GLACIOLOGICAL LITERATURE

This is a selected list of glaciological literature on the scientific study of snow and ice and of their effects on the earth; for the literature on polar expeditions, and also on the "applied" aspects of glaciology, such as snow ploughs, readers should consult the bibliographies in each issue of the *Polar Record*. For Russian material the system of transliteration used is that agreed by the U.S. Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use in 1947. Readers can greatly assist by sending reprints of their publications to the Society, or by informing Dr. J. W. Glen of publications of glaciological interest. It should be noted that the Society does not necessarily hold copies of the items in this list, and also that the Society does not possess facilities for microfilming or photocopying.

GENERAL GLACIOLOGY

- Armstrong, T. E., and others. Illustrated glossary of snow and ice, by T. [E.] Armstrong, B. [B.] Roberts, C. [W. M.] Swithinbank. Cambridge, Scott Polar Research Institute, 1966. v, 60 p., 79 photos. (Scott Polar Research Institute Special Publication No. 4.) [Revised and augmented edition of Armstrong and Roberts, "Illustrated ice glossary", Polar Record, Vol. 8, No. 52, 1956, p. 4–12; Vol. 8, No. 54, 1956, p. 221; Vol. 9, No. 59, 1958, p. 90–96. Includes equivalent terms and indexes in Danish, Finnish, French, German, Icelandic, Norwegian, Russian and Spanish.]
- Fletcher, J. O., ed. Proceedings of the symposium on the Arctic heat budget and atmospheric circulation. January 31 through February 4, 1966. Lake Arrowhead, California. Prepared for the National Science Foundation. Santa Monica, California, Rand Corporation, 1966. xvii, 567 p. (Memorandum RM-5233-NSF.) [Includes the following papers as well as general information about the symposium: M. I. Budyko, "Polar ice and climate", p. 3–21; J. O. Fletcher, "The Arctic heat budget and atmospheric circulation", p. 23–43; J. M. Mitchell, Jr., "Stochastic models of air–sea interaction and climate fluctuation", p. 45–74; A. A. Girs, "Heat regime of the Soviet Arctic related to the main atmospheric circulation patterns and their many yearly variations", p. 75–110; Ye. P. Borisenkov, "A quantitative description of some characteristics of the general circulation and their relation to the radiation regime of the Arctic Archipelago", p. 135–56; P. Putnins, "The influence of Greenland on the general atmospheric circulation", p. 157–77; M. R. Bloch, "Historical evidence of sea-level change and its relation to polar albedo", p. 179–96; report of working group on some issues concerning climatic change and possible ways of resolving them, p. 197–99; N. Untersteiner, "Calculating thermal regime and mass budget of sea ice", p. 203–13; W. I. Wittmann and J. J. Schule, Jr., "Comments on the mass budget of Arctic pack ice", p. 215–46; Yu. P. Doronin, "Characteristics of the heat exchange", p. 247–66; F. I. Badgley, "Heat budget at the surface of the Arctic Ocean", p. 267–77; M. S. Marshunova and N. T. Chernigovsky, "Numerical characteristics of the radiation regime in the Soviet Arctic", p. 279–97; E. Vowinckel and S. Orvig, "Possible changes in the radiation budget over the polar ocean", p. 299–303; J. A. Businger, "Transfer of momentum and heat in the planetary boundary layer", p. 305–32; report of working group on the heat and mass budget of the pack ice, p. 333–34; report of working group on atmospheric advection and turbulent exchange
- Gellert, J. F. Neue chinesische Hochgebirgs- und Gletscherforschung in Innerasien. Petermanns Geographische Mitteilungen, Jahrg. 110, 3. Quartalsht., 1966, p. 198–99. [Short note on Chinese glacier and snow research in Central Asia.]
- HAEFELI, R. Creep and progressive failure in snow, soil, rock, and ice. Proceedings of the sixth International Conference on Soil Mechanics and Foundation Engineering, Montreal, 8–15 Sept., 1965, Vol. 3, 1966, p. 134–48. [Comparisons between properties of these materials and implications in engineering.]
- HECKEL, V., and Wolf, J. Hindúkuš. Praha, Sportovni a Turistické Nakladatelství, 1967. 228 p. [Photographic description of Czechoslovak expedition to the Hindu Kush in 1965.]
- Perov, V. F. Materialy k izucheniyu snezhnikov, lednikov i merzlotnogo rel'yefa Khibinskikh Gor [Materials on the study of snow patches, glaciers and frozen ground relief in Khibinskiye Gory]. Informatsionnyy Sbornik o Rabotakh po Mezhdunarodnomu Geofizicheskomu Godu [Collected Information on Work in the International Geophysical Year], No. 11, 1965, 192 p. [Observations in Murmanskaya Oblast' during International Geophysical Year, 1957–58.]
- Robin, G. de Q., ed. Glaciology. Annals of the International Geophysical Year, 1957–1958, Vol. 41, 1967, ix, 239 p. [Summarizes work done during International Geophysical Year, 1957–58, and during International Geophysical Cooperation, 1959; national reports; catalogue of material in Data Centres.]
- ZABIROV, R. D., ed. Glyatsiologicheskiye issledovaniya na Tyan'-Shane [Glaciological studies in the Tien Shan].

