1996 Number 3, Volume 76

Norsk Geologisk Tidsskrift



SCANDINAVIAN UNIVERSITY PRESS Oslo - Copenhagen - Stockholm - Boston



Norsk Geologisk Tidsskrift

A Norwegian journal of geology issued quarterly by the Norwegian Geological Society (Norsk Geologisk Forening). Founded in 1905. The journal has as its general aim to publish review articles, papers, notes and discussions with relevance to the varied and complex geology of Norway, the Polar regions and adjacent offshore areas. Accordingly scientific papers from all geological, geophysical and geochemical disciplines will be considered for publication.

SPONSOR The Research Council of Norway (Norges forskningsråd).

EDITORS Rognvald Boyd, Reidulv Bøe, Mai Britt E. Mørk, Trondheim.

SECRETARY Eli Bjerkan, Trondheim.

EDITORIAL BOARD S. M. Bergstrøm, Columbus, Ohio; B. C. Burchfiel, Cambridge, Massachusetts; D. L. Bruton, Oslo; O. Eldholm, Oslo; W. L. Griffin, North Ryde, New South Wales; W. Helland-Hansen, Bergen; E. Jansen, Bergen; G. Juve, Trondheim; P. Jørgensen, Ås; T. E. Krogh, Toronto; A. G. Milnes, Bergen; S. Maaløe, Bergen; R. B. Pedersen, Bergen; B. Robins, Bergen; G. Raade, Oslo; H. P. Sejrup, Bergen; J. Skei, Oslo; A. M. Spencer, Stavanger; R. Steel, Bergen; M. Stephens, Uppsala; F. Surlyk, Copenhagen; T. Torske, Tromsø; T. Torsvik, Trondheim; J. Touret, Amsterdam.

MANUSCRIPT ADDRESS Manuscripts conforming with the instructions given on page 3 of this cover should be addressed to: Editor of Norsk Geologisk Tidsskrift, P.O. Box 3006 Lade, N-7002 Trondheim, Norway. Telefax +47 73 92 16 20.

BUSINESS ADDRESS Communications regarding accepted manuscripts, proofs, orders for offprints, subscriptions, etc. should be sent to the publisher's office in Oslo (see below).

PUBLISHER Scandinavian University Press, P.O. Box 2959, Tøyen, 0608 Oslo, Norway. Fax: +47 22 57 53 53, E-mail: subscription@scup.no. U.S. address: Scandinavian University Press North America, 875 Massachusetts Ave., Ste. 84, Cambridge, MA 02139, USA: Fax: +1 617 354 6875. Toll-free number: 800 498 2877.

Information about journals and books from Scandinavian University Press is available on our homepage on the world wide web, URL-address http://www.scup.no.

SUBSCRIPTION PRICE Members of the Geological Society of Norway (Norsk Geologisk Forening) who have paid their annual subscription (NOK 400,-) receive the journal free from Scandinavian University Press. Membership subscriptions, changes of address, and communication from members concerning the journal should be sent to the Treasurer, Norges geologiske undersøkelse, Norsk Geologisk Forening, P.O. Box 3006, Lade, N-7002 Trondheim, Norway.

Subscription price for non-members of the Norwegian Geological Society (postage included for four issues per year) is: USD 155.00. In Scandinavia NOK 810,-. Airmailed to subscribers worldwide. In Japan, all subscriptions should be ordered through the Maruzen Co. Ltd., 3–10 Nihonbashi 2-chome, Chuo-ku, Tokyo 103, Japan.

This journal can be ordered in microform from University Microfilms International, 300 North Zeeb Road, Dept. P.R., Ann Arbor, MI. 48106, USA.

© 1996 Scandinavian University Press. All articles published in *Norsk Geologisk Tidsskrift* are protected by copyright, which covers the exclusive rights to reproduce and distribute the article. No material in this journal may be reproduced photographically or stored on microfilm, in electronic databases, video or compact disks, etc., without prior written permission from Scandinavian University Press.

