The Computer Museum

PRESENTS

THE OFFICIAL COMPUTER BOWL Trivia Book

CHRISTOPHER MORGAN

Foreword by
BILL GATES

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Trivia Book

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Thanks to Stewart Cheifet, who has served as host for all of the Bowls, and who oversees TV production for *The Computer Chronicles;* to the ACM, The First Society in Computing, for its continued sponsorship; and to Karen Frenkel and the staff of the Communications of the ACM for printing the transcripts of past Bowls.

Over the years we've received hundreds of questions for use in the Bowl, in particular from ACM members worldwide. For submitting questions we thank: Gwen Bell; Gordon Bell; Steve Golson; Steve Coit, Donna Landrey, Laurie Girand, Gregory S. Woodbury, Gordon Findlay, Michael Williams, Richard Chapman, Tak To, David Wheeler, Keith Dow, Nick Fotis, Erik Anderson, Mark Thorson, Richard Caasi, Jean-Louis Gassée, David S.

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Many thanks to Steve Golson, who contributed scores of top-flight questions to the Bowl over the years, and who has been a diligent fact checker. He also alerted me to the computer folklore newsgroups on the Internet, where we've culled some interesting material (a hint to future Bowl panelists!).

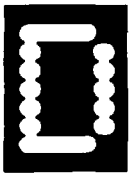
With this much material to check for accuracy, I must extend a special thanks to John Shoch, Steve Golson, and Gwen Bell for reading the entire manuscript and finding errors, omissions, and redundancies. Thanks also to Dave Nelson, Mitch Kapor, Bob Frankston, Paul Gillin, and Bill Gates for spotting errors.

Though our fact checkers are a diligent lot, I take full responsibility for any errors that may still remain. Speaking of which, I'm sure our eagle-eyed readers will spot some mistakes. I'd be grateful if you contact me with corrections or clarifications. (See "More Questions, Please!" at the back of this book.)

The Bowl would be nothing without its talented team members, questioners, and judges, who give willingly of their time to benefit the Computer Museum. (See Appendix B.)

Lastly, this book—and the Computer Bowl itself—would not have happened without the unflagging support of Gwen Bell, the founding president of the Computer Museum. The idea for the Computer Bowl was Gwen's, and she convinced many of the best minds in high tech to risk their trivia reputations before millions of TV viewers. Gwen also had a major impact on this book, contributing some of the best questions and helping to organize it into coherent chapters. Her enthusiasm, creativity, and friendship have been an inspiration. Thanks for everything, Gwen.

FOREWORD



o you know the pre-release name for IBM's PC Jr computer? Or what "PCMCIA" stands for? You'll find the answers here in *The Official Computer Bowl Trivia Book,* the first-ever computer trivia book. If you are into computer trivia as much as I am, you'll probably read it in one sitting. Now you can match wits with all the computer-industry executives, media people, and analysts who take part each year in the *Computer Bowl,* the television quiz show for computer aficionados that benefits The Computer Museum.

I first got involved with the Computer Bowl in 1990 when Gwen Bell, The Computer Museum's founding president, asked if I would take part. It was an honor to be asked to participate, but I wasn't quite sure how to prepare for having to define a "FLOP" one minute, and recall the name of the computer in *Three Days of the Condor* the next. I said I'd take part, and in so doing joined the West Coast team, ready to compete against our East Coast foes.

The West Coast team that year consisted of Stewart Alsop, Charles House, Larry Tesler, John Doerr (our captain), and myself. We started taking this game show stuff pretty seriously, spending hours reading and researching arcane materials, trying to second-guess the questions we might get.

When the show was over, I was hooked on the Computer Bowl! (I even was fortunate enough to be named Most Valuable Player for the West Coast team that year.)

Since then I've appeared as the official examiner (in Bowls

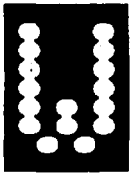
Three, Four, and Five) and as a West Coast player in the All-Star Computer Bowl (Bowl Six).

Speaking for all the past bowl participants, I hope you enjoy answering these questions as much as we did on TV.

P.S. For a real challenge, try answering the questions marked with an asterisk. They're the ones that stumped us all.

—Bill Gates, Chairman, Microsoft Corp.

INTRODUCTION



elcome to the first-ever computer-trivia book, or, as I affectionately call it, *The College Bowl* meets *Nerds in Space*! As many readers might recall, *The College Bowl* was a long-running TV quiz show that pitted smart (though *some* nerdy) teams of college students against each other in a good-natured test of general knowledge. It was to become the inspiration for the Computer Bowl.

In 1988, Steve Coit showed a set of computer-trivia questions he had assembled to Gwen Bell, The Computer Museum's founding president. Remembering the *College Bowl* show, Gwen instantly formulated the idea for the Computer Bowl. It would be a high-tech version of the *College Bowl*, but instead of college students, it would feature some of the best-known personalities in the colorful microcomputer industry, battling on West and East Coast teams to answer tough computer trivia questions to win the title "Computer Trivia Champs of the Universe." The idea took flight, and over the years has entertained thousands of people in the studio audience and millions more on TV.

Each year, panelists for the Computer Bowl are chosen from computer companies and the worlds of academia, finance, and the media. Though strictly for fun, the competition is fierce, transforming the Bowl into something of an institution, and raising millions of dollars for the museum thanks to generous corporate and individual contributors.

The Official Computer Bowl Trivia Book is our response to the

many requests from fans for copies of the Bowl questions. The book contains the questions used in the first six Computer Bowls and the pregame shows, along with hundreds of additional questions not usable during the Bowl because of time constraints. As a result, more than half the questions in the book are brand-new.

Where Do the Questions Come From?

Though I contributed some of the questions to this book, the majority have come from ACM members, the media, and trivia mavens both inside and outside The Computer Museum, such as Gwen Bell and Steve Golson. The questions range from the light-hearted ("Is the divorce rate higher in Silicon Valley or in Boston's Route 128 area?") to the "tough-techie" ("How many buttons were on the first computer mouse?"). My job has been to collate and fact-check the questions, combing Internet byways and libraries to unearth arcane bits of computer trivia. The most fun has been discovering such truly bizarre pieces of information as the identity of the computer pioneer who hated street musicians so much that he (or is it she?) brought suit against them. And, speaking of computer pioneers, just what did computer pioneer Alan Turing bury in his backyard during World War II, and why? You'll find the answers inside.

Over the years I've had the pleasure of hosting the Bowl's pregame show, a lively, informal joust between past Most Valuable Players that occurs just before the Bowl proper. Because of time contraints, the pregame show is not telecast. That's too bad, because some of the liveliest exchanges occur then. You'll just have to attend the next Bowl in person to enjoy the pregame show! But the good news is that we've been able to include the pregame questions in the book.

Enjoy!

—Chris Morgan

1

COMPUTERS IN THE MEDIA

We've got giant computer-driven robot spiders here, and lots of them! Can you name the leading man who was attacked by these creatures in the 1984 movie *Runaway?* And who—or what—was inside *Star Wars'* R2D2 robot operating it? Get the answers here. We've included technical questions about the computer's role in music, animation, and the arts, and questions about the appearance of computers in literature, movies, TV, comics, plays, museums, and other cultural activities.

Not surprisingly, computers have been a part of the movies, TV, books, and the theater for decades. Beginning in the late 1940s, the computer as "Giant Brain" became the frequent satirical target of magazine cartoons and television shows. And, of course, movie producers have never been able to resist the idea of a computer gone berserk.

Today, computers are everywhere, from Arnold Schwarzenegger's *Terminator* movies to the many *Star Trek* productions. Computers appear in both comedies and dramas, as well as such cult favorites as TV's *Mystery Science Theater 3000* with its wisecracking robots. Computers play an increasingly important role behind the scenes, too, making possible the remarkable

special effects in scores of movies from *Jurassic Park* to *The Mask, Toy Story,* and so on.

When did the computer make its movie debut in a starring role? Since this is a trivia book, we'll express it in the form of a multiple-choice question:

Q: When did the computer first make its appearance as a main character in the movies? Was it in *Gog, Desk Set,* or *Colossus: The Forbin Project*?

A: 1954's *Gog,* in which a nuclear "brain" takes over a secret laboratory.

Have at it!

1. In Michael Crichton's book *Jurassic Park*, a Cray supercomputer figures in the plot. Is this true for the movie version?
2. In the mid-seventies, one of the first personal computers was named after a destination visited by the starship *Enterprise* on the TV program *Star Trek*. Was it the IMSAI, the SOL, the Altair 8800, or the Apple II?
3. In the movie *Star Trek IV, The Voyage Home*, Scotty makes a mistake in attempting to communicate with a twentieth-century computer by speaking into the wrong peripheral device. What was the device?
4. What famous actor tried to steal IBM customers away to Apple Computer in an early Apple II TV ad: Alan Alda, Kevin Costner, or Clint Eastwood?
5. What leading man was attacked by robot spiders in the movie *Runaway*—Tom Selleck, Tom Hanks, or Tom Cruise?
6. What *Looney Toons* cartoon character once used a UNIVAC computer to solve a mystery: Bugs Bunny, Porky Pig, or Sylvester?
7. In the comic strip *Doonesbury*, what computer did Mark learn to program: The PDP-11/70, the Macintosh, or the IBM PC?
8. In *Robocop*, the computers in the Detroit computer center scenes weren't computers at all. Were they traffic-light controllers, telephone switching equipment, or painted boxes?
9. In *Star Wars*, was R2D2 an actual working robot, a hollow robot operated by a midget, or a computer-animation image?
10. In the 1959 movie *Desk Set*, Katharine Hepburn, and her staff are worried they might be replaced by a computer called what: EMORAC, CALLA LILY, or UNIVAC?
11. In the science-fiction book and movie *Colossus: The Forbin Project*, the American supercomputer was called Colossus. What was the Russian computer called: Gorbachip, Nyetsky, or Guardian?
12. In the science-fiction novel *Dune*, what was the anticomputer revolt called: The Anticomputer Revolt, the Computer Conspiracy, or the Butlerian Jihad?
13. In what 1977 movie did Julie Christie play a woman who was imprisoned and impregnated by a computer?

