

ZEITSCHRIFT FÜR GLETSCHERKUNDE UND GLAZIALGEOLOGIE (Ed. R. VON KLEBELSBERG), Innsbruck, Universitäts-Verlag Wagner, Bd. 3, Ht. 1, 1954, 144 pages.

THIS issue follows closely in time on the previous number reviewed in Vol. 2, No. 16, 1954, of this *Journal*. Of the longer articles (*Abhandlungen*) purely glaciological subjects predominate: H. Körner writes on glacier mechanics and flow; H. Hoinkes on the influence of glacier wind on ablation; G. Heinsheimer on hydrology and glaciology in Argentina; H. Paschinger on glacierization in Spain.

Among the many shorter articles (*Mitteilungen, Berichte*) an unusual note appears dealing with firn conditions in Corsica. The Editor summarizes the results of the fluctuation measurements in the Eastern Alps and Prof. R. Finsterwalder writes on the 1953 Alpine Research Course at the Gepatschhaus.

In the excellent review section covering a wide range of recently appeared works there is a carefully prepared list of contents in recent issues of the *Journal of Glaciology*. These are divided into headings—Snow research, Ice research, Glacier research (general) and Glacier research divided into regions (the Arctic, the Antarctic, North America, Europe, etc.) occupying three and a half pages.

G. SELIGMAN

GLACIOLOGICAL LITERATURE

THIS bi-annual list of glaciological literature aims to cover the *scientific* aspects of snow and ice in all parts of the world. Attention is drawn to the bibliographies in each number of the *Polar Record* (Cambridge), which aim to cover the significant work dealing with expeditions, research, equipment and conditions of living in the Polar regions. Both journals, however, deal with Polar literature having specific glaciological interest and with general matters of a practical nature such as snowcraft.

Readers will greatly assist the Editor by notifying him of their own, or any other, publication of glaciological interest.

- ÅNGEBY, O. Recent, subglacial and lateroglacial pothole-erosion (evorsion). *Kungl. Fysiografiska Sällskapets i Lund Handlingar*, N.F., Bd. 63, Nr. 5, 1952, 13 p. [Potholes formed by glacial and non-glacial streams compared. Also published as *Lunds Universitets Årsskrift*, N.F., Avd. 2, Bd. 48, Nr. 5, 1952, and as *Lund Studies in Geography*, Ser. A, No. 3, 1952, p. 14–24.]
- AKKURATOV, V. Bluzhdaiushchiye ostrova [Wandering islands]. *Vokrug Sveta [Round the World]*, No. 6, 1954, p. 17–21. [Possible reasons for disappearance of arctic islands; ‘ice island’ sighted 700 km. north of Ostrov Vrangelya in March 1946.]
- ARAKAWA, K. Studies on the freezing of water. 2. Formation of disc crystals. *Journal of the Faculty of Science, Hokkaido University*, Ser. 2, Vol. 4, No. 5, 1954, p. 311–39. [Conditions which produce disc crystals; surface phenomena of growing crystals; mechanics of anchor ice formation.]
- ARTMANN, K. Hybridisierung, Gleichgewichtswinkel und Normalschwingungen von H₂O und verwandten Molekülen. *Zeitschrift für Physik*, Bd. 138, Ht. 5, 1954, p. 640–57. [Theory of the position of the H atoms in H₂O, H₂S and H₂Se.]
- ATWATER, M. M. The relationship of precipitation intensity to avalanche occurrence. *Proceedings. Western Snow Conference, 20th annual meeting, 21 and 22 April 1952*. . . . Fort Collins, Colorado, 1952, p. 11–19. [Recent investigations at U.S. Forest Service experimental stations.]
- ATWATER, M. M., and others. Avalanche research; a progress report, part 1, by M. M. Atwater, E. [R.] LaChapelle, R. M. Stillman and F. M. Foto. *Appalachia*, N.S. Vol. 20, No. 12, 1954, p. 209–20. [Research by U.S. Forest Service on use of new snowfall intensity gauge, of snow collectors and of operations recorders; new electronic avalanche timing system.]
- AVSYUK, G. A. Lednik Inylchek. (*In Pobezhdennyye vershiny. Yezhegodnik sovetского al'pinizma. God 1952 [Conquered peaks. Yearbook of Soviet Mountaineering, 1952]*) (Moscow), 1952, p. 27–90. [Glacier in Tien Shan; description and history of exploration and study. Copy at Royal Geographical Society.]
- BAIRD, P. D., and others. Baffin Island expedition 1953: a preliminary field report. *Arctic*, Vol. 6, No. 4, 1953, p. 226–51. [Expedition to Cumberland Peninsula area. Reports on glacier physics by W. H. Ward; seismic soundings by H. Röthlisberger; meteorology by S. Orvig and B. H. Bonnländer; geology by D. J. Kidd; geomorphology by H. R. Thompson; zoology by A. Watson; botany by F. H. Schwarzenbach; mountaineering and surveying by J. Marmet; photography by J. A. Thomson and J. R. Weber.]
- BAUER, A. *Glaciologie. Groenland. Vol. 2: le glacier de l'Eqe*. Paris, Hermann, 1955. 120 p., 26 plates. (Actualités scientifiques et industrielles, 1225; Expéditions Polaires Françaises [travaux], 6.) [Ice streams in Ata Sund region, west Greenland; description of lower reaches of Equip Sermia, velocity, regime. Bibliography. German and English summaries.]
- BLACK, R. F. Precipitation at Barrow, Alaska, greater than recorded. *Transactions. American Geophysical Union*, Vol. 35, No. 2, 1954, p. 203–07. [Data on depth and density of snow, winter 1949–50, show that wind affects accuracy of standard U.S. Weather Bureau 8-inch precipitation gauge. Discussion by W. T. Wilson, p. 206–07.]
- BOWDEN, F. P. *Recent studies of metallic friction*. London, Institution of Mechanical Engineers, 1954. 12 p. (Hawksley Lecture.) [Includes section on friction in ski-ing and the development of some new fast-running ski.]
- BOWDEN, F. P., and ROWE, G. W. The friction and mechanical properties of solid krypton. *Proceedings of the Royal Society*, Ser. A, Vol. 228, No. 1172, 1955, p. 1–9. [Includes comparison between friction and hardness of krypton and those of ice.]