Special regulation for photocopies in the USA: Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by Scandinavian University Press for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided the fee of US\$ 9.00 per article is paid to CCC, 27 Congress Street, Salem MA 01970, USA. 0029-196X/94/US\$ 9.00. This authorization does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must be obtained from Scandinavian University Press.

Published quarterly by Scandinavian University Press (Universitetsforlaget AS), Oslo, Norway. Annual subscription price USD 155.00. Periodical postage paid at Jamaica, NY 11431. Printed in the UK. U.S. Postmaster; Send address changes to Norsk Geologisk Tidsskrift, Scandinavian University Press North America, 875 Massachusetts Ave., Ste. 84, Cambridge, MA 02139, USA. Air freight and mailing in the U.S. by Publications Expediting Services.

Biological Abstracts (-1985), British Geological Literature, Chemical Abstracts, Current Contents/Physical, Chemical and Earth Sciences, Energy Research Abstracts, FaxonFinder, Geological Abstracts Economic Geology, Geographical Abstracts/Physical Geography, Geo REF (Online Database for Bibliography and Index of Geology), Life Sciences Collection, Norske Tidsskriftartikler, Metal Abstracts, Petroleum Abstracts, Research Alert, SciSearch, Science Citation Index, World Aluminum Abstracts.

Cover picture: Coprecipitated arsenopyrite and native gold in the Klondyke quartz vein, Kolsvik gold-arsenic deposit, Bindal, Nordland. (Reflected light with oil immersion, magnification ca. ×400) (Photo: Peter Ihlen and Lars Petter Nilsson, Geological Survey of Norway).

Instructions to Authors

Norsk Geologisk Tidsskrift publishes papers in English, exceptionally in French, German or the Scandinavian languages. Authors proposing or introducing new stratigraphic names are requested to conform to the rules laid down by the Norwegian Committee on Stratigraphy (see Norsk Geologisk Tidsskrift 66, Suppl. 1) and to contact the Committee to obtain approval for these new names: Norsk Stratigrafisk komite, NGU, P.O. Box 3006, N-7002 Trondheim, Norway. Manuscripts with abstract, references, figures and tables on separate sheets, should be sent in four copies to the Editorial address on page 2 of this cover. The author's permanent and temporary addresses must be given. Manuscripts accepted for publication will not be returned to the author unless requested. The author is requested to retain a complete copy of the manuscript. Proofs sent to the author should be read carefully and returned promptly. The author will be charged for changes against the manuscript made by him in the proof. If the length of an article exceeds 15 printed pages, the author will be charged for the exceeding pages. Reprints should be ordered on the form provided when returning the proofs.

MANUSCRIPT. The manuscript must be written on one side of standard sized paper, double spaced, and with approximately 5 cm margins. The text must be clear and concise; before submission the manuscript should be checked by a linguistically competent person. Manuscripts should be arranged in the following order: (1) Concise and informative title. (2) Author's name unabbreviated. (3) A short abstract, not exceeding 12 lines. It should always start with the name of the author(s), title of article, Norsk Geologisk Tidsskrift with space left for Vol. No. and page numbers. The abstract should convey the scope of the paper, emphasizing the results and conclusions, not merely describing the contents of the paper. (4) The author's name and professional postal address underlined. (5) The main text. Use three or fewer grades of headings. All headings should start at the left-hand margin and be typewritten in lower case: they are not to be underlined (except those to be italicized). Brief Acknowledgements of grants and other assistance, if any, should be placed at the end of the text. Indicate in the left-hand margin the approximate positions for the insertion of Figures and Tables. The words Figs and Table should be written with capital initials and should be referred to in the text by their number. (6) A list of References conforming with the examples given below. Abbreviations should not be used: complete journal titles should be given in the list of references. Use the ampersand (&) for all joint authorships in the reference list and for double authorship in the text. Use et al. for references with three or more authors in the text. (7) Figure captions on a separate sheet. (8) Tables should be numbered with arabic numerals, each having a descriptive heading and typed on a separate sheet. Very large tables should be typewritten on separate sheets to be printed on facing pages. They must be typewritten on good quality paper with all rules drawn in with a fine pen.