1. No. A Thinking Machines computer does the job in the movie. Cray declined to get involved.
2. Altair 8800
3. A mouse
4. Kevin Costner
5. Tom Selleck
6. Porky Pig
7. The PDP-11/70
8. Telephone switching equipment
9. A hollow robot operated by a midget
10. EMORAC
11. Guardian
12. The Butlerian Jihad
13. *Demon Seed*

14. (*) Ted Nelson is the well-known hypertext pioneer and author of *Computer Lib/Dream Machines* and other books. His mother is a famous actress. Is she Celeste Holm, Bette Davis, or Claire Bloom?
15. The year 1989 marked the first time a computer-animated short subject won an Oscar. What was it called?
16. An exhibit installed at the Smithsonian Air and Space Museum during the 1990s deals with the history of computers in aviation. What is the name of this exhibit?
17. Are computers mentioned anywhere in George Orwell's *1984*?
18. Computer pioneer Herb Grosch once appeared on TV with Ronald Reagan. Did they appear in a western, a *GE Theater* television show, or an IBM commercial?
19. HAL was the famous computer in Stanley Kubrick's movie *2001: A Space Odyssey*. What was the name of HAL's sister computer in the sequel, *2010, The Year We Make Contact*? SAL, VAL, or Dorothy Lamour?
20. His 1989 song "Networking" has the following refrain: "Networking, I'm user friendly/Networking, I install with ease/Data processed, truly BASIC/I will upload you, you can download me." Who wrote this: Frank Zappa, Todd Rundgren, or Warren Zevon?
21. If you go by the chronology in the movie *2001: A Space Odyssey*, in what year would the HAL-9000 computer have been operational?
22. Karl Capek used the Czech word for "worker" in his 1921 play *RUR*. In the process, he coined a new word in English. What was the word?
23. Frederik Brown wrote a science-fiction story in 1954, called "The Answer," in which computers from different planets are linked together and asked if God exists. What was their reply?
24. In 1975, Michael Shrayer developed Electric Pencil, a precursor of today's word-processing programs. Prior to that he was a member of the executive staff of a famous TV program. Was it *Candid Camera, I Love Lucy,* or *Mission: Impossible*?

Note: The asterisks (*) throughout highlight questions that stumped the Computer Bowl panelists. —Chris Morgan

14. Celeste Holm
15. *Tin Toys*, by John Lasseter from Pixar
16. *Beyond the Limits*
17. No
18. *GE Theater*
19. SAL
20. Warren Zevon, from his *Transverse City* album
21. In 1992. The novel shows HAL starting up in 1997, but the movie says January 12, 1992.
22. "Robot"
23. "He does now!"
24. *Candid Camera*

25. A 1993 art exhibit titled *Genetic Images* at the Centre Georges Pompidou in Paris used a supercomputer to generate real-time images that "evolved" with audience interaction. What supercomputer was used?
26. During the 1950s, a computer company was the sponsor of the TV quiz show *What's My Line*? What was the name of the computer company: IBM, RCA, Burroughs, or Remington Rand?
27. In the acknowledgments to Francis Fukuyama's book *The End of History and the Last Man*, the author dedicates the book to a microprocessor chip. Which chip is it?
28. In the *Bloom County* comic strip, what was the name of Oliver Wendall Jones's personal computer?
29. The Computer Museum's *People and Computers* exhibit features the first computer used to control the lighting for a Broadway show is displayed. Name the show and the computer.
30. (*) In the movie *The Computer Wore Tennis Shoes*, what is the main character accidentally injected with?
31. In the movie *War Games*, what game was played by the computer? Bridge, tic-tac-toe, or poker?
32. (*) In what 1984 film directed by Steve Barron did a classic love triangle involve a boy, a girl, and a computer?
33. (*) A 1984 movie featured a video-game whiz played by Lance Guest who helped save a real-life planet under attack. What was the movie?
34. What was the name of the movie in which Robert Redford leads a team of reformed computer hackers: *Sneakers*, *The Lawnmower Man*, or *Terminator 2*?
35. In what Walt Disney movie do the main characters live inside a computer?
36. In what year did the *New York Times* switch from hot type to computerized typesetting?
37. Name either of the two movies in which the phrase "klaatu barada nicktu" was heard or seen.
38. Name the male lead in the 1970 Walt Disney movie *The Computer Wore Tennis Shoes:* Was it Fred MacMurray, Kurt Russell, or Don Knotts?
39. Nomad, M-5, Noram, and Landru were all computers that appeared on a TV series. What was the name of that series?

25. A CM-2 Connection Machine from Thinking Machines Corp.
26. Remington Rand
27. The Intel 80386
28. The Banana Junior
29. *A Chorus Line;* The PDP-8
30. A computer brain
31. Tic-tac-toe
32. *Electric Dreams*
33. *The Last Starfighter*
34. *Sneakers*
35. *TRON*
36. 1978
37. *The Day the Earth Stood Still* and *TRON.* (One of the programmers in *TRON* has the phrase on his bulletin board.)
38. Kurt Russell
39. *Star Trek*

40. Of the following three movies with computer themes, which was the earliest? *Desk Set, Gog,* or *Billion Dollar Brain*?
41. Oliver Stone's 1993 TV miniseries *Wild Palms* was set in the near future and featured a well-known computer technology that simulates alternate environments. What is it called?
42. On Art Linkletter's 1950s television show, *People Are Funny,* what computer was featured: the UNIVAC I, the IBM 650, or the TRANSAC 2000?
43. Computer-manipulated images allowed Tom Hanks to talk to dead presidents in what movie?
44. Pieces of a famous historical computer appeared in various episodes of TV's *Lost in Space* and in the earlier series *Time Tunnel.* What machine was it?
45. Scott Page is one of the cofounders of 7th Level, Inc., which sells interactive multimedia entertainment software. At one time he played tenor sax for a rock group. Was it Pink Floyd, Cheap Trick, or Yes?
46. Steven Holtzman's book about the languages of abstract and virtual worlds has been called the best of its kind since *Gödel, Escher, Bach* by Hofstadter. What is its title?
47. The front panel console of what IBM computer appears in the movie *Colossus: The Forbin Project*?
48. *The Hammond Atlas of the World* claims to be the first atlas created entirely from a digital database. What year was this atlas produced: 1988, 1991, or 1993?
49. The *Intelligent Machines Journal* later became what publication: *InfoWorld, ComputerWorld, PC World,* or *Datamation*?
50. (*) *The Odyssey Files* was a book written about a famous movie featuring a computer. What was the movie?
51. The terms "virtual reality" and "cyberspace" were inspired by science fiction's "cyberpunk" genre. According to Paul Saffo in the *Communications of the ACM,* John Brunner is credited with writing the first cyberpunk novel. Was it called *Stand on Zanzibar, Mona Lisa Overdrive,* or *Shockwave Rider*?
52. The word "hypertext" was coined in the seventies by whom?
53. Tom Brigham won a technical achievement award for his work in developing morphing in 1993. What organization gave him the award?

40. *Gog*, released in 1954, in which a nuclear brain takes over a secret laboratory. (*Desk Set* was released in 1957; *Billion Dollar Brain* in 1967.)
41. Virtual reality
42. UNIVAC I
43. *Forrest Gump*
44. The SAGE
45. Pink Floyd
46. *Digital Mantras*
47. The IBM 1620
48. 1993
49. *InfoWorld*
50. *2001: A Space Odyssey*
51. *Shockwave Rider*
52. Ted Nelson
53. Academy of Motion Picture Arts and Sciences

54. TV ads for personal computers have been around for many years. For each of the following celebrity spokespeople, identify the computer company he represented: (A) Alan Alda; (B) Dick Cavett; (C) Bill Cosby; (D) William Shatner.
55. What 1985 movie was about two nerdy teenagers who use a computer to conjure up the woman of their dreams?
56. What book about computers won a Pulitzer prize?
57. What city's newspapers were the first to use computers to set editorial and classified pages: New York, Oklahoma City, or San Jose?
58. What company created the computer-aided special effects for the 1994 movie *The Mask*?
59. What company worked with Disney to supply effects for the animated cartoon classic *Fantasia*? IBM, Hewlett Packard, or Sperry Rand?
60. (*) What computer costarred with Robert Redford in the film *Three Days of the Condor:* a PDP-11, an Apple II, or a Cray 1?
61. What computer product was sponsor of the 1993 Fiesta Bowl?
62. What computer vendor provided the computers used in the movie *The Billion Dollar Brain,* starring Michael Caine: IBM, Honeywell, or DEC?
63. (*) What movie is very loosely based on a Stephen King short story and deals with the concept of virtual reality?
64. What New York art museum once held an exhibit devoted to plots of integrated circuits?
65. What operating system is mentioned in the movie *Jurassic Park*?
66. What was the first major movie to use computer-aided animation: *Soylent Green, FutureWorld,* or *Star Wars*?
67. What was the name of PBS's six-part series on the history of the computer?
68. What was the name of the robot in the film *The Day the Earth Stood Still:* Robbie, Gort, or Brainiac?
69. What was the precursor of MIT's Media Lab?
70. Where did the first all-computer art exhibit take place? (It happened in 1970 and the show featured computer software.)

54. (A) Alan Alda: Atari and IBM; (B) Dick Cavett: Apple; (C) Bill Cosby: Texas Instruments; (D) William Shatner: Commodore
55. *Weird Science*
56. *Soul of a New Machine*, by Tracy Kidder
57. Oklahoma City
58. Industrial Light and Magic
59. Hewlett Packard
60. PDP-11
61. IBM OS/2
62. Honeywell
63. *The Lawnmower Man* (King objected to the way his story was adapted for the screen.)
64. The Museum of Modern Art
65. UNIX
66. *FutureWorld*, in 1976. (The geometric patterns in the opening title sequence of Alfred Hitchcock's *Vertigo* are said to have been generated on a computer.)
67. *The Machine That Changed the World*
68. Gort
69. The Architecture Machine Group (sometimes called Arch-Mach and pronounced "Ark-Mack")
70. The Jewish Museum, New York City

71. Which of the following movies did *not* feature a robot: *Target Earth, Silent Running, Journey to the Center of the Earth,* or *Space Camp*?
72. Who created the computer special effects for the Walt Disney movie *TRON*?
73. Who is generally credited with having invented "morphing"?
74. Who recorded the rock song "Pocket Calculator": the Beatles, Kraftwerk, or Todd Rundgren?
75. Who sold Katharine Hepburn a computer in 1959's *Desk Set*?
76. (*) Who received a Tony nomination for best actor for portraying computer pioneer Alan Turing in Hugh Whitemore's play *Breaking the Code*: Lawrence Olivier, Ian McKellan, or Derek Jacobi?
77. Who wrote the following in 1907: "Directions for using: For thinking, wind the clockwork man under his left arm (marked No. 1). For speaking, wind the clockwork man under his right arm (marked No. 2). For walking and action, wind the clockwork man in the middle of his back (marked No. 3)"?
78. Fritz Lang's silent movie masterpiece *Metropolis* featured a robot. What did the robot eventually turn into—a beautiful woman, a wolf, or a bat?
79. What popular computer-animation technique used in *Terminator 2* and other movies involves the continuous transformation of one image into another?