 Raboty Tyan'-Shan'skoy Fiziko-Geograficheskoy Stantsii [Works of the Tien Shan Physics and Geography Station],

 Vyp. 11, 1965, 117 p.
- ZABIROV, R. D., and KOTLYAKOV, V. M., ed. Tezisy dokladov tret'yego vsesoyuznogo glyatsiologischeskogo simpoziuma [Abstracts of reports at the third all-Union glaciological symposium]. Frunze, Akademiya Nauk Kirgizskoy SSR [Academy of Sciences of the Kirgiz S.S.R.], 1965. 106 p. [Summaries of 77 papers on all aspects of glaciology.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

BUTTLAR, H. VON, and WIIK, B. Enrichment of tritium by thermal diffusion and measurement of dated Antarctic snow samples. Science, Vol. 149, No. 3690, 1965, p. 1371-73. [Construction features of continuous flow thermal diffusion apparatus, and test measurements of apparatus, are described. Method was applied satisfactorily to tritium concentration of firn along profile in ice shelf of "Base Roi Baudouin", Prinsesse Ragnhild Kyst.]

Crozaz, G., and Fabri, P. Mesure du polonium à l'échelle de 10-13 curie, traçage par le 208Po et application à la chronologie des glaces. Earth and Planetary Science Letters, Vol. 1, No. 6, 1966, p. 446-48. [Method used to measure accumulation at Pole of Relative Inaccessibility.]

Engman, E. T. Review of snow measuring instrumentation and evaluation of a pressure pillow snow-measuring device. Proceedings of the Eastern Snow Conference, 23rd annual meeting, 1966, p. 1-17. [Snow measuring techniques and instruments reviewed, and results discussed of evaluation of 12-ft. pressure pillow during 1964-65 season.]

FLOWERS, E. C., and HELFERT, N. F. Laboratory and field investigations of Eppley radiation sensors. Monthly

Weather Review, Vol. 94, No. 4, 1966, p. 259-64. [Detailed study of accuracy under Antarctic conditions.]

Jоснімѕен, M. Ist die Grösse des Flechtenthallus wirklich ein brauchbarer Masstab zur Datierung von glazialmorphologischen Relikten? Geografiska Annaler, Vol. 48A, No. 3, 1966, p. 157-64. [Critical assessment of lichenometrical method for dating moraines. English summary.]

MAGONO, C., and TAZAWA, S. Design of "snow crystal sondes". Journal of the Atmospheric Sciences, Vol. 23, No. 5, 1966, p. 618-25. [Apparatus to observe vertical distribution and crystal shapes in a cloud. Results confirm

Nakaya's diagram of expected shapes.]

MATSUO, S., and MIYAKE, Y. Gas composition in ice samples from Antarctica. Journal of Geophysical Research, Vol. 71, No. 22, 1966, p. 5235-41. [Chemical composition of gas in ice was determined for iceberg ice, glacier ice, sea ice and pond ice. From results, ice is classified into four types.]

Oelsner, C. Seismoakustik, eine neue Messmethode für die Gletschermechanik. Polarforschung, Bd. 6, Jahrg. 35, Ht. 1-2, 1965 [pub. 1967], p. 19-27. [Observations of seismo-acoustic waves in Lovenbreen, Vestspitsbergen, correlated with flow of glacier stream and jerky slip of glacier on its bed.]