ILLUSTRATIONS. All illustrations should generally be termed Figures (not Plates) even if occasionally covering an entire page. Do not send *originals* for illustrations until the manuscript has been accepted/revised. Send, instead, photographs or photocopies with initial submission of the manuscript. It is recommended that figures are constructed either for the entire width of the printed page (i.e. 177 mm) or for the width of one column (i.e. 86 mm); occasionally one-and-a-half columns (130 mm). The maximum printed size in NGT is 177×243 mm. Letters should not be smaller than 1 mm after final reduction for printing. Photographs should be clear, sharply contrasted, and printed on white paper with glossy finish. Slides are not accepted. Colour figures can be accepted but authors who wish to use colour will be charged for the additional costs involved. These will vary with the number and position of the figures in the journal: authors should contact the editors in advance for an assessment of the costs of printing in colour. Figures may be composed of several units (A, B, C, etc.). All units should be similar in tone. All figures should be marked with numbers in arabic numerals, and the author's name. Do not attach captions to the figures. When not obvious, the top and the bottom of figures, and their scale, should be indicated.

ELECTRONIC MANUSCRIPTS. The editors encourage submissions on diskette to facilitate rapid accessibility of the author's work to readers. Only the final (revised) manuscript should be submitted on diskette along with two copies of the printout. The electronic files and printout *must be identical*. Costs for changes to the electronic manuscript may be charged to the author(s). The diskette should be labelled with the author's name, the name of the computer platform and the version of the word processing system used. Please note that although the Scandinavian University Press can receive files from any word processing system, styled Microsoft Word files are preferred. Graphic elements should be kept as separate files in EPS or TIFF format. Halftones and colour photos should be included separately.

Further information about how to submit electronic manuscripts can be obtained from the Scandinavian University Press (e-mail address: support@scup.no) or from *Author services* at http://www.scup.no. See also the folder *Electronic Manuscripts—Instructions to Authors & Submittal Form*, which can be obtained from the editorial office.

REFERENCES. Examples of correctly cited references:

Paetzel, M. & Schrader, H. 1991: Heavy metal (Zn, Cu, Pb) accumulation in the Barsnesfjord, Western Norway. Norsk Geologisk Tidsskrift 71, 65-73.

Landvik, J. Y. 1982: Weichsel stratigrafi, sedimentologi og glasitektonikk på Godøy, Sunnmøre. Unpublished thesis, University of Bergen, 151 pp.

Mangerud, J. 1980: Ice-front variations of different parts of the Scandinavian ice sheet 13,000–10,000 years B.P. In Lowe, J. J., Gray, J. M. & Robinson, J. E. (eds.): Studies in the Late-Glacial of North-West Europe, 23–30. Pergamon Press, Oxford.

NORSK GEOLOGISK TIDSSKRIFT

1996 Number 3, Volume 76

CONTENTS

NILSSON, I., MANGERUD, G. & MØRK, A.: Permian stratigraphy of the Svalis Dome, south-western Barents Sea	127
VIDAL, G. & MOCZYDŁOWSKA, M.: Vendian-Lower Cambrian acritarch bio- stratigraphy of the central Caledonian fold belt in Scandinavia and the palaeo- geography of the Iapetus-Tornquist seaway	147
PICKARD, N. A. H., EILERTSEN, F., HANKEN, NM., JOHANSEN, T. A., LØNØY, A., NAKREM, H. A., NILSSON, I., SAMUELSBERG, T. G. & SOMERVILLE, I. D.: Stratigraphic framework of Upper Carboniferous (Moscovian-Kasimovian) strata in Bünsow Land, central Spitsbergen: palaeogeographic implications	169

Lofoten Margin, N. Norway, from normal incidence and wide-angle seismic data:

ISSN 0029-196X

Issued September 1996 Printed in the UK by Galliard (Printers) Ltd



If undelivered, please return to: SCANDINAVIAN UNIVERSITY PRESS PO Box 2959 Tøyen N-0608 Oslo 6 Norway