

ABOUT THE COVER:

A key step in life's

the self-assembly of

membrane-forming

origin must have been

Volume 1, Number 3 • June 2005

Elements is published jointly by the Mineralogical Association of Canada, the Geochemical Society, The Clay Minerals Society, the European Association for Geochemistry, the International Association of GeoChemistry, the Mineralogical Society of America, and the Mineralogical Society of Great Britain and Ireland. It is provided as a benefit to members of these societies.

Elements will be published two more times in 2005. Individuals are encouraged to join any one of the participating societies to receive Elements. Institutional subscribers to any of the following journals—American Mineralogist, The Canadian Mineralogist, Clays and Clay Minerals—will also receive Elements as part of their subscription. Institutional subscriptions are available for US\$100 a year. Contact the managing editor for information.

Copyright ©2005 by the Mineralogical Society of America

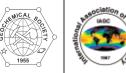
All rights reserved. Reproduction in any form, including translation to other languages, or by any means—graphic, electronic or mechanical, including photocopying or information storage and retrieval systems—without written permission from the copyright holder is strictly prohibited.

Publications mail agreement no. 40037944

Return undeliverable Canadian addresses to: PO Box 503 RPO West Beaver Creek Richmond Hill, ON L4B 4R6

Printed in Canada ISSN 1811-5209 www.elementsmagazine.org















## Genesis: Rocks, Minerals, and the Geochemical Origin of Life

Robert M. Hazen Guest Editor



**Geochemical Connections to Primitive Metabolism** George D. Cody



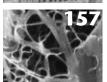
Mineral Catalysis and Prebiotic Synthesis: Montmorillonite-Catalyzed Formation of RNA lames P. Ferris

molecules into cellshaped hollow spheres, called vesicles. These green-fluorescing vesicles, which range from 10 to 50 microns in diameter, form spontaneously in water. Recent studies show that fine-grained clay particles enhance the formation of these structures. PHOTO COURTESY: DAVID DEAMER AND ROBERT HAZEN



Geochemical Influences on Life's Origins and Evolution

Joseph V. Smith



## **Sketches for a Mineral Genetic Material**

A. Graham Cairns-Smith

## Departments

epartments
<b>Editorial</b>
Letters to the Editors
Triple Point
Meet the Authors
People in the News
Reviews
Society News
Mineralogical Society of Great Britain and Ireland 164
International Association of GeoChemistry 166
Mineralogical Association of Canada 168
Mineralogical Society of America 170
The Clay Minerals Society
Geochemical Society
European Association for Geochemistry 176
International News
Conference Reports
Mineral Matters
Calendar
Advertisers in this Issue
Voilà
Parting shot