the Brunt Ice Shelf. *British Antarctic Survey Bulletin*, No. 17, 1968, p. 1-12. [Analysis of records obtained on a journey from Halley Bay to a sub-station in Coats Land, 300 km to the south.]
- BONDAREV, L. G., and OROGOZHOYEV, B. O. Basseyiny pravykh pritikov r. Sary-Dzhaz mezhdu ust'yami rek Ak-Shiyrik i Kuylu (vklyuchaya basseyn Kuylu) [The basin of right-hand tributaries of the river Sary-Dzhaz to the mouth of the rivers Ak-Shiyrik and Kuylu (including the river Kuylu basin)]. *Katalog lednikov SSSR* [Catalogue of glaciers of the U.S.S.R.], Tom 14, Vyp. 2, Chast' 7. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1969. 58 p. [Part of the I.H.D. catalogue of glaciers of the U.S.S.R. giving details

- of what is known of the glaciers in this part of Central Asia including the Terskey Alatau. The Tom and Vyp. numbers correspond with those of *Resursy poverkhnostnykh vod SSSR* [Surface water resources of the U.S.S.R.].]
- BULL, C. B. B., and MARANGUNIC, C. Glaciological effects of debris slide on Sherman Glacier. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 309-17. (Publication 1603.)) [Earthquake-induced debris, about 1.3 m thick and covering third of ablation area, prevents melting of underlying ice and has thus changed regime of Sherman Glacier, Alaska, since 1964.]
- CAMPBELL, P. I., and others. Glacier surveys in British Columbia, by P. I. Campbell, I. A. Reid, J. Shastal. *Canada. Department of Energy, Mines and Resources. Inland Waters Branch. Water Survey of Canada. Report Series No. 5*, 1969, v. 18 p., maps [in folder at back]. [Studies of volume changes of Sentinel, Sphinx, Nadahini, Kokanee and Bugaboo Glaciers.]
- CHERKASOV, P. A., and YERASOV, N. V. Reki Tentek, Rgaty. *Katalog lednikov SSSR* [Catalogue of glaciers of the U.S.S.R.], Tom 13, Vyp. 2, Chast' 7. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1969. 82 p. [Part of the I.H.D. catalogue of glaciers of the U.S.S.R. giving details of what is known of the glaciers in this part of the Dzhungarskiy Alatau. The Tom and Vyp. numbers correspond with those of *Resursy poverkhnostnykh vod SSSR* [Surface water resources of the U.S.S.R.].]
- CRONK, C. Glaciological investigations near the ice sheet margin, Wilkes station, Antarctica. *Dissertations Abstracts, B*, Vol. 29, No. 3, 1968, p. 1066-B. [Pit and stake measurements, ice temperature and movement measurements and their analysis. Abstract of dissertation submitted to Ohio State University, 1968. Microfilm order (University Microfilms, Ann Arbor, Mich., U.S.A.) no. 68-12826.]
- DAVYDOV, L. K., ed. *Krupneyshiye ledniki Sredney Azii—Ledniki Fedchenko i Zeravshanskiy. Rezul'taty meteorologicheskikh i gidrologicheskikh issledovanii* [The biggest glaciers of Central Asia—Lednik Fedchenko and Lednik Zeravshanskiy. Results of meteorological and hydrological studies]. [Leningrad], Izdatel'stvo Leningradskogo Universiteta, 1967. 263 p. [Results of I.G.Y. studies on these glaciers.]
- DENISOV, YE. P., and NIKOL'SKAYA, V. V. Pozdnelednikov'ye v basseyen Amura [Modern glaciation in the Amur basin]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 100, Vyp. 2, 1968, p. 132-35. [Description of small glaciers in this region of U.S.S.R.]
- DORT, W., jr., and others. Firn-ice relationships, Sandy Glacier, southern Victoria Land, Antarctica, by W. Dort, Jr., E. F. Roots and E. Derbyshire. *Geografiska Annaler*, Vol. 51A, No. 3, 1969, p. 104-11. [Pit studies through alternate layers of ice and sand and interpretation.]
- FASHCHEVSKYI, B. V. O lednikovom pitani rek Gornogo Altaya [On the glacial streams of the Altay mountains]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 4, 1969, p. 365-69. [Hydrographs of glacial streams and their causes.]
- FIELD, W. O. The effect of previous earthquakes on glaciers. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 252-65. (Publication 1603.)) [Discusses different responses of Alaskan glaciers to 1899, 1958 and 1964 earthquakes, as well as other smaller earthquakes.]
- FIELD, W. O. Effects on glaciers; introduction. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 247-51. (Publication 1603.)) [Reviews work described in this section of volume devoted to 1964 earthquake.]
- FLOHN, H. Zum Klima und Wasserhaushalt des Hindukusches und der benachbarten Hochgebirge. *Erdkunde*, Bd. 23, Ht. 3, 1969, p. 205-15. [Precipitation and run-off in Hindu Kush and neighbouring mountains; includes discussion of contribution from glaciers and snow melt. English summary, p. 205.]
- GJESSING, Y. Tredje etappe av Dronning Maud Land traversen. *Norsk Polarinstitutt. Årbok*, 1967 [pub. 1969], p. 233-37. [Third part of traverse of Dronning Maud Land ("Plateau" station to lat. $78^{\circ} 42'$ S., long. $6^{\circ} 52'$ W.) in 1967-68 as part of U.S. Antarctic Research Program. English summary.]
- GOVORUKHA, L. S. Otkryt novyy lednikovyy rayon [A new glacial region has been discovered]. *Priroda*, 1969, No. 7, p. 63-65. [Many glaciers found in 1967 in north-east Taymyr, U.S.S.R.]
- HAMILTON, W. L. Microparticle deposition on polar ice sheets. *Ohio State University. Institute of Polar Studies. Report No. 29*, 1969, vii, 77 p. [Study of micro-particle deposition in Antarctic and Greenland ice sheets and variations in size, concentration and kind of particle.]
- JOHNSON, N. M., and RAGLE, R. H. Analysis of flow characteristics of Allen II slide from aerial photographs. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 369-73. (Publication 1603.)) [Some principles of flow mechanics illustrated by Allen II rock slide, Allen Glacier, and by other rock slides resulting from 1964 Alaska earthquake.]
- KJARTANSSON, G. Steinholtsblaupið 15. janúar 1967. *Náttúrfræðingurinn*, Árg. 37, Ht. 3-4, 1967 [pub. 1968], p. 120-69. [Jökullblaupi which began as rock slide at Steinsholt, south Iceland, in 1967. English summary.]
- KOBLENTS, YA. P. O dvizhenii lednika v rayone Mirnogo [Glacier movement in the region of Mirny]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii*, No. 70, 1968, p. 32-35.
- KONOVALOV, V. G. Rol' abyatcii v obshchem byudzheti veshchestva i evolyutsii gornogo lednika [Role of ablation in the budget and evolution of mountain glaciers]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 4, 1969, p. 296-305. [Discussion of importance of ablation in determining mass balance of glaciers.]
- KOTLYAKOV, V. M. *Snezhnyy pokrov zemli i ledniki* [Snow cover of the earth and glaciers]. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1968. 479 p. [Interrelationship.]
- KUPETSKIY, V. N. O tendentsii sovremennoi morskogo i nazemnogo oledeneniya v svyazi s solnechnoy aktivnost'yu [The tendency of present sea and land glaciation in connexion with solar activity]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 5, 1969, p. 428-32.

