

GLACIOLOGICAL LITERATURE

This selected list of glaciological literature has been prepared by J. W. Glen with the assistance of T. H. Ellison, W. B. Harland, Miss D. M. Johnson, and the Staff of the Scott Polar Research Institute. Its field is 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. Glen of publications of glaciological interest.

GENERAL GLACIOLOGY

- HOINKES, H. C. The Antarctic during the International Geophysical Year, with a supplement on mountains and first mountaineers in Antarctica. *Mountain World* (Zürich), 1960-61 [pub. 1961], p. 179-236.
- [INTERNATIONAL GEOPHYSICAL YEAR, 1957-58.] *Akademiya Nauk SSSR. Mezhdunarodnyy Komitet po Provedeniyu Mezhdunarodnogo Geofizicheskogo Goda. Glyatsiologicheskiye Issledovaniya. Sbornik Statey. IX Razdel Programmy MGG (Glyatsiologiya)* [Academy of Sciences of the U.S.S.R. Interdepartmental Committee for Participation in the International Geophysical Year. Glaciological Studies. Collected Papers. Section IX of the I.G.Y. Programme (Glaciology)], No. 5, 1960, 135 p. [Contents: V. M. Kotlyakov, "The measurement of the mass accumulation of the Antarctic Ice Cap", p. 7-26; S. A. Yevteyev, "On the structure of the Antarctic Ice Cap", p. 27-37; E. S. Troshkina, "The study of the mass balance of mountain glaciers during the I.G.Y.", p. 38-44; V. F. Suslov and V. K. Nozdryukhin, "On the movement within the firn zone of Fedchenko Glacier", p. 45-55; N. M. Svatkov, "Ice movement in the Shokal'skiy Glacier", p. 56-71; V. M. Kotlyakov, "Dynamics of the snow cover surface in the Antarctic littoral", p. 72-87; S. A. Yevteyev, "Determination of the rate of erosive activity of the eastern Antarctic Ice Sheet", p. 88-94; G. S. Kravtsov, "Studies of elastic properties of ice in high mountain glaciers of the central Altay", p. 95-108; E. N. Tsykin, "A reconnaissance study of the temperatures of the Institute of Geography Glacier in the Polar Urals", p. 109-116; I. M. Lebedeva, "Basic factors in the melting of the Moscow State University Glacier in the Polar Urals", p. 117-23; M. M. Koreysya, "On the relationship between glaciers and taryns (naleds) in the Suntar-Khayata range", p. 124-30; B. I. Vtyurin, "Lake ice in the Bunger Hills region of Antarctica", p. 131-35.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- IGNATOV, V. S. Opyt termicheskoy prokhodki ledyanikh skvazhin na stantsii Vostok [Experiments in thermal boring in the ice at "Vostok" station]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 22, 1960, p. 22-24. [Apparatus described.]
- KUZNETSOV, A. I. Opredeleyeniye plotnosti shugi [Determination of sludge density]. *Meteorologiya i Gidrologiya* [Meteorology and Hydrology], 1959, No. 2, p. 56-57. [Method of measuring density of sludge from below floating ice.]
- WASHBURN, A. K. Instrumentation for mass-wasting and patterned-ground studies in north-east Greenland. *Biuletyn Peryglacjalny (Łódź)*, No. 8, 1960, p. 59-64, 259-63, 397-400. [Various instruments for study of frozen ground. Polish version p. 259-63; Russian version p. 397-400.]

