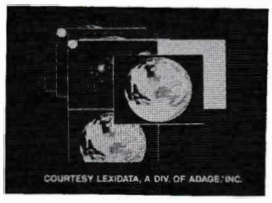
SIGGRAPH '86 Industry Slide Set Credits

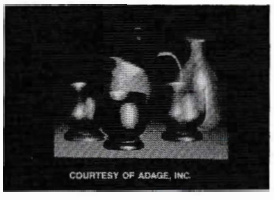
Edited by: Beverly Aquino and Susan Keeley

The industry slide set is composed of examples of applications, products and services offered by SIGGRAPH '86 exhibitors. The images and products shown represent the very latest technology available to the computer graphics industry. Each slide is printed here in black and white to facilitate locating information about the images. The full color 35mm slides can be ordered from: ACM order department, P.O. Box 64145, Baltimore, MD 21264; 1-800-342-6626. The ACM order number for the SIGGRAPH '86 industry slide set is 915862.

1. Lexidata, a Div. of Adage, Inc., John H. Ricciardone, 755 Middlesex Turnpike, Billerica, MA 01865; **Virtual Windows.** Virtual Windows, available on Lexidata's Lex 90 (TM) family of graphics display processors, allows real-time color window management of up to eight user-defined windows.



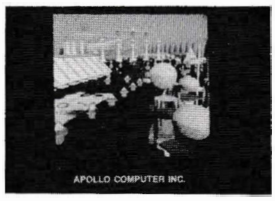
2. Adage, Inc, John H. Ricciardone, One Fortune Drive, Billerica, MA 01821; **Glasses.** Image created on an Adage 3000 color raster display system.



3. AMAP, Alain Weil, CIRAD 42, rue Scheffer, 75116 Paris, France; **Cotton Tree.** The picture is computed through an original program which calculates a three dimensional model for any given plant and at any given age. The program is based on the very biology of the plants, allows for random phenomena and makes organs age and die. Written in Fortran and C languages, it is adaptable at different levels of complexity on any computer graphics system starting from a micro-computer with hard disk with either wireframes or polygons display. Programmer: Philippe de Reffye.

4. AMAP, Alain Weil, CIRAD 42, rue Scheffer, 75116 Paris, France; **Palmyra (African Fan Palm).** The picture is computed through an original program which calculates a three dimensional model for any given plant and at any given age. The program is based on the very biology of the plants, allows for random phenomena and makes organs age and die. Written in Fortran and C languages, it is adaptable at different levels of complexity on any computer graphics system starting from a micro-computer with hard disk with either wireframes or polygons display. Programmer: Philippe de Reffye.

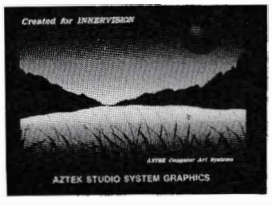
5. Apollo Computer Inc., Michael Sciulli, 330 Billerica Road, Chelmsford, MA 01824; **Temple-2. Land.** This image was distributed over the network and each machine generated a 1280x320 strip. Eight machines were used to do this one scene. Programmers and artists: Michael Sciulli, Melissa White, Jim Arvo and Ken Severson.



6. AUTOCAD Dwg. Courtesy Olivia Fisher-Gwyne, Donald Gimbert, Autodesk Inc., 2320 Marinship Way, Sausalito, CA 94965; **Loaf of Bread, Jug of Wine.**

7. Aztek Studio System Graphics, Phil Lippincott, 17 Thomas, Irvine, CA 92718; **Spacecrafts.** Demonstration of multi-symbol library merging.

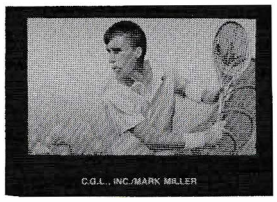
8. Aztek Studio System Graphics, Phil Lippincott, 17 Thomas, Irvine, CA 92718; **Sunset for Innervision.** Artist software capabilities include inbetweening for animation.