- BREITNER, H. J. Entmischung beim Gefrieren wässeriger Lösungen. *Deutsche Hydrographische Zeitschrift*, Bd. 6, Ht. 2, 1953, p. 80-86. [Effect of concentration and cooling temperature of salt solutions on the structure of their ice. Salt content of sea ice at different temperatures discussed.]
- BROIDA, H. P., and others. Optical spectroscopic determination of hydrogen isotopes in aqueous mixtures, by H. P. Broida, H. J. Morowitz and M. Selgin. *Journal of Research of the National Bureau of Standards*, Vol. 52, No. 6, 1954, p. 293-301. [Methods of quick determination of deuterium oxide concentration using a small sample.]
- BROTHERS, R. N. The relative Pleistocene chronology of the South Kaipara district, New Zealand. *Transactions of the Royal Society of New Zealand*, Vol. 82, Part 3, 1954, p. 677-94. [Correlation of this district in western North Island (N.Z.) with European Pleistocene chronology.]
- CARLSON, H. Calculation of depth of freezing and thawing under pavements. *U.S. Highway Research Board. Bulletin 71*, 1953, p. 81-98. [Theory compared with empirical results in Alaska. Discussion by H. P. Aldrich and H. M. Paynter, p. 95-98.]
- CORBEL, J. Sols polygonaux et "terrasses marines" du Spitzberg. *Revue de Géographie de Lyon*, Vol. 29, No. 1, 1954, p. 1-28. [In Spitsbergen practically all the great fields of polygons are found on limestones forming marine terraces.]
- CRARY, A. P. A brief study of ice tremors. *Bulletin of the Seismological Society of America*, Vol. 45, No. 1, 1955, p. 1-9. [Seismic ice tremors in floating ice at Barter Island, Alaska, recorded and possible causes discussed.]
- DIAMOND, M., and LOWRY, W. P. Correlation of density of new snow with 700-millibar temperature. *Journal of Meteorology*, Vol. 11, No. 6, 1954, p. 512-13. [Correlation found with 700 mb. temperature but not with 500 mb. temperature.]
- DIBNER, V. D. O proiskhozhdenii plovuchikh ledyanikh ostrovov [Origin of floating ice islands]. *Priroda [Nature]*, 1955, No. 3, p. 89-92. [Origin from glacier tongues suggested; iceberg 12 km. long in fiord in Severnaya Zemlya quoted as example.]
- DOBROWOLSKI, A. B. Petrografia lodu a pojecie linii brzegowej lądu polarnego [Petrography of ice and the coast line of polar lands]. *Acta Geologica Polonica* (Warsaw), Vol. 3, 1953, p. 190-92. [Author proposed that land and sea ice should be regarded as crystalline rock; special reference is made to the problem of determining the coast line of glacier-covered land merging into ice shelf. Russian and French summaries, p. 59-62.]
- DOLE, M. The chemistry of the isotopes of oxygen. *Chemical Reviews*, Vol. 51, No. 2, 1952, p. 263-300. [Includes discussion of isotopic separation in freezing. Bibliography.]
- DORYWALSKI, M. Zastowanie wskaźnika zaokrąglenia do badań peryglacialnych [Application of the smoothness index (*indice d'émoussé*) of pebbles to periglacial research]. *Buletyn Peryglacialny [Periglacial Bulletin]*, Nr. 1, 1954, p. 31-38, 132-35. [Use of Cailleux' index of smoothness in determining origin of sediments. French translation, p. 132-35.]
- DURY, G. H. A glacial breach in the north western Highlands. *Scottish Geographical Magazine*, Vol. 69, No. 3, 1953, p. 106-17. [Drainage development.]
- DYLKOWA, A., and OLCHOWIK, J. Zmarzlina—Pojęcia ogólne [Frozen ground—general terms]. *Buletyn Peryglacialny [Periglacial Bulletin]*, Nr. 1, 1954, p. 39-48, 136-41. [Survey of terms used to describe frozen ground in English, French, German, Russian and Polish, including the ice in it and the active layer. English translation, p. 136-41.]
- EYTHÓRSSON, J. Report on sea ice off the Icelandic coasts in Jan.-Sept. 1953. *Jökull*, Ar 3, 1953, p. 45-49. [Observations in area between Iceland and Greenland, lats. 65°-72° N.]
