

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, G. T. Warwick 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

- BAIRD, P. D. Glaciological research in the Canadian Arctic. *Arctic*, Vol. 8, No. 2, 1955, p. 96-108. [Review of past and present work.]
- BAIRD, P. D., and SHARP, R. P. Glaciology. [Part 1]: a brief review of the recent history of the science, by P. D. Baird. [Part 2]: some aspects of glaciological research, by R. P. Sharp. *Arctic*, Vol. 7, Nos. 3-4, 1954, p. 141-52. [Research needs. Reprinted in *Special Publication* No. 2 of the Arctic Institute of North America, p. 29-40.]
- FINSTERWALDER, R. Kurs für Hochgebirgsforschung im Gepatschhaus, 8. bis 17.9.1953. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 113-14. [Description of course on high mountain studies, with short summary of lectures and demonstrations given, 1953.]
- HATTERSLEY-SMITH, G., and others. Northern Ellesmere Island, 1953 and 1954, by G. Hattersley-Smith and other members of the expeditions. *Arctic*, Vol. 8, No. 1, 1955, p. 3-36. [Leader's account of 1953 and 1954 investigations by members of Defence Research Board of Canada and Canadian Geological Survey. Account of glaciological studies by G. Hattersley-Smith; of geophysical and oceanographic studies by A. P. Crary; of geological observations, 1954, by R. L. Christie.]
- KINZL, H. Die wissenschaftliche Alpenvereinshefte. *Jahrbuch des Österreichischen Alpenvereins*, Bd. 80, 1955, p. 158-60. [Contains list of scientific publications of German and Austrian Alpine associations.]
- KOSACK, H.-P. *Die Antarktis: eine Länderkunde*. Heidelberg, Keyserische Verlagsbuchhandlung, 1955. 318 p. [General geographical study of Antarctica.]
- ODELL, N. E. So-called "glacier-worms" in New Zealand. *Nature*, Vol. 177, No. 4507, 1956, p. 534. [Specimens identified as species of *Chironomidae*, not *Oligochaeta*.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- CRARY, A. P. Seismic soundings in polar ice. *Geographical Review*, Vol. 45, No. 3, 1955, p. 428-30. [Examination of seismic methods: comments on recent literature.]
- KOBAYASHI, T. Studies on small ice crystals. III. Some remarks on replica methods. *Contributions from the Institute of Low Temperature Science*, No. 8, 1955, p. 75-86. [Criticism of V. J. Schaefer's use of "Formvar" solution for making replicas.]

PHYSICS OF ICE

- AMAKO, Y. Electronic structure of water molecule. *Scientific Reports of Tôhoku University*, First Ser., Vol. 38, No. 1, 1954, p. 77-84. [Calculation of electronic structure to give ionization potential and dipole moment of the H₂O molecule.]
- BIGG, E. K. Ice-crystal counts and the freezing of water drops. *Quarterly Journal of the Royal Meteorological Society*, Vol. 81, No. 349, 1955, p. 478-79. [Analysis of observations by Smith and Heffernan, *ibid.*, Vol. 80, No. 344, 1954, p. 182-97, compared with author's theory, *ibid.*, Vol. 79, No. 342, 1953, p. 510-19.]
- BOWDEN, F. P. Friction on snow and ice and the development of some fast-running skis. *Nature*, Vol. 176, No. 4490, 1955, p. 946-47. [Experiments on the influence of temperature on the friction on ice of various materials used for skis. Polytetrafluorethylene may be useful on skis, sledge runners, etc.]
- DAVIS, G. E. Scattering of light by an air bubble in water. *Journal of the Optical Society of America*, Vol. 45, No. 7, 1955, p. 572-81. [Calculation of attenuation of light by scattering from bubbles.]
- GOURLEY, M. F., and CROZIER, W. D. Evaporation of submicroscopic ice crystals. *Journal of Chemical Physics*, Vol. 23, No. 7, 1955, p. 1298-301. [Very small ice crystals evaporate more slowly than is predicted theoretically.]
- GRÄNICHNER, H., and others. Dielektrische Eigenschaften des Eises bei sehr tiefen Frequenzen und der Einfluss eines Vorfeldes, von H. Gränicher, C. Jaccard, P. Scherrer und A. Steinemann [*sic, i.e. S. Steinemann*]. *Helvetica Physica Acta*, Vol. 28, Fasc. 4, 1955, p. 300-03. [Measurement of dielectric constant and loss factor of ice from frequencies 1 to 2.5×10^5 per sec.]
- JACOBI, W. Homogeneous nucleation in supercooled water. *Journal of Meteorology*, Vol. 12, No. 4, 1955, p. 408-09. [Measurements of freezing temperature as function of drop size discussed.]
- JACOBI, W. Über die Eisbildung in reinem unterkühltem Wasser. *Zeitschrift für Naturforschung*, Bd. 10a, Ht. 4, 1955, p. 322-30. [Dependence of degree of supercooling of pure water on drop diameter measured and used to deduce the interfacial energy between ice and water.]
- KNESER, H. O., and others. Mechanische Relaxation von einkristallinem Eis, von H. O. Kneser, S. Magun und G. Ziegler. *Naturwissenschaften*, Jahrg. 42, Ht. 15, 1955, p. 437. [Damping of mechanical oscillations in ice single crystals has maximum at a frequency which varied with temperature.]
- KREITH, F., and ROMIE, F. E. A study of the thermal diffusion equation with boundary conditions corresponding to solidification or melting of materials initially at the fusion temperature. *Proceedings of the Physical Society*, Sect. B, Vol. 68, No. 425B, 1955, p. 277-91.
- LLIBOUTRY, L. Comparaison des rôles joués par les tensions internes et par le gradient thermique dans la recristallisation de la glace. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 240, No. 13, 1955, p. 1449-51. [Growth of glacier crystals due to thermal gradient as well as internal stresses.]
- LONSDALE, K. Neutrons and atom patterns in crystals. *Science News*, No. 37, 1955, p. 25-42. [Includes arrangement of atoms in ice molecule as shown by neutron diffraction.]
- MASON, B. J., and SHAW, D. The effect of temperature and supersaturation on the growth habit of ice crystals. *Journal of Meteorology*, Vol. 12, No. 1, 1955, p. 93-94. [Comment on Marshall and Langleben, *ibid.*, Vol. 11, No. 2, 1954, p. 104-20.]