PHILBERTH, K. Eine Schmelzsonde zur Messung des Temperaturprofils in Eiskalotten. Umschau in Wissenschaft und Technik, Jahrg. 1966, Ht. 11, p. 360. [A hotpoint instrument for temperature measurement of ice.]

Schönbächler, M. Zur Albedomessung auf Gletschern. Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. B, Bd. 14, Ht. 2, 1966, p. 184–88. [Comparison of solarimeter and selenium photoelement. English and French summaries.]

Schwerdtfeger, P., and Weller, G. The measurement of radiative and conductive heat transfer in ice and snow. Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. B, Bd. 15, Ht. 1-2, 1967, p. 24-38. [Importance of radiative transfer in upper layers. Development of instruments to measure both terms. French and German summaries.

PHYSICS OF ICE

BERTIE, J. E., and WHALLEY, E. Optical spectra of orientationally disordered crystals. II. Infrared spectrum of ice Ih and ice Ic from 360 to 50 cm⁻¹. Journal of Chemical Physics, Vol. 46, No. 4, 1967, p. 1271–84. [Observation of spectra and their interpretation including discussion of effect of proton disorder.] BIGG, E. K., and GIUTRONICH, J. Ice nucleating properties of meteoritic material. Journal of the Atmospheric Sciences, Vol. 24, No. 1, 1967, p. 46-49. [Attempt to duplicate processes by which meteors disintegrate and estimate the effectiveness of resulting particles as ice nuclei.]

BLICKS, H., and others. Diffusion von Protonen (Tritonen) in reinen und dotierten Eis-Einkristallen, [von] H. Blicks, O. Dengel und N. Riehl. Physik der kondensierten Materie, Bd. 4, Ht. 5, 1966, p. 375-81. [Measurement of diffusion of tritium in ice.]

Brepson, R. Premiers résultats obtenus avec le viscomètre à glace de Grenoble. Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris), Sér. B, Tom. 263, No. 15, 1966, p. 876-79. [Description of the Grenoble ice viscometer and first results for friction of ice.]

BROWN, A. J., and WHALLEY, E. Preliminary investigation of the phase boundaries between ice VI and VII and ice VI and VIII. Journal of Chemical Physics, Vol. 45, No. 11, 1966, p. 4360-61.

BROWNSCOMBE, J. L., and MASON, B. J. Measurement of the thermoelectric power of ice by an induction method. Philosophical Magazine, Eighth Ser., Vol. 14, No. 131, 1966, p. 1037-47. [Description of method requiring no contact electrodes. Results compared with Jaccard's theory.] CUBIOTTI, G., and GERACITANO, R. Ferroelectric behaviour of cubic ice. Physics Letters, Vol. 24A, No. 3, 1967,

p. 179-80. [Cubic ice is ferroelectric with Curie point at c. -80°C.]

Dass, N., and Gilra, N. K. Refractive index of liquids on supercooling-water. Journal of the Physical Society of Japan, Vol. 21, No. 10, 1966, p. 2039–42. [Suggests that measurements may give improved value for water-ice interfacial free energy.]

Defrain, A., and Linh, N. T. Détection par diffraction des rayons X et par analyse thermique différentielle de la glace et du phénol amorphes. Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris), Sér. C, Tom. 263, No. 22, 1966, p. 1336-39. [X-ray and differential thermal analysis used to study formation of amorphous ice and its transformation into ice Ih and Ic.]

DILLARD, D. S., and TIMMERHAUS, K. D. Low temperature thermal conductivity of solidified H₂O and D₂O. Pure and Applied Cryogenics, Vol. 4, 1966, p. 35-44. [Results of measurements 100°K. to 253°K. French

summary.]

Drake, J. C., and Mason, B. J. The melting of small ice spheres and cones. Quarterly Journal of the Royal Meteorological Society, Vol. 92, No. 394, 1966, p. 500-09. [Times of melting measured and compared with theory.]