71. *Journey to the Center of the Earth*
72. MagiGroup
73. Tom Brigham
74. Kraftwerk
75. Spencer Tracy
76. Derek Jacobi
77. L. Frank Baum, in *Ozma of Oz* (author of *The Wizard of Oz*)
78. A beautiful woman
79. Morphing

2

THE PC REVOLUTION

The mid-1970s ushered in a period that began with the microprocessor chip and ended in a worldwide revolution: the emergence of the microcomputer, or personal computer. This chapter deals with everything from technical points about PCs to the societal changes they have created.

But so much for the dry exposition—what we've really got here is the *useless* information you need to make your life reasonably complete. This is a trivia book, after all. You'll learn about the early days of hackerdom when companies like the whimsically named Itty Bitty Machine Company were born (their initials sparked some controversy, as you can imagine!).

In the mid-seventies, Silicon Valley's People's Computer Company was already beginning to wrestle with the potential effects of PCs on education. The Bay Area's Homebrew Computer Club attracted many of the bright people who went on to create the products and companies that built an industry.

The East Coast was a hotbed of activity, too, with the burgeoning Boston Computer Society and scores of software and hardware companies. Since then the microcomputer industry has gone nationwide and, indeed, worldwide.

This chapter gives you some of the flavor of the crazy pioneering days of the PC—and you'll find out who wrote the first book about personal computers.

1. In what year was the IBM PC introduced?
2. What was the first home computer to sell a million units: the Apple II, the Commodore VIC-20, or the TRS-80?
3. Who invented the mouse, and how many buttons did it have?
4. Some say the personal-computer era began when a microcomputer appeared on the cover of the January 1975 issue of *Popular Electronics.* Was that computer the IMSAI, the Altair 8800, the SCELBI, or the Apple I?
5. Who made the first laptop computer to fly on the Space Shuttle?
6. In the same year *Time* magazine named the computer its "Man of the Year," several other events took place: Compaq Computer was incorporated, Sun Microsystems was founded, and Businessland opened its first store. What was that year?
7. In what medium did Bill Gates's first BASIC interpreter for the 1975 Altair appear?
8. The names of the people who helped develop a famous personal computer had their names etched inside every case. What computer was it?
9. According to the *New York Times* article, what high-tech commodity item was even hotter than illegal drugs on the black market in 1994?
10. In the 1980s, a Taiwan-based computer company offered a cheap, do-it-yourself hardware modification that seemed to triple the speed of a PC. In fact it merely slowed the system clock down so that benchmarks appeared to run faster. What was this modification called?
11. Some sources say the term "personal computer" was first used to describe a computer used by MIT hackers. It cost nearly $3 million and filled one small room. What was the computer called?
12. IBM once sold a computer known as the model 5150. What name is it more commonly known by?
13. Only 220 examples of this computer were produced at $666.66 apiece, but they helped launch a major microcomputer company. What was the computer?
14. In 1994, what was the annual cost for generating the electrical power to run all the world's PCs: $4.6 billion, $9.4 billion, or $11.6 billion?

1. 1981
2. The Commodore VIC-20
3. Doug Engelbart; three buttons
4. The Altair 8800
5. Grid Systems. The Grid Compass was used in early flights
6. 1982
7. Paper tape
8. The Apple Macintosh
9. Computer memory chips
10. The Chang modification
11. The TX-0
12. The IBM PC
13. The Apple I computer
14. $4.6 billion, according to *The Green PC*

15. Apple Computer once asked owners of the Apple III computer to do something rather unusual to ensure that the integrated circuits inside the computer were securely in their sockets. What was the official procedure: (A) Drop the computer one foot onto a flat surface; (B) Push each chip into its socket by hand; or (C) Stand on the motherboard with both feet?
16. What company sponsors the annual Chili Cook-Off at the computer industry's annual COMDEX trade show?
17. It's almost a cliché that many Silicon Valley companies started out in garages. Of the following companies, which did not start in a garage: Apple, Televideo, or Sun Microsystems?
18. According to the *Quality Education Data Report* published in 1993, what state's public-school system provides the highest number of microcomputers per student? Is it Alaska, California, Minnesota, or Mississippi?
19. Agnes, Paul, and Denise were the names of three custom chips inside which PC?
20. Astronauts on the first flights of the space shuttle took along standard commercial programmable calculators. Who made the calculators they used?
21. At the 1979 West Coast Computer Faire, the first Apple "clone" appeared. What was its name?
22. At what trade show was VisiCalc first introduced: COMDEX, the National Computer Conference, or the West Coast Computer Faire?
23. Before the Osborne I portable computer appeared, another sewing-machine-sized computer called the Bytemaster was offered. Was it marketed by Cromemco, Tandy, or The Digital Group?
24. During the development of the Apple Macintosh computer, what was the name of the ancestor of the Mac's Finder? Was it "The Searcher," "The Flounder," or "The Seeker"?
25. Computer-related maladies such as carpal tunnel syndrome and Bursa shoulder are examples of RSDs. What does RSD stand for?
26. Dan Bricklin, codeveloper with Bob Frankston of VisiCalc, used a two-word phrase to describe his original idea. The phrase is "Magic" what?

15. (A) Drop the computer one foot
16. Micrographx
17. Sun
18. Alaska, with one computer for every nine students
19. The Commodore Amiga
20. Hewlett Packard
21. The Orange
22. The West Coast Computer Faire in 1979
23. The Digital Group
24. "The Flounder"
25. Repetitive Strain Disorder (or Repetitive Stress Disorder)
26. Magic Blackboard

27. DEC's first personal computer was the VT-18X, a CP/M machine. What was this machine's nickname: "the Robin," "the Bluebird," or "the Pigeon"?
28. How much ROM and RAM did the first TRS-80 computer have?
29. Digital Research Incorporated was a pioneering personal-computing company. What was its original name?
30. *Electronic Learning* magazine says that, as of 1988, at least one state requires all public school children to take a minimum of one computer course before graduating from high school. Is it Texas, Massachusetts, or California?
31. *Doctor Dobb's Journal* is a venerable publication in personal computing. Its full title is *Dr. Dobb's Journal of Computer Calisthenics and Orthodontia, Running Light without* . . . what?
32. ERICA is the name of a computer system designed for the disabled. How does the user of ERICA activate commands?
33. How many columns of text did a Commodore VIC-20 display by default on its screen: 18, 20, or 22?
34. How much main memory did the original IBM PC come with?
35. In 1974, Borland founder Philippe Kahn first used a personal computer. Was it the Sphere I, the Micral, the KIM-1, or the SCELBI 8H?
36. In 1974, the first advertisement for a personal computer appeared in an amateur radio magazine. It was called the SCELBI 8H. What does SCELBI stand for?
37. In 1976, the first Z-80 computer was introduced. What was the manufacturer? Processor Tech, Cromemco, or IMSAI?
38. In 1976, to whom were the first few dozen Apple I's sold: Fry's Electronics, the BYTE Shop, or the Homebrew Computer Club?
39. In 1983, The Heath Company marketed a robot kit. What was the name of the robot?
40. How much did the Osborne I portable computer weigh: 16 pounds, 19 pounds, or 23 pounds?
41. In 1985, a book designed to help frustrated computer users was published by Addison-Wesley. It was called *What the Manual Never Told You.* Who compiled this book?

27. "The Robin"
28. 4 kilobytes of each
29. Intergalactic Digital Research
30. Texas
31. *Overbyte*
32. By simply looking at the screen. (ERICA stands for "Eye-gaze Response Interface Computer Aid.")
33. 22
34. 16 kilobytes
35. The Micral
36. SCientific, ELectronic, and Biological
37. Cromemco
38. The BYTE Shop
39. HERO
40. 23 pounds
41. The Boston Computer Society

42. In 1985, a number of computers were discontinued. Name the company that produced each of the following computers that were discontinued that year: (A) the Rainbow; (B) the Lisa; (C) the Adam.
43. In 1985, Japanese computer companies hoped to introduce computers that used a new operating system written by Microsoft to the U.S. market. What was the operating system called?
44. In 1992, Robert X. Cringley wrote *Accidental Empires*, a controversial, gossipy book about the PC industry. The subtitle of the book begins, "How the boys of Silicon Valley make their millions, battle foreign competition, and . . ." What is the rest of the subtitle?
45. In 1993, according to the 1993 *Guinness Book of World Records*, what company marketed the world's fastest microprocessor?
46. In 1993, the computer market-research company Computer Intelligence surveyed more than 100,000 respondents to determine the top PC brands—not counting Macintosh or other platforms, but only PCs—and found IBM to have the largest market share, followed by Compaq in the number two position. Who was number three: AST Research, Dell, Zenith, or Epson?
47. *Interface Age* was an early personal-computing magazine originally published by a West Coast computer-user group. What was *Interface Age*'s original title?
48. Many famous computers had less famous predecessors. What computer preceded the Apple Macintosh?
49. One of the earliest personal computers was called the Altair and was manufactured by MITS. What does MITS stand for?
50. Six months before the Altair computer appeared on the cover of *Popular Electronics*, another computer appeared on a magazine cover. The computer was the Mark 8. Was the magazine *Scientific American*, *EDN*, or *Radio Electronics*?
51. SSI, MicroPro, and Relational Technology are three computer companies that have renamed themselves after their most popular products. Identify the new names for each.
52. The "Albert" was the name of an ill-fated clone of what microcomputer?
53. The computer magazine *Antic* is devoted to coverage of computers made by what company?