- MATHESON, M. S., and SMALLER, B. Paramagnetic species in gamma-irradiated ice. *Journal of Chemical Physics*, Vol. 23, No. 3, 1955, p. 521-28. [Paramagnetic resonance spectra of H₂O and D₂O ice irradiated with gamma rays at 77° K. yield results interpreted in terms of the presence of free H and OH.]
- MERK, H. J. The influence of melting and anomalous expansion on the thermal convection in laminar boundary layers. *Applied Scientific Research*, Sect. A, Vol. 4, Nos. 5-6, 1954, p. 435-52. [Theoretical study of convection of heat from melting ice.]
- MONTMORY, R. L'épitaixie et la nucléation de l'eau surfondue. *Bulletin de l'Observatoire du Puy de Dôme*, 1955, No. 4, p. 108-24. [Discussion of crystallography of substances on which epitaxy of ice has been observed.]
- MOSSOP, S. C. The freezing of supercooled water. *Proceedings of the Physical Society*, Sect. B, Vol. 68, No. 424B, 1955, p. 193-208. [Values for the supercooling of very pure water in glass tubes down to -34.5° C.]
- MOSSOP, S. C. Sublimation nuclei. *Proceedings of the Physical Society*, Sect. B, Vol. 69, No. 434B, 1956, p. 161-64. [Experiments on substances which allow ice to grow on their surfaces by sublimation.]
- MOSSOP, S. C. The nucleation of supercooled water by various chemicals. *Proceedings of the Physical Society*, Sect. B, Vol. 69, No. 434B, 1956, p. 165-74. [Study of the ability of various materials to freeze supercooled water droplets formed on them.]
- NIVEN, C. D. The effect of high loading on the kinetic friction of ice. *Canadian Journal of Physics*, Vol. 32, No. 12, 1954, p. 782-89. [At high loadings the law of friction breaks down for steel on ice.]
- ŌKITA, T. A supplementary note on ice crystal growth. *Journal of the Meteorological Society of Japan*, Ser. 2, Vol. 32, Nos. 9-10, 1954, p. 312. [Experiments on rate of growth of ice crystals in the atmosphere compared with theory.]
- RAU, W. Wirkungsbereiche und Häufigkeit der natürlichen Gefrierkerne. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Bd. 8, Ht. 3, 1955, p. 185-203. [Measurements of temperatures at which nuclei produce freezing. Photographs of cubic ice crystals.]
- SELYAKOV, N. YA. Ispareniye l'da v period yego kristallizatsii [Evaporation of ice during its crystallization]. *Izvestiya Akademii Nauk SSSR. Seriya Geofizicheskaya* [News of the Academy of Sciences of the U.S.S.R. Geophysical Series], 1953, No. 5, p. 460-62.
- SHAW, D., and MASON, B. J. The growth of ice crystals from the vapour. *Philosophical Magazine*, Ser. 7, Vol. 46, No. 374, 1955, p. 249-62. [Laboratory study of growth and evaporation of ice crystals at various temperatures and supersaturations.]
- SHUMSKIY, P. A. K voprosu o passivnom orientiruyushchem vliyaniy tverdogo osnovaniya na narastayushchie kristally [On the question of the passive orientating influence of a solid substratum on growing crystals]. *Doklady Akademii Nauk SSSR* [Reports of the Academy of Sciences of the U.S.S.R.], Tom 93, No. 1, 1953, p. 51-54. [Determination of the orientation of ice crystals growing in water or from the vapour on a plane solid surface.]
- SPERNOL, A. Zur Protonbeweglichkeit im Eis. *Zeitschrift für Elektrochemie*, Bd. 59, Nr. 1, 1955, p. 31-32. [Resistance of dilute solutions of HCl, NaOH and KCl in ice decreases very rapidly between 0° and -15° C., and is much less in KCl than HCl or NaOH. This is interpreted as due to a special mechanism of proton migration.]
- TRUBY, F. K. Hexagonal microstructure of ice crystals grown from the melt. *Journal of Applied Physics*, Vol. 26, No. 12, 1955, p. 1416-20. [Very small hexagonal pyramidal pits seen in electron microscopic examination of ice surfaces.]
- VANDERBERG, R. M., and ELLIS, J. W. Different ice forms under ordinary conditions. *Journal of Chemical Physics*, Vol. 22, No. 12, 1954, p. 2088. [Newly prepared ice crystals have different interference and absorption spectra from older ones.]

