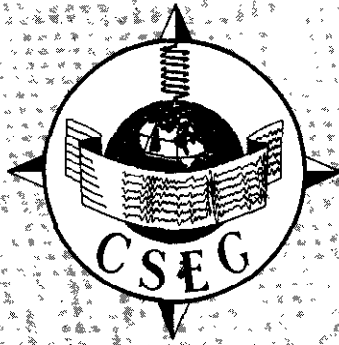


*MFW*



VOLUME 4  
NO. 1  
DECEMBER, 1968

**JOURNAL  
OF THE  
CANADIAN SOCIETY  
OF  
EXPLORATION  
GEOPHYSICISTS**

CONTENTS — Page 3

The "Journal" is the official publication of the Canadian Society of Exploration Geophysicists, P.O. Box 117, Calgary, Alberta, Canada.

*Contributions* covering the field of activity of the Explorationist in the form of articles of several pages or of monographs of one or two pages are invited. The responsibility for the views, opinions and statements made in such contributions rest with the author and neither the Society nor the Editor can be held responsible for them. The manuscripts of contributions in a form suitable for reproduction and all communications concerning publication should be addressed to the Editor, C.S.E.G., P.O. Box 117, Calgary, Alberta, Canada.

*Reprints* — 25 reprints will be supplied to the author(s) free of charge. Additional copies will be furnished at cost. Request for additional copies of reprints should be made with the submission of the manuscript.

*Subscription* to the Journal is free to all members of the Society in good standing. Price of a single copy to members of affiliated Societies is \$1.75, to others, \$2.00 plus mailing and handling charges. The price of previous issues, when available, will be at the same rates.

*Advertising* rates enquiries should be sent to the Secretary, C.S.E.G., P.O. Box 117, Calgary, Alberta, Canada.

Published by the Canadian Society of Exploration Geophysicists  
Calgary, Alberta, Canada.

CANADIAN SOCIETY  
OF  
EXPLORATION GEOPHYSICISTS

---

P.O. BOX 117, CALGARY, ALBERTA, CANADA

---

EXECUTIVE COMMITTEE  
FOR YEAR ENDING FEBRUARY 1969

President:	G. E. Longphee
Vice-President:	R. C. Siegfried
Secretary:	D. Birnie
Treasurer:	R. M. Treacy
Past President:	E. A. M. Fulmer
Prior-Past President:	J. Hodgkinson
District Representatives:	R. A. Boulware E. B. Claunch R. J. McCaffrey

---

Editor: R. O. Lindseth

P.O. Box 117, Calgary, Alberta, Canada.

CANADIAN SOCIETY OF EXPLORATION GEOPHYSICISTS  
1968 COMMITTEES

Bar-B-Q Picnic	R. Page (Chairman)
Best Paper	J. Robinson
Editor — Newsletter	W. Varga
Education	R. R. Clawson
Golf-Doodlebug Tournament	D. L. Telfer (Chairman) H. L. Godwin (Vice-Chairman)
Honours and Awards	E. Fulmer (Chairman) J. Hodgkinson
Membership	G. Kostachuk
Program and Public Lectures	R. C. Siegfried
Publicity and Public Relations	W. Evans
Program Representative — SEG, Volume of Stratigraphic Traps	L. Flower D. Simpson
Technical Liaison	G. E. Longphee
Scholarship	M. E. Baker
CSEG Journal — Editor	R. O. Lindseth
Associate	N. Rothenburg
Business Manager	J. H. Thomson
World Petroleum Congress Moscow, Russia	T. A. Pezarro

## ADVERTISERS' INDEX

Ace Explosives Ltd. ....	vii
Alpine Helicopters Ltd. ....	xxvi
Beaver Geophysical Services Limited .....	v
Big Indian Drilling Co. Ltd. ....	xi
Canadian Oil Tool Limited .....	xxv
Canwest Geophysical Limited .....	xii
CDP Computer Data Processors Ltd. ....	xiv-A
Century Geophysical Corp. of Canada .....	xxi
Compagnie Generale de Geophysique .....	xiv
Dalcan Equipment Ltd. ....	xix
Data Bank .....	v
Elgin Exploration Company Limited .....	iii
Exploration Data Exchange Ltd. ....	xxii
Exploration Ltd. ....	xxii
Explosives Limited .....	iv
Flextrack - Nodwell Ltd. ....	xxi
Flite Drilling Ltd. ....	x
GAI-GMX Canada Ltd. ....	x
Geophysical Digital Processing Centre of Canada .....	ii
Geophysical Service Incorporated .....	xxiii
Geo Space .....	ix
Gruner Bit Co. Ltd. ....	xx
Heiland Exploration Canada (1959) Ltd. ....	xx
Kenting Exploration Services .....	xxv
Mandrel Industries Ltd. ....	vi
Mark Products, Ltd. ....	xxiv
Nickle Map Service Ltd. ....	iii
Northern Geophysical Ltd. ....	xxvii
Petty Geophysical Engineering Company .....	xi
Professional Directory .....	xv - xvi - xvii
Ray Geophysical Limited .....	xxvi
Sando Drilling Ltd. ....	xxii
Sedco Drilling .....	v
Seisform Drilling Ltd. ....	iii
Seismic Service Supply (1958) Limited .....	xxviii
Seismograph Service Corporation .....	xviii
Seismotech 64 Ltd. ....	vii
Spartan Air Services Ltd. ....	xii
Stacs Data Storage Centre .....	iii
Teledyne Exploration Ltd. ....	i
United Geophysical Company of America .....	xiii
Velocity Surveys Ltd. ....	xii
Walker-McDonald Bit Distributors, Ltd. ....	xix
West Canadian Graphic Industries Ltd. ....	xxii
Western Geophysical .....	viii