PHYSICS OF ICE

- DANSGAARD, W. The isotopic composition of natural waters with special reference to the Greenland ice cap. *Meddelelser om Grønland*, Bd. 165, Nr. 2, 1961, 120 p.
- EDWARDS, G. R., and EVANS, L. F. Requirements of an ice nucleus. *Nature*, Vol. 192, No. 4801, 1961, p. 448-49. [Effect of surface charge on ice nucleation.]
- EVANS, S. Polar ionospheric spread echoes and radio frequency properties of ice shelves. *Journal of Geophysical Research*, Vol. 66, No. 12, 1961, p. 4137-41. [Based on records from three Antarctic stations and one Arctic drifting station.]
- GOLD, L. W. Formation of cracks in ice plates by thermal shock. *Nature*, Vol. 192, No. 4798, 1961, p. 130-31. [Relation between crack and crystallographic directions studied.]
- HALLETT, J. The growth of ice crystals on freshly cleaved covellite surfaces. *Philosophical Magazine*, Eighth Ser., Vol. 6, No. 69, 1961, p. 1073-87. [Observations of growth of thin ice crystals interpreted in terms of mechanism of growth.]
- HEAD, R. B. Steroids as ice nucleators. *Nature*, Vol. 191, No. 4793, 1961, p. 1058-59. [Discovery of class of organic materials capable of acting as ice nuclei.]
- JELLINEK, H. H. G. Liquidlike layers on ice. *Journal of Applied Physics*, Vol. 32, No. 9, 1961, p. 1793. [A letter. Results of adhesion tests support idea of liquid-like surface layer.]
- KOBAYASHI, T. Experimental research on snow crystal habit and growth using a convection-mixing chamber. *Journal of the Meteorological Society of Japan*, Ser. 2, Vol. 38, No. 5, 1960, p. 231-38.
- MASON, B. J., and MAYBANK, J. The fragmentation and electrification of freezing water drops. *Quarterly Journal of the Royal Meteorological Society*, Vol. 86, No. 368, 1960, p. 176-86. [Relation between supercooling of drop and number of fragments into which it splits on freezing.]
- RYMSHA, V. A. Usloviya kristallizatsii pereokhlazhdennoy vody po dannym laboratornykh i naturnykh nablyudeniy [Conditions accompanying the crystallization of supercooled water according to data from laboratory and field observations]. *Trudy Gosudarstvennogo Gidrologicheskogo Instituta* [Transactions of the State Hydrological Institute], Vyp. 83, 1960, p. 3-12. [Laboratory tests on effect of turbulence on supercooling and crystal forms; field tests to check results.]