9. Robert Bosch Inc. Video Equipment Div., Al Jensen, P.O. Box 30816, Salt Lake City, UT 84130-0816; **Untitled.** Created by Susan Crouse-Kemp on the Bosch FGS-4000 graphic system using the 3-D illustrator of the Bosch paint system.

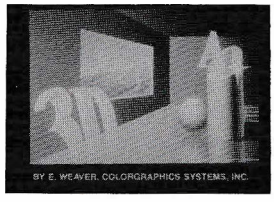
10. Robert Bosch Inc. Video Equipment Div., Al Jensen, P.O. Box 30816, Salt Lake City, UT 84130-0816; **Untitled.** Created by Susan Crouse-Kemp on the Bosch FGS-4000 graphic system.

11. Computer Graphics Labs Inc., Mark Miller, 405 Lexington Ave., New York, NY 10174; **Tennis.** Images II+ System - high resolution (2000 lines) rendering-scanned painted imagery.

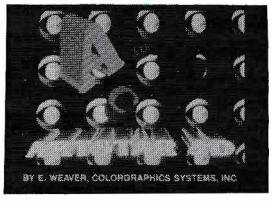


12. Computer Graphics Labs Inc., Mark Miller, 405 Lexington Ave., New York, NY 10174; **CG Markets.** Images II+ System - high resolution (2000 lines) utilizing business graphics, scanning and hand rendering.

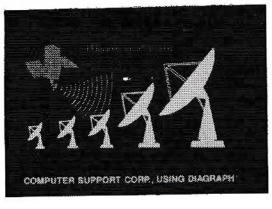
13. ColorGraphics Systems, Inc., Charles Sholdt and E. Weaver, 5725 Tokay Boulevard, Madison, WI 53719; **3D Room. A** combination of "painted" image, digitized image and 3D vector objects. The background was painted first. Mountain scene was digitized and pasted into the window, then 3D objects were rendered over background. Images can be set to analog, digital or laser disk devices.



14. ColorGraphics Systems, Inc., Charles Sholdt and E. Weaver, 5725 Tokay Boulevard, Madison, WI 53719; **Tumbling Alphabet.** Background was produced using tiler background (a single image reproduced repeatedly). Letters are described in a file as a series of three dimensional lines and then positioned by the artist and rendered over the background. Images can be set to analog, digital or laser disk devices.

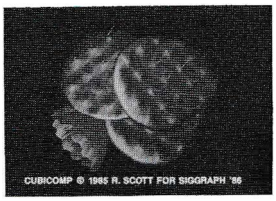


15. Computer Support Corporation using Diagraph, Charles H. Hinds, 2215 Midway Road, Carrollton, TX 75006; **Untitled.**

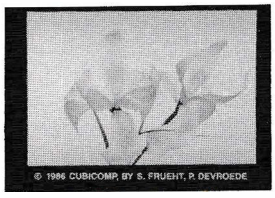


16. Cray Research, Inc., William Porter, 1333 Northland Drive, Mendota Heights, MN 55120; **Cray X/MP Supercomputer.** Today's CRAY X-MP line is a field-proven technology. The CRAY X-MP features one or more powerful CPUs, a very large central memory, exceptionally fast computing speeds and I/O throughput to match. Cray computers offer the most powerful and cost-effective computing available today for advance scientific applications.

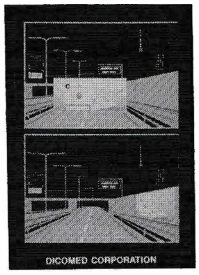
17. Cubicomp Corp., R. Scott and Leslie Evans, 21325 Cabot Blvd., Hayward, CA 94545; **Cactus.** Multiple 2000 line Matrix QCR line images, digitally composed. Image by Ron Scott commissioned for SIGGRAPH '86.



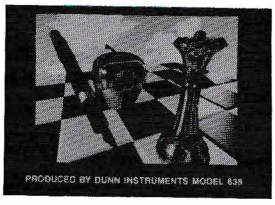
18. Cubicomp Corp., S. Frueht and P. deVroede, 21325 Cabot Blvd., Hayward, CA 94545; **Iris.** A complex model created using cross . sections; color added with texture mapping. A 2000 line Samurai image.