42. (A) DEC; (B) Apple Computer; (C) Coleco
43. MSX
44. "... still can't get a date."
45. DEC, for the Alpha
46. Zenith
47. *SCCS Interface Age* (Southern California Computer Society)
48. The Lisa
49. Micro Instrumentation and Telemetry Systems
50. *Radio Electronics*
51. (A) SSI became WordPerfect; (B) MicroPro became WordStar; and (C) Relational Technology became Ingress
52. The Apple II
53. Atari

54. The earliest Intel microprocessor chip was the 4004. Was it first used as part of an early personal computer, a Japanese calculator, or a frequency modulator?
55. The first three companies to get prototypes of Apple's first LaserWriter were Lotus, Microsoft, and what third company?
56. The first touch-screen computer was introduced in the early 1970s. Was it the Apple Lisa, the HP-150, the NEC 100, or the Wrist Mac?
57. The Kansas City Standard was developed as a standard for what PC storage medium?
58. The National Computer Conference had a record 97,000 attendees in what year: 1983, 1984, or 1985?
59. 1977 was a major year for personal computers. That summer three famous PCs were introduced. What were they?
60. Tri Truong, a Vietnamese living in France in 1973, decided to build a small, rugged computer that year. What was it called?
61. What book did Ted Nelson write after he wrote *Computer Lib/Dream Machines*? *Surreal Numbers, The Home Computer Revolution,* or *Cybernetic Dreams*?
62. What company produced an early microcomputer called the Poly-88?
63. Who took over MITS, the manufacturer of the Altair?
64. What computer peripheral product developed in San Leandro was known as the "Pizza Oven"?
65. On what computer project did Steve Wozniak and Randy Wigginton work during their Christmas vacation in 1977?
66. What computer was introduced by a television advertisement that ran only during the 1984 Super Bowl?
67. What diameter were IBM's first floppy disks: five inches, eight inches, or 12 inches?
68. What do the letters PET stand for in the Commodore computer?
69. What do the letters TRS stand for in TRS-80?
70. What do you call the feature, appearing in early Macintosh drawing software such as MacPaint and Superpaint, that lets you enlarge and modify a small portion of a drawing one pixel at a time?
71. What does SCSI (pronounced "scuzzy") stand for?
72. What does WIMP stand for?

54. A Japanese calculator
55. Aldus
56. The HP-150
57. Cassette tape
58. 1983
59. TRS-80, Commodore PET, Apple II
60. The Micral
61. *The Home Computer Revolution*, in 1977
62. Polymorphic Systems
63. Pertec
64. The first IMSAI floppy-disk drive.
65. Developing the Disk II floppy drive for the Apple II
66. The Apple Macintosh
67. Eight inches
68. Personal Electronic Transactor
69. Tandy Radio Shack
70. Fatbits
71. Small Computer System Interface
72. Windows, Icons, Mouse, Pull-down (or pop-up) menus

73. What magazine published during the 1980s focused exclusively on Tandy's TRS-80 computers?
74. What microprocessor was inside the Cosmac ELF computer?
75. What microprocessor was used in the Mark 8?
76. What was HDOS?
77. What was IBM's code name for the PC Junior?
78. What was the first computer with an Ethernet interface?
79. What was the first encyclopedia to appear in CD-ROM format?
80. What was the first Radio Shack computer called?
81. What was Borland's internal prerelease name for their Quattro spreadsheet? Buddha, Rows and Columns, or Spreadsheets R Us?
82. What was the name of Coleco's ill-fated home computer?
83. What was the original in-house name for the IBM PC?
84. What was the original name of Dell Computer?
85. When the IBM PC was introduced in 1981, IBM announced three operating systems for it. One of them was, of course, DOS. What were the other two?
86. Which computer is faster, the TRS-80 or the pioneering 1940s ENIAC?
87. Which of the following companies has its corporate headquarters in the Far East: Sun, Wang, Epson, or Atari?
88. Which of the following was a single-board computer: the KIM-1, the Altair 8800, or the PET computer?
89. Who was quoted as saying the following in *Byte* magazine in 1983: "I wasn't thrilled with the placement of those keys, but every place you pick to put them is not a good place for somebody. The left-hand shift key is where it is because we wanted to have the character-typing keys inside the control keys." Was it Steve Jobs, Don Estridge, or Rod Canion?
90. What was the only personal computer to be named after the state in which it was produced?
91. Who wrote the first Flight Simulator for personal computers?
92. What company was first to clone the IBM PC: Eagle Computers, Packard Bell, or Compaq?
93. Who wrote *IBM's Billion Dollar Baby*, the first analyst's monograph about the original IBM PC?

73. *80 Micro* magazine
74. The RCA 1802
75. The Intel 4004
76. A disk operating system for Heath computers
77. Peanut
78. The Alto
79. *Grolier's Encyclopedia*
80. TRS-80
81. Buddha, a punning name based on the company's assumption that Quattro would "assume the Lotus position."
82. The Adam
83. Chess
84. PCs Limited
85. CP/M-86 and UCSD-Pascal
86. The TRS-80
87. Epson
88. The KIM-1
89. Don Estridge of IBM. (Referring to IBM PC keyboard layout. Quoted in *Byte,* November 1983.)
90. Ohio Scientific Challenger
91. Bruce Artwick
92. Eagle Computers
93. Portia Isaacson

94. Who wrote the first book about personal computers in 1974, and what was it called?
95. What was the name of Mattel's home video-game computer?
96. What are the real geographical locations of the following places: (A) Silicon Prairie; (B) Silicon Valley North; (C) Silicon Glen?

94. Ted Nelson. (The title was *Computer Lib/Dream Machines.*)
95. Intellivision
96. (A) Dallas, Texas; (B) Portland, Oregon; and (C) Scotland

3

FUN AND GAMES

Computers have been playing games for decades (find out how far back they were playing checkers in this chapter). In fact, video-game and PC-game development created a symbiotic effect in the 1970s and 1980s, with, in many cases, the same people and companies inspiring each other to greater and greater achievements in video virtuosity.

Games like Computer Space broke new ground at the time and the innovations continue today, when you can play sophisticated multimedia games such as Cyan's CD-ROM-based Myst. It combines stereo sound, moving images, thousands of remarkably rendered images, and, more importantly, a compelling, nonviolent storyline. But in the beginning of the art, things were a lot simpler and slightly crazier.

1. Texas Instruments developed the first popular microcomputer-based toy. What was it called?
2. Steve Jobs and Steve Wozniak are best known as the creators of the Apple computer, but they also designed a popular arcade game for Atari. Was it Space Invaders, Pac-Man, or Breakout?
3. SEGA is the name of a popular manufacturer of computer video games, including Sonic the Hedgehog. What do the letters SEGA stand for?
4. According to *Computer* magazine, what was the first video arcade game to become popular with women as well as men?
5. In the CD-ROM game Myst, what type of musical instrument is located in the rocket ship: a guitar, an organ, or a bassoon?
6. The DataGlove is a virtual-reality device that lets users interact with a computer using hand motions. Was it first invented to dissect cadavers, play air guitar, create a 3-D mouse, or massage data?
7. What was the first tune generated by a computer, and where was it generated?
8. In 1982, what video game became the first game to inspire a TV show?
9. Which of the following computer games began as shareware: Doom, King's Quest, or Return to Zork?
10. Toru Iwatani created an important computer game character. Who is it?
11. What arcade game started the computer arcade craze?
12. Arthur Samuels wrote the first checker-playing program. In what year did it win a master's rating: 1962, 1966, or 1970?
13. Besides being the name of a computer company, "Atari" is also a word in the Japanese language. What does it mean?
14. Computer Space, Pong, and Space Race are all names of computer video games. Which of these became the first commercial video arcade game in 1970?
15. In what year did a human World Chess Champion first lose a game to a computer? Was it 1978, 1984, or 1990?
16. In what year does *The Kid's World Almanac* cite the appearance of the first computer camp for children: 1962, 1964, or 1977?

1. Speak and Spell
2. Breakout
3. SErvice GAmes
4. Pac-Man
5. An organ
6. To play air guitar
7. "Bicycle Built for Two" (or "Daisy, Daisy") at Bell Labs
8. Pac-Man
9. Doom
10. Pac-Man
11. Pong
12. 1962
13. "Warning." The term is used in the board game Go.
14. Computer Space
15. 1990. Former World Champion Anatoly Karpov lost to MEPHISTO, according to computer chess expert David Levy.
16. 1977

17. In the early computer game Hunt the Wumpus, what message did the computer print out when a player got near the Wumpus?
18. Arcade games are often thought to be male-oriented, yet a woman, Donna Bailey, designed one of the most successful video games. Was it Centipede, Tempest, or Ms. Pac-Man?
19. In 1967, a computer first beat a serious chess player during a Massachusetts state chess tournament. The computer's designer was Richard Greenblatt. What was the name of the computer: BORIS, MateMaster, MACHACK IV, or EN PASSANT?
20. In the early 1950s, Ferranti built a special-purpose computer called the Nimrod. What was its special purpose?
21. In the mid 1970s, a Scottish chess champion made a bet that no computer could beat him at chess before August 1978. He won the bet. What was his name?
22. In what year did a computer begin playing checkers: 1940, 1950, or 1960?
23. In what year did a computer finally beat a world backgammon champion: 1979, 1983, or 1986?
24. Life is the name of a well-known computer game. Who won the *Scientific American*'s Game of Life contest by creating the first "glider gun" (an element of the game that creates a stream of moving "gliders" in the Life "universe"): Bill Gosper, John Conway, or Donald Knuth?
25. Netware, Novell's first PC networking product, featured a bundled game as its demo. What was the game called?
26. The adventure game King's Quest outlived the computer for which it was originally written. What was the computer?
27. Shag, Slug, and Alan are the first names of three people who built a pioneering computer "video" game on the PDP-1 computer. What was the game called?
28. The cave in the original Adventure game was modeled after a real cave in what U.S. state: Texas, Kentucky, or Tennessee?
29. What was the name of the robot at the Westinghouse pavilion at the 1939 New York World's Fair?
30. Who wrote Ghostbuster, the computer game?
31. Who wrote Pinball Construction Set?

17. "I smell a Wumpus."
18. Centipede—for Atari
19. MACHACK IV
20. To play the game of Nim
21. David Levy
22. 1950 (The machine was Manchester's MADM.)
23. 1979
24. Bill Gosper at MIT
25. Snipes
26. The IBM PC Jr.
27. Space War (Shag Graetz, Slug Russell, and Alan Kotok)
28. Kentucky
29. Electro
30. David Crane
31. Bill Budge

32. Years ago, Will Crowther used a PDP-10 minicomputer to write Adventure, the famous prototypical computer fantasy role-playing game. Before being called Adventure, by what name was the game originally known?
33. In Tracy Kidder's book *Soul of a New Machine*, the hardware designers were called the Hardy Boys. What were the microcode developers called?

32. Advent
33. The Microkids

4

PEOPLE IN COMPUTING

The leaders of the computer industry have always been known for their spectacular achievements, peculiar foibles, and strange hobbies. This chapter is our *Entertainment Tonight* segment.