LAND ICE. GLACIERS. ICE SHELVES

- AMBACH, W. Zur Dichteverteilung in der oberflächennahen Eisschicht eines Gletschers. *Anzeiger der math.-naturw. Klasse der Österreichischen Akademie der Wissenschaften*, Jahrg. 1960, Nr. 12, p. 279-80. [Discussion of errors in ablation measurements due to internal melting of ice.]
- DEBENHAM, F. A fish story from the Antarctic. *Geographical Magazine*, Vol. 34, No. 6, 1961, p. 360-68. [Theory of origin of headless fish found on surface of Ross Ice Shelf.]
- EYTHÓRSSON, J. *Vatnajökull*. Reykjavík, Almenna Bókafélagid, 1960. 44 p., 72 plates. [Detailed description and series of photographs of Vatnajökull and subsidiary glaciers, south-east Iceland. In English and Icelandic.]
- GAVRILOVA, M. K. Teplovoy rezhim tayaniya lednika v khrebtte Suntar-Khayata v 1959 g. [The thermal melting regime of a glacier in the Suntar-Khayata range in 1959]. (In Ivanov, N. S., and Balobayev, V. T., ed. *Teplo-i massoobmen v merzlykh pochvakh i gornyykh porodakh* [Heat and mass exchange in frozen ground and mountain regions]. Moscow, Izdatel'stvo Akademii Nauk SSSR [Publishing House of the Academy of Sciences of the U.S.S.R.], 1961, p. 44-58. [Measurements in July and August show solar radiation to be dominant term.]
- HOLLIN, J. T., and others. Wilkes station glaciology, 1958, by J. T. Hollin, C. Cronk and R. Robertson. *Ohio State University Research Foundation. Report 825-2-Part X*, 1961, vii, 255 p. [Data collected by wintering party 1958-59, Wilkes Land, Antarctica.]
- KOTLYAKOV, V. M. O priznakakh sezonnykh otlozheniy snega v tsentral'nykh rayonakh Antarktity [Some evidence of seasonal snow accumulation in the central areas of Antarctica]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 26, 1961, p. 15-18. [Identification of layers at "Vostok-1" and "Komsomolskaya" indicate annual accumulations of 10 cm. and 8 cm. respectively.]
- KRUCHININ, YU. A. Morfologiya shel'fovogo lednika v rayone stantsii Lazarev [Morphology of the ice shelf in the region of Lazarev station]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 26, 1961, p. 9-12. [Description of surface forms in this part of Prinsesse Astrid Kyst.]
- KRUCHININ, YU. A. Dinamika snezhnoy poverkhnosti shel'fovogo lednika Lazareva [Dynamics of the snow cover of the Lazarev ice shelf]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 27, 1961, p. 5-8. [Study of snow accumulation 1959-60.]
- LISTER, H. and TAYLOR, P. F. Heat balance and ablation on an Arctic glacier. *Meddelelser om Grønland*, Bd. 158, Nr. 7, 1961, 54 p. [Observations on Britannia Gletscher, Dronning Louise Land, East Greenland, 1953.]
- MAKSIMOV, YE. V. Razmery sovremennogo oledeneniya khrebtov Kirgizskogo Alatau, Karamoynok i Dzhumgoltau [Extent of present ice cover in the Kirgizskiy Alatau, Karamoynok and Dzhumgoltau ranges]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva* [News of the All-Union Geographical Society], Tom 93, Vyp. 3, 1961, p. 253-55. [List of glaciers, with dimensions, in these Tien Shan ranges.]
- MÜLLER, F. and others. *Jacobsen-McGill Arctic Research Expedition to Axel Heiberg Island, Queen Elizabeth Islands. Preliminary report of 1959-1960*, by F. Müller and members of the expedition, edited by B. S. Müller. Montreal, McGill University, 1961. x, 219 p. [Report on survey, glaciology, geophysics, meteorology, geology, geomorphology, botany, permafrost, mountaineering.]
- NORRIS, D. J., and FUNK, J. P. Radiation observations at Mawson, Antarctica. *Australian Journal of Applied Science*, Vol. 12, No. 2, 1961, p. 148-57. [Values obtained for net radiation at Mawson are higher than those found elsewhere. At an inland station much lower net radiation was observed, comparable with those found at other inland stations.]
- PALMER, W. H., and MILLER, A. K. Botanical evidence for the recession of a glacier. *Oikos* (Copenhagen), Vol. 12, No. 1, 1961, p. 75-86. [Study of recession of Rotmoosferner based on plant population, particularly *Salix* and *Saxifraga aizoides*.]
- SCHYTT, V. Glaciology. II. Blue ice-fields, moraine features and glacier fluctuations. *Norwegian-British-Swedish Antarctic Expedition, 1949-52. Scientific Results* (Oslo, Norsk Polarinstittut), Vol. 4, E, 1961, p. 181-204. [Western Dronning Maud Land.]
- SHEPHERD, A. Recent glaciological work on Ruwenzori. *Zeitschrift für Geomorphologie*, Bd. 4, Ht. 2, 1960, p. 171-72. [Brief account of various expeditions in East Africa.]
- STANSBURY, M. J. Glaciological observations at Admiralty Bay (lat. 62° 05' S., long. 58° 24' W.), King George Island, South Shetland Islands, 1959-60. *Falkland Islands Dependencies Survey. Preliminary Glaciological Report* No. 4, 1961, 45 p. [Observations of movement, budget, temperature and firn stratigraphy of three glaciers.]
- WALKER, P. W., and MATTOX, W. G., jr. Glaciological observations in northern Ellesmere Island, in 1959. *Arctic Institute of North America. Scientific Report* No. 13, 1961, 139 p. [Ward Hunt Ice Shelf. Includes temperatures, snow densities, hardness numbers and descriptive remarks based on 14 pit studies.]
- WEERTMAN, J. Stability of ice-age ice sheets. *Journal of Geophysical Research*, Vol. 66, No. 11, 1961, p. 3783-92. [Theoretical study of possible inherent instability of ice sheets.]
- WHITSTONE, P. B., and ASHWELL, I. Y. Further recession of an Icelandic glacier. *Geographical Journal*, Vol. 127, Pt. 3, 1961, p. 385-86. [Observations by 1960 expedition of British Schools Exploring Society on Hagafellsjökull Eystri.]
- WHITTOW, J. B., and SHEPHERD, A. The Speke Glacier, Ruwenzori. *Uganda Journal*, Vol. 23, No. 2, 1959, p. 153-61. [Review of observations which indicate marked retreat. Discussion of possible causes.]

ICEBERGS. SEA, RIVER AND LAKE ICE

- ANDERSON, D. L. A study of some properties of sea ice. *Arctic Institute of North America. Research Paper* No. 11, 1961, vii, 36 p. [Volume phase relations and density; structure and structural properties; physical chemistry; growth rate.]