LAND ICE. GLACIERS. ICE SHELVES

- AMBACH, W. Über den nächtlichen Wärmeumsatz der gefrorenen Gletscheroberfläche. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Bd. 8, Ht. 4, 1955, p. 411-26. [Measurements of the nocturnal heat balance of the frozen surface of the glacier on the Vernagtferner.]
- AVSYUK, G. A. Izmereniye temperatur l'da lednika Karabatkak [Measurement of the temperature of the ice of the glacier Karabatkak]. *Trudy Instituta Geografii* [Transactions of the Institute of Geography], Tom 60, 1954, p. 76-122. [Temperatures from surface to 22 m. depth continuously recorded, 1948-50, in Tien Shan glaciers.]
- AVSYUK, G. A. Temperaturnoye sostoyaniye lednikov [Temperature regime of glaciers]. *Izvestiya Akademii Nauk SSSR. Seriya Geograficheskaya* [News of the Academy of Sciences of the U.S.S.R. Geographical Series], 1955, No. 1, p. 14-31. [Classification by temperature into dry polar, moist polar, cold, marine and continental types.]
- BAUER, A. Über die in der heutigen Vergletscherung der Erde als Eis gebundene Wassermasse. *Eiszeitalter und Gegenwart*, Bd. 6, 1955, p. 60-70. [Estimate of the total ice cover of the earth as 21,740,000 cu. km. or a sheet of water 54 m. deep.]
- BOUT, P., and others. Géomorphologie et glaciologie en Islande centrale, par P. Bout, J. Corbel, M. Derruau, L. Garavel et C. P. Péguy (1). *Norvøis*, 2^e An., No. 8, 1955, p. 461-571. [Includes studies of glacier regime of Hofsjökull, also temperature, "rock glaciers" and geomorphology of central Iceland. English summary.]
- BRUCE, R. J. M., and BULL, C. Geophysical work in north Greenland. *Nature*, Vol. 175, No. 4464, 1955, p. 892-93. [Report of seismic and gravity surveys of British North Greenland Expedition, 1952-54.]
- [CAVE ICE.] *Schauhöhlen Österreichs*. Wien, Verband Österreichischer Höhlenforscher, 1954. 24 p. [Contains the following popular accounts of show caves with ice in them: "Eisriesenwelt im Tennengebirge bei Werfen (Salzburg)", by Erwin Angermeyer, p. 2-5; "Die Eiskogelhöhle im Tennengebirge (Salzburg)", by Gustav Abel, p. 5-8; "Der Dachsteinhöhlenpark bei Obertraun (Oberösterreich)", by Roman Lyon, p. 10-13. All these have summaries in French and English.]
- CORBEL, J. Crevasses et rivières sous-glaciaires. *Revue de Géographie de Lyon*, Vol. 30, No. 3, 1955, p. 237-47. [General discussion of crevasse formations and super and subglacial streams.]
- GHIDINI, G. M. *Uomini, caverni e abissi*. Milano, A.P.E., 1954. 286 p. [Chapter devoted to cave ice, p. 35-39, with good photographs.]
- HALLIDAY, W. R. Ice caves of the United States. *The American Caver. National Speleological Society* [of America], Bulletin 16, 1954, p. 3-28. [Critical review of theories of cave ice formation and description of U.S. caves by types. Bibliography.]
- HALLIDAY, W. R. Effects of glaciation on caves of the western United States. *National Speleological Society, Salt Lake Grotto, Technical Note*, No. 23, 1954, 4 p.
- HEINSHEIMER, G. J. Zur Hydrologie und Glaciologie des Lago Argentino und Ventisquero Moreno, Argentinien. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 24-32. [Report of the continued advance of Ventisquero Moreno, Argentina, in 1952-53, and its consequent damming of Canal de los Témpanos.]
- HEINSHEIMER, G. J. Der Durchbruch des Morenogletschers, Lago Argentino, Patagonien, 1953. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 33-38. [Advance of Ventisquero Moreno into wooded land, and observation of break out of ice-dammed lake.]