- FLINT, R. F. Rates of advance and retreat of the margin of the late-Wisconsin Ice Sheet. *American Journal of Science*, Vol. 253, No. 5, 1955, p. 249-55. [Rates of advance and retreat from C14 dates of wood.]
- FREYMANN, M., and FREYMANN, R. Spectre hertzien et structure des solides: II, absorption Debye de l'eau libre et de l'eau liée. *Journal de Physique et le Radium*, Sér. 8, Tom 15, No. 3, 1954, p. 165-75. [Review article, including dielectric losses in ice.]
- FRISTRUP, B. Istidens isfrie oaser. *Grønland*, Ht. 8, [1953], p. 291-95. [Ice-free areas in Greenland and other arctic regions during Ice Age, as indicated by survival of plant and animal life.]
- FRISTRUP, B. Permafrost. *Grønland*, Ht. 9, [1953], p. 331-36. [Effect on roads and buildings.]
- FRÖDIN, G. De sista skedena av Centraljämtlands glaciala historia. *Geographica*, No. 24, 1954, 251 p. [Last stages of glacial history of central Jämtland (Sweden). English summary.]
- GARAVEL, L. Comportement glaciaire et fluctuations climatiques. *Revue Forestière Française*, No. 1, 1955, p. 9-26. [Study of the Glacier de Sarennes in relation to the local climatic conditions.]
- GERDEL, R. W. The transmission of water through snow. *Transactions. American Geophysical Union*, Vol. 35, No. 3, 1954, p. 475-85. [Instrument to detect water content of snow by measuring dielectric constant; its use to measure rate of water transmission in snow for different snow densities.]
- GLEN, J. W. The creep of polycrystalline ice. *Proceedings of the Royal Society*, Ser. A, Vol. 228, No. 1175, 1955, p. 519-38. [Results of compression tests on polycrystalline blocks of ice in the laboratory.]
- GOEDECKE, E. Über den Zusammenhang zwischen Eis- und Kältesumme sowie Oberflächentemperatur in der Elbe- und Wesermündung während der Winter 1903-1950. *Annalen der Meteorologie*, Jahrg. 6, Ht. 5/6, 1953/54, p. 151-63. [Relation between number of days with ice and mean temperatures of air and of surface water of rivers.]
- GOLD, L. W., and POWER, B. A. Dependence of the forms of natural snow crystals on meteorological conditions. *Journal of Meteorology*, Vol. 11, No. 1, 1954, p. 35-42. [Observations during a snowfall gave dependence with temperature in agreement with Nakaya's laboratory tests.]
- GORDIYENKO, P. A. Izucheniye ledovogo rezhima v arkticheskikh moryakh i Severnom Ledovitom okeane [Study of ice behaviour in the arctic seas and the Arctic Ocean]. *Morskoy Flot [Merchant Fleet]*, 1955, No. 3, p. 25-28. [Drift of sea ice in Arctic Ocean, based largely on work of Soviet drifting stations, 1954-55.]
- GUTENBERG, B. Postglacial uplift in the Great Lakes region. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Serie A, Bd. 7, 1954, p. 243-51. [Uplift data of North America similar to those for Fennoscandia.]
- HAEFELI, R. Creep problems in soils, snow and ice. Revised and supplemented version. *Proceedings of the Third International Conference on Soil Mechanics and Foundation Engineering, Switzerland, 16th to 27th August 1953*. Zürich, Berichthaus, Vol. 3, [1953 or 4], p. 238-51. [Discussion on creep, shear and plasticity in snow, glaciers and soils.]
- HALLEY, J. F. Cold-room studies of frost action in soils; a progress report. *U.S. Highway Research Board. Bulletin 71*, 1953, p. 1-18. [Factors influencing ice segregation in soils.]
- HASTED, J. B. Étude des molécules d'eau par les radiofréquences. *Journal de Chimie Physique*, Tom. 50, Nos. 7-8, 1953, p. C35-C39. [Review of the dielectric properties of water and ice. Also published as *Colloque International du Centre National de la Recherche Scientifique*, No. 53, 1953, p. C35-C39.]
- HEUBERGER, J.-C. *Glaciologie. Groenland. Vol. 1: forages sur l'inlandis*. Paris, Hermann, 1954. 68 p. (Actualités scientifiques et industrielles, 1214. Expéditions Polaires Françaises [travaux], 5.) [Drilling technique, specific gravity, temperature and electrical measurements. English and German summaries.]