- APOLLONIO, S. The chlorophyll content of Arctic sea ice. *Arctic*, Vol. 14, No. 3, 1961, p. 197-200. [Study of unicellular algae frozen into sea ice at Devon Island, Northwest Territories.]
- CABANISS, G. H. Recent investigations on Fletcher's ice island (T-3). *GRD Research Notes* (U.S. Air Force Cambridge Research Laboratories), No. 55, 1961, p. 37-44. [Studies of structure and mechanical properties of the ice, regime and morphology.]
- HANSON, K. J. The albedo of sea-ice and ice islands in the Arctic Ocean basin. *Arctic*, Vol. 14, No. 3, 1961, p. 188-96. [Results of airborne radiation measurements 1958 over parts of Beaufort and Chukchi Seas.]
- LAKTIONOV, A. F. K voprosu o vliyanií l'da na prilivo-otlivnyye yavleniya [On the question of the influence of ice on tidal phenomena]. *Problemy Arktiki i Antarktiki* [Problems of the Arctic and Antarctic], 1960, Vyp. 5, p. 53-58. [Discussion of possible effects and how they might be used to yield glaciological information.]
- LYON, W. K. Ocean and sea-ice research in the Arctic Ocean via submarine. *Transactions of the New York Academy of Sciences*, Ser. 2, Vol. 23, No. 8, 1961, p. 662-74. [Methods of under-ice submarine navigation and of observing features of sea ice canopy.]
- SAWADA, T. On the transition of ice limit and ice thickness for the early drift-ice season on the Okhotsk Sea. *Journal of the Meteorological Society of Japan*, Ser. 2, Vol. 38, No. 5, 1960, p. 250-58. [Method of forecasting first appearance of drift ice along the Hokkaido coast.]
- SERIKOV, M. I. Plotnost' i solenost' morskogo antarkticheskogo l'da [Density and salinity of Antarctic sea ice]. *Informatsionnyy Byulleten' Sovetskoy Antarkticheskoy Ekspeditsii* [Information Bulletin of the Soviet Antarctic Expedition], No. 27, 1961, p. 25-27. [Samples from Davis Sea.]
- UNTERSTEINER, N. On the mass and heat budget of Arctic sea ice. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Bd. 12, Ht. 2, 1961, p. 151-82. [Results of measurements from drifting station.]

GLACIAL GEOLOGY

- GAGE, M. On the definition, date, and character of the Ross Glaciation, early Pleistocene, New Zealand. *Transactions of the Royal Society of New Zealand*, Vol. 88, Pt. 4, 1961, p. 631-37. [Recommends that Ross Glaciation be recognized as a climatic event recorded in some Lower Pleistocene beds at Ross. Suggests that it was an ice cap glacierization.]
- NICHOLS, R. L. Geomorphology of Marguerite Bay area, Palmer Peninsula, Antarctica. *Bulletin of the Geological Society of America*, Vol. 71, No. 10, 1960, p. 1421-50. [Descriptive glacial geomorphology; evidence of deglaciation is widespread. Concludes that glaciation in Antarctica could not have commenced during Tertiary.]
- SHARP, R. P. Pleistocene glaciation in the Trinity Alps of northern California. *American Journal of Science*, Vol. 258, No. 5, 1960, p. 305-40. [Past and present ice cover of the district.]

FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

- BROCHU, M. Rozszerzenie zakresu pojęcia "periglacialny" [Enlargement of the concept of "periglacial"]. *Biuletyn Peryglacialny* (Łódź), No. 7, 1960, p. 35-38, 151-54, 255-57. [To include regions showing periglacial phenomena whether near existing ice or not. French version p. 151-54. Russian version p. 255-57.]
- EVERETT, D. H. The thermodynamics of frost damage to porous solids. *Transactions of the Faraday Society*, Vol. 57, No. 9, 1961, p. 1541-51. [Theory of ice lens formation.]
- GALLOWAY, R. W. Solifluction in Scotland. *Scottish Geographical Magazine*, Vol. 77, No. 2, 1961, p. 75-87.
- JENNINGS, J. N. O niezwykłym występowaniu wieloboków kamiennych w Alpach Francuskich [On an unusual occurrence of stone polygons in the French Alps]. *Biuletyn Peryglacialny* (Łódź), No. 7, 1960, p. 59-64, 169-73, 271-74. [On a dry lake floor. English version p. 169-73. Russian version p. 271-74.]
- JOHNSTON, G. H., and BROWN, R. J. E. Effect of a lake on distribution of permafrost in the Mackenzie River delta. *Nature*, Vol. 192, No. 4799, 1961, p. 251-52.
- LASKOWSKA, W. Kopalne struktury poligonalne na glinach zwałowych [Fossil polygonal structures in boulder clay]. *Biuletyn Peryglacialny* (Łódź), No. 7, 1960, p. 73-87, 177-79, 277-79. [Description, interpretation as frost cracks and dating. English summary p. 177-79, Russian summary p. 277-79.]
- RAPP, A. and RUDBERG, S. Recent periglacial phenomena in Sweden. *Biuletyn Peryglacialny* (Łódź), No. 8, 1960, p. 143-54, 327-40, 455-56. [Currently active frost action effects in Sweden. Polish version p. 327-40; Russian version p. 455-56.]
- SEKYRA, J. *Pusobení mrazu na půdu; kryopedologie se zvláštním zretelem k ČSR* [Frost action on the ground; cryopedology with special reference to Czechoslovakia]. Praha, Nakladatelství Československé Akademie Věd, 1960. 164 p. [General survey and bibliography. English summary p. 139-60.]