- LACHAPELLE, E. R. The character of snow avalanching induced by the Alaska earthquake. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 355-61. (Publication 1603.)) [Reviews technical aspects of snow avalanche formation influenced by 1964 earthquake.]
- LLIBOUTRY, L. How ice sheets move. *Science Journal*, Vol. 5, No. 3, 1969, p. 50-55. [Popular account of current ideas on flow in ice sheets.]
- MARANGUNIC, C., and BULL, C. B. B. The landslide on the Sherman Glacier. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 383-94. (Publication 1603.)) [Detailed description of physical features and sliding mechanism of debris slide, induced by 1964 Alaska earthquake and now covering third of ablation area of glacier.]
- MARCUS, M. G. Effects on glacier-dammed lakes in the Chugach and Kenai Mountains. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 329-47. (Publication 1603.)) [No appreciable response observed after Alaska earthquake, 1964.]
- MARKIN, V. A. Teplovoy balans, usloviya yego formirovaniya i ablyatsiya lednikov o. Zapadnyy Shpitsbergen v 1965 g. [Heat balance, the conditions of formation and ablation of glaciers in Vestspitsbergen in 1965]. *Problemy Arktiki i Antarktiki*, Vyp. 29, 1968, p. 80-88.
- NYE, J. F. The advance and retreat of glaciers. *Weather*, Vol. 24, No. 12, 1969, p. 501-12. [Text of sixth Margary Lecture summarizing relation between weather and climate and glaciers.]
- PANOV, V. D., and KRAVTSOVA, V. I. Bascyn reki Kubani [Basin of the river Kuban']. *Katalog lednikov SSSR [Catalogue of glaciers of the U.S.S.R.]*, Tom 8, Chasti 1-4. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1967. 124 p. [Part of the I.H.D. catalogue of glaciers of the U.S.S.R. giving details of what is known of the glaciers in this part of North Caucasus. The Tom numbers correspond with those of *Resury poverkhnostnykh vod SSSR [Surface water resources of the U.S.S.R.]*.]
- PATERSON, W. S. B. *The physics of glaciers*. Oxford, etc., Pergamon Press, 1969. viii, 250 p. (The Commonwealth and International Library. Geophysics Division.) [Intended for those starting research in glacier studies.]
- PÉWÉ, T. L. Avalanches on glaciers and the effects of snowslides; introduction. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 349-54. (Publication 1603.)) [Reviews work described in this section of volume devoted to 1964 earthquake.]
- PILLEWIZER, W. Zur Karte des Kongsvegen-Kronebre 1 : 50,000, Westspitsbergen. *Petermanns Geographische Mitteilungen*, Jahrg. 111, Quartalsht. 2, 1967, p. 153-57, maps. [Map of Kongsvegen and Kronebreen, Vestspitsbergen, with description of these glaciers. Field-work during German expeditions in 1962 and 1964-65.]
- PILLEWIZER, W., and others. Die wissenschaftlichen Ergebnisse der deutschen Spitzbergenexpedition 1964-1965. Die glaziologischen Arbeiten, [von] W. Pillewizer, S. Meier, G. Lorenz, I. Militzer, U. Voigt, C. Oelsner. *Geodätische und Geophysikalische Veröffentlichungen*, Reihe 3, Ht. 9, 1967, p. 52-138. [Results of glaciological investigations in Kongsfjorden region, Vestspitsbergen, during East German expedition in 1964-65: mainly glacier flow, regime and thickness.]
- PLAFKER, G. Source areas of the Shattered Peak and Pyramid Peak landslides at Sherman Glacier. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 374-82. (Publication 1603.)) [Discusses topographic and geologic factors contributing to these landslides, which were induced by 1964 Alaska earthquake, and describes dimensions.]
- POST, A. S. Effects on glaciers. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 266-308. (Publication 1603.)) [Results discussed of air photograph investigations, comparing photographs of individual glaciers taken before and after Alaska earthquake of 1964.]
- RENAUD, A., and others. Études physiques et chimiques sur la glace de l'indlandsis du Groenland 1959 par A. Renaud avec des contributions de [14 autres]. *Meddelelser om Grönland*, Bd. 177, Nr. 2, 1969, 123 p. [Study of hydrogen and oxygen isotope ratio, of ^{210}Pb , and of gas composition in Greenland ice.]
- SADLER, I. Observations on the ice caps of Galindez and Skua Islands, Argentine Islands, 1960-66. *British Antarctic Survey Bulletin*, No. 17, 1968, p. 21-49. [Accumulation and ablation measurements, 1965-66.]
- SCHRAM, K. Untersuchung der vertikalen Komponente der Gletscherbewegung und der Deformation des Eises im Zungengebiet des Hintereisferners. *Bericht des Naturwissenschaftlich-medizinischen Vereins in Innsbruck*, Bd. 54, 1966, p. 75-150. [Measurement of vertical component of glacier velocity on tongue of this glacier and of strain-rate. English summary.]
- SCHWEIZER, G. Büsserschnee in Vorderasien. *Erdkunde*, Bd. 23, Ht. 3, 1969, p. 200-05. [Penitente formations in Middle East. English summary, p. 200.]
- SECKEL, H., and STOBER, M. Höhenänderung des grönlandischen Inlandeises 1959-1968. *Polarforschung*, Bd. 6, Jahrg. 38, Nr. 1-2, 1968 [pub. 1969], p. 215-21. [Results of two levelling profiles of Greenland ice sheet and comparison of surface altitudes and waves. English abstract.]
- SHEREVE, R. L. Sherman landslide. (*In [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 395-401. (Publication 1603.)) [Discusses unusual features of landslide on Sherman Glacier, triggered by 1964 Alaska earthquake.]