- HEUSSER, C. J. Nunatak flora of the Juneau Ice Field, Alaska. *Bulletin of the Torrey Botanical Club*, Vol. 81, No. 3, 1954, p. 236-50. [Flora listed. No conclusive evidence that areas remained unglaciated during Mankato glaciation.]
- HEYBROCK, W. Eiszeitliche Gletscherspuren und heutige Schneeverhältnisse im Zentralgebiet des Hohen Atlas. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd. 2, Ht. 2, 1953, p. 317-20. [Pleistocene glaciers and present snow conditions in the Atlas mountains.]
- HÖHNES, H. Über glazial-meteorologische Arbeiten im Sommer 1952. *Anzeiger der Österreichische Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Klasse*, Jahrg. 91, Nr. 15, 1954, p. 219-25. [Continuation of programme on radiation, ablation, wind and heat balance on the Vernagtferner (Ötztaler Alps).]
- HUETZ DE LEMPS, A. Le relief de la Nouvelle-Zélande. *Revue de Géographie Alpine*, Tom 43, Fasc. 1, 1955, p. 5-96. [Geomorphological study including glaciation and glacierization.]
- HUMBEL, F., and others. Le comportement diélectrique et les modules d'élasticité de monocristaux de glace, par F. Humbel, F. Jona et P. Scherrer. *Journal de Chimie Physique*, Tom 50, Nos. 7-8, 1953, p. C40-C43. [Growth of large single crystals of ice and the determination of the dielectric and elastic constants. Also published as *Colloque International du Centre National de la Recherche Scientifique*, No. 53, 1953, p. C40-C43.]
- JOHANSSON, G. Deglaciation of the highland of south Sweden; some aspects. *Kungl. Fysiografiska Sällskapet i Lund Handlingar*, N.F., Bd. 63, Nr. 7, 1952, 14 p. [Also published as *Lunds Universitets Årsskrift*, N.F., Avd. 2, Bd. 48, Nr. 7, 1952, and as *Lund Studies in Geography*, Ser. A, No. 3, 1952, p. 1-13.]
- KING, C. A. M. The University of Nottingham South-East Iceland Expedition, 1953. Part 3. Geomorphological and glaciological observations made in north-west Óraefi. *Weather*, Vol. 9, No. 12, 1954, p. 374-79.
- KING, R. F., and TABOR, D. The strength properties and frictional behaviour of brittle solids. *Proceedings of the Royal Society of London*, Ser. A, Vol. 223, No. 1153, 1954, p. 225-38. [Includes results for the shear strength of ice measured from friction grooves.]
- KIRSHENBAUM, I. *Physical properties and analysis of heavy water*, edited by H. C. Urey and G. M. Murphy. New York, McGraw-Hill, 1951. xvi, 438 p. [Includes chapters on the physical properties of D₂O, isotopic analysis of water, and the natural abundance of hydrogen and oxygen isotopes. Bibliography.]
- KOBAYASHI, T. Studies on small ice crystals. I. The ice crystals of rectangular plane form. *Contributions from the Institute of Low Temperature Science*, No. 5, 1954, p. 1-5. [Rectangular crystals apparently belonging to the cubic system in artificially precipitated snow.]
- KOBAYASHI, T. Studies on small ice crystals. II. On the ice crystals formed on hydrophobic substances; a general survey. *Contributions from the Institute of Low Temperature Science*, No. 6, 1954, p. 7-18.
- KURTYKA, J. C. *Precipitation measurements study*. Urbana, Illinois, Department of Registration and Education, State Water Survey Division, 1953. viii, 178 p. (Report of investigation no. 20.) [Review of past and present methods and instruments for measuring rain and snow. Well illustrated. Bibliography.]
- LECOMTE, J. Le spectre infrarouge et l'étude de l'eau dans les solides; I: Introduction générale et position de la question. *Journal de Chimie Physique*, Tom. 50, No. 9, 1953, p. C53-C64. [Review of work on infra-red absorption in ice, water and steam. Also published as *Colloque International du Centre National de la Recherche Scientifique*, No. 53, 1953, p. C53-C64.]