- Dupuy, D. Calorimètre à flux de froid constant pour la mesure absolue de l'eau liquide incluse dans la glace tempérée. Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences (Paris), Sér. B, Tom. 263, No. 9, 1966, p. 638-39. [Description of instrument to determine absolute value of liquid water content of ice calorimetrically.]
- Evans, L. F. Ice nucleation by amino acids. *Journal of the Atmospheric Sciences*, Vol. 23, No. 6, 1966, p. 751–52. [Detailed study of behaviour of certain amino-acids in cloud chambers and in supercooled droplets.]
- Evans, L. F. Two-dimensional nucleation of ice. *Nature*, Vol. 213, No. 5074, 1967, p. 384–85. [The first stage in the nucleation of ice on organic nucleators is the growth of monolayer patches of ice on the nucleator surface.]
- FLETCHER, N. H. The freezing of water. Science Progress, Vol. 54, No. 214, 1966, p. 227-41. [Review of recent progress in ideas of how water freezes.]
- Ghormley, J. A. Adsorption and occlusion of gases by the low-temperature forms of ice. *Journal of Chemical Physics*, Vol. 46, No. 4, 1967, p. 1321–25. [Observations on amorphous and cubic ice.]
- Gokhale, N. R. Time dependence of heterogeneous nucleation. Journal of Geophysical Research, Vol. 71, No. 14, 1966, p. 3351-56. [Laboratory study. Complex behaviour found during initial freezing and interpreted in terms of dependence of freezing temperature on rate of cooling.]
- Hall, P. G., and others. The adsorption of water vapour by lead iodide, [by] P. G. Hall, L. Glasser and D. D. Liebenberg. Surface Science, Vol. 5, No. 3, 1966, p. 309–15. [Study of adsorption isotherm and dielectric properties. Ice nucleating properties of PbI₂ discussed in connection with dielectric ordering.]
- HINDMAN, E. E., jr. The phase change in an artificial supercooled cloud upon heterogeneous and homogeneous nucleation. Journal of the Atmospheric Sciences, Vol. 23, No. 1, 1966, p. 67–73. [Cloud chamber studies.]
- Hobbs, P. V., and Burrows, D. A. The electrification of an ice sphere moving through natural clouds. Journal of the Atmospheric Sciences, Vol. 23, No. 6, 1966, p. 757-63. [Measurements made by whirling ice sphere in natural clouds and snowfall.]
- IDA, M., and others. Dielectric dispersion of impure ice at low temperatures, by M. Ida, N. Nakatani, K. Imai and S. Kawada. Science Reports of Kanazawa University, Vol. 11, No. 1, 1966, p. 13-22. [Many different impurities used. Some gave dielectric dispersion below 100°C. while others did not.]
- ITAGAKI, K. Self-diffusion in single-crystal ice. Journal of the Physical Society of Japan, Vol. 22, No. 2, 1967, p. 427–31. [Tritium tracer method used. Activation energy measured to be higher perpendicular to basal plane.]
- KAMB, W. B., and others. Structure of ice V, by [W.] B. Kamb, A. Prakash and C. Knobler. Acta Crystallographica, Vol. 22, Pt. 5, 1967, p. 706–15. [Detailed report of determination of structure of ice V.]
- LATHAM, J., and STOW, C. D. The distribution of charge within ice specimens subjected to linear and non-linear temperature gradients. Quarterly Journal of the Royal Meteorological Society, Vol. 93, No. 395, 1967, p. 121-25. [Theory which accounts for reported dependence of the thermoelectric effect in ice.]