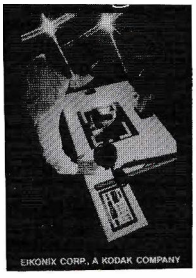
19. Dicomed Corporation, Kathy Blake, 12000 Portland Avenue South, Burnsvill, MN 55337; **Flexiwarp Sample.** Created using a Dicomed Imaginator with standard flexiwarp software feature to warp objects in 3D space.



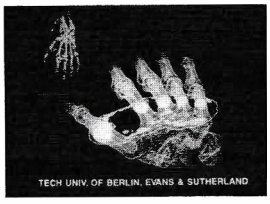
20. Dunn Instruments, Page Milliken, 544 Second Street, San Francisco, CA 94107; **Untitled.** The Dunn Instruments Model 638 is the only 64 kHz film recorder that can shoot from flicker free video input 1280x1024. Image by Silicon Graphics.



21. Eikonix Corp, A Kodak Company, Joyce Anderson, 23 Crosby Drive, Bedford, MA 01730; **Series 850 Digital Camera.** The series 850 digital imaging camera system houses a linear 4096-element charge-coupled device (CCD) array and achieves a resolution of 4096x5300 pixels per image.

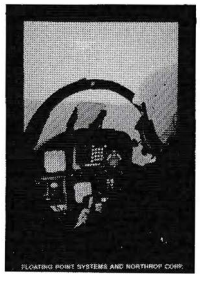


22. National Hansen's Disease Center and Evans & Sutherland, Gregory McFarlane, Evans and Sutherland, P.O. Box 8700, 580 Arapeen Drive, Salt Lake City, UT 84108; **Reconstructed Hand.** This image was photographed from the E&S PS 300 computer graphics system. The data was taken from CT scans. Skin, bone and tendon boundaries are displayed along with the entire bone reconstruction. Programmed by Lloyd Meyers, National Hansen's Disease Center, L.S.U.

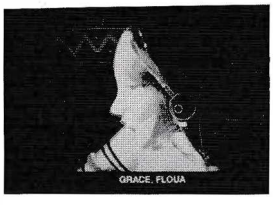


23. Evans & Sutherland and Redifussion Simulation, Gregory McFarlane, P.O. Box 8700, 580 Arapeen Drive, Salt Lake City, UT 84108; **CT-6 Harrier Simulation.** CT-6 is a real-time dynamic computer image generation system capable of producing such high-level realistic scenes as this. Advanced hardware texture improves scene realism and provides pilots with valuable speed and altitude cues.

24. Floating Point Systems and Northrop Corp., Jennifer Carrara, P.O. Box 23489, Portland, OR 97223; **Untitled.** Model P/A-18 Hornet flight simulation processed in real-time by FPS-5000 series array processors.



25. GRACE, Regine Tromeur, 3, Place Paul Verlaine - 75013 Paris, France; **Floua.** Drawing of Jean Claverie (March 1986).

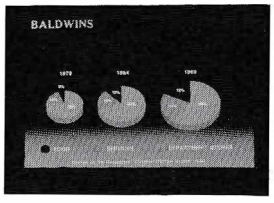


26. Houston Instruments, Marty McConnell, 8500 Cameron Road, Austin, TX 78753; **DMP-51/52 MP Series.** Houston Instruments' 14-pen DMP-51/52 MP series plotters feature a resolution of .001 inch, a maximum plotting speed of 22 inches per second and a user-selectable acceleration rate up to 4 Gs.

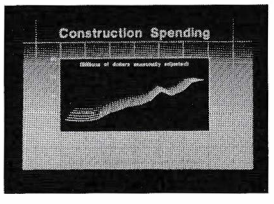
27. I. N. A., Productions Bleu 17, Institut National de la Communication Audiovisuelle, 4, avenue del l'Europe 94366 Bry-Sur-Marne, France; **Essai.** Images realisees sur systeme PSYCHE 3, relisateur: Gilles Daigneault.