- LECOMTE, J., and others. Dosage isotopique de l'eau par mesure d'absorption dans l'infrarouge, par J. Lecomte, M. Ceccaldi et E. Roth. *Journal de Physique et le Radium*, Sér. 8, Tom 15, No. 6, 1954, p. 543-44. [A method of determining the D₂O content of water by infra-red absorption measurements.]
- LILJEQUIST, G. H. Radiation, and wind and temperature profiles over an antarctic snow-field—a preliminary note. *Proceedings of the Toronto Meteorological Conference 1953*. London, Royal Meteorological Society, 1954, p. 78-87.
- LISTER, H. Report on glaciology at Breidamerkurjökull 1951. *Jökull*, Ár 3, 1953, p. 23-31. [Investigations by Durham University Expedition to Iceland, 1951. Effect of rock debris on ablation.]
- LOMBARD, A. Observations sur la morphologie du massif du Mt. Everest. *Bulletin de l'Académie Royale de Belgique (Classe des Sciences)*, 5^e Sér., Tom 40, 1954, p. 320-31. [Brief description of geomorphology of Mt. Everest and its glaciers.]
- LOUGEE, R. J. The role of upwarping in the post-glacial history of Canada. *Revue Canadienne de Géographie*, Vol. 7, No. 1-2, 1953, p. 3-14; Vol. 8, No. 1-2, 1954, p. 3-52. [Retreat of ice associated with glacial Lake Madawaska.]
- MCCALL, J. G. Glacier tunnelling and related observations. *Polar Record*, Vol. 7, No. 48, 1954, p. 120-36. [Methods used on Vesl-Skautbreten, Jotunheimen, Norway, 1951 and 1952.]
- MACKAY, J. R. Fissures and mud circles on Cornwallis Island, N.W.T. *Canadian Geographer*, No. 3, 1953, p. 31-37. [Patterned ground; large fissures, forming outlines of polygons. Mud circles also occur on raised beaches.]
- MANLEY, G. A climatological study of the retreat of the Laurentide Ice Sheet. *American Journal of Science*, Vol. 253, No. 5, 1955, p. 256-73. [Estimation of climatic conditions since the Wisconsin maximum.]
- MASON, B. J. On the generation of charge associated with graupel formation in thunderstorms. *Quarterly Journal of the Royal Meteorological Society*, Vol. 79, No. 342, 1953, p. 501-09. [Theory of thunderstorm electricity based on charge developed by rime deposit.]
- MASON, B. J., and McDONALD, J. E. Homogeneous nucleation of supercooled droplets. *Journal of Meteorology*, Vol. 11, No. 6, 1954, p. 514-16. [Criticism by Mason of paper by McDonald, *ibid.*, Vol. 10, No. 6, 1953, p. 416-33, with reply by McDonald.]
- MATHIEU, J.-P. L'effet Raman dans les cristaux hydratés. *Journal de Chimie Physique*, Tom. 50, No. 9, 1953, p. C79-C88. [Experiments on the Raman spectrum of ice and of hydrated salts. Also published as *Colloque International du Centre National de la Recherche Scientifique*, No. 53, 1953, p. C79-C88.]
- MATZNETTER, J. Über die Lawinentätigkeit an der Arlbergbahn. *Wetter und Leben*, Jahrg. 6, Ht. 1-2, 1954, p. 21-25. [Report of experience of avalanches on the Arlberg railway since 1888.]
- MEIER, M. F., and others. Preliminary data from Saskatchewan Glacier, Alberta, Canada, by M. F. Meier, G. P. Rigsby, and R. P. Sharp. *Arctic*, Vol. 7, No. 1, 1954, p. 3-26. [Results of comprehensive field studies in summer 1952 and 1953.]
- MILLER, R., and others. Stone stripes and other surface features of Tinto Hill, by R. Miller, R. Common and R. W. Galloway. *Geographical Journal*, Vol. 120, Pt. 2, 1954, p. 216-19. [Stone stripes of Tinto Hill, upper Lanarkshire, attributed to frost heaving and water drainage.]
- MILTHERS, K. Er Grønland stadig midt i en istid? *Grønland*, Ht. 5, [1953], p. 161-66. [Occurrence of ice ages and significance of Greenland ice.]
- MILTHERS, K. Inlandsisens oprindelse. *Grønland*, Ht. 6, [1953], p. 225-30. [Origins of Greenland ice sheet.]
- MILTHERS, K. Inlandsisens "produktion". *Grønland*, Ht. 9, [1953], p. 343-47. [Melting, melt water streams, icebergs from Greenland ice sheet.]
- MÖLLER, F. Zur Erklärung des Eislinks. *Polarforschung*, Bd. 3, Jahrg. 23, Ht. 1-2, 1953, p. 236. [Explanation of iceblink.]