- [SOVIET CENTRAL ASIA: GLACIOLOGY.] Teplovoy i vodnyy rezhim lednikov Kazakhstana [Heat and water regime of the glaciers of Kazakhstan]. *Akademiya Nauk Kazakhskoy SSR. Sektor Fizicheskoy Geografi. Glyatsiologicheskiye issledovaniya v Kazakhstane* [Academy of Sciences of the Kazakh S.S.R. Sector of Physical Geography. Glaciological investigations in Kazakhstan]. Vyp. 8. Alma-Ata, Izdatel'stvo "Nauka" Kazakhskoy SSR, 1969. 166 p. [Contains the following papers, all in Russian with English summaries: N. N. Pal'gov, "Hydrologic balance of the glacio-nival landscape (as represented by the Maloalmatinka glacio-nival belt)", p. 5-16; Ye. N. Vilesov, "Contemporary glaciation of the Kazakhstan Altay", p. 17-27; K. G. Makarevich, "Regime and budget problems of the Berel'sk glaciers in the Altay", p. 28-40; K. G. Makarevich and others, "Electrical sounding of the Lednik Korzhenevskiy, its run-off and mass balance", by K. G. Makarevich, I. Ya. Fedulov and S. A. Borovinskiy, p. 41-50; G. A. Rakimzhanova and T. Ya. Denisova, "Weather characteristics of the basic forms of atmospheric circulation during the warm season in the Zailiyskiy Alatau glaciers", p. 51-57; P. A. Sudakov and G. A. Tokmagambetov, "Preliminary data on distribution of precipitation and snow reserves in the nival-glacial zone in the south-eastern part of the Chilik-Keminskiy mountain complex", p. 58-68; P. A. Sudakov and V. A. Chekhonadskaya, "Quantitative assessment of the total annual precipitation in the Zailiyskiy Alatau", p. 69-74; P. A. Sudakov and others, "Snow accumulation on the glaciers of the Zailiyskiy Alatau range", by P. A. Sudakov, G. A. Tokmagambetov and V. A. Chekhonadskaya, p. 75-86; G. A. Tokmagambetov and P. A. Sudakov, "Structure of the firm-ice layer in the accumulation region of glaciers in the south-eastern part of the Chilik-Keminskiy mountain complex", p. 87-90; P. A. Cherkasov, "Basic features of contemporary glaciation of the Biyon and Aksu river basins in the Dzhungarskiy Alatau", p. 91-108; V. A. Chekhonadskaya and others, "On the question of the distribution of atmospheric precipitation in the Dzhungarskiy Alatau", by V. A. Chekhonadskaya, N. V. Yerasov and R. S. Bekten'yarov, p. 109-13; V. A. Chekhonadskaya, "Ice melting and run-off from glaciers of the rivers Aksu and Biyon in the Dzhungarskiy Alatau", p. 114-23; A. P. Voloshina, "Investigation of heat balance in the firm area of Lednik Tsentrally Tuyuksu", p. 124-40; N. N. Pal'gov, "The firm line as an index of the hydrological regime of glaciers", p. 141-48; K. G. Makarevich and P. F. Shabonov, "Ice ablation and run-off from the Maloalmatinka glaciers during the period 1963-67", p. 149-57.]
- STENBORG, T. Channel formation and glacier drainage. *Geografiska Annaler*, Vol. 51A, No. 3, 1969, p. 112-13. [Comments on C. M. Clapperton's paper, ibid., Vol. 50A, No. 4, 1968, p. 207-20, concerning interpretation of melt-water channels and physics of penetration of water in glaciers.]
- THOMPSON, R. D. Glaciological research on Mt. Ruapehu. *New Zealand Geographical Society Record*, No. 45, 1968, p. 6-8. [Aims of a project to measure meteorological and mass balance quantities on the Whakapapanui Glacier, North Island, New Zealand.]
- TRAXL, E. Firnfeldschwankungen, Gletscherhaushalt und Klimaelemente. *Carinthia II. Mitteilungen des Naturwissenschaftlichen Vereines für Kärnten*, 78. Jahrg., 1968, p. 5-17. [Relation between variations in accumulation, glacier fluctuations, and meteorological elements.]
- TUSHINSKIY, G. K., ed. *Oledeneniye El'brusa* [Glacierization of El'brus]. [Moscow], Izdatel'stvo Moskovskogo Universiteta, 1968. 345 p. [Book on the glaciers flowing from this volcanic mountain in the Caucasus with sections by many individual authors on all aspects of the glaciology.]
- TUTHILL, S. J. Earthquake-triggered rock avalanches and glacial stagnation in south central Alaska. (*In* [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. *The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 362-68. (Publication 1603.)) [Discusses rock avalanche slides, resulting from 1964 earthquake, on to four glaciers (Sherman, Slide, Martin River, Schwan) which will affect regime of these glaciers.]
- TUTHILL, S. J., and others. Postearthquake studies at Sherman and Sheridan glaciers, by S. J. Tuthill, W. O. Field and L. Clayton. (*In* [U.S.] National Research Council. Division of Earth Sciences. Committee on the Alaska Earthquake. *The great Alaska earthquake; hydrology. Part A.* Washington, D.C., National Academy of Sciences, 1968, p. 318-28. (Publication 1603.)) [Predictions of future glaciological and ecological behaviour of Sherman Glacier, as a result of earthquake-induced rock avalanche of 1964, compared with unaffected Sheridan Glacier.]
- VILESOV, YE. N., and KHONIN, R. V. Basseynyy levykh pritokov r. Ili ot ust'ya r. Kurty do ust'ya r. Turgen' [Basins of the left tributaries of the river Ili from the mouth of the Kurty to the mouth of the Turgen']. *Katalog lednikov SSSR* [Catalogue of glaciers of the U.S.S.R.], Tom 13, Vyp. 2, Chast' 1. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1967. 79 p. [Part of the I.H.D. catalogue of glaciers of the U.S.S.R. giving details of what is known of the glaciers in the basin of Ozero Balkhash. The Tom and Vyp. numbers correspond with those of *Resursy poverkhnostnykh vod SSSR* [Surface water resources of the U.S.S.R.].]
- VIVIAN, R. Fiches des glaciers français. Glaciers des Bossons et de Taconna. *Revue de Géographie Alpine*, Tom. 57, Fasc. 4, 1969, p. 871-74. [Summary of knowledge of these glaciers.]
- VIVIAN, R., and CHINAL, M. Fiches des glaciers français. Le glacier de Chavière. *Revue de Géographie Alpine*, Tom. 57, Fasc. 4, 1969, p. 875-77. [Summary of knowledge of this glacier.]
- WAGNER, W. P. Description and evolution of snow and ice surface forms on the Kaskawulsh Glacier. (*In* Bushnell, V. C., and Ragle, R. H., ed. *Icefield Ranges Research Project. Scientific results. Vol. 1.* New York, American Geographical Society; Montreal, Arctic Institute of North America, 1969, p. 51-53.) [Study in pits of sequential development of surface and sub-surface features in accumulation area in summer.]
- WAGNER, W. P. Snow facies and stratigraphy on the Kaskawulsh Glacier. (*In* Bushnell, V. C., and Ragle, R. H., ed. *Icefield Ranges Research Project. Scientific results. Vol. 1.* New York, American Geographical Society; Montreal, Arctic Institute of North America, 1969, p. 55-62.) [Measurements of snow temperature, density, hardness, accumulation and stratigraphy in accumulation area and deductions.]
- ZINGER, YE. M., and TROITSKIY, L. S. Sovetskiye glyatsiologicheskiye issledovaniya na Shpitsbergene v 1967 g. [Soviet glaciological studies in Spitsbergen in 1967]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1968, No. 3, p. 161-62. [Organized by Institut Geografii and led by Zinger.]