- Macklin, W. C., and Payne, G. S. A theoretical study of the ice accretion process. Quarterly Journal of the Royal Meteorological Society, Vol. 93, No. 396, 1967, p. 195-213. [Study of the assumptions underlying the simple heat balance relations hitherto used to predict the surface temperatures of ice deposits being formed by the accretion of supercooled water droplets.]
- MAYBANK, J., and BARTHAKUR, N. The ice nucleation behaviour of amino-acid particles. Canadian Journal of Physics, Vol. 44, No. 10, 1966, p. 2431–45. [Evidence that below 20°C. some nuclei can act when not supersaturated with respect to supercooled water, i.e. as true sublimation nuclei.]
- MICHAELS, A. S., and others. Impurity effects on the basal plane solidification kinetics of supercooled water, by A. S. Michaels, P. L. T. Brian and P. R. Sperry. Journal of Applied Physics, Vol. 37, No. 13, 1966, p. 4649-61. [Measurements of growth rate for pure water and dilute solutions of ionic salts.]
- Proctor, T. M., jr. Low-temperature speed of sound in single-crystal ice. Journal of the Acoustical Society of America, Vol. 39, No. 5, Pt. 1, 1966, p. 972–77. [Measurement of all single-crystal elastic constants down to 65°K.]
- RAMSEIER, R. O. Zone-melting apparatus for growing ice crystals. *Materials Research Bulletin*, Vol. 1, No. 4, 1966, p. 293–97. [A zone-melting apparatus using an infra-red heat lamp is described. Ice monocrystals can be grown from a polycrystalline charge without using a single-crystal seed.]
- Seeger, A., and Wobser, G. Anordnung paralleler Versetzungen in anisotropen Medien. *Physica Status Solidi*, Vol. 17, No. 2, 1966, p. 709–24. [Calculation of stable configurations of dislocations using anisotropic elasticity. Can be applied to ice.]
- Shubin, V. N., and others. Pulse radiolysis of crystalline ice and frozen crystalline aqueous solutions, [by] V. N. Shubin, V. A. Zhigunov, V. I. Zolitarevskiy [and] P. I. Dolin. Nature, Vol. 212, No. 5066, 1966, p. 1002, 1035. [Letter. Results for ice and frozen LiClO₄ and KOH solutions not in agreement with solvated electron theory.]
- Siegel, S., and Rennick, R. Isotope effects in the 77°K γ irradiation of ice. Journal of Chemical Physics, Vol. 45, No. 10, 1966, p. 3712–20. [Mass spectroscopy study of yield of H₂, D₂, and HD when H₂O–D₂O mixtures are irradiated.]
- THOMANN, H. Size of ice crystals formed during rapid expansion of humid air. *Physics of Fluids*, Vol. 9, No. 5, 1966, p. 896–902. [Measurement by measuring humidity of samples sucked into small pitot tubes.]
- WHALLEY, E., and others. Dielectric properties of ice VII. Ice VIII: a new phase of ice, by E. Whalley, D. W. Davidson and J. B. R. Heath. Journal of Chemical Physics, Vol. 45, No. 11, 1966, p. 3976–82. [Study of dielectric properties of ice VII and observation that at about o°C. it transforms to a phase whose molecules are orientationally immobile to be called ice VIII.]
- YANG, L. C., and GOOD, W. B. Crystallization rate of supercooled water in cylindrical tubes. Journal of Geophysical Research, Vol. 71, No. 10, 1966, p. 2465–69. [Observation of factors affecting this and attempt to explain them. Comments by C. A. Knight and reply by authors, ibid., Vol. 71, No. 24, 1966, p. 6145–49.]