- MOSSOP, S. C., and BIGG, E. K. The freezing of cloud droplets. *Quarterly Journal of the Royal Meteorological Society*, Vol. 80, No. 345, 1954, p. 455-57. [Comments on Bigg's work, with reply by Bigg and some new measurements.]
- NICHOLS, R. L. *Geomorphology of Marguerite Bay, Palmer Peninsula, Antarctica; compiled by Ronne Antarctic Research Expedition under contract with Geophysics Branch, Earth Sciences Division. . .* Washington, D.C., Office of Naval Research, [1953]. vi, 151 p. 26 cm. (Ronne Antarctic Research Expedition. Technical Report No. 12.)
- NIELSEN, L. E. Regimen and flow of ice in equilibrium glaciers. *Bulletin of the Geological Society of America*, Vol. 66, No. 1, 1955, p. 1-8. [Theory of the equilibrium of a stationary glacier.]
- NOTH, H. Vom Schneefall bei Temperaturen über null Grad. *Zeitschrift für Meteorologie*, Bd. 8, Ht. 6, 1954, p. 182-83. [Snow flakes do not melt in unsaturated air just above 0° C. because of the hypsometric effect.]
- NUSSER, F. Die Eisverhältnisse des südlichen Atlantischen Ozeans. (In *Handbuch des Atlantischen Ozeans*. Hamburg, Deutsches Hydrographisches Institut, Bd. 2, 1954, p. 42-47.) [Ice conditions in the South Atlantic; maps.]
- OKKO, V. Periglacialisesta morfologiasta Suomesta. *Terra*, Arg. 66, No. 2, 1954, p. 54-57. [Periglacial morphology in Finland. "Palsa-bogs", solifluction phenomena, fossil dunes, and their distribution. English summary.]
- OLYUNIN, V. N. K istorii oledeniya yugo-vostoka gornoy chasti Kabardinskoy ASSR [On the history of the glaciation of the south-east of the mountainous part of Kabardinskaya A.S.S.R.]. *Trudy Instituta Geografii [Transactions of the Institute of Geography]*, Tom 58, 1953, p. 90-178. [Fluctuations of several glaciers in this part of Caucasus.]
- OOUCHI, K. A study of the freezing process of supercooled water. *Journal of the Meteorological Society of Japan*, Ser. 2, Vol. 32, No. 5-6, 1954, p. 119-28. [In Japanese with English summary. Theory of freezing of a supercooled drop.]
- OULIANOFF, N. Eroulements de glaces et avalanches de neige. *Bulletin des Laboratoires de Géologie, Minéralogie, Géophysique et du Musée Géologique de l'Université de Lausanne*, No. 110, 1954, 7 p. [Retreat of glaciers favours the release of more ice avalanches.]
- OWSTON, P. G. La position des atomes d'hydrogène dans la glace. *Journal de Chimie Physique*, Tom. 50, Nos. 7-8, 1953, p. C13-C18. [Discussion of the structure of ice. Also published as *Colloque International du Centre National de la Recherche Scientifique*, No. 53, 1953, p. C13-C18.]
- PÉWÉ, T. L. The geological approach to dating archaeological sites. *American Antiquity*, Vol. 20, No. 1, 1954, p. 51-61. [Includes sections on pollen analysis, glacial deposits, and frost action, and connects archaeological and Quaternary investigation.]
- PICCA, R. Études sur la surfusion de gouttelettes d'eau. *Bulletin de l'Observatoire du Puy de Dôme*, 1954, No. 2, p. 33-42. [Experiments on the supercooling of droplets on spiders' webs.]
- POPLE, J. A. The electronic structure and polarity of the water molecule. *Journal of Chemical Physics*, Vol. 21, No. 12, 1953, p. 2234-35. [Calculation of the dipole moment of the H₂O molecule.]
- POUND, G. M., and others. Critical supercooling of pure water droplets by a new microscopic technique, [by] G. M. Pound, L. A. Madonna and S. L. Peake. *Journal of Colloid Science*, Vol. 8, No. 2, 1953, p. 187-93. [Critical supercooling measured for droplets of 10-15μ diameter to be -40±2°C.]
- RATHJENS, C. Das Schlernstadium und der Klimaablauf der Späteiszeit im nördlichen Alpenraum. *Eiszeitalter und Gegenwart*, Bd. 4/5, 1954, p. 181-88. [Evolution of climate in the late glacial period in the northern Alps.]
- RAU, W. Nachweis der allgemeinen Gültigkeit des Gefrierkernspektrums. *Geophysica Pura e Applicata*, Vol. 26, 1953, p. 75-87. [The freezing point of water drops has same distribution for water of all origins.]