- HOINKES, H. Der Einfluss des Gletscherwindes auf die Ablation. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 18-23. [Discussion of heat carried to surface of a glacier by wind.]
- HOFMANN, W. Photogrammetric glacier measurements on the volcanic peaks of Washington. *Mountaineer*, Dec. 1953, p. 7-16. [Photogrammetry to measure glacier fluctuation, and description of a survey.]
- JOBERT, N. Sondages séismiques au Groenland. Deuxième partie: dispersion des ondes de surface dans la couche superficielle du glacier du Groenland. *Annales de Géophysique*, Tom. 9, Fasc. 4, 1953, p. 345-58. (*Rapports scientifiques des Expéditions Polaires Françaises*, No. N.3.2.) [Dispersal of surface waves in seismic sounding.]
- JOSET, A., and HOLTZSCHERER, J.-J. Sondages séismiques au Groenland. Première partie: étude des vitesses de propagation des ondes séismiques sur l'Inlandsis du Groenland. *Annales de Géophysique*, Tom. 9, Fasc. 4, 1953, p. 329-44. (*Rapports scientifiques des Expéditions Polaires Françaises*, No. N.3.2.) [1949-51. Study of speed of propagation of seismic waves. Methods and results.]
- JOSET, A., and HOLTZSCHERER, J.-J. Sondages séismiques au Groenland. Troisième partie: détermination des épaisseurs de l'Inlandsis du Groenland. *Annales de Géophysique*, Tom. 10, Fasc. 4, 1954, p. 351-81. (*Rapports scientifiques des Expéditions Polaires Françaises*, No. N.3.2.) [Methods and results of work done, 1949-51.]
- KLEBELSBERG, R. VON. Ergebnisse der Gletschermessungen des Österreichischen Alpenvereins in den österreichischen Alpen 1953. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 99-105. [Table of advance and retreat of Austrian glaciers, 1952-53.]
- KLEBELSBERG, R. VON. Die Gletscher der österreichischen Alpen 1953-54. *Mitteilungen des Österreichischen Alpenvereins*, Jahrg. 10 (80), Ht. 1/2, 1955, p. 8-10. [Detailed account of regime resulting from measurements made in 1954.]
- KÖLL, L. Der Gletscherschwund im Ortlergebiet. *Der Bergsteiger und Berge und Heimat* (München), Jahrg. 22, Ht. 3, 1954, p. 112-14. [Glacier recession in the Ortler region.]
- KÖRNER, H. Gletschermechanik und Gletscherbewegung. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 1-17. [Critical discussion of theories of glacier flow.]
- LIMBERT, D. W. S. The formation of ice in mountain regions. *Mountaincraft*, No. 27, 1955, p. 14-18. [The occurrence of, and causes producing, ice in the mountains.]
- LLIBOUTRY, L. L'incorporation des éboulis dans la glace. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 240, No. 15, 1955, p. 1623-24. [Examination of nature and formation of debris-laden ice.]
- LLIBOUTRY, L. Surimposition d'un débordement glaciaire à un glacier d'éboulis. *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (Paris), Tom. 240, No. 16, 1955, p. 1654-57. [Action of a superimposed glacier upon debris-laden ice. Remarks on this paper by Léon Moret, p. 1656-57, point out the analogy with mountain building.]
- MARSHALL, E. W. Structural and stratigraphic studies of the northern Ellesmere ice shelf. *Arctic*, Vol. 8, No. 2, 1955, p. 109-14. [Further results of 1954 expedition, led by G. Hattersley-Smith. See *ibid.*, Vol. 8, No. 1, 1955, p. 3-36.]
- MERCANTON, P.-L. Variation d'altitude des fronts glaciaires. *Verhandlungen der Schweizerischen Naturforschenden Gesellschaft*, 134 Jahresversammlung, Altdorf, 1954, p. 112-13. [Discussion of use of mean altitude of snouts of glaciers as measure of glacial advance and retreat.]
- MERCANTON, P.-L. La glaciation du Valais et ses variations dans les temps modernes. *Wasser- und Energiewirtschaft*, 1955, Nr. 5-6-7, p. 100-03. [Summary of variations; estimated retreat of the Valais glaciers since 1777 is 135 sq. km.]