Some of the most colorful stories come from the 1970s, when many of the industry's most familiar people (such as Bill Gates) were still relatively obscure, going about their business in a cultlike industry full of eccentric designers and early adopters.

At that time, many of the early developers still held day jobs, spending evenings or weekends in garages playing with tiny one-board computers. Many of microcomputing's pioneers were nonconformists or counterculturists, ready and willing to take chances and to embrace the new, but hardly proven, technology of the microprocessor.

Their sometimes unusual behavior is chronicled here.

1. What well-known computer personality purchased the Leonardo da Vinci *Hammer Codex* drawing at auction in 1994 for more than $30 million?
2. Borland founder Philippe Kahn plays jazz in his spare time. What instrument does he play?
3. General Douglas MacArthur was once the chairman of the board of a computer company. Was it Sperry Rand, IBM, or Burroughs?
4. What famous computer personality served as grand marshal in the 1986 Orange Bowl Parade: Grace Murray Hopper, Gordon Bell, or Mitch Kapor?
5. Did Ella Fitzgerald sing at Steve Jobs's 30th birthday, NCC Pioneers' Day, or ENIAC's 40th birthday?
6. Some men in computing wear earrings. Of the following, who does not: Jean-Louis Gassée, Steven Wallach, or Philippe Kahn?
7. Name a PC entrepreneur who has been knighted.
8. In 1994, two computer CEOs, Bill Gates of Microsoft and Scott McNeally of Sun, were both married. (A) Did Scott McNeally's bachelor party feature a belly dancer, a war game with paint guns, or a 36-hole round of golf at Pebble Beach? and (B) Was Bill Gates's bachelor party held aboard the *QE2*, in the Grand Canyon, or in Hawaii?
9. What artificial-intelligence researcher once referred to the human brain as a "meat" computer? Marvin Minsky, Claude Shannon, or John McCarthy?
10. What type of shirt is Lotus founder Mitch Kapor fond of wearing?
11. Esther Dyson is a well-known computer analyst and journalist in the microcomputing field. Her father is a famous physicist. What is his name?
12. According to *IEEE Spectrum* magazine, a now-popular industry term was coined by Jaron Lanier. Was it "byte," "virtual reality," or "Internet"?
13. Before becoming KnowledgeWare's CEO, former football player Fran Tarkenton played for what two teams?
14. Both Gordon Moore and Bill Gates have contributed significantly to the construction of buildings at universities in order to have them named after them. What are the two universities?

1. Bill Gates of Microsoft
2. Saxophone
3. Sperry Rand
4. Grace Murray Hopper
5. Steve Jobs's 30th birthday
6. Philippe Kahn
7. Sir Clive Sinclair
8. (A) A war game with paint guns; (B) Hawaii
9. Marvin Minsky
10. Hawaiian shirts
11. Freeman Dyson
12. "Virtual reality"
13. The Minnesota Vikings and the New York Giants
14. California Institute of Technology (Moore) and Stanford (Gates)

15. A "Worm" is a program that propagates itself over a network, replicating itself as it goes. What well-intentioned Computer Bowl contestant coinvented the WORM programs at XeroxPARC?
16. According to a poll reported in *IEEE Spectrum,* what percentage of electrical engineers feel that "most people have no understanding of what an electrical engineer does": 20 percent, 50 percent, or 80 percent?
17. Computer company CEOs are famous for job hopping. We'll name the succession of companies where each CEO worked—you name the CEO: (A) Prime, Apollo, Ardent, Stardent; (B) AT&T, Apollo, Honeywell-Bull; (C) Wang, Computer Consoles, self-employed; (D) IBM, Shugart, Seagate.
18. Did ComputerWorld owner Pat McGovern get his start working for Bill Ziff, Ed Berkeley, or Robert Maxwell?
19. For a brief time, Ziff Publications produced a daily publication from Esther Dyson. With what personal situation was this associated?
20. From what scholastic institution did Steve Wozniak receive his college degree: Stanford, The University of California at Berkeley, or the University of Colorado?
21. Gene Amdahl built the WISC oomputer for his Ph.D. dissertation at the University of Wisconsin. In what field does he hold the Ph.D.: engineering, physics, or mathematics?
22. How many times was computer pioneer John von Neumann married?
23. Immediately after the introduction of the IBM PC, the president of Apple Computer and the head of IBM's PC division met for the first time. Where did they meet?
24. In 1991, one of the designers of Intel's 386 microprocessor chip was interviewed by Pat Robertson on *The 700 Club.* During the show he said that God was responsible for the success of that product. Was the designer Gene Hill, Ted Hoff, or Gordon Bell?
25. In September 1981, the U.S. government found AT&T guilty of violating the Sherman Antitrust Act. What judge made the decision: Judge Wapner, Judge Harris, or Judge Green?
26. *Byte* columnist and science fiction writer Jerry Pournelle's Z80 S100 system is now in the Smithsonian. What is its nickname?

15. John Shoch
16. 80 percent
17. (A) Bill Poduska; (B) Roland Pampell; (C) John Cunningham; (D) Al Shugart
18. Ed Berkeley, the computer pioneer who published the first computer magazine (*Computers and Automation*) and wrote the 1949 book *Giant Brains*
19. Esther's marriage to Bill Ziff
20. University of California at Berkeley
21. Physics
22. Twice
23. The Boston Computer Society
24. Gene Hill
25. U.S. District Court Judge Harold Green
26. Zeke (or Ezekial)

27. John Dvorak, Craig Crossman, and Thom Foulks have one non-print-media-related computer activity in common. What is it?
28. John Nash, who shared the 1994 Nobel prize for Economics for his work in game theory, once invented a game in which players moved markers on the hexagonal tiles of a bathroom floor. The game was later marketed to Parker Brothers under what title?
29. John von Neumann is a well-known computer pioneer. In what subject did he receive his first college degree: electrical engineering, mechanical engineering, or chemical engineering?
30. Many computer people use initials for their first names. Supply the first initial for each of the following: (A) Gordon Bell; (B) Presper Eckert; and (C) Frank King.
31. Mitch Kapor and Mitch Kertzman have all but one of the following things in common: (A) They were both disk jockeys; (B) They were both president of the Massachusetts Software Council; (C) They are both founders of software companies. Which is it?
32. Name one computer-corporation executive who has served, or is serving, in the United States Congress.
33. Niklaus Wirth is the well-known developer of the computer languages Pascal and Modula. What was his nickname at Stanford University?
34. On what machine did Digital Equipment's founder, Ken Olsen, get his first computer experience?
35. Pamela McCorduck and Ray Kurzweil both wrote surveys of the artificial-intelligence field. What were the books?
36. Ray Kurzweil wrote a book called *The Ten Percent Solution.* Is it about diet, speech recognition, or computer music?
37. In 1981, Apple cofounder Steve Jobs appeared on the cover of *Inc.* magazine. In that photo, was he wearing a T-shirt, a bathing suit, or a shirt and jacket?
38. Steve Jobs and Gordon Moore have both received the National Medal of Technology. Bill Hewlett has been given the National Medal of Science. Who of the following has been given both the National Medal of Science and the National Medal of Technology: David Packard, Steve Wozniak, or Robert Noyce?

27. They have all hosted computer radio talk shows
28. Hex
29. Chemical engineering
30. (A) C. Gordon Bell; (B) J. Presper Eckert, and (C) W. Frank King
31. (B) Neither was president of the Massachusetts Software Council.
32. Frank Lautenberg or Ed Tschau
33. Bucky
34. He worked on the Memory Test Computer as part of the Whirlwind computer project.
35. *Machines Who Think* and *The Age of Intelligent Machines*
36. Diet
37. Shirt and jacket
38. Robert Noyce

39. Steve Wozniak, cofounder of Apple Computer, earned money in college by selling "blue boxes" to other students. What did a blue box do?
40. The person who presided over AT&T's divestiture of its Bell regional companies has the same name as a famous cartoon character. Who is he?
41. The Pizza Time restaurant chain was started by Atari founder Nolan Bushnell. What was the name of Pizza Time's mouse robot?
42. Who, along with Bill Gates, cofounded Microsoft?
43. Tom Watson Jr. was a financial backer of the pioneering Harvard Mark I computer but he abruptly cut off his funding in the 1940s. Was this because: (A) He felt he had not been properly thanked; (B) The machine did not get enough publicity; or (C) He didn't think there was a future for such machines?
44. Wallace Eckert and J. Presper Eckert were both involved with university computers. Were they related? And which universities were they associated with?
45. Was the US Festival Rock Concert sponsored by Stewart Brand, Steve Wozniak, or St. Silicon?
46. What famous cybernetics pioneer also wrote *The Human Use of Human Beings*?
47. What famous computer pioneer was fond of holding up a short length of wire and saying, "Let me show you a nanosecond"?
48. What foreign-born computer pioneer was honored at the Statue of Liberty centennial ceremonies?
49. What is the name of Steve Jobs's daughter?
50. What is the title of the book about Bill Gates written by Stephen Manes and Paul Andrews?
51. What famous member of the Homebrew Computer Club (an early personal computing club in Silicon Valley) had a dog named Rocky?
52. What was Louis Gerstner's code name when he was on the nomination list for the top IBM job? Was it Able, Cyberkid, or Blackbird?
53. What was the name of Nolan Bushnell's first video game?
54. Which computer-industry figure did *Inc.* magazine name in 1990 as Entrepreneur of the Decade for the eighties: H. Ross Perot, Steve Jobs, or Thomas Watson Jr.?

39. It attached to a pay phone and created the proper signals to allow the user to make free phone calls.
40. Charles Brown
41. Chuck E. Cheese
42. Paul Allen
43. He felt he had not been properly thanked.
44. They were not related. Wallace was affiliated with Columbia University; J. Presper was affiliated with the University of Pennsylvania.
45. Steve Wozniak
46. Norbert Wiener
47. Grace Murray Hopper
48. An Wang
49. Lisa
50. *Gates*
51. Steve Wozniak
52. Able
53. Computer Space
54. Steve Jobs

55. Which of the following sort routines was named after a person: heap sort, quick sort, shell sort, or bubble sort?
56. Who has received both the ACM Turing Award and the Nobel prize?
57. Who is the only person ever to have won both the ACM's Turing award for lasting technical achievement and the Grace Murray Hopper award for work done prior to reaching the age of 30?
58. Who was the first editor of *Byte* magazine?
59. Who won the ACM's first Turing Award: John McCarthy, Donald Knuth, Edsger Dijkstra, or Alan Perlis?
60. Where did Steve Jobs and Steve Wozniak go to high school?
61. Which of the following did Bill Gates not do: (A) drop out of Harvard; (B) program the PDP-10; or (C) have a thousand-person 25th birthday party?
62. Who wrote *The Emperor's New Mind*, a critique of artificial intelligence?
63. A famous computer pioneer knew many famous people as a child, including President Warren Harding, Douglas Fairbanks Sr., and Charlie Chaplin. Was it John Atanasoff, Grace Murray Hopper, or J. Presper Eckert?