28. Inmos Limited, Phil Atkin, Inmos White, Friars Lewins Mead, Bristol BS1 2NP England; **Chess Balls.** This image was rendered using a distributed ray-tracing algorithm, giving anti-aliasing and depth of field. Written in occam and running on a multi transputer network, the novel processor farm implementation allows linear performance increase as more transputers are added to the system. Generated by an Inmos ITEM 400 transputer system, and displayed by an Inmos B007 graphics card, the rendering time was 21 minutes. The image was displayed at 512x512 pixels, 18 bits per pixel. Photographed directly from the monitor.

29. Management Graphics, Trudy Siegel, 1401 E 79th St., Bloomington, MN 55420; **Baldwins.** User application of QUICKCHART™ formatted question and answer method of creating charts and graphs on the TTS/Plus System 4096.



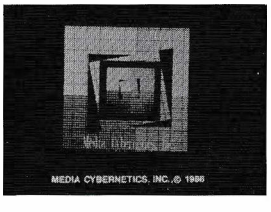
30. Management Graphics, Trudy Siegel, 1401 E 79th St., Bloomington, MN 55420; **Construction Spending.** An example of data driven graphing and automatic interpolation of color on the TTS/Plus. This was produced by Doug Crane of GGC, Parsippany, NJ.



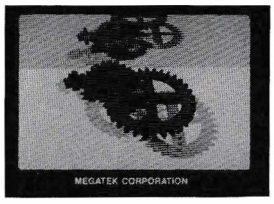
31. Matrix Instruments, Sara Darroch and Edward J. Laughner, University of Akron, Akron, OH, 44325 c/o Art Dept.; **Untitled.** Produced on a New England Technology Group II System.

32. Matrix Instruments, E. Laughner and J. Lenavitt, University of Akron, Akron, OH, 44325 c/o Art Dept.; **Akron.** Produced on a New England Technology Group II System.

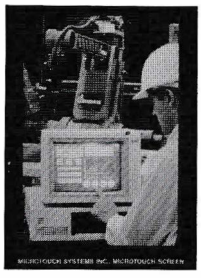
33. Media Cybernetics, Inc., Doug Paxson, 8484 Georgia Ave., Suite 200, Silver Springs, MD 20910; **Image-Pro.** Image-Pro workstation: IMP PC AT w/Number Nine revolution board, worsktation #2 IBM PC AT with Imagraph 1024x1024 board, Image-Pro software. Used two workstations and special image rotation algorithm.



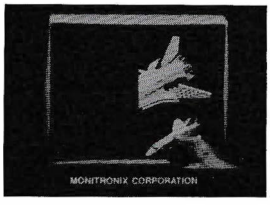
34. Megatek Corportation, Mike Bailey, 9645 Scranton Road, San Diego, CA 92121; **Untitled.** Ray tracing image of a set of gears and their reflections. Displayed on the Megatek 9000-series screen using in-house software. Artist/programmer: Roman Kuchkuda.



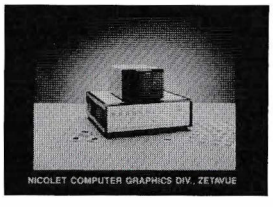
35. Microtouch Systems Inc., Lynn Hearl, Ten State Street, Woburn, MA 01801; **Microtouch Screen.** Pictured is the RGB Touch Monitor featuring the analog capacitive MicroTouch Screen (TM). The unit is shown in an industrial control application where the touch sensor can be used to coordinate movements of a robotic welding cell. Used with permission from Automatic, Inc., Billerica, MA. The Adaptive Automation Company.



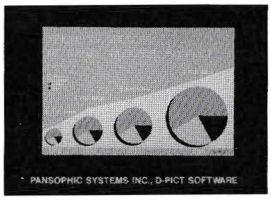
36. Monitronix Corporation, Beth Chichka, 2971 Silver Drive, Columbus, OH 43224; **MX-200/MX-4190.** Monitronix Corp., an American company, offers a line of ultra high resolution color monitors at the leading edge of technology, 1280 H x 1024 V and 1600 H x 1280 V. Our products utilize the same architecture and modular design to enhance superior price performance.