METEOROLOGICAL AND CLIMATOLOGICAL GLACIOLOGY

- LOTZ, J. R. Analysis of meteorological and micrometeorological observations, northern Ellesmere Island 1959. *Arctic Institute of North America. Research Paper* No. 12, 1961, ix, 81 p. [Commentary on weather of Ward Hunt Ice Shelf. Includes account of some factors involved in ice ablation.]

SNOW

- DYUNIN, A. K. *Ispareníe snega* [Vaporization of snow]. Novosibirsk, Izdatel'stvo Sibirskogo Otdeleniya AN SSSR [Publishing House of the Siberian Branch of the Academy of Sciences of the U.S.S.R.], 1961. 119 p. [Includes study of effect of blizzards on sublimation.]
- ITŌ, N. Hōsha enerugii to yuki doketono kankai ni suite [On the relationship between the radiation energy and the melting of snow]. *Journal of Meteorological Research*, Vol. 12, No. 6, 1960, p. 357-61. [Observations of snow melting and theory of its dependence on cloud cover. English summary.]

- JACKSON, C. I. Snowfall measurements in northern Canada. *Quarterly Journal of the Royal Meteorological Society*, Vol. 86, No. 368, 1960, p. 273-75. [Errors arising from too frequent measurements in regions with slow rates of precipitation.]
- KOTLYAKOV, V. M. Snezhnyy pokrov Antarktity i yego rol' v sovremennom oledenenií materika [Snow cover of Antarctica and its role in the present glaciation of the continent]. *Rezultaty Issledovaniy po Programme Mezhdunarodnogo Geofizicheskogo Goda. Glyatsiologiya. IX Radzel Programmy MGG [Results of Studies in the International Geophysical Year Programme. Glaciology. Section IX of the I.G.Y. Programme]*, No. 7, 1961, 246 p. [Well-documented monograph, based largely on author's work with second Soviet Antarctic Expedition, 1956-58.]
- LALYKIN, N. V. K voprosu o vodouderzhivayushchey sposobnosti snezhnogo pokrova [On the question of the water retention capacity of a snow cover]. *Trudy Ukrainskogo Nauchno-Issledovatel'skogo Gidrometeorologicheskogo Instituta [Transactions of the Ukrainian Scientific Research Institute of Hydrology and Meteorology]*, Vyp. 24, 1960, p. 21-26. [Laboratory experiments.]
- LISTER, H. Glaciology. 1. Solid precipitation and drift snow. *Trans-Antarctic Expedition, 1955-1958. Scientific Reports*, No. 5, 1960, 51p. [Problem of measurement of snow precipitation discussed; methods and instruments described; mean accumulation calculated.]
- LONGLEY, R. W. Snowfall measurements in northern Canada. *Quarterly Journal of the Royal Meteorological Society*, Vol. 86, No. 370, 1960, p. 566. [Points out other errors besides those mentioned by Jackson (ibid., Vol. 86, No. 368, 1960, p. 273-75), with reply by Jackson, p. 566-67.]
- NEEDHAM, J., and LU GWEI-DJEN. The earliest snow crystal observations. *Weather*, Vol. 16, No. 10, 1961, p. 319-27. [Chinese, Japanese and European observations reviewed.]
- SOSEDOV, I. S., and FILATOVA, L. N. Rezultaty nablyudeniý nad ispareníem so snezhnogo pokrova v gorakh Zailiyskogo Alatau [Results of observations on evaporation from snow cover in the Zailiyskiy Alatau]. *Meteorologiya i Gidrologiya [Meteorology and Hydrology]*, 1961, No. 8, p. 33-35. [Variation between day and night and between north- and south-facing slopes.]
- TOLANSKY, S. A theory on snow crystal symmetry. *Discovery*, Vol. 21, No. 12, 1960, p. 524-27. [Hypothesis that the symmetry of some snow-flakes is caused by their mechanical vibration as they fall through the air.]

The next issue of the *Journal* will be published in February 1963.

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