- RAU, W. Die Unterkühlbarkeit wässriger Lösungen und ihre Bedeutung für die atmosphärische Eisbildung. *Zeitschrift für Naturforschung*, Bd. 9a, Ht. 11, 1954, p. 939-44. [NaCl and other solutes depress the temperature to which water will supercool.]
- ROMMEL, C. Les dommages causés en Suisse par les avalanches et leur indemnisation. *Revue pour l'Étude des Calamités*, Tom. 13, No. 30-31, 1952-53, p. 81-88. [Translation from *Schweizerischer Versicherungs-Kurier*, No. 1, 1952, p. 3-12; also published in *La Réassurance*, Tom 35, Nos. 410-11, 1952. Statistics of damage done by avalanches in Switzerland, 16-20 January 1951, insurance coverage, action taken by federal government, and problems involved in avalanche insurance.]
- ROUCH, J. Les îles flottantes. *Archiv für Meteorologie, Geophysik und Bioklimatologie*, Ser. A, Bd. 7, 1954, p. 528-32. [General discussion of floating "islands" of all sorts, including icebergs, "ice islands", etc., and their use in oceanography and ecology.]
- RUDBERG, S. Västerbottens berggrunds morfologi: ett försök till rekonstruktion av preglaciala erosionsgenerationer i Sverige. *Geographica*, No. 25, 1954, 457 p. [Geomorphology of Västerbottens län, north Sweden; attempt at reconstruction of cycles of preglacial erosion in Sweden. Review of theories on geomorphology of Sweden. English summary, p. 413-29.]
- RUNDLE, R. E. The deuterium effect on hydrogen bond distances in crystals. *Journal of Chemical Physics*, Vol. 21, No. 5, 1953, p. 937-38. [Evidence from Megaw's data on ice supports Nordman and Lipscomb's theory of this effect.]
- RYDER, T. *Compilation and study of ice thicknesses in the northern hemisphere, 1952-53*. New York, American Geographical Society, [1954?]. 3 vols. [in 2]. [Mimeographed. Data on thickness of river and lake ice at 53 places in North America. Bibliography.]
- SAGER, R. C. Aerial photoanalysis of permanently frozen ground. *Canadian Surveyor*, Vol. 12, No. 5, 1954, p. 311-15. [Chief characteristics.]
- SANUKI, M., and others. The final test of the anti-freezing combination wind vane and anemometer on the summit of Mt. Fuji, by M. Sanuki, S. Kimura and S. Toyama. *Papers in Meteorology and Geophysics*, Vol. 5, No. 2, 1954, p. 182-85. [Apparatus with electrical heater works satisfactorily down to -12.7° C.]
- SCHELL, I. I. Arctic ice and weather relationships. *Quarterly Journal of the Royal Meteorological Society*, Vol. 81, No. 347, 1955, p. 96-97. [Comment on relation between North Atlantic arctic ice and weather in north Europe.]
- SCHENK, E. Solifluktion. *Zeitschrift der Deutschen Geologischen Gesellschaft*, Bd. 105, Teil 2, 1953 [pub. 1954], p. 197-202. [Description and theory of solifluction.]
- SHIBUI, T. Studies on the damages on forest tree [sic] by snow pressures. *Bulletin of the Government Forest Experiment Station (Tokyo)*, No. 73, 1954, p. 1-89. [Nature of damage under different conditions and measures of avoidance. English summary, p. 83-89.]
- SHIMADA, H. Electrical resistance of snow [Sekisetsu no denki teikō]. *U.S. Snow, Ice and Permafrost Research Establishment. Translation 31*, 1954, 4 p. [Measurement of electrical resistance between two electrodes immersed in snow. Translation of article in *Seppyo*, Vol. 3, 1941, p. 503-06.]
- SIMPSON, F. A. New Zealand Antarctica. *New Zealand Geographer*, Vol. 10, No. 1, 1954, p. 1-24. [Includes brief notes on ice shelves, ice cap and glaciations.]
- [SNOW COVER: NORTHERN HEMISPHERE.] *Depth of snow cover in the northern hemisphere*. Boston, Mass., Arctic Construction and Frost Effects Laboratory, Corps of Engineers, U.S. Army, 1954. [ii, 18] leaves, 38 plates. (Investigation of construction and maintenance of aerodromes on ice, fiscal year 1954.) [Includes maps, graphs and tables analysing snow cover data for some 511 stations. Covers a period of twenty years or less.]

