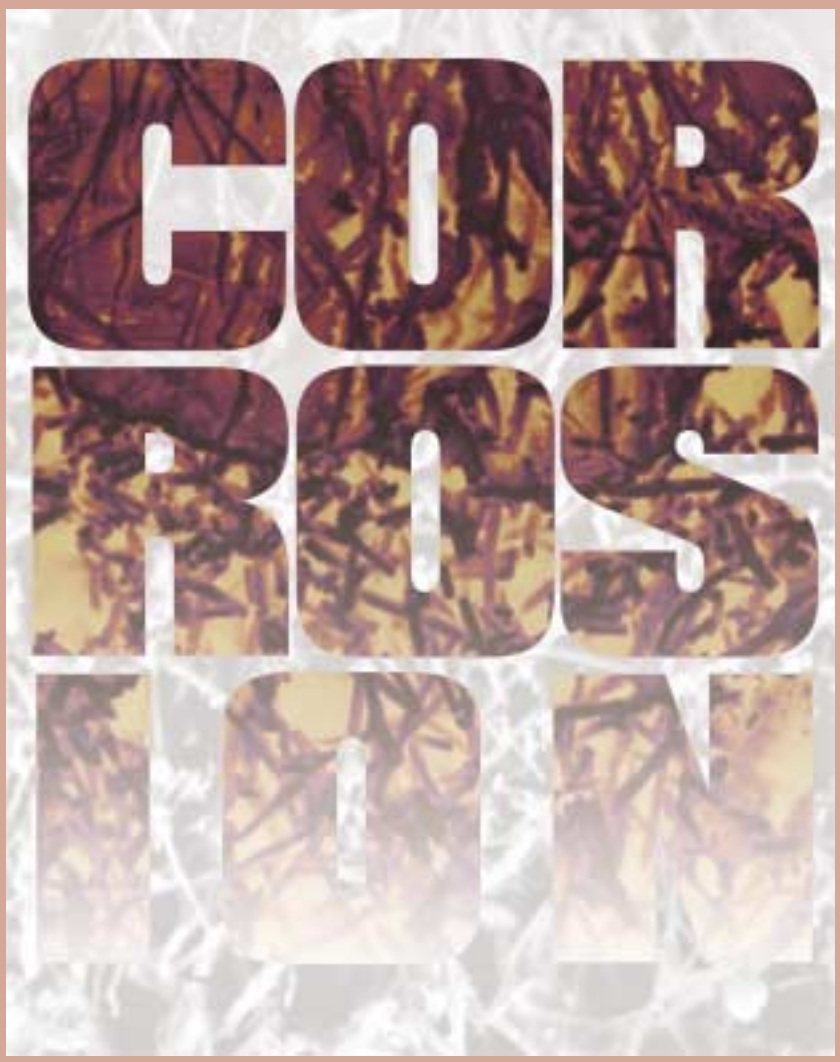
Corrosion Division



The Corrosion Division

by Robert G. Kelly

The Corrosion Division was established on April 15, 1942 to organize and promote formal and informal discussions associated with the behavior of materials in such environments that cause corrosion, oxidation, and related surface reactions. Despite starting on the day when income taxes are due in the U.S., the Division has prospered. A number of its members have served the Society as president, including H. H. Uhlig (1955-56), N. Hackerman (1957-58), F. L. LaQue (1962-63), D. A. Vermilyea (1974-75), T. R. Beck (1975-76), M. J. Pryor (1976-77), and R. P. Frankenthal (1993-94).

In addition to sponsoring symposia and publishing proceedings, the Division also organizes the Corrosion Monograph Series, *i.e.*, books that outline and review the present scientific status in the many areas of corrosion science. The *Corrosion Handbook* (originally edited by H. H. Uhlig in 1946) is one of the most purchased publications The Electrochemical Society has produced. The new edition (edited by R. Winston Revie) has already become a popular purchase.

The articles in this issue give glimpses into four active areas of research in corrosion science. They span a broad range of topics, reflecting the diversity of research interests in the Corrosion Division.

The article by Graedel and Leygraf represents an analysis of the effect of the location of future world growth on the rates of emission of corrosive gases and thus of material corrosion rates. In addition to having an impact on industrial development, there must be special concern for corrosion-susceptible objects that are essentially irreplaceable, such as objects of art, particularly those in outdoor locations. This work represents a proactive approach to corrosion engineering that can influence both material selection and policy decisions.

The article by Frankel and McCreery summarizes their views on chromate inhibition of the corrosion of Al alloys. Much attention has been paid to understanding the outstanding corrosion protection afforded by chromate due to its toxicity, which has placed it on the EPA's most wanted list.

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FUTURE TECHNICAL MEETINGS

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Our Featured Division

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The article also illustrates the tremendous synergy that can be had when an electrochemist not previously tainted by corrosion studies (McCreery) is brought into close collaboration with an expert in the field (Frankel).

The article by Huet, Bautista, and Bertocci reviews their recent excellent work in providing a solid fundamental foundation for the use of electrochemical noise (EN) for the estimation of corrosion rate. Although EN has been widely promoted and used for field measurements of corrosion rate, until the work reviewed here, the scientific scaffold on which it rested was suspect.

The article by Little and Staehle describes experimental work aimed at determining the link between fungi and stress-corrosion cracking of post-tension cables used in concrete structures. Recognizing and understanding the effects of the metabolic processes on corrosion (and other electrochemical processes) requires research that cuts across the bounds between the physical and biological sciences.

These articles demonstrate both the complexity and ubiquitous nature of corrosion processes. Many ECS members have skills and knowledge that can help in the effort to understand, control, and prevent corrosion from occurring. The Corrosion Division hopes these articles will spur you to join in that effort. ■

About the Author

Robert G. Kelly *is an Associate Professor of Materials Science and Engineering at the University of Virginia and Assistant Director of the Center for Electrochemical Science and Engineering. His research interests include localized corrosion, aging aircraft, and corrosion prediction. He is a currently Secretary-Treasurer of the Corrosion Division. He may be reached by e-mail at: rgkelly@virginia.edu.*