This month's cover symbolizes how new technology is joining traditional tools in the graphic artist's studio. Our cover artist, Doug Whitehouse, heads up the corporate art department at Genigraphics. His cover was inspired by the challenge his department faces to take a fresh approach to corporate design tasks. To read more about his department and the cover, turn to "About the Cover," page 6.

FEATURE ARTICLES

12 Guest Editor's Introduction
Peter R. Bono

17 The Reference Model for Computer Graphics
George S. Carson and Eileen McGinnis
ISO's basic reference model for computer graphics will help coordinate standards development and define interfaces between computer graphics standards and other information processing standards.

24 The Computer Graphics Metafile
Lofton Henderson, Margaret Journey, and Chris Osland
Files have a way of crossing over application boundaries into new environments. It was this need for flexibility that drove the design of CGM, a truly general-purpose standard.

33 The Computer Graphics Virtual Device Interface
Thomas Powers, Andrea Frankel, and David Arnold
While other graphics standards are defined largely by the tasks users want to perform, the VDI defines how those tasks are decomposed into functions any device can execute.

42 GKS-3D: A Three-Dimensional Extension to the Graphical Kernel System
Richard F. Puk and John I. McConnell
This standard is being developed for 3D applications that could otherwise use the 2D GKS standard. It is entirely 3D, yet is fully compatible with GKS.

50 PHIGS: A Standard, Dynamic, Interactive Graphics Interface
David Shuey, David Bailey, and Thomas P. Morrissey
The key features of PHIGS are contained in its name—it is designed to be a programmer's interface to a graphical subsystem that can handle complex, interactive applications.

58 Language Bindings for Computer Graphics Standards
Madeleine R. Sparks and Julian R. Gallop
Language binding involves a plethora of issues: Who develops bindings? Can bindings be developed for nonstandard languages? What happens when the language standard is upgraded?

66 NBS's Role in Computer Graphics Standards
Mark W. Skall
The NBS is involved in all phases of standards development, from the promulgation of FIPSs to the development of testing methods to assure conformance to such standards as GKS, CGM, and PHIGS.
DEPARTMENTS

6  About the Cover
   A New Approach to the Corporate Image

8  Displays on Display
   Artist and Computers: A Retrospective

71 Selective Update
   Standards report/Call for IEEE CG&A articles

74  New Products

80  Advertiser/Product Index