55. Shell sort
56. Herbert Simon of CMU. The awards are for his work in artificial intelligence and economics, respectively.
57. Donald Knuth
58. Carl Helmers
59. Alan Perlis, in 1966
60. Homestead High School, Cupertino, California
61. He did not have a thousand-person 25th birthday party.
62. Roger Penrose
63. J. Presper Eckert

5

THE INFORMATION HIGHWAY

Next, we fast-forward to the 1990s and beyond, with questions about hot new hardware and software that let users access the interconnected network of computers making up the Information Highway. Lots of technology, organizations, individuals, and activities made this happen. Are you in the know?

The chances are getting better and better that you're already on-line. The number of people becoming part of the Internet goes up rapidly every year, but some of the early craziness surrounding the Net is chronicled here.

What can you say about a network where people regularly discuss Jumping from Great Heights, Juggling, Devilbunnies (whatever *they* are), Texas Slang, Evil, Lute Music, and Spam? Plenty, as you'll see. Read Steve Rimmer's book, *Planet Internet*, for a comprehensive tour of some of the wackier newsgroups (as such discussion groups are called).

1. According to the *New York Times*, what U.S. government figure once sent the following E-mail message: "Oh Lord, I lost the slip and broke one of the high heels. Forgive please. Will return the wig on Monday"? Was it William Casey, Oliver North, or J. Edgar Hoover?
2. What was the first rock group to go on-line on the Internet: the Rolling Stones, Severe Tire Damage, or Aerosmith?
3. Are Archie and Veronica the names of two computers on *Star Trek*, acronyms for NASA database programs, or network information-retrieval tools on the Internet?
4. During the first month of Desert Storm in 1991, did the U.S. communicate with Saudi Arabia via modems running at 1,200 bps, 9,600 bps, or 28,800 bps?
5. Scott Adams puts his Internet E-mail address between the panels of his nationally syndicated comic strip. What comic strip does he draw?
6. How soon are Supreme Court decisions available on the Internet after they are announced: within a day, within one to two weeks, or within a month?
7. In 1978 in Chicago, Ward Christensen and Randy Seuss created the first of its kind. What was it?
8. In September 1993, newspaper magnate Rupert Murdoch acquired a gateway to the Internet. What is the name of this gateway?
9. Lotus pioneer Mitch Kapor was at one time the president of a public-interest group seeking, among other things, to establish legal precedents for the protection of computer users. What is this group called?
10. November 16, 1992, marked the beginning of nationwide ISDN digital telephone service, as local and national carriers were networked for the first time. This historic occasion had a name. Was it called: the Golden Spike, the Golden Splice, the Digital Deed, or the Magic Moment?
11. Of the following, which does *not* allow you access to the White House: America On-line, The Dungeon, GENIE, or CompuServe?
12. SLIP is a protocol for accessing the Internet via a telephone line. What does SLIP stand for?
13. What three computer companies announced the Ethernet standard in 1980? (Each of the three companies, incidentally, had blue logos at the time.)

1. Oliver North
2. Severe Tire Damage, according to the *New York Times*. The group performed November 18, 1994, on the Internet, 20 minutes before the Stones began their first-ever on-line concert.
3. Network information-retrieval tools on the Internet.
4. 9,600 bps
5. Dilbert
6. Within one day
7. The first personal-computer bulletin-board system (BBS)
8. Delphi Internet Services, Inc., Cambridge, Massachusetts
9. The Electronic Frontier Foundation
10. Golden Splice
11. The Dungeon
12. Serial Line Internet Protocol
13. Intel, Xerox, and DEC.

14. Smiley and smiley face are two common terms used to describe visual cues for expressing emotions in E-mail. They look like this: [:-)]. According to *The New Hacker's Dictionary,* what is "an ASCII glyph used to indicate an emotional state in E-mail or news?"
15. The Open Systems Interconnection model, better known as OSI, is a seven-layer communications protocol. What are the seven layers?
16. The White House once released a statement by the White House press secretary saying "The president today announced a new initiative that will bring the federal government together with industry in a voluntary program to improve the security and privacy of telephone communications while meeting the legitimate needs of law enforcement." What controversial microchip is being referred to here?
17. Video from the space shuttle and from the Jason project were sent not via satellite, but by the MBone. What is the MBone?
18. What company owns CompuServe?
19. What does ISDN stand for?
20. What is the president of the United States' Internet E-mail address?
21. 3Com Corp. is a well-known networking company. The company name is short for three words that all begin with "com." What are they?
22. What shortcut two-word command can you use in CompuServe to connect with the White House?
23. What two people are generally credited with creating the TCP/IP protocol that makes the Internet work?
24. What widely used distributed-campus-information service originated at the University of Minnesota and is named after the university's mascot?
25. What year was CompuServe founded: 1969, 1971, or 1974?
26. When Bob Metcalfe wrote his memo at Xerox PARC that introduced the idea of the Ethernet, did he use a dictating machine, an Alto computer, an IBM Selectric typewriter, or a terminal connected to a PDP-10 minicomputer?
27. Who cofounded the Electronic Frontier Foundation with Mitch Kapor?

14. An emoticon
15. Application, Presentation, Session, Transport, Network, Data link, and Physical
16. The Clipper Chip
17. The multicast backbone that "virtually" sits on top of the Internet
18. H & R Block
19. Integrated Services Digital Network
20. president@whitehouse.gov
21. Computer, Communications, Compatibility
22. Go Whitehouse
23. Vinton Cerf and Bob Kahn
24. Gopher (on the Internet)
25. 1969
26. An IBM Selectric typewriter
27. John Perry Barlow

28. Who introduced a "Worm" program into the Internet on November 2, 1988?
29. World Wide Web documents are written in HTML. What does HTML stand for?

28. Robert T. Morris Jr.
29. HyperText Markup Language

6

COMPANIES, BUSINESS, AND MONEY

Companies, organizations, funding, regulations, and other things you might learn about in business school are some of the topics you'll find in this chapter. What are the economic mechanisms that have made the industry? How did computer companies evolve? How have governmental regulations and the law affected the computer industry? What organizations support the industry?

The economics of the computing industry have changed drastically since the early days when governments, not corporations, provided the bulk of the funding. Many of the pioneering computers were accordingly used for war-oriented applications. Today, most computers are in the private sector, and the microcomputer has become ubiquitous. Corporate strategies have also changed with the times as the total number of computers made and sold increases yearly at a record clip.

With the rise of computer companies has come an increase in the number of supporting organizations, such as trade-show groups and professional societies. They are important to the well-being of the industry, and they are covered in this chapter.

1. In 1980, the largest public offering since that of the Ford Motor Company in 1956 was made by what computer company?
2. As of 1993, approximately how many Microsoft employees owned more than $1 million apiece in Microsoft stock: 15, 160, or 2,000?
3. What famous economic advisor appeared in an ad for Apple Computer in 1985?
4. From the date of its inception, how many years did it take Compaq to make the *Fortune* 500—in the process becoming the fastest-growing corporation in history?
5. Before it changed to its current name in 1924, what was IBM originally called?
6. Dick Heiser opened the world's first microcomputer store in West Los Angeles in 1975. Was it called Computerland, The Itty Bitty Computer Company, or The Computer Store?
7. According to *The Red Herring Investment Monthly,* what high-tech company raised the most venture capital in 1993?
8. During the late 1980s and early 1990s, what computer company had the largest average growth in both sales and earnings per share?
9. In 1972, Nolan Bushnell and Ted Dabney pooled their available funds to start Atari Corporation. How much did each put in: $250, $1,000, or $5,000?
10. For each of the following stock symbols, name the computer company: BROD, COMS, CS.
11. At least three computer companies have the word "Packard" in their names. Can you name them?
12. Hewlett Packard was started by Bill Hewlett and Dave Packard in a garage in Palo Alto, California. What was the name of the street?
13. A famous computer copyright infringement suit was settled in 1983, involving Apple and what other computer company?
14. How much did Charles Tandy pay for Radio Shack in 1963: $500,000, $20,000,000, or nothing?
15. In 1971, the first home-video-game console was marketed, using a patent originally granted to Sanders Associates. The company that sold the game was Magnavox. What was the game called?
16. In 1975, what was the retail price of the Intel 8080 microprocessor chip: $25, $75, $150, or $300?

1. Apple Computer Company
2. 2,000 (2,200 was also reported)
3. Alan Greenspan
4. Four years
5. The Computing-Tabulating-Recording Company
6. The Computer Store
7. OpenVision Technologies, Pleasanton, California, which raised $35 million from one company: Warburg Pincus Ventures.
8. Sun Microsystems
9. $250
10. Broderbund, 3Com, Cabletron Systems
11. Hewlett Packard, Packard Bell, Ferranti Packard
12. Addison Street
13. Franklin
14. Nothing. (The company was virtually bankrupt and he agreed to pay the bills.)
15. Odyssey
16. $150

17. In 1977, William Millard founded what chain of computer companies?
18. In 1989, 16 percent of NeXT, Inc. was sold for $100 million to what company?
19. In 1992, what three companies joined together to build a 256-megabit Dynamic Random Access Memory (DRAM)?
20. In 1993, for the first time in eight years, the company that was issued the most U.S. patents was an American computer company. What company was it?
21. In a June 1984 lawsuit, Berkeley Systems was sued for using the winged toaster image taken from the cover art of which rock group's album: (A) The Grateful Dead, (B) The Moody Blues, or (C) Jefferson Airplane?
22. In the early 1970s, the RAND Corporation predicted that robots would be widely used for collecting garbage, inspecting sewers, and as household slaves by what year: 1988, 1992, or 1996?
23. In what quarter of what year did IBM announce its first-ever operating quarterly loss?
24. When did the computer replace the abacus for the Chinese census: 1962, 1972, or 1982?
25. In what year was the COMDEX computer trade show first held: 1977, 1978, or 1979?
26. During the 1980s, who was the largest employer in Silicon Valley: the Air Force, Lockheed, or Apple Computer?
27. Name three computer companies named after founders who no longer work for them.
28. The first United States census to use Hollerith's tabulating equipment was completed on December 12, 1890. What did it show our national population to be, at that time, to the nearest million?
29. What club are IBM salespeople invited to join when they meet their annual sales quota?
30. What company did Kentucky Fried Computers eventually become: Apple, NorthStar Computers, or Activision?
31. What do the letters SUN stand for in the name Sun Microsystems?
32. What U.S. corporation bought the first industrial robot: General Motors, Dupont, or Martin Marietta?
33. Who wrote *The Third Apple?*