ICEBERGS, SEA, RIVER AND LAKE ICE

- ANTONOV, V. S. Ledovyy rezhim ust'yevoy oblasti r. Leny v yestestvennom i zaregulirovannom sostoyanii [Natural and controlled ice regime of the mouth of the river Lena]. *Izvestiya Vsesoyuznogo Geograficheskogo Obschchestva*, Tom 101, Vyp. 3, 1969, p. 201-09.
- BUYNITSKIY, V. KH. Stroyeniye, osnovnyye svoystva i prochnost' morskikh antarkticheskikh ledov [Structure, main properties and strength of Antarctic sea ice]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii*, No. 65, 1967, p. 90-104.
- BUYNITSKIY, V. KH. Vliyaniye mikroskopicheskikh vodorosley na stroyeniye i prochnost' morskikh antarkticheskikh ledov [Influence of microscopic algae on the structure and strength of Antarctic sea ice]. *Okeanologiya*, Tom 8, Vyp. 6, 1968, p. 971-79.
- HEINSHEIMER, J. J. ¿Que cantidad de hielo flota en los mares? *Boletin del Servicio de Hidrografía Naval* (Buenos Aires), Vol. 4, No. 2, 1967 [pub. 1968], p. 215-23. [Estimate of total volume of sea ice and of icebergs floating in the sea. English and German summaries.]
- HOSHII, T. Shōwa-kichi ni okeru kaihyōka no kororofiru-a ryō to kankyo-jōken no kisetsu-henka [Seasonal variation of chlorophyll-a and hydrological conditions under sea ice at "Syowa" station, Antarctica]. *Nankyoku Shiryo: Antarctic Record*, No. 35, 1969, p. 52-67. [Study of conditions under sea ice including marked effect of thaw water. English abstract.]
- KÜHNEL, I. Die Eisabschmelzezeiten für die Ostsee östlich der Linie Trelleborg-Arkona und für den Finnischen und Rigaischen Meerbusen sowie für die südlichen Randbezirke der Bottensee. *Deutsche Hydrographische Zeitschrift*, Jahrg. 21, Ht. 1, 1968, p. 15-20. [Calculation of times of melting of ice for very cold and normal winters for areas of Baltic Sea south of lat. 61° N. and east of line Trelleborg-Arkona and for Gulfs of Finland and Riga and southern peripheral areas of Gulf of Bothnia.]
- LITINSKIY, V. A. Obnaruzheniye ostatkov amerikanskoy dreyfuyushchey stantsii "Charlie" v rayone k severu ot o. Vrangelya [Discovery of the remains of the American drifting station "Charlie" in the region north of Ostrov Vrangelya]. *Problemy Arktiki i Antarktiki*, Vyp. 28, 1968, p. 140-45. [May 1966. Course of drift since 1962 estimated.]
- SCHMIDT, E. Über die Ursache von Rissen in der Eiskappe des nördlichen Polarmeeres. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Vol. 18, No. 3-4, 1969, p. 391-94. [Long cracks in sea ice over Arctic Ocean can be caused by wind generated stress. English summary.]
- SNIDER, C. R., and LINKLATER, G. D. Great Lakes ice season of 1968. *Monthly Weather Review*, Vol. 97, No. 4, 1969, p. 315-32. [Theory and practice of ice forecasting and results for 1967-68.]
- STRÜBING, K. Über Zusammenhänge zwischen der Einführung des Ostgrönlandstroms und der atmosphärischen Zirkulation über dem Nordpolarmeer. *Deutsche Hydrographische Zeitschrift*, Jahrg. 20, Ht. 6, 1967, p. 257-65. [Relation between ice transport in East Greenland current and atmospheric circulation over Arctic Ocean. English and French summaries.]
- TUNNELL, G. A. Synoptic ice maps of the Meteorological Office. *Journal of the Institute of Navigation*, Vol. 21, No. 4, 1968, p. 439-47. [Describes preparation every 10 days of maps showing distribution of ice in Arctic Basin and areas adjacent to North Atlantic Ocean.]
- UNTERSTEINER, N., and MAYKUT, G. A. Arctic sea ice. *Naval Research Reviews*, Vol. 22, No. 5, 1969, p. 12-13. [Presents results of thermodynamic model which describes growth and decay of sea ice. No evidence to support idea that Arctic ice is melting.]
- VASIL'YEV, S. S., and LUCHININOV, V. S. Elektricheskiye kharakteristiki ledov [Electrical characteristics of ice]. *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta*, Tom 284, 1968, p. 115-19. [Dielectric penetration of fresh-water and salt-water ice.]
- VENDROV, S. L., and STEZHENSKAYA, I. N. Izmeneniya strokova ledovykh faz posle sozdaniya krupnykh vodokhranilishch [Change of glacial regime after the creation of storage reservoirs]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1969, No. 1, p. 50-58. [Discussion of factors causing change in duration of ice on rivers after reservoir construction.]
- VOYEVODIN, V. A., and MIRONOV, L. V. Opty opredeleniya tolshchiny plavuchikh ledov pri pomoshchi stereofotogrammetricheskoy obrabotki aerosnimkov [Attempt to determine the thickness of floating ice with stereo air photographs]. *Okeanologiya*, Tom 8, Vyp. 2, 1968, p. 327-36. [Measurement of height above water and computation of total thickness.]
- YESKIN, L. I. Morskiye ledov Yuzhnogo Okeana [Sea ice of the Southern Ocean]. *Problemy Arktiki i Antarktiki*, Vyp. 31, 1969, p. 24-30. [General characteristics, especially in Mirny region.]
- ZAYTSEV, V. A., and LOMAKIN, A. N. Radioteplovoye izlucheniye ledyanogo pokrova v diapazone 3-10 cm [Radiothermal radiation of the ice cover in the 3-10 cm range]. *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta*, Tom 284, 1968, p. 84-88. [Observations on fresh-water floating ice.]
- ZUBKOVICH, S. G. Vliyaniye sherkhovatosti granits vozdukh-led i led-voda na effektivnost' radiotekhnicheskikh interferentsionnykh metodov opredeleniya tolshchiny ledov [Influence of roughness at the ice-air and ice-water interface on the effectiveness of radio interference methods of determining ice thickness]. *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta*, Tom 284, 1968, p. 89-99.

GLACIAL GEOLOGY

- ANDERSEN, B. G. Glacial geology of western Troms, north Norway. *Norges Geologiske Undersøkelse*, No. 256, 1968, 160 p. [Moraine chronology study indicates six main glacial phases.]
- ANDREWS, J. T. The shoreline relation diagram: physical basis and use for predicting age of relative sea levels (evidence from Arctic Canada). *Arctic and Alpine Research*, Vol. 1, No. 1, 1969, p. 67-78. [SR diagram constructed from equation of form of post-glacial uplift, and used to predict age and elevation of marine limits, glacial lake strand-lines, and lower relative sea-levels.]