- MILLER, D. H., and HOWELL, W. E. Discussion of "Some measurements of ablation, melting and solar absorption on a glacier in Peru". *Transactions. American Geophysical Union*, Vol. 36, No. 2, 1955, p. 339-40. [Suggested heat balance drawn up by Miller from data in a paper by Howell, *ibid.*, Vol. 34, No. 6, 1953, p. 883-88, with reply by Howell.]
- MILLER, M. M. A nomenclature for englacial structures. *Acta Geographica*, 14, 1955, p. 291-99.
- MORAWETZ, S. Die Vergletscherung des inneren Kauner-, Pitz- und Rofentales (Ötztalzer Alpen, Tirol). *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 68-74. [Discussion on the basis of the latest evidence of the glaciers of the Pitz-, Kauner- and Rofentals, and of their diminution since 1878.]
- MUNTZ, A. P. Recent glacier activity in the Taku Inlet area, southeastern Alaska. *Arctic*, Vol. 8, No. 2, 1955, p. 83-95. [Study of Taku and Norris glaciers: significant features of recent fluctuations.]
- NEVIÈRE, J. Campagne au Groenland 1948-1949-1950. Nivellement géodésique de l'Inlandsis. *Annales de Géophysique*, Tom. 10, Fasc. 1, 1954, p. 66-88. (*Rapports scientifiques des Expéditions Polaires Françaises*, No. N.3.1.) [Leader's report on levelling on ice sheet.]
- OECHSLIN, M. Die Gletscherschwankungen in den schweizer Alpen. *Die Alpen*, Jahrg. 31, No. 7, 1955, p. 176. [Editorial comment on report by P.-L. Mercanton and A. Renaud on the state of the Swiss glaciers in 1954.]
- OECHSLIN, M. Gletscherfontäne. *Die Alpen*, Jahrg. 31, No. 9, 1955, *Varia*, p. 179. [An intermittent waterspout on Findelengletscher, Zermatt, attributed to pressure caused by glacier movement.]
- ORVIG, S. Glacial-meteorological observations on icecaps in Baffin Island. *Geografiska Annaler*, Årg. 36, Ht. 3-4, 1954, p. 193-318. [Meteorological conditions (and heat balance at snow surface) on Penny Highland, summer 1953; relation to ablation, comparison with other glaciers.]
- O'SHEA, B. E. Ruapehu and the Tangiwai disaster. *New Zealand Journal of Science and Technology*, Sect. B, Vol. 36, No. 2, 1954, p. 174-89. [Discussion of the causes of the Whangaehu River flood which led to the Tangiwai rail disaster. Description of Ruapehu Crater Lake.]
- PASCHINGER, H. Der südlichste Gletscher Europas. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 39-46. [Report of disappearance of the glacier in the Corral de Veleta, Sierra Nevada, Spain, and description of its corrie.]
- PASCHINGER, H. Nachmessungen am Pasterzenkees (Glocknergruppe) im Jahre 1953. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 3, Ht. 1, 1954, p. 106-12. [Continuation of retreat, velocity, surface profile and ablation measurements on the Pasterzenkees, eastern Alps, 1953.]
- PIRKER, R. Von Höhlenklima und vom Höhleneis. (In PIRKER, R., and TRIMMEL, H., ed. *Karst und Höhlen in Niederösterreich und Wien*. Wien, Verlag für Jugend und Volk, 1954, p. 43-48.) [Popular description of cave climatology and cave ice.]
- RIST, S. Dyrfjallajökull. *Jökull*, År 3, 1953, p. 38. [Glaciers in Dyrfjöll, Iceland; recession since 1930.]
- ROBIN, G. DE Q. Determination of the thickness of ice shelves by seismic shooting methods. *Nature*, Vol. 177, No. 4508, 1956, p. 584-86. [New interpretation of seismic soundings taken in Antarctica.]
- RÖTHLISBERGER, H. The seismic examination of glaciers. *Mountain World* (London, George Allen & Unwin), 1954, p. 149-56. [Work on Cumberland Peninsula, Baffin Island, by P. D. Baird's 1953 expedition.]
- SAAR, R. Meteorologisch-physikalische Beobachtungen in der Dachstein-Rieseneishöhle. *Die Höhle*, Bd. 5, Ht. 3/4, 1954, p. 49-62. [Meteorological observations taken by Kyrle in the Dachstein ice cave in 1928-29, and less detailed data for longer period.]
- SAAR, R. Meteorologisch-physikalische Beobachtungen in den Dachsteinrieseneishöhlen, Oberösterreich. *Wetter und Leben*, Jahrg. 7, Ht. 8-11, 1955, p. 213-19. [Discussion of climate of ice caves with special reference to the Dachsteinrieseneishöhle.]