17. Computerland
18. Canon
19. IBM, Siemens AG, and Toshiba Corp.
20. IBM
21. Jefferson Airplane
22. 1988
23. The fourth quarter of 1992
24. 1982
25. 1978
26. Lockheed
27. Shugart, Amdahl, Cray
28. 63 million; actually 62,622,250
29. The Hundred Percent Club
30. Northstar Computers
31. Stanford University Network
32. General Motors (It bought a UNIMATE 1.)
33. Jean-Louis Gassée

34. What was the first software company to go public on the New York Stock Exchange?
35. Where is Research Triangle?
36. According to the *Harvard Business Review*, the first large-scale electronic computer used for business data processing in the U.S. was a UNIVAC, installed in 1954. At what company was this machine installed? General Electric, U.S. Steel, or Metropolitan Life?
37. Are IBM's headquarters on Madison Avenue; in Poughkeepsie, New York; or in Armonk, New York?
38. During the 1980s, was the per-capita divorce rate higher in Santa Clara County (site of Silicon Valley) or Boston's Middlesex County (site of Boston's Route 128 technology area)?
39. For each of the following addresses, name the computer company that's located there: 1700 Green Hills Road; 20555 FM-149; 100 Throckmorton; 16011 Northeast 36th Way.
40. Four researchers (John Cocke, George Radin, Norman Kreitzer, and Francis Carrubaour) were named Inventors of the Year in 1992 for their work in Reduced Instruction Set Computing, or "RISC." What company did they represent?
41. From what source did An Wang get his seed capital to start Wang Labs: General Electric, IBM, or the Chase Manhattan Bank?
42. Hewlett Packard Corporation's first product was an oscillator. Who bought the first one: Walt Disney Studios, Hughes Aircraft, or IBM?
43. Honeywell bought two companies in the process of entering the computer business. General Electric's computer division was the first. What was the second company: Computer Control Corporation, Scientific Data Systems, or Modular Computer Corporation?
44. In 1969, the U.S. Department of Justice filed a case against IBM that was to become one of the longest and costliest antitrust cases in history. The Justice Department ultimately dropped the case. Did that occur in 1972, 1982, or 1984?
45. In 1971, when RCA got out of the computer business, who bought their computer division: UNIVAC, Honeywell, or IBM?
46. In 1993, *U.S. News & World Report* asked engineering-school deans to rank graduate schools by specialty. What school was ranked highest in computer engineering: MIT, Stanford, or Carnegie Mellon?

34. Cullinet Software in 1978
35. North Carolina, near Chapel Hill
36. General Electric
37. Armonk, New York
38. Santa Clara County
39. Borland in Scotts Valley, California; Compaq in Houston; Tandy-Radio Shack in Fort Worth; Microsoft in Redmond, Washington
40. IBM
41. From IBM
42. Walt Disney Studios, for use in creating the special effects for the film *Fantasia*
43. Computer Control Corporation
44. 1982
45. UNIVAC (a division of Sperry Rand)
46. MIT. It was also ranked highest in electrical/electronic engineering

47. Intel entered the PC software market in 1994 with its first offering. Was it called PentiumPersuasion, VideoScan, or ProShare?
48. In terms of latitude, is Silicon Valley south or north of Route 128?
49. Of the following companies, which conducted business in tents following the 1989 California earthquake: Apple, Borland, Sun, or Tandem?
50. Of the following three words, which is *not* an anagram of a computer hardware or software company name: "abode," "inlet," and "futon"?
51. One of the former Soviet Union's top computer designers is Boris A. Babayan, who helped develop the Elbrus III supercomputer. What U.S. company hired Mr. Babayan and his staff in the early 1990s?
52. The ACM, the First Society in Computing, has a worldwide membership. Most members live in the U.S., while Canada ranks second. What country has the third-largest number of ACM members?
53. The letters BCS are best known in the United States as the abbreviation for the Boston Computer Society. What are they known for in the U.K. computing world?
54. The letters in AST Research stand for the first names of its three founders. Who are they?
55. The premier conference for chip designers is called the ISSCC. What do the letters ISSCC stand for?
56. What company's calculators made "Reverse Polish Notation" famous?
57. What does AFIPS stand for?
58. What computer company once hired the *QE2* cruise ship for a private trade show?
59. What does the acronym DARPA stand for?
60. What computer company published a long-running series of advertisements featuring animal sculptures made from computer parts?
61. What year did Tandy buy Radio Shack: 1975, 1968, or 1963?
62. Where is IBM's golf country club located: Poughkeepsie, Endicott, or Fishkill, New York?

47. ProShare
48. South
49. Borland
50. Futon. ("Abode" is an anagram for Adobe; "inlet" is an anagram for Intel.)
51. Sun Microsystems
52. Germany. Japan is fourth.
53. British Computer Society
54. Albert Wong, Safi Qureshey, and Tom Yuen
55. The International Solid State Circuits Conference
56. Hewlett Packard
57. The American Federation of Information Processing Societies
58. DEC
59. Defense Advanced Research Projects Agency
60. Honeywell
61. 1963 (all nine stores)
62. Endicott, New York

7

TOUGH QUESTIONS FOR HACKERS ONLY

Ready for some hard questions? Here they are. Are you a nerd or a nerd-wanna-be? This chapter will settle the issue once and for all. If you can correctly identify the pre-eminent metasyntactic variable, you belong in the Computer Bowl. Call us today!

But seriously, not all the questions here are that difficult. It does help, though, to befriend computer types and pick up their lingo (as the comedy group Firesign Theater did when assembling their classic comedy album, *I Think We're All Bozos on This Bus.* It features a lot of obscure computer argot culled from hanging around with Caltech programmers in the early 1970s—now *that's* trivia!).

If you get stuck, grab a copy of Eric Raymond's remarkable *New Hacker's Dictionary* and bone up.

1. Before it became animated, what time was the Macintosh watch icon set to?
2. RGB stands for Red, Green, Blue. What does HSB stand for?
3. The ancient Mayan numbering system was not a base-10 system. Was it base-5, base-12, or base-20?
4. A rectifier changes AC current to DC. What does an inverter do?
5. In 1994, Dr. Leonard Adleman of the University of Southern California used a unique "computer" to solve the difficult mathematical task of finding the shortest path linking seven cities. Did he use: (A) A DNA molecule; (B) A giant "living computer" consisting of 512 people in an auditorium; or (C) 32 dogs trained to bark in binary code?
6. Of MILLIAC, DILLIAC, and SILLIAC, only one is the name of a real computer. Which is it?
7. What is the color of the stripe painted on the raised floor of MIT's AI Lab machine room: red, yellow, or blue?
8. Binary, octal, and decimal refer to the bases 2, 8, and 10, but what is the name of the base-6 number system?
9. The term "byte" was coined during the development of the IBM Stretch computer in 1956. In what year did the byte become a de facto industry standard: 1956, 1958, or 1964?
10. What do the terms "perf" and "perfory" refer to?
11. Name two high-level computer languages whose names read the same way backward and forward.
12. A 5.25-inch floppy disk has a write-protect notch on its left side (when held for insertion into a horizontal drive). The notch on an 8-inch floppy is actually a write-enable notch. Where is it located on the disk?
13. An interlaced raster-scan display monitor creates a picture by interlacing odd lines with even lines. If the full interlaced picture is called a raster, what is one half of those lines called?
14. Researchers Berliner and Schank specialize in what computer science discipline?
15. DIP switches are small switches found inside computers. Does the "P" in "DIP" stand for peripheral, package, or pixel?
16. In computer slang, does the word "sagan" mean (A) inflation of ego; (B) a large quantity of anything; or (C) planetary networked computers?

1. Nine o'clock
2. Hue, Saturation, Brightness
3. Base-20
4. Changes DC to AC
5. A DNA molecule
6. SILLIAC
7. Yellow
8. Senary
9. In 1964, with the announcement of the IBM System 360 mainframe computer
10. The perforated edge strips on printer paper, after they have been separated from the printed portion
11. Ada and C are two, but there may be many others.
12. On the front edge, toward the drive
13. A field
14. AI, or Artificial Intelligence
15. Package (DIP stands for Dual-Inline Package.)
16. (B) A large quantity of anything

17. DOS stands for Disk Operating System. In the early days of personal computing there was another operating system called SOS. What did SOS stand for, and on what machine was it used?
18. During the computer heyday of magnetic tape storage, what was the most common reel size in feet?
19. Who composed the so-called "Chinese Room" problem in an attempt to prove that computers can't think?
20. What is the S-100?
21. For each of the following computers, identify its word length: VAX; IBM Stretch; and TRS-80.
22. For what operating system was dBase II originally written?
23. From what two words is the word "modem" formed?
24. GNU is a recursive acronym. What does it stand for?
25. Hackers often invent outlandish units for expressing quantities. A favorite humorous way to express velocity is in "attoparsecs per microfortnight." How long is an attoparsec in centimeters, rounded to the nearest centimeter: 3, 30, or 300 centimeters?
26. HDLC means High-Level Data Link Control, an international protocol governing information transfer. Under HDLC, messages are transmitted in units called what?
27. HIFF stands for Hypermedia Interchange File Format and TIFF stands for Tagged Image File Format; what does MIFF stand for?
28. "High Sierra" is the name of a CD-ROM standard. Was it named after the chief designer's dog, a communications code word, or a hotel?
29. How far can electricity travel in a nanosecond: 1.8 inches, 10.8 inches, or 108 inches?
30. How long was the word in the S-100 bus: 8, 16, or 32 bits?
31. How long would it take to send the *Encyclopedia Britannica* over a two-gigabit fiber-optic cable: two seconds, two minutes, or 20 minutes?
32. How many devices, maximum, can be connected simultaneously on a SCSI port?
33. How many horizontal lines make up the IBM logo on computer screens: 8, 13, or both?
34. How much is decimal 27 expressed in hexadecimal?