- ANUNDSEN, K., and SIMONSEN, A. Et pre-borealt breframstøt på Hardangervidda og i området mellom Bergensbanen og Jotunheimen. *Årbok for Universitetet i Bergen. Matematisk-Naturvitenskapelig Serie*, 1967, No. 7 [pub. 1968], 42 p. [Moraine ridges in Hardanger and Sogn, west Norway, indicate Pre-Boreal re-advance of inland ice. English summary.]
- BIJU-DUVAL, B., and GARIEL, O. Nouvelles observations sur les phénomènes glaciaires, "éocambriens" de la bordure nord de la synéciese de Taoudeni, entre le Hank et le Tanezrouft, Sahara occidental. *Palaeogeography, Palaeoclimatology, Palaeoecology*, Vol. 6, No. 4, 1969, p. 283-315. [Observations of "Eocambrian tillite" in this part of North Africa.]
- BJØRLYKKE, K. The Eocambrian "Reusch moraine" at Bigganjargga and the geology around Varangerfjord; northern Norway. *Norges Geologiske Undersøkelse*, No. 251, 1967, p. 18-44. [Field-work in 1965. Norwegian summary.]
- BRAYTSEVA, O. A., and YEVTEYEVA, I. S. Kolebaniya klimata i pleystotsenovyye oledeneniya na Kamchatke [Fluctuations of climate and Pleistocene glaciations in Kamchatka]. *Geologiya i Geofizika*, 1968, No. 5, p. 16-22.
- BRYSON, R. A., and others. Radiocarbon isochrones on the disintegration of the Laurentide ice sheet, by R. A. Bryson, W. M. Wendland, J. D. Ives and J. T. Andrews. *Arctic and Alpine Research*, Vol. 1, No. 1, 1969, p. 1-13. [Utilizes existing radiocarbon and geological data to map ice sheet perimeter through time (13 000-5 000 B.P.). Implications of results discussed.]
- CHEBOTAREVA, N. S. Paleogeografiya i kchronologiya poslednego yevropeyskogo lednikovogo pokrova [Palaeogeography and chronology of the last European ice sheet]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1967, No. 6, p. 94-98.
- CORBEL, J. Recherches sur l'inlandsis quaternaire en Norvège septentrionale. *Tromsø Museums Skrifter*, Vol. 7, Ht. 6, 1968, p. 75-95. [Study of Quaternary ice sheet in northern Norway. Norwegian summary.]
- CURRY, R. R. Holocene climatic and glacial history of the central Sierra Nevada, California. *Geological Society of America. Special Paper* No. 123, 1969, p. 1-47. [Chronology of climatic fluctuations based on fluctuations of mean snowfall.]
- GERASIMOV, I. P., ed. *Posledniy lednikovy pokrov na severo-zapade yevropeyskoy chasti SSSR* [The last glaciation in the north-west of European U.S.S.R.]. Moscow, Izdatel'stvo "Nauka", 1969. 322 p. [Papers for eighth INQUA congress, Paris, 1969.]
- HAMILTON, T. D. Glacial geology of the lower Alatna valley, Brooks Range, Alaska. *Geological Society of America. Special Paper* No. 123, 1969, p. 181-223. [Interpretation of evidence of multiple glaciations oldest of which is thought to be Illinoian in age.]
- HANSEN, K. Glacialgeologiske og sedimentologiske undersøgelser ved Eqe—Vestgrønland. *Meddelelser fra Dansk Geologisk Forening*, Bd. 18, Ht. 3-4, 1968, p. 306-14. [Study of moraines and glacial deposits in Eqe bay, West Greenland. English summary.]
- HILLEFORS, Å. Västsveriges glaciella historia och morfologi. Naturgeografiska studier. *Meddelanden från Lunds Universitets Geografiska Institution Avhandlingar*, 60, 1969, 319 p. [General geographical study of glacial deposits in this region of Sweden. English summary, p. 294-305, English translations of figure captions.]
- HULT, J. Some aspects of the shore formations on lake Lylykkäänjärvi, Finland. *Fennia*, 97, No. 5, 1968 [1967-68 on cover], 22 p. [Ice ramparts on south-western and north-western shores formed by ice-push.]
- IVES, J. D., and BUCKLEY, J. T. Glacial geomorphology of Remote Peninsula, Baffin Island, N.W.T., Canada. *Arctic and Alpine Research*, Vol. 1, No. 2, 1969, p. 83-95. [Physiography described (high mountains, coastal uplands, glacial troughs, coastal lowlands) and used to interpret glacial geomorphology, especially significance of moraines. Probable appearance during Pleistocene discussed.]
- JONES, J. A. A. The truth about ice-shove or the origins of certain "ice-shove" features on the lakeshores of central Labrador-Ungava. *Geographical Articles* (Cambridge), No. 11, 1968, p. 47-54. [Reviews and discusses work on lake-shore ice damage.]
- KING, C. A. M., and BUCKLEY, J. T. Geomorphological investigations in west-central Baffin Island, N.W.T., Canada. *Arctic and Alpine Research*, Vol. 1, No. 2, 1969, p. 105-19. [Presents details of glacial, glacio-fluvial, and periglacial forms of west coast region, between Eqe Bay and Foley Island. Comments on icings on edge of coastal flats.]
- KLAER, W. Glazialmorphologische Probleme in den Hochgebirgen Vorderasiens. *Erdkunde*, Bd. 23, Ht. 3, 1969, p. 192-200. [Dominant influence of radiation on geomorphological processes in the high mountain regions of the Middle East. English summary, p. 192-93.]
- KLEMSDAL, T. A Lista-stage moraine on Jæren. *Norsk Geografisk Tidsskrift*, Bd. 23, Ht. 4, 1969, p. 193-99. [Tracing of moraine near south-west coast of Norway that marks edge of ice sheet about 14 000 years B.P.]
- KRINSLEY, D. H. Recognition of pre-Pleistocene glacial environments. *Bulletin of the American Association of Petroleum Geologists*, Vol. 53, No. 3, 1969, p. 727. [Abstract only. Survey of methods of identification.]
- LAUER, W. Die Glaziallandschaft des südchilenischen Seengebietes. *Acta Geographica*, 20, 1968, p. 215-36. [Glacial geology of lake district in south Chile. Field-work in 1956-58 and 1966.]
- LAVERDIÈRE, C. The Scheffet ice-sheet; a reply to Ives' comments. *Canadian Geographer*, Vol. 13, [No.] 3, 1969, p. 269-83. [Reply (in French) to J. D. Ives' comments, ibid., Vol. 12, [No.] 3, 1968, p. 192-203.]
- LAVERDIÈRE, C., and others. Les types de broutures glaciaires (glacial chattermarks): 2, observations effectuées au Québec. [Par] C. Laverdière, C. Bernard, J. [-C.] Dionne. *Revue de Géographie de Montréal*, Vol. 22, No. 2, 1968, p. 159-73. [Detailed descriptions and photographs of glacial chattermarks collected in Quebec.]
- MERCER, J. H. Glaciation in southern Argentina more than two million years ago. *Science*, Vol. 164, No. 3881, 1969, p. 823-25. [Till beds covered by lava deposits that can be dated by potassium-argon method.]
- MILLER, C. D. Chronology of neoglacial moraines in the Dome Peak area, North Cascade Range, Washington. *Arctic and Alpine Research*, Vol. 1, No. 1, 1969, p. 49-65. [Describes project to: map and date post-Wisconsin moraines located beyond present termini of glaciers in Dome Peak vicinity; develop detailed chronology of

