



History and Carbon

History affords us an opportunity to connect with the past. It also gives us a perspective of where we are at present and guides us to where we should be heading in the future. As with any journey, it is not a bad idea to pause occasionally and glance back. It is sometimes easy to overlook the fact that scientific and technological advancements are more often incremental than quantum in nature. Often, what an over-enthusiastic scientist or engineer claims as novel or unusual may have been known many years ago! True landmark discoveries or inventions occur so infrequently that they are worth celebrating. A bonus, of course, is that these historical events are thus brought out of the realm of the science and technology community into the attention of the world at large. This includes our children who we hope will be the scientists and engineers of tomorrow.

The past few months have witnessed the celebration of three "quantum" scientific and technological developments. The establishment of the Internet and electronic mail was celebrated recently at UCLA. As in many other cases (e.g., radar), military applications spurred the initial R&D that ultimately led to the revolution in electronic communications and information technology that we know today. Volta's landmark letter, "On the Electricity Excited by the Mere Contact of Conducting Substances of Different Kinds," dated March 20, 1800, to Sir Joseph Banks, was recognized at the 50th Meeting of the International Society of Electrochemistry in Pavia, Italy. The importance of this letter (and a subsequent paper) by Volta, in the history of the discovery of electricity, can hardly be overemphasized. This celebration occurred aptly enough in Pavia not too far from Como, Volta's birthplace.

Closer to my adopted home (Dallas) occurred the third celebration, namely a commemoration of the invention of the original integrated circuit (IC) by Jack Kilby. The U.S. Postal Service released a 33¢ postage stamp series, bearing an illustration of this original circuitry, for the occasion. Mr. Kilby conceived and built this IC chip in the late 1950s and early 1960s for Texas Instruments, Inc.

History and the material that is featured in this issue of the *Interface*, namely carbon, do have an inextricable link. After all, radiocarbon dating—a technique based on carbon-14 isotope decay—has proven to be invaluable to archaeologists for the dating of historical objects ranging in age from 1,000 to 50,000 years. In the magazine pages that follow, we feature the third form of ordered carbon after diamond and graphite, namely buckminsterfullerenes and carbon nanotubes. This topic and the Fullerenes Group were first featured in the Spring 1996 issue (Vol. 5, No. 1). The advancements since then have been fast-paced, and in this particular issue, we address three aspects of the science and technology of these fascinating materials, namely, medical applications of fullerenes and metallofullerenes, carbon nanotubes, and functionalized fullerenes as artificial photosynthetic analogs.

Stay tuned and keep us informed about news and events that shape your own scientific or technological community. We particularly welcome ideas on magazine content and on how *Interface* can better serve the Society membership in the months ahead.

Krishnan Rajeshwar
Editor

The Electrochemical Society *Interface* (USPS 010-327) (ISSN 1064-8208) is published quarterly by The Electrochemical Society, Inc., at 65 South Main Street, Pennington, NJ 08534-2839 USA. Subscription to members as part of membership service; subscription to nonmembers \$40.00 plus \$5.00 for postage outside U.S. Single copies \$5.00 to members; \$10.00 to nonmembers. © Copyright 1999 by The Electrochemical Society, Inc. Periodicals postage at Pennington, New Jersey, and at additional mailing offices. POSTMASTER: Send address changes to The Electrochemical Society, Inc., 65 South Main Street, Pennington, NJ 08534-2839.

The Electrochemical Society is an educational, nonprofit 501(c)(3) organization with more than 7000 scientists and engineers in over 70 countries worldwide who hold individual membership. Founded in 1902, the Society has a long tradition in advancing the theory and practice of electrochemical and solid-state science by dissemination of information through its publications and international meetings.

Published by:

The Electrochemical Society, Inc.
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Pennington, NJ 08534-2839 USA
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PRODUCTION NOTES

Design Consultant:
O&Y Design,
Trenton, NJ

Printed by:
Cummings Printing Co.
Hooksett, NH