- [SNOW SURVEYS.] Snow survey of Great Britain, season 1953-54. *Meteorological Magazine*, Vol. 83, No. 990, 1954, p. 353-59. [Report.]
- STEINBACH, A. Beobachtungen und Messungen an Eishöhlen im Westerwald und in der Eifel. *Jahrbücher des Nassauischen Vereins für Naturkunde*, Bd. 91, 1954, p. 8-36. [Ice caves in the mountains of the Westerwald and the Eifel described. Microclimatological studies reported.]
- STOCK, C. S. D'ESTE. *The figure skate*. Folkestone, privately printed, 1954. 32 p. [Tests of experimental skates of varying shapes.]
- SWEETING, M. M. Recent trends of glacier fluctuations in the North Atlantic area. *Nature*, Vol. 175, No. 4448, 1955, p. 188-90. [Report of meeting of British Glaciological Society at Oxford, 19 November 1954. Speakers: C. W. M. Swithinbank, C. A. M. King, M. M. Sweeting, M. F. W. Holland, H. Lister, and G. Manley.]
- SWITHINBANK, C. W. M. Ice shelves. *Geographical Journal*, Vol. 121, Pt. 1, 1955, p. 64-76. [Morphology, regime and movement of ice shelves of western Dronning Maud Land.]
- THOMAS, M. K. *Climatological atlas of Canada; a joint publication of the Division of Building Research, National Research Council, and the Meteorological Division, Department of Transport, Canada*. Ottawa, National Research Council, 1953. 256 p. (N.R.C. no. 3151. D.B.R. no. 41.) [Includes charts of snowfall, snow cover and limit of permafrost.]
- THORARINSSON, S. The Grímsvötn expedition June-July 1953: travel account and report of scientific results. *Jökull*, ÁR 3, 1953, p. 6-22.
- THORARINSSON, S. Anchored stone polygons at low levels within the Iceland basalt regions. *Jökull*, ÁR 3, 1953, p. 37-38.
- THORARINSSON, S. Sviðgur á Svinafellsjökli í Oræfum. *Jökull*, ÁR 3, 1953, p. 39-40. [Chevrons (Forbes' bands) on Svinafellsjökull, Iceland. English summary.]
- THORNBURY, W. D. *Principles of geomorphology*. New York, John Wiley; London, Chapman and Hall, 1954. ix, 618 p. 23 cm. 64s. [Chapters on types and characteristics of glaciers; mountain glaciation; ice caps and their topographic effects. Reviewed by G. Manley in *Nature*, Vol. 175, No. 4449, 1955, p. 226-27.]
- TIMASHEV, YE. V. Otpupaniye kontsa lednika Devlokhan za 35 let [Retreat of Devlokhan glacier over 35 years]. *Izvestiya Vsesoyuznogo Geograficheskogo Obshchestva [News of the All-Union Geographical Society]*, Tom 86, No. 1, 1954, p. 93-95. [Measurements of glacier in Pamirs, 1913-48.]
- TODTMANN, E. M. Am Rand des Eyjabakkagletschers, Sommer 1953. *Jökull*, ÁR 3, 1953, p. 34-37. [Investigations on periphery of Eyjabakkajökull, Iceland.]
- TRYGGVASON, E. Lambárdalsjökull: jökulis undir grjóturd. *Jökull*, ÁR 3, 1953, p. 43-44. [Lambárdalsjökull, Iceland; glacier buried under scree.]
- WALSH, A. D. The electronic orbitals, shapes and spectra of polyatomic molecules; I: AH₂ molecules. *Journal of the Chemical Society*, 1953, Part 3, August, p. 2260-66. [Theory of shape and spectra of molecules such as H₂O.]
- WICHE, K. Pleistozäne Klimazeugen in den Alpen und im Hohen Atlas. *Mitteilungen der Geographischen Gesellschaft Wien*, Bd. 95, Hft. 7-12, 1953, p. 143-60. [A morphological comparison with reference to climatic differences between two mountain systems in the Ice Age.]
- WINCHESTER, J. W. A study of the movement of arctic sea ice in the Canadian Arctic in relation to meteorological, geographical and oceanographic parameters. *Bulletin of the American Meteorological Society*, Vol. 35, No. 9, 1954, p. 417-27. [Examples of wind and tide affecting sea ice movement.]
- WOLDSTEDT, P. Die Klimakurve des Tertiärs und Quartärs in Mitteleuropa. *Eiszeitalter und Gegenwart*, Bd. 4/5, 1954, p. 5-9. [Large temperature fluctuations in central Europe during the Ice Age due to increase in continental height and fluctuation of solar energy.]
- WOLDSTEDT, P. Saaleiszeit, Warthestadium und Weichseleiszeit in Norddeutschland. *Eiszeitalter und Gegenwart*, Bd. 4/5, 1954, p. 34-48. [Climatic conditions and extent of ice during the Saale and Weichsel advances and the interglacial period.]
- WORDIE, J. M. Ice in Greenland. *Geographical Magazine*, Vol. 29, No. 12, 1955, p. 613-20. [Glaciers and icebergs in Greenland.]
- YOSIDA, Z., and IWAI, H. Measurement of the thermal conductivity of snow cover [Sekisetsu no netsu dendo-ritsu no sokutei]. *U.S. Snow, Ice and Permafrost Research Establishment. Translation* 30, 1954, 7 p. [Method and results. Translation of article in *Seppyo*, Vol. 8, 1946, p. 48-53.]
- YOUNG, R. A. Some notes on the formation of medial moraines. *Jökull*, ÁR 3, 1953, p. 32-33. [Illustrated by examples from Breidamerkurjökull, Iceland.]
- ZEUNER, F. E. Riss or Würm? *Eiszeitalter und Gegenwart*, Bd. 4/5, 1954, p. 98-105. [Author's view of what should be regarded as "Riss" and what as "Würm" in the Alpine area.]
- [ZEUNER, F. E., and others.] Changes in world glaciation. *Observatory*, Vol. 74, No. 881, 1954, p. 144-48. [Report of discussion at joint meeting of Royal Astronomical Society and British Glaciological Society. Chairman: G. Seligman. Speakers: F. E. Zeuner, J. D. H. Wiseman, G. Manley and F. Hoyle.]

[AVALANCHES.] *Die Alpen*, Jahrg. 31, No. 3-4, 1955, p. 57-112.

[A special issue devoted to avalanches. Price: Swiss francs 4. The following papers are included:]

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