- glacier fluctuations for Dome Peak area during neo-glaciation; and compare and correlate sequence with other neo-glacial chronologies elsewhere in north-west North America.]
- MORAN, J. M., and BRYSON, R. A. The contribution of Laurentide ice wastage to the eustatic rise of sea level: 10,000 to 6,000 B.P. *Arctic and Alpine Research*, Vol. 1, No. 2, 1969, p. 97–104. [Wasting of Laurentide ice was major source of rise (nearly three-quarters), while European contribution accounted for remainder.]
- MÖRNER, N.-A. The late Quaternary history of the Kattegatt sea and the Swedish west coast. Deglaciation, shorelevel displacement, chronology, isostasy and eustasy. *Sveriges Geologiska Undersökning, Avhandlingar och Uppsatser, Ser. C*, No. 640, *Årsbok* 63, No. 3, 1969, 487 p. [Russian summary.]
- PETERSON, J. A. Cirque morphology and Pleistocene ice formation conditions in southeastern Australia. *Australian Geographical Studies*, Vol. 6, No. 1, 1968, p. 67–83. [Studies in New South Wales and Tasmania.]
- PETERSON, J. A., and ROBINSON, G. Trend surface mapping of cirque floor levels. *Nature*, Vol. 222, No. 5188, 1969, p. 75–76. [Study of distribution of cirque floor levels in Tasmania, and of regional and local causes of variation.]
- PRATT, R. M., and SCHLEE, J. Glaciation on the continental margin off New England. *Geological Society of America Bulletin*, Vol. 80, No. 11, 1969, p. 2335–41. [Estimate of maximum limit of last glaciation off this part of eastern coast of U.S.A.]
- REITE, A. J. Lokalglaciasjon på Sunnmøre. (On the mountain glaciation of Sunnmøre, west Norway.) *Norges Geologiske Undersøkelse*, No. 247, *Årbok* 1966, [publ.] 1967, p. 262–87. [Describes terminal moraines deposited by cirque glaciers in late-glacial or post-glacial time. English summary.]
- RESSKE, F. Topographie, Morphologie und Morphogenese einer Eisrandlage. *Hamburger Geographische Studien, Sonderheft*, 1968, vi, 122 p., maps [in folder at back]. [Intensive topographical, cartographic and morphological study of 230 ha area of the edge of Würm ice sheet.]
- SHCHERBAKOVA, YE. M. O položenii drevney snegovoy granity na Bol'shom Kavkaze [On the position of the old snow line in the Great Caucasus]. *Vestnik Moskovskogo Universiteta, Ser. 5, God 24*, No. 6, 1969, p. 8–15. [Need to distinguish climatic (or regional) and orographic snow lines when interpreting traces of old glaciations. English abstract, p. 15.]
- SOLLID, J. L. A 48,000 years old tree stump, presumably of spruce, found in Ringerike, south Norway. *Norsk Geografisk Tidsskrift*, Bd. 23, Ht. 3, 1969, p. 131–33. [Find of tree stump whose radio-carbon date implies lower parts of southern Norway were ice-free at this time.]
- SOLLID, J. L. Iskulminasjoner i Sør-Norge under deglasiasjonen. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 90, Pt. 3, No. 534, 1968, p. 473. [Abstract only. Discussion of location of ice divide as ice sheet melted over south Norway.]
- SZUPRYCZYŃSKI, J. Nicktórze zagadnienia czwartorzędu na obszarze Spitsbergenu. *Prace Geograficzne*, No. 71, 1968, 128 p. [Study of Quaternary in Spitsbergen. Field-work in 1959, 1960 and 1963. English and Russian summaries.]
- TREMBLAY, G. Note sur les crêtes morainiques de Saint-François-de-Salles (région du Lac-Saint-Jean, Québec). *Cahiers de Géographie de Québec*, 12^e An., No. 27, 1968, p. 429–42. [Study of origin of moraine ridges in this region.]
- TROFIMOV, A. K. O rezhime lednikov Pamira v golostene [Regime of Pamir glaciers in the Holocene]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 2, 1969, p. 118–24. [Geomorphological study and deductions.]
- WEIS, P. L. Glacial drainage in the Skagit Valley, Washington. *U.S. Geological Survey. Professional Paper* 650-C, 1969, p. C71–C74. [Explanation of anomalous V-shaped valley as having been under a drainage divide of the ice sheet.]
- WEST, R. G. *Pleistocene geology and biology with especial reference to the British Isles*. London, Longmans, Green and Co. Ltd., 1968. xiii, 377 p. [General account of Pleistocene in glaciated and non-glaciated regions of northwest Europe. Includes chapters on ice and glaciers, and glacial geology.]
- WHITE, G. W. The first appearance in Ohio of the theory of continental glaciation. *Ohio Journal of Science*, Vol. 67, No. 4, 1967, p. 210–17. [Report of S. St. John's early adoption of the glacial theory and his application of it in Ohio.]
- WHITE, G. W. Pleistocene deposits of the north-western Allegheny Plateau, U.S.A. *Quarterly Journal of the Geological Society of London*, Vol. 124, Pt. 2, No. 494, 1969 [for 1968], p. 131–51. [Recent deep excavations have made possible a study of sections through till sheets which give more evidence on their nature and extent. Discussion, p. 149–51.]
- WRIGHT, H. E., Jr., ed. *Quaternary geology and climate*. Vol. 16 of the *Proceedings of the VII Congress of the International Association for Quaternary Research*. Washington, D.C., [U.S.] National Academy of Sciences, 1969. ix, 162 p. [Includes the following papers: K. E. Picard, "Pleistocene tectonics and glaciation in Schleswig-Holstein, Germany", p. 67–71; I. P. Gerasimov, "Degradation of the last European ice sheet", p. 72–78; N. S. Chebotareva, "Recession of the last glaciation in northeastern European USSR", p. 79–83; S. A. Strelkov, "Main events in the evolution of relief in northern Eurasia and their tentative correlation with those in North America", p. 84–88; F. M. Synge, "The Würm ice limit in the west of Ireland", p. 89–92; A. Dreimanis and U. J. Vagners, "Lithologic relation of till to bedrock", p. 93–98; L. A. Bayrock, "Incomplete continental glacial record of Alberta, Canada", p. 99–103; N. W. Rutter, "A Late-Pleistocene glacial advance, Bow River Valley, Alberta, Canada", p. 104–09; D. S. Simonett and D. A. Brown, "Uses of satellite-borne radar to study Antarctic ice conditions", p. 110–15; J. Demek, "Importance of slope deposits in the study of landscape development", p. 130–33.]
- YOUNG, J. A. T. Variations in till microfabric over very short distances. *Geological Society of America. Bulletin*, Vol. 80, No. 11, 1969, p. 2343–52. [Measurements of stone orientations and variations with depth and laterally.]

FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

- BLACK, R. F. Climatically significant fossil periglacial phenomena in northcentral United States. *Bulletin Peryglacjalny*, No. 20, 1969, p. 225-38. [Discussion of which periglacial phenomena are of most use in interpreting palaeoclimates.]
- BOBOV, N. G. Formirovaniye plastovykh zalezhey l'da [Formation of sheet ice fields]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya*, 1969, No. 6, p. 63-68. [Formation of horizontal ice layers in frozen ground.]
- BROWN, R. J. E. Permafrost map of Canada. *Canadian Geographical Journal*, Vol. 76, No. 2, 1968, p. 56-63. [Map accompanied by description of Canadian research on distribution and nature of permafrost, and associated engineering problems.]
- DIONNE, J.-C. Bibliographie du périglaciaire du Québec. *Revue de Géographie de Montréal*, Vol. 22, No. 2, 1968, p. 175-80. [A bibliography of periglacial studies in Quebec.]
- FURER, G. J. Untersuchungen an Strukturböden in Ostspitzbergen, ihre Bedeutung für die Erforschung rezenten und fossiler Frostmusterformen in den Alpen bzw. im Alpenvorland. *Polarforschung*, Bd. 6, Jahrg. 38, Nr. 1-2, 1968 [pub. 1969], p. 202-06. [Observations of stone orientation in patterned ground in Svalbard and discussion.]
- FURER, G. J. Vergleichende Beobachtungen am subnivalen Formenschatz in Ostspitzbergen und in den Schweizer Alpen. Wiesbaden, Franz Steiner Verlag GmbH, 1969. vii, 40 p. (Ergebnisse der Stauferland-Expedition 1967, Deutsche Expedition nach Südost-Spitzbergen, Ht. 9.) [Comparison of patterned-ground forms in Svalbard with those in the Alps.]
- GABERT, P., and LAUTRIDOU, J.-P. Gélification artificielle et gélification au cours du Quaternaire. Étude comparée à propos des calcaires lacustres de la région d'Aix-en-Provence. *Méditerranée*, 10^e An., No. 3, 1969, p. 293-312. [Cold-chamber experiments on frost action on calcareous rocks and comparison with Quaternary deposits in this region of France.]
- GARDNER, J. Snowpatches: their influence on mountain wall temperatures and the geomorphic implications. *Geografiska Annaler*, Vol. 51A, No. 3, 1969, p. 114-20. [Measurements on two snow-patches in the Rocky Mountains, Canada, and discussion of implications for freeze-thaw rock shattering.]
- GOODIER, R., and BALL, D. F. Recent ground pattern phenomena in the Rhinog Mountains, North Wales. *Geografiska Annaler*, Vol. 51A, No. 3, 1969, p. 121-26. [Description of patterned ground phenomena, some formed from an old wall, attributed to conditions between A.D. 1550 and 1750.]
- GORBUNOV, A. P. Vechnaya merzlotna Tyan'-Shanya [Permafrost in the Tien Shan]. Frunze, Izdatel'stvo "Ilim", 1967. 165 p.
- GORBUNOV, A. P., and KONKASHPAYEV, G. K. Nekotorye merzlotnyye toponimy Tyan'-Shanya i Pamira [Some permafrost place-names of the Tien Shan and the Pamir]. *Vestnik Moskovskogo Universiteta*, Ser. 5, God 24, No. 6, 1969, p. 83-84. [Place-names that indicate presence of permafrost, icing fields and taliks. English abstract, p. 84.]
- GRAVIS, G. F. Fossil slope deposits in the northern Arctic asymmetrical valleys. *Bulletin Peryglacjalny*, No. 20, 1969, p. 239-57. [Study of these deposits in Kular range (northern Yakutiya).]
- HABRICH, W. Vegetationshöcker auf steilgelegten Terrassenhängen in der Frostschuttzone Nordostkanadas. *Polarforschung*, Bd. 6, Jahrg. 38, Nr. 1-2, 1968 [pub. 1969], p. 212-15. [Extension of Büdel's classification of frost soil patterns to include vegetation hummocks on steep terrace slopes. English abstract.]
- JAHN, A. Structures périglaciaires dans les loess de la Pologne. *Bulletin Peryglacjalny*, No. 20, 1969, p. 81-97. [Study of frost structures in loess in Poland.]
- KOSTYAYEV, A. G. La zone périglaciaire des plaines de l'Europe de l'Est et de la Sibérie de l'Ouest au Pléistocène. *Bulletin Peryglacjalny*, No. 20, 1969, p. 259-97. [Discussion of phenomena occurring near the margins of the Pleistocene ice sheet.]
- MACNAMARA, E. E. Soils and geomorphic surfaces in Antarctica. *Bulletin Peryglacjalny*, No. 20, 1969, p. 299-320. [Comparison of soils in Enderby Land with those from ice-free areas in Victoria Land and Dronning Maud Land and discussion of weathering processes.]
- PAEPE, R., and PISSART, A. Periglacial structures in the Late-Pleistocene stratigraphy of Belgium. *Bulletin Peryglacjalny*, No. 20, 1969, p. 321-36.
- SHPOLANSKAYA, N. A. Osobennosti vechnoy i sezonnoy merzloty zapadnoy Sibiri [Peculiarities of perennial and seasonal frozen ground in West Siberia]. *Vestnik Moskovskogo Universiteta*, Ser. 5, God 24, No. 3, 1969, p. 88-94. [Maps of occurrence, temperature and thickness of frozen soil and of seasonal freezing and thawing of rocks, and discussion. English summary, p. 94.]
- SVENSSON, H. A type of circular lakes in northernmost Norway. *Geografiska Annaler*, Vol. 51A, Nos. 1-2, 1969, p. 1-12. [Lakes interpreted as collapse of frost mounds originating as palsas or pingos. Also published as *Lund Studies in Geography*, Ser. A, No. 45, 1969.]
- TEDROW, J. C. F. Thaw lakes, thaw sinks and soils in northern Alaska. *Bulletin Peryglacjalny*, No. 20, 1969, p. 337-44. [Study of these phenomena which occur in poorly drained terrain underlain by permafrost.]
- TYRTIKOV, A. P. Vliyanie rastitel'nogo pokrova na promezhniye i protaiyanie gruntov [Influence of vegetation on freezing and thawing of soils]. Moscow, Izdatel'stvo Moskovskogo Universiteta, 1969. 192 p.
- VOSTOKOVA, A. V. Otobrazheniye vechnoymerzloty na kartakh kompleksnykh atlasov [Representation of permafrost on the maps of complex atlases]. *Vestnik Moskovskogo Universiteta*, Ser. 5, God 23, No. 4, 1968, p. 66-72. [Survey of present practice and recommendations for future.]
- WASHBURN, A. L. Weathering, frost action, and patterned ground in the Mesters Vig district, northeast Greenland. *Meddelelser om Grönland*, Bd. 176, Nr. 4, 1969, 303 p.
- WILLIAMS, P. J. Properties and behaviour of freezing soils. *Norges Geotekniske Institutt. Publikasjon* No. 72, 1968, 119 p. [Seven papers. French summaries. Also published as *Canada. National Research Council. Division of Building Research. Research Paper* No. 359.]