- SAAR, R. Die Dachstein-Rieseneishöhle nächst Obertraun und ihre Funktion als dynamische Wetterhöhle. *Jahrbuch des Oberösterreichischen Musealvereines*, Bd. 100, 1955, p. 263-319. [Study of meteorology of this ice show-cave.] [SVALBARD: LAND ICE.] Area of ice-covered land in Svalbard and Jan Mayen. *Polar Record*, Vol. 7, No. 49, 1955, p. 330-31. [Estimations by Thor Askheim and W. Salheim of Norsk Polarinstitut.]
- SWITHINBANK, C. W. M. "Ice streams." *Polar Record*, Vol. 7, No. 48, 1954, p. 185. [Proposed term to describe an outlet glacier of an inland ice sheet where there is no exposed rock to define its marginal limits.]
- TRYGGVASON, E., and EYTHORSSON, J. Gljúfurárjökull i Svarfardal. *Jökull*, Ár 3, 1953, p. 44. [Gljúfurárjökull in Svarfardal, Iceland.]
- WAWRIK, F. Hochgebirgs-Kleingewässer im Arlberggebiet II. *Sitzungsberichte der Österreichischen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Klasse*, Abt. A, Bd. 164, Ht. 6-7, 1955, p. 367-87. [Observations on streams issuing from glaciers. Includes study of iron bacteria in the water in contact with ice.]
- WEST, R. The recent history of the Commander Glacier: a preliminary study. *Canadian Alpine Journal*, Vol. 38, 1955, p. 99-101. [Purcell Range, British Columbia.]
- ZABIROV, R. D. Oledeniye gornogo massiva Muz-kol [Glacierization of the Muz-kol massif]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva [News of the All Union Geographical Society]*, Tom 87, No. 4, 1955, p. 325-34. [Description of existing glaciers in this part of Pamirs.]
- ZABIROV, R. D. *Oledeniye Pamira [Glaciation of the Pamirs]*. Moscow, Gosudarstvennoye Izdatel'stvo Geograficheskoy Literatury [State Publishing House for Geographical Literature], 1955. 372 p. [Location and dimensions of 1172 existing glaciers; ancient extent of glaciation.]
- ZINGG, T. Die Bestimmung der klimatischen Schneegrenze auf klimatologischer Grundlage. *Angewandte Pflanzensoziologie*, Bd. 2, 1954, p. 848-54. [Determination of the climatic snow line by climatological as opposed to topographical data. Also published as *Mitteilungen des Eidgenössisches Institutes für Schnee- und Lawinenforschung*, No. 12, 1954.]

ICEBERGS, SEA, RIVER AND LAKE ICE

- ARMSTRONG, T. E. Sea ice studies. *Arctic*, Vol. 7, Nos 3-4, 1954, p. 201-05. [Present position. Reprinted in *Special Publication No. 2 of the Arctic Institute of North America*, p. 89-93.]
- ARMSTRONG, T. E. Soviet work on sea ice forecasting. *Polar Record*, Vol. 7, No. 49, 1955, p. 302-11. [Prediction of drift, growth and decay of sea ice, 1923-50.]
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