YUFEROV, V. B., and Busol, F. I. Issledovaniye sorbtsii vodoroda i neona sloyami skondensirovannykh tverdykh gazov [Sorbtion of hydrogen and neon by layers of condensed solid gases]. Zhurnal Tekhnicheskoy Fiziki [Journal of Technical Physics], Tom 36, Vyp. 11, 1966, p. 2042-50. [Includes adsorption on ice at 14° to 20°K. English translation: Soviet Physics—Technical Physics, Vol. 11, No. 11, 1967, p. 1518-24.]

LAND ICE. GLACIERS. ICE SHELVES

- AMBACH, W., and AWECKER, P. Zur Lichtstreuung im Gletschereis. Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. B, Bd. 15, Ht. 1-2, 1967, p. 175-85. [Theory of extinction of light in glacier ice and of variation of albedo with angle. English and French summaries.]
- AVER'YANOV, V. G., ed. Glyatsiologicheskiye issledovaniya v rayone stantsii Novolazarevskoy. Metodika i materialy nablyudeniy [Glaciological studies in the region of "Novolazarevskaya" station. Methods and observations]. Leningrad, Arkticheskiy i Antarkticheskiy Nauchno-Issledovatel'skiy Institut [Arctic and Antarctic Research Institute], 1966. 53 p. Snow and firn temperatures, snow accumulation, directions of striae; observed in 1963-64 in Dronning Maud Land.]
- BAUER, A. Le bilan de masse de l'Indlandsis du Groenland n'est pas positif. Bulletin de l'Association Internationale d'Hydrologie Scientifique, 11e An., No. 4, 1966, p. 8-12. [According to recent calculations the mass budget is negative and recent observations bear out this conclusion.]
- BAUER, A. Nouvelle estimation du bilan de masse de l'Indlandsis du Groenland. Deep Sea Research, Vol. 14, No. 1, 1967, p. 13-17. [Greenland ice sheet mass balance is negative with an amount of water equivalent of -100 km.3/yr. Recent data on retreat of Greenland ice sheet are given.]
- Beitzel, J. E., and others. Geophysical studies on the South Pole-Queen Maud Land traverse, II, by J. E. Beitzel, J. W. Clough and C. R. Bentley. Antarctic Journal of the U.S., Vol. 1, No. 4, 1966, p. 132-33. [Ice surface elevations along the traverse route determined, radio-frequency depth measurements made, velocity determinations by wide-angle reflection technique attempted.]
- Bergeron, T. The possible role of snowdrift in building up high inland ice-sheets. Progress in Oceanography, Vol. 3, 1965, p. 385-90. [Of the accumulation near the centre of Greenland only a minority can be due to true snowfall from clouds.]
- Brockamp, B. Über einige geophysikalische Ergebnisse der internationalen Grönland-Expedition EGIG 1959. Polarforschung, Bd. 6, Jahrg. 35, Ht. 1-2, 1965 [pub. 1967], p. 42-66. [Summary of EGIG results in 1959 on surface profile and seismic and gravity observations. English summary.]
- BROCKAMP, B., and KOHNEN, H. Ein Beitrag zu den seismischen Untersuchungen auf dem grönländischen Inlandeis. Polarforschung, Bd. 6, Jahrg. 35, Ht. 1–2, 1965 [pub. 1967], p. 2–12. [Compressional and shear wave velocities from seismic records of EGIG 1959 used to derive elastic constants for ice. Temperature dependence of the velocities is discussed. English summary.]
- DEUTSCH, S., and others. Oxygen isotope study of snow and firn on an alpine glacier, by S. Deutsch, W. Ambach and H. Eisner. Earth and Planetary Science Letters, Vol. 1, No. 4, 1966, p. 197-201. [Measurement of accumulation based on seasonal variations of oxygen isotope ratio appears to be unreliable.]
- Ex, C. Faible agressivité des eaux de fonte des glaciers: l'exemple de la Marmolada (Dolomites). Annales de la Société Géologique de Belgique. Bulletin, Tom. 89, No. 6, 1966, p. 177-88. [Measurements of pH of melt water
- from glaciers in limestone area. Discussion, p. 186–88.]
 FRISTRUP, B. The Greenland ice cap. København, Rhodos, 1966. 312 p. [History of exploration and summary of glaciological research. English translation, extended and brought up to date, of Danish original, Indlandsisen, København, 1963.]
- Frolov, A. I. Gravitatsionnoye pole i stroyeniye podlednogo rel'yefa po trasse Britansko-Novozelandskoy ekspeditsii [The gravitational field and structure of subglacial relief along the route of the British-New Zealand expedition]. Akademiya Nauk SSSR. Izvestiya. Fizika Zemli [Academy of Sciences of the U.S.S.R. News. Physics of the Earth], 1965, No. 9, p. 109-13. [Discussion of errors in elevation data make gravity depths determined by Commonwealth Trans-Antarctic Expedition wrong; these data are re-interpreted. English translation in Izvestiva. Academy of Sciences, U.S.S.R. Physics of the Solid Earth, 1965, No. 9 [pub. 1966],
- p. 650-53.]
 GIOVINETTO, M. B., and Schwerdtfeger, W. Analysis of a 200 year snow accumulation series from the South Pole. Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A, Bd. 15, Ht. 2, 1966, p. 227-50. [Identification of annual layers, discussion of accuracy, search for secular and periodic variations.]
- Govorukha, L. S. Novyye glyatsiologicheskiye issledovaniya na Severnoy Zemle [New glaciological studies in Severnaya Zemlya]. Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya [Materials of Glaciological Studies. News. Discussions], 12, 1966, p. 50-52. [Work in summer of 1965.]
 GROVE, J. M. The Little Ice Age in the massif of Mont Blanc. Institute of British Geographers. Transactions, No. 40,
- 1966, p. 129-43. [Glacier fluctuations in historical times.]
- Gus'kov, A. S., and Khodakov, V. G. Osobennosti formirovaniya veshchestvennogo balansa lednikov Polyarnogo Urala v 1964-65 byudzhetnom godu [Features of the formation of the mass balance of glaciers of Polyarnyy Ural in the 1964-65 budget year]. Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya [Materials of Glaciological Studies. News. Discussions], 12, 1966, p. 265-67.
- HATTERSLEY-SMITH, G. Note on ice shelves off the north coast of Ellesmere Island. Arctic Circular, Vol. 17, No. 1, 1965-66 [pub. 1967], p. 13-14. [Further break-up since massive calving from Ward Hunt Ice Shelf in winter of 1961-62.]
- Hochstein, M. Morphologie der westantarktischen Eiskappe zwischen Mary-Byrd- [sic] und Edith-Ronne-Land. Polarforschung, Bd. 6, Jahrg. 35, Ht. 1–2, 1965 [pub. 1967], p. 27–31. [Morphology of surface and bed of the Western Antarctic ice sheet between Marie Byrd Land and Filchner Ice Shelf.]