METEOROLOGICAL AND CLIMATOLOGICAL GLACIOLOGY

- BUDYKO, M. I. On the causes of climate variations. *Meddelanden från Sveriges Meteorologiska och Hydrologiska Institut*, Ser. B, Nr. 28, 1968, p. 6–13. [Discussion of phenomena and their possible causes. Importance of volcanic activity.]
- DAVITAYA, F. F. Atmospheric dust content as a factor affecting glaciation and climatic change. *Annals of the Association of American Geographers*, Vol. 59, No. 3, 1969, p. 552–60. [Evidence from solar radiation records and from samples of firn from glaciers that atmospheric dust is increasing and effect of this on albedo and hence mass balance.]
- GRUNOW, J., and TOLLNER, H. Nebelniederschlag im Hochgebirge. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. B, Vol. 17, Nos. 2–3, 1969, p. 201–28. [Method of measuring deposits from fog on Sonnblick and relevance of results for mass balance calculations of glaciers.]
- HESS, M. The influence of mountain glaciers on the climate with the Fedchenko glacier in Pamir as example. *Przegląd Geograficzny*, Tom 39, Zeszyt 4, 1967, p. 771–74. [Based on author's work on glacier in 1957.]
- PAGE, J. K. Heavy glaze in Yorkshire—March 1969. *Weather*, Vol. 24, No. 12, 1969, p. 486–95. [Report of unusually severe icing conditions in this part of England.]
- PEDGLEY, D. E. Snow and glaze on Christmas Eve 1968. *Weather*, Vol. 24, No. 12, 1969, p. 480–85. [Unusual occurrence of snow following rain in Britain. Meteorological explanation.]
- PRODI, F. X-ray images of hailstones. *Journal of Applied Meteorology*, Vol. 8, No. 3, 1969, p. 458–59. [Use of this technique to study particle patterns and bubbles in hailstones.]

SNOW

- BENSON, C. S. The seasonal snow cover of Arctic Alaska. *Arctic Institute of North America. Research Paper No. 51*, 1969, vi, 86 p. [Studies of physical properties of surface layer of seasonal snow and physical processes occurring in, above, and below it are described and discussed.]
- BOZHINSKIY, A. N. Kriterii obrusheniya snezhnykh lavin [The criteria of snow avalanche formation]. *Itogi Nauki. Seriya Geografiya. Gidrologiya Sushi. Glyatsiologiya*, 1967, [pub.] 1968, p. 42–59. [Critical review of snow layer stability. English summary.]
- CLARKE, P. C. Snowfalls over south-east England, 1954–1969. *Weather*, Vol. 24, No. 11, 1969, p. 438–47. [Analysis of frequency of snowfall and meteorological conditions which produce it.]
- EGLIT, M. E. Teoreticheskiye podkhody dvizheniya snezhnykh lavin [The theoretical approach to avalanche dynamics]. *Itogi Nauki. Seriya Geografiya. Gidrologiya Sushi. Glyatsiologiya*, 1967, [pub.] 1968, p. 60–97. [Critical review of theories of avalanche motion. English summary.]
- GREW, E., and MELLOR, M. High snowfields of the St. Elias Mountains. (*In Bushnell, V. C., and Ragle, R. H., ed. Icefield Ranges Research Project. Scientific results. Vol. 1*. New York, American Geographical Society; Montreal, Arctic Institute of North America, 1969, p. 75–87.) [Effect of surface altitude on snow properties deduced from comprehensive measurements during summer.]
- HIGUCHI, K. Nihon ni okeru sekkei no hyōgagaku-teki kenkyū [Glaciological studies on permanent snow-patches formed in gulleys in Japan]. *Seppō*, [Vol.] 30, [No.] 6, 1968, p. 195–207. [Review of previous observations of permanent snow-patches in Japan. English abstract.]
- JAYAWERA, K. O. L. F., and COTTRIS, R. E. Fall velocities of plate-like and columnar ice crystals. *Quarterly Journal of the Royal Meteorological Society*, Vol. 95, No. 406, 1969, p. 703–09. [Model experiments used to provide data for theoretical calculation of ice crystal terminal fall velocities.]
- KIKUCHI, K. Nankyouku no yuki-nikki [Snow diary at "Syowa" station]. *Kyōkuchi: Polar News*, [Vol.] 5, [No.] 1, 1969, p. 52–58. [Record of snow crystal forms of precipitation.]
- KRAVTSOVA, V. I. Primenenie aerofotogrammetricheskikh i kartograficheskikh metodov v issledovaniyah lavin [The use of aerial photogrammetric and cartographic methods for avalanche studies]. *Itogi Nauki. Seriya Geografiya. Gidrologiya Sushi. Glyatsiologiya*, 1967, [pub.] 1968, p. 117–32. [Review of applications of these methods. English summary.]
- LA CHAPELLE, E. R. *Field guide to snow crystals*. Seattle and London, University of Washington Press, [1969]. ix, 101 p., illus.
- LISIGNOLI, C. A., and others. Observaciones sobre la relación entre la dureza y la densidad de la nieve en el Antártico, [by] C. A. Lisignoli, R. E. Dalinger, E. Machado. *Contribución del Instituto Antártico Argentino*, No. 92, 1967, 13 p. [Reports results on relation between hardness (i.e. resistance to penetration) and density of snow from 9 pits on Filchner Ice Shelf, Antarctica.]
- MANLEY, G. Snowfall in Britain over the past 300 years. *Weather*, Vol. 24, No. 11, 1969, p. 428–37. [Study of records of snowfall.]
- MOSKALEV, Yu. D., ed. Laviny Sredney Azii [Avalanches of Central Asia]. *Trudy Sredneaziatskogo Nauchno-Issledovatel'skogo Gidrometeorologicheskogo Instituta*, Vyp. 48 (63), 1969, 164 p. [Collected papers containing the following, all in Russian: M. V. Kosarev, "Fundamental results in the study of conditions of formation of avalanches on the southern slopes of western Tyan'-Shan", p. 5–19; Yu. M. Denisov, "Formation and movement of incompressible snow avalanches", p. 20–31; Yu. D. Moskalev, "On empirical equations for the prediction of snow avalanches and on avalanche calculations", p. 32–61; Yu. D. Moskalev and M. K. Yefimov, "Snowfall conditions in western Tyan'-Shan in connexion with the avalanche formation problem", p. 62–77; G. G. Kharitonov, "Snow cover in the region of the avalanche station Naugarzan as a factor in avalanche formation", p. 78–90; M. K. Yefimov, "The struggle against avalanches in western Tyan'-Shan", p. 91–103; A. I. Korolev, "On the possibility of control of stability and consolidation of snow on ploughed slopes", p. 104–11; A. V. Runich and Yu. N. Yemel'yanov, "Estimation of the altitude range of avalanche activity in western Tyan'-Shan", p. 112–22; Yu. N. Yemel'yanov and others, "Experience in the study of avalanches in the Pskem river basin", by Yu. N. Yemel'yanov, L. A. Kanayev, A. A. Chirkova, p. 123–38;