17. Sophisticated Operating System for the Apple III
18. 2,400 feet
19. John Searle
20. A data bus commonly used in early microcomputers
21. VAX: 32; IBM Stretch: 64; TRS-80: 8
22. CP/M
23. "Modulator" and "demodulator"
24. "GNU's Not UNIX"
25. 3 centimeters (to be precise, 3.1)
26. Frames
27. Multimedia Interchange File Format (also Management Information Format File)
28. A hotel: Del Webb's High Sierra Hotel and Casino
29. 10.8 inches
30. 8 bits
31. Two seconds
32. Eight, including the controller
33. Both (There are two official versions.)
34. 1B

35. If you are using an IBM CGA display in the 80 by 25 character mode, what is the size of a single display character, in dots?
36. If you wanted to expand the memory of the original IBM PC, how much memory could you have on the motherboard?
37. In Boolean algebra, what is the value of 1 "ORed" with 1: 0, 1, or 10?
38. In computer music terminology, what does the acronym ASDR stand for?
39. In data communications, what kind of information is sent over the guard band?
40. In hackerese, is the preeminent metasyntactic variable called fee, fi, fo, or foo?
41. In PostScript, a popular language for page layout and laser printing, what is the command to print the current page?
42. In the Ethernet world, one often sees 15-pin connectors called DIX connectors. What does DIX stand for?
43. In the word "terabyte," what is the original meaning of the Greek word "tera"?
44. Is a picosecond shorter or longer than a nanosecond?
45. Is Phiber Optik: (A) a young hacker sentenced to the federal penitentiary; (B) the brand name of an AT&T product; or (C) the name of the President's computer?
46. Is Polish notation also known as infix, prefix, or postfix notation?
47. Many personal computers and workstations use SIMM chips for their RAM. What does SIMM stand for?
48. Microprocessors and computer memories are composed almost exclusively of field-effect transistors. Name the three leads on a field-effect transistor.
49. MIDI has become the standard for computer music making. How many pins are there in a MIDI plug?
50. Most computers communicate with a device called a UART. What does UART stand for?
51. Most microprocessors have an IRQ pin. What does IRQ stand for?
52. Name the two kinds of silicon used in a C-MOS integrated circuit.
53. Of the following three terms, which does not describe a type of microprocessor: CISC, RISC, or WISC?

35. 5 by 7
36. 64 kilobytes
37. 1
38. Attack, Sustain, Decay, Release
39. None. It is a band between two channels left empty of signals to guard against crosstalk.
40. Foo
41. Showpage
42. Digital, Intel, Xerox
43. "Monster"
44. Shorter—a trillionth versus a billionth of a second
45. (A) A young hacker sentenced to the federal penitentiary for computer-related crimes
46. Prefix
47. Single In-Line Memory Module
48. Source, drain, gate
49. Five
50. Universal Asynchronous Receiver Transmitter
51. Interrupt request
52. P-Type and N-Type
53. WISC. (CISC is a Complex Instruction Set Computer and RISC is a Reduced Instruction Set Computer.)

54. Of the following, which is not an acronym describing computer performance: MIPS, LIPS, QUIPS, or FLOPS?
55. On a standard QWERTY keyboard, what character do you get when you hold down the "shift" key and then press the numeral "5" key?
56. Postscript uses Bezier curve calculations. What type of curve calculations does TrueType use?
57. The "chain" printer was introduced with the IBM 1401 in 1959, improving both speed and reliability. It printed from a chainloop of characters moving at 90 inches a second. How many lines of text per minute could it print, to the nearest 100?
58. What does RPN stand for?
59. Who coined the term "bit"? John Tukey, Donald Knuth, or John McCarthy?
60. The first number in a pseudorandom sequence is generated from a constant called what?
61. The HP-35 calculator was the first handheld calculator to include scientific functions. What does the number 35 refer to?
62. The miniature circuits that make up today's computers are manufactured in "clean" rooms to avoid contamination. Which is cleaner, a Class 100 clean room or a Class 10 clean room?
63. What does XGA stand for?
64. The pioneering Alto computer was developed at Xerox PARC. Here's a three-part question about it. (A) How many buttons were on the original Xerox Alto mouse? (B) What were the three colors of the Xerox Alto mouse buttons? (C) What was the name of the text editor for the Alto computer: Alpha, Bravo, or Tango?
65. The term "spooler" is commonly used in the area of computer printing. What does the acronym SPOOL stand for?
66. The terms CAR and CDR were coined when the LISP language was developed on the IBM 7090 mainframe computer. What do the terms stand for?
67. What does the term BITNET stand for?
68. What electrical entity is expressed in farads?
69. What does FLOP stand for?
70. What does PCMCIA stand for?

54. QUIPS
55. % (the percent sign)
56. Quadratic
57. 600 lines a minute
58. Reverse Polish Notation
59. John Tukey
60. The "seed"
61. The number of buttons on the keyboard
62. Class 10
63. Extended Graphics Adapter (or Extended Graphics Array)
64. (A) Three; (B) Red, yellow, and blue; (C) Bravo
65. Simultaneous Peripheral Operations On-Line
66. Contents of the Address part of the Register; and Contents of the Decrement part of the Register
67. "Because It's Time" Network
68. Capacitance
69. FLoating point OPerations
70. Personal Computer Memory Card International Association

71. The terms VGA and EGA are popular graphics adapters. What do these acronyms stand for?
72. The Whetstone is a measure of computing performance. Was it developed in the U.S., the U.K., or France?
73. There are two main layouts for computer keyboards: the "Querty" keyboard and the Dvorak keyboard. Though they are very different, several keys appear in the same location in each layout. Are there two, four, six, or eight keys? How many can you name?
74. According to *The New Hacker's Dictionary* and the Internet's *Jargon File,* there is a tradition in computer circles of informally tagging important books with the dominant color of their covers. What are the real titles of the following books: (A) Aluminum Book; (B) Devil Book; (C) Dragon Book; (D) Orange Book; (E) Pink-Shirt Book; (F) Red Book; (G) White Book.
75. What comes after the following sequence: kilobytes, megabytes, gigabytes, and terabytes: Is it tagobytes, havabytes, or petabytes? And, a more difficult question: What comes after that: Is it troglobytes, exabytes, or wacobytes?
76. What company introduced the first 16-bit microprocessor in 1974: National Semiconductor, Texas Instruments, Intel, or Motorola?
77. What do the following acronyms stand for: ALU and CRC?
78. What do the letters EPROM stand for?
79. What do the letters MIDI stand for?
80. What is a unit of "real estate" on a VLSI chip called?
81. What is half a byte called?
82. What is often added to ink-jet printer ink to prevent microorganisms from clogging the ink jets?
83. What is the answer to the following multiplication, which is expressed entirely in base 89: 11 times 11?
84. What is the ASCII decimal equivalent for the escape key?
85. What is the assembly language mnemonic for a jump to subroutine in the 6800 processor?
86. What is the exact number of bytes in a megabyte?
87. What is the more common name for the IEEE 802.3 standard?
88. What is the name of the legendary creature that lurks in the depths of the Macintosh Technical Notes Hypercard Stack?

71. Video Graphics Array and Enhanced Graphics Adapter. (Enhanced Graphics Array is also acceptable.)
72. The U.K.
73. Two: A and M
74. (A) *Common LISP: The Language,* by Guy L. Steele Jr.; (B) *The Design and Implementation of the 4.3BSD UNIX Operating System,* by Leffler, McKusick, Karels, and Quarterman; (C) *Compilers: Principles, Techniques and Tools,* by Aho, Sethi, and Ullman; (D) The U.S. government's standards document, *Trusted Computer System Evaluation Criteria;* (E) *The Peter Norton Programmer's Guide to the IBM PC;* (F) *PostScript Language Reference Manual,* Adobe Systems; (G) *The C Programming Language,* by Kernighan and Richie.
75. Petabytes, followed by exabytes
76. National introduced the PACE (Processing and Control Element).
77. Arithmetic Logic Unit and Cyclic Redundancy Check
78. Erasable Programmable Read Only Memory
79. Musical Instrument Digital Interface
80. Nanoacre, square mil, or square micron
81. A nybble (or nibble)
82. Antibiotics
83. 121 (in base 89)
84. 27
85. JSR
86. 1,048,576
87. Ethernet
88. Claris the dog-cow

89. What programming law states that "Adding manpower to a late software project makes it later"?
90. What specific part of a dynamic RAM memory chip needs to be refreshed—the capacitors, the transistors, or the resistors?
91. What speed-related design feature made the disk drives in the Victor 9000 different from other disk drives?
92. When the original Macintosh computer appeared in 1984, how much RAM did it have?
93. Who wrote Thinglab, a pioneering interactive graphics system used for geometric applications and simulations?
94. Some computer people use the slang terms "Little Endian" and "Big Endian" to describe two ways of ordering bytes in a computer word. From what famous book are these terms derived: *Alice's Adventures in Wonderland, The Wind in the Willows,* or *Gulliver's Travels*?

89. Brook's law
90. The capacitors
91. They were variable speed.
92. 128 kilobytes
93. Alan Borning
94. *Gulliver's Travels*, by Jonathan Swift. (The terms describe two groups of people who broke open their eggs at the little end and the big end.)

8

MINIS, MAINFRAMES, AND SUPERCOMPUTERS

Workstations, minicomputers, and supercomputers have a background and a lore distinct from the personal computer—though the technologies have cross-fertilized each other since the emergence of the microprocessor in the early 1970s.

Here you'll learn about the companies, hardware designers, and specifications that gave rise to the glorious world of megabuck corporate mainframes in the 1950s, 1960s, and 1970s, and the remarkable corporate-computing cultures that spawned the "computer priesthood," that group of privileged people who lived in the inner sanctum and who alone had access to the Giant Brain. You'll also read interesting factoids about the minicomputer revolution with its own set of mavericks during the 1960s, a technology that permanently changed the computer-buying habits of corporations and paved the way for the microcomputer.

Finally, there are the rarified supercomputers, which continue to occupy the stratospheric realms in terms of both cost and speed. They, too, have a fascinating history and a set of colorful characters.

1. During the 1960s and 1970s, the eight major computer companies were referred to jokingly as "IBM and the seven dwarfs." Name the "seven dwarfs."
2. During the 1950s, did it cost more to program computers or to rent them—or were the costs about the same?
3. During the 1950s and 1960s, IBM manufactured core memory for its mainframe computers using machinery originally designed to make something completely different. Was it for making pills, wine