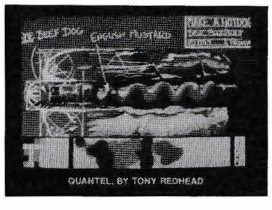
37. Nicolet Computer Graphics Div., Susan J. Keeley, 777 Arnold Drive, Martinez, CA 94553; **ZETAVUE Graphic Slide System.** Nicolet ZETAVUE Graphic Slide System provides 35mm slide capabilitiy from your PC or mainframe. The easy-to-use ZETAVUE (no photographic experience is necessary) provides fast turnaround at a fraction of the cost for outside services.



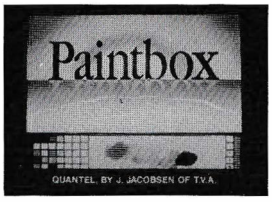
38. Pansophic Systems Inc., Michael Hunt, 709 Enterprise Drive, Oak Brook, IL 60521; **Untitled.** D-Pict software.



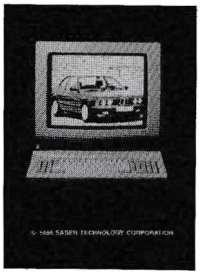
39. Quantel, Tony Redhead and Douglas Schwartz, 3290 West Bayshore Road, P.O. Box 50810, Palo Alto, CA 94303; **Untitled.**



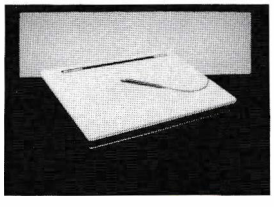
40. Quantel, J. Jacobsen of T.V.A. and Douglas Schwartz, Quantel, 3290 West Bayshore Road, P.O. Box 50810, Palo Alto, CA 94303; **Untitled.**



41. Saber Technology Corporation, Larry Dorie, 2381 Bering Dr., San Jose, CA 95131; **Untitled.** High fidelity graphics. Two million pixels, 16 million colors and a bright screen provide photographic quality images, even in normal office lighting.



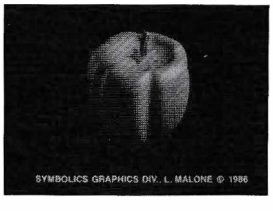
42. Summagraphics, Lisa M. Shay, 777 State Street Extension, Fairfield, CT 06430; **MM1812.** The MM1812 offers the advantages of high resolution and superior reliability with an 18″ x 12″ active area for serious digitizing.



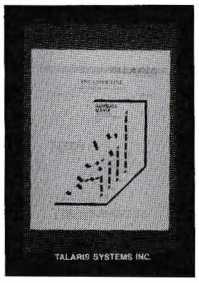
43. SUPERSET, INC., Jerry Donaldson, 11025 Roselle Street, San Diego, CA 92121; **Superset Image Management System (SIMS).** Image was created on an XP/48 design station by merging scanned photographs, vector images, raster images and 3-D models, all in 3-D space. The resulting image was output at 4000 line resolution.

44. Symbolics Graphics Div., L. Malone and Kenneth Brain, 1401 Eastwood Blvd., Los Angeles, CA 90024; **Clay Scape.** The objects were created using S-Geometry and fractal software in development. Color and lights defined by S/Render. Artist/programmer: Larry Malone.

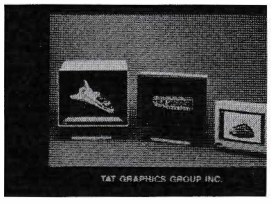
45. Symbolics Graphics Div., L. Malone and Kenneth Brain, 1401 Eastwood Blvd., Los Angeles, CA 90024; **Pepper.** The objects were created using S-Geometry rendered using S/Render. Artist/programmer: Larry Malone.