- V. S. Kozhevnikov, "Avalanches in the Dukant river basin", p. 139-45; A. I. Korolev, "Peculiarities of the wetting of the surface layers of snow in the absence of solar radiation and the possibility of the development in them of avalanches with point fractures", p. 146-51; B. A. Kamalov, "Regime of accumulated snow in the Syrdar'i basin", p. 152-56.]
- NYBERG, A. Some observations of snow melt. *Meddelanden från Sveriges Meteorologiska och Hydrologiska Institut*, Ser. B, Nr. 28, 1968, p. 35-41. [Description of apparatus for measuring amount of water running out from snow layer and of observations made with it and compared with those calculated from meteorological observations.]
- OURA, K. Jifubuki no hassei ni kansuru kenkyū [A study of the origin of glacial blizzards]. *Seppyō*, [Vol.] 30, [No.] 6, 1968, p. 169-75. [Criterion for initiation of blizzard in turbulent air.]
- PLOTNIKOV, V. V. K kharakteristike snezhnykh lavin na Visherском Урале [Characteristics of the snow-beds in the Visher Urals]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva*, Tom 101, Vyp. 3, 1969, p. 265-69. [Description of snow-beds and statistics of their location.]
- ROBERTS, T. D., and MURRAY, J. S. Electrostatic precipitation [sic] of ice fog. *Northern Engineer*, Vol. 1, No. 1, 1968, p. 4-5. [Laboratory experiments involving electrostatic precipitation prove satisfactory and hold promise for development on large scale.]
- SHŌDA, M. Nadare kenkyū no keikō [Tendencies in avalanche studies]. *Seppyō*, [Vol.] 30, [No.] 6, 1968, p. 188-95.
- SHUROVA, I. Ye. Mekhanizm vzaimodeystviya dvizhushcheysha snezhnoy massy s nepodvizhnym prepyststviyem [The interaction mechanism between avalanching snow masses and stationary structures]. *Itogi Nauki. Seriya Geografiya. Gidrologiya Sushi. Glyatsiologiya*, 1967, [pub.] 1968, p. 98-116. [Critical survey of available methods for calculating avalanche impact. English summary.]
- STEVENSON, C. M. The snowfalls of early December 1967. *Weather*, Vol. 23, No. 4, 1968, p. 156-61. [Reasons for heavy fall of snow along south coast of England in December 1967.]
- SULAKVELIDZE, G. K., ed. Fizika snega i snezhnykh lavin [Physics of snow and snow avalanches]. *Trudy Vysokogornogo Geofizicheskogo Instituta*, Vyp. 15, 1969, 192 p. [Collected papers on physics of snow and avalanches. Contains the following papers, all in Russian: M. A. Dolov, "Some questions on the structure of snow cover and the thermophysical properties of moist snow", p. 3-26; Kh. K. Kumykov and A. M. El'mesov, "On the calculation of the velocity of movement of snow avalanches", p. 27-35; M. A. Dolov and B. V. Kislov, "Stress relaxation in a snow cover", p. 36-44; M. Ch. Zalikhanov and A. V. Gutiyev, "Avalanche dangers of the valleys of the rivers Gisel'don and Baddon", p. 45-60; M. Ch. Zalikhanov and L. A. Akayeva, "The influence of avalanches on the upper tree limit in Kabardino-Balkarin", p. 61-68; L. A. Burtakov and B. V. Kiryukhin, "On the question of the conditions of formation of avalanche floods in the Baksan gorge", p. 69-80; V. A. Gerasimov, "Glacial avalanche floods and some questions of the fight against them", p. 81-91; P. D. Samukashvili, "Incoming short-wave radiation on slopes in the El'brus region", p. 92-140; P. D. Samukashvili, "On the principal terms in the radiation balance at 'Ledovaya' base", p. 141-66; P. D. Samukashvili, "On the principal terms in the radiation balance at the spa Nal'chik", p. 167-86; "Varden Sergeyevich Chitadze (1924-1968)", p. 187-88.]
- TROSHKINA, Ye. S. Vertikal'naya poyasnost' lavino-obrazovaniya na Barguzinskem khrebe [The altitudinal zonality of avalanche formation in the Barguzin range]. *Vestnik Moskovskogo Universiteta*, Ser. 5, God 24, No. 6, 1969, p. 59-62. [Avalanche danger largest in zone of degraded cirques and deep erosion valleys above tree limit. English abstract, p. 62.]
- USHAKOVA, L. A., and others. Poverkhnostnyye svoystva snega i protsess metamorfizma [Surface properties of snow and the process of metamorphism]. [By] L. A. Ushakova, V. I. Kvividze, A. A. Sklyankin. *Itogi Nauki. Seriya Geografiya. Gidrologiya Sushi. Glyatsiologiya*, 1967, [pub.] 1968, p. 9-41. [Literature survey on existence of liquid-like layer on ice surface and its role in snow cover metamorphism. English summary.]
- WAKAHAMA, G. Sekisetsu-nai e no yūsetsu-sui no shintō [The permeation of snow melt water into snow cover]. *Seppyō*, [Vol.] 30, [No.] 6, 1968, p. 175-88. [Experimental study of the manner and speed with which water permeates into snow cover. English abstract.]
- YOSIDA, Z. Snow cover mechanics. *Science and Technology* (New York), No. 87, 1969, p. 28-29, 32-38. [Review of snow metamorphosis and snow mechanics and their practical applications.]

ERRATUM (Vol. 9, No. 55)

In the thirteenth entry in "Glaciological literature" on p. 165, the first author's name should read AUER, A. H., jr., not AVER, A. H., jr.