## CONTENTS

1968 Executive Committee .....	1
1968 Committees .....	1A
Advertiser's Index .....	2
The President's Page .....	4, 5
Some Exploration Applications of the Two-Dimensional Fourier-Transform — J. C. den Boer .....	6
Digital Aeromagnetics in Petroleum and Mineral Explora- tions — Ian Fraser .....	32
Application of the Fourier Transform to the Solution of the Reverse Problem of Gravity and Magnetic Surveys — G. A. Troshkov and S. V. Shalaev .....	46
Codas - A Method of Obtaining Moveout, Velocity and Mul- tiple Information from Routine Seismic Shooting — George Kostashuk .....	63
Examples of Digital Processing of Transcribed Tapes — J. D. Boyd .....	73
Digital Log Analysis: Some Multivariate and Time Series Approaches — B. M. McVicar, P.Eng. ....	85
Biographies .....	113, 114

## THE PRESIDENT'S PAGE

The Eighteenth year of our Society has been a busy time. Our membership has grown to over 750 and may reach 800 by the year end. Members have been active in Society sponsored social and technical events. Plans are being made to host the Thirty-Ninth International Meeting of the Society of Exploration Geophysicists in Calgary during September 1969. Mr. Peter Savage and his Committees are organizing to make this Convention a memorable event. We need your help — on committees and, in particular, by providing sufficient technical papers to introduce a definite Canadian exploration flavor to the Convention. I would like to urge all of you to stop, think, and honestly decide if you can provide a contribution to the technical program. I am confident that you can.

The Constitution of the Society states "the object of this Society is to promote the Science of Geophysics, especially as it applies to exploration." Your response to our technical meetings and to the two "Continuing Education" programs — "Gravity and Magnetism" and "Recent Advances in Digital Processing" show your strong desire to promote the use of geophysics by becoming more skilled in the application of technical principles. Your Executive plans to continue to sponsor additional education programs and to recommend that they become a part of the future plans of your Society. We are constantly challenged by the advances in technology and the understanding of the use of a broader and broader range of computer applications. We, as the largest single group interested in geophysics in Canada, must continue to educate ourselves to meet this challenge but we must also, in some manner, resist being divided into an increasingly complex group of specialists. We could, if present trends continue, become so specialized that the explorationist in geophysics will no longer exist. This will defeat the reason for our existence both as geophysicists and as a Society and we could well become "technicians" and "slaves to a narrow field of the science" rather than professionals as exploration geophysicists. Therefore I urge all of you, and in particular those members who are responsible for training in our industry, to plan your individual program or the collective continuing education programs on a much broader base — a base designed to increase exploration knowledge. Management and the investors in industry will judge our effectiveness by the results of our exploration. Our ability to use knowledge — scientific, technical, economic and managerial — is the basis on which exploration geophysics will grow or stagnate.

Our Society is a Technical Society, not a Professional Society, which would be responsible for deciding the levels of technical competence and experience required to be recognized as a Professional Geophysicist. Our Society is not designed to protect the Public from substandard or unethical geophysical practice. The profession of Geophysics requires coverage in these two areas as determined by Engineering and Related Professions Act, 1968, which was passed by the Legislative Assembly

of the Province of Alberta. This Act defines "Professional Geophysicist" and "Professional Geophysics." The Association of Professional Engineers of Alberta is administering this Act, the details of which are too great to outline here. Your Society and the Alberta Society of Petroleum Geologists are working very closely with the Association to change the qualifications for registration with respect to geologists and geophysicists. In addition, the Association is considering a name change which will reflect the inclusion of geologists and geophysicists.

The Association needs your support as members, and as working members, in order to carry out their very active program. The geophysical profession should have a much larger representation in the Association. I encourage you to obtain information from the Association office and to give serious consideration to adding your strength to the Association and to the promotion of geophysics at a professional level. In this way, we can all contribute to improving the status and recognition of our profession in the eyes of industry, the public and various governments.

It has been an honor and a pleasure to serve as your President.

GEORGE E. LONGPHEE

President of Geocan Exploration & Development (1967) Ltd.