Khmelevskov, I. F. Formirovaniye temperatur verkhney tolshchi Novozemel'skogo lednikovogo pokrova v svyazi s izmeneniyami usloviy l'doobrazovaniya [Formation of temperatures in the upper layer of the Novaya Zemlya ice cap in connection with changes in the conditions of ice formation]. Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya [Materials of Glaciological Studies. News. Discussions], 12, 1966, p. 276-78. Kick, W. Schlagintweits Vermessungsarbeiten am Nanga Parbat 1856. Deutsche Geodätische Kommission, Reihe C,

Nr. 97, 1967, 146 p. [Includes glacier mapping and descriptions of measurements of ice velocity in 1856 and

1934; situation of moraines and results for determinations of glacier variations in general.]

Konegny, G., and Faig, W. Studies of ice movements on the Ward Hunt Ice Shelf by means of triangulation-trilateration. Arctic, Vol. 19, No. 4, 1966, p. 337-42. [Shelf ice movements of 30 cm. with respect to solid ground were obtained between 1964 and 1965. The relative position change between markers on shelf ice was less than 4 cm.]

Law, P. Movement of the Amery Ice Shelf. *Polar Record*, Vol. 13, No. 85, 1967, p. 439-41. [On 13 January 1965, the crew of a Soviet aircraft reported that the ice front of the shelf was roughly 80 to 100 km. further south

than shown on the map.]

Leós, Á. Íshellir í Hattardal. Jökull, [Vol.] 3, Ár. 15, 1965, p. 121-24. [Observations of ice cave at Hattardalur, north-west Iceland, in 1963-65.]

LEOVY, C. Mars ice caps. Science, Vol. 154, No. 3753, 1966, p. 1178-79. [Suggests "ice" caps are predominantly

solid CO2.]

LLIBOUTRY, L. Discussion of paper by J. Weertman, "Sliding of nontemperate glaciers". Journal of Geophysical Research, Vol. 72, No. 2, 1967, p. 525–26. [Reply to Weertman, ibid., p. 521–23. Points out that if large protuberances are covered by small ones slip of a cold glacier is not possible even if bottom is at melting point.]

Løken, O. H., and Andrews, J. T. Glaciology and chronology of fluctuations of the ice margin at the south end of the Barnes Ice Cap, Batfin Island, N.W.T. Geographical Bulletin (Ottawa), Vol. 8, No. 4, 1966, p. 341-59. [Initial investigations on and around south dome of Barnes Ice Cap reveal distinct contrasts between northeast and south-west sides of the dome.]

McLaren, A. Ice cap study, Wilkes, Antarctica. Antarctic (Wellington, N.Z.), Vol. 4, No. 8, 1966, p. 393-95.

[Preliminary report.]

McLerran, J. H. Airborne crevasse detection. Proceedings of the third symposium on remote sensing of environment . . . 1964 . . . University of Michigan (Ann Arbor, Willow Run Laboratories, Institute of Science and Technology, University of Michigan), 1965, p. 801-02. [Crevasses can often, but not always, be detected by infra-red

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