46. Talaris Systems Inc., Janice Kall, 5160 Carroll Canyon Road, P.O. Box 261580, San Diego, CA 92121; **Cover for Laser Line IV.** The cover for Laser Line IV was created using Talaris's TEX support software package to format the text. The graphic image was used courtesy of ISSCO (R). The graphic image was scaled and merged with text using Talaris's QDRIVER (R), a text and graphics integration tool. The result was printed on a Talaris 800 laser printer. Artist: Margaret M. Thomas, Graphic: ISSCO, Programmer: Barry Ferris.



47. TAT Graphics Group, Inc., Robin Lutchansky, 1270 Lawrence Station Rd., Bldg. E., Sunnyvale, CA 94089; **Sextant T-Series Graphic Sub-Systems.** With a T-Series subsystem, your PC can perform high resolution graphics with a choice of resolution-640x480, 800x600 or 1024x768 and a choice of screen sizes from 13 inches to 20 inches. With the high resolution monitor and Galaxy graphics controller board, you never have to leave your workstation to complete a project...the extra advantage...and you can communicate with mainframes.



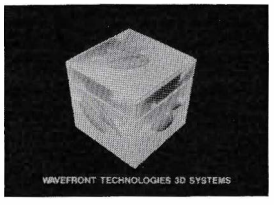
48. Via Visuals Inc., Peter G. Clark, 4800 Patrick Henry Drive, Santa Clara, CA 95054; **Talking Heads.** Artist oriented, resolution independent electronic picture processing equipment. Artist/ programmer: Catherine Azzarello.

49. Via Visuals Inc., Peter G. Clark, 4800 Patrick Henry Drive, Santa Clara, CA 95054; **Tropical Paradise.** Artist oriented, resolution independent electronic picture processing equipment. Artist/ programmer: Rick Coker.

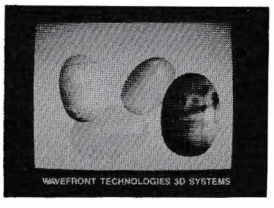
50. Wasatch Computer Tech., Kim Whitesides and Brian Johnson, 123 East 2nd South, Salt Lake City, UT 84111; **Hi-Ho.** Wasatch 1024 illustration system, 768x1024 resolution.

51. Wasatch Computer Tech., Brian Johnson, 123 East 2nd South, Salt Lake City, UT 84111; **Swan.** Wasatch 1024 illustration system, 768x1024 resolution.

52. Wavefront Technologies, Lauri Kelty, 1421 State Street, Santa Barbara, CA 93101; **Cloud Box.** Silicon Graphics Iris and Celerity (hardware). Wavefront Technologies 3D software. Clouds texture mapped on box, reflection mapped.



53. Wavefront Technologies, Lauri Kelty, 1421 State Street, Santa Barbara, CA 93101; **Eggs in Space II.** Silicon Graphics Iris and Celerity (hardware). Wavefront Technologies 3D software. Composited over a stripe background. Shows bump mapping/metalic, reflection mapping, texture mapping of Santa Barbara sunset, transparency, smooth shading and colored light sources.



54. West End Film, Karen D. Miller, 1825 Q Street, N.W., Washington, DC, 20009; **Sailboat.** David Fisher from Computer Brain Trust created this slide using BRUSH-WORK, West End Film's paint package.

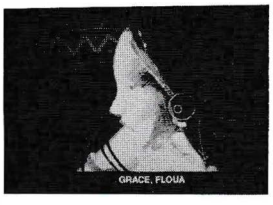
55. Westward Technology Inc., Steven Feierstein, 63 Great Road, Maynard, MA 01754; **Westward Technology.** Westward's wide family of graphics terminals offers high performance, upgradeability, advanced ergonomics and excellent value. The intelligent 2D and 3D display list processor is software compatible with leading graphics packages.

56. Xerox Corporation, Lisa McGinn, XRX2-05B 100 Clinton Avenue, Rochester, NY 14644; **Xerox 6085 PCS.** The Xerox 6085 Professional Computer System (PCS) is a high performance, single user workstation designed to support a variety of applications.

23. Evans & Sutherland and Redifussion Simulation, Gregory McFarlane, P.O. Box 8700, 580 Arapeen Drive, Salt Lake City, UT 84108; **CT-6 Harrier Simulation.** CT-6 is a real-time dynamic computer image generation system capable of producing such high-level realistic scenes as this. Advanced hardware texture improves scene realism and provides pilots with valuable speed and altitude cues.

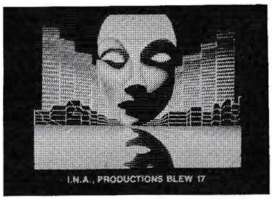
24. Floating Point Systems and Northrop Corp., Jennifer Carrara, P.O. Box 23489, Portland, OR 97223; **Untitled.** Model P/A-18 Hornet flight simulation processed in real-time by FPS-5000 series array processors.

25. GRACE, Regine Tromeur, 3, Place Paul Verlaine - 75013 Paris, France; **Floua.** Drawing of Jean Claverie (March 1986).



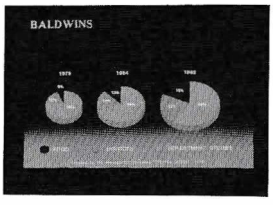
26. Houston Instruments, Marty McConnell, 8500 Cameron Road, Austin, TX 78753; **DMP-51/52 MP Series.** Houston Instruments' 14-pen DMP-51/52 MP series plotters feature a resolution of .001 inch, a maximum plotting speed of 22 inches per second and a user-selectable acceleration rate up to 4 Gs.

27. I. N. A., Productions Bleu 17, Institut National de la Communication Audiovisuelle, 4, avenue del l'Europe 94366 Bry-Sur-Marne, France; **Essai.** Images realisees sur systeme PSYCHE 3, relisateur: Gilles Daigneault.

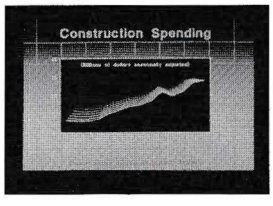


28. Inmos Limited, Phil Atkin, Inmos White, Friars Lewins Mead, Bristol BS1 2NP England; **Chess Balls.** This image was rendered using a distributed ray-tracing algorithm, giving anti-aliasing and depth of field. Written in occam and running on a multi transputer network, the novel processor farm implementation allows linear performance increase as more transputers are added to the system. Generated by an Inmos ITEM 400 transputer system, and displayed by an Inmos B007 graphics card, the rendering time was 21 minutes. The image was displayed at 512x512 pixels, 18 bits per pixel. Photographed directly from the monitor.

29. Management Graphics, Trudy Siegel, 1401 E 79th St., Bloomington, MN 55420; **Baldwins.** User application of QUICKCHART™ formatted question and answer method of creating charts and graphs on the TTS/Plus System 4096.

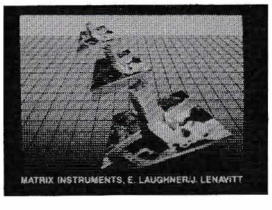


30. Management Graphics, Trudy Siegel, 1401 E 79th St., Bloomington, MN 55420; **Construction Spending.** An example of data driven graphing and automatic interpolation of color on the TTS/Plus. This was produced by Doug Crane of GGC, Parsippany, NJ.



31. Matrix Instruments, Sara Darroch and Edward J. Laughner, University of Akron, Akron, OH, 44325 c/o Art Dept.; **Untitled.** Produced on a New England Technology Group II System.

32. Matrix Instruments, E. Laughner and J. Lenavitt, University of Akron, Akron, OH, 44325 c/o Art Dept.; **Akron.** Produced on a New England Technology Group II System.



33. Media Cybernetics, Inc., Doug Paxson, 8484 Georgia Ave., Suite 200, Silver Springs, MD 20910; **Image-Pro.** Image-Pro workstation: IMP PC AT w/Number Nine revolution board, worsktation #2 IBM PC AT with Imagraph 1024x1024 board, Image-Pro software. Used two workstations and special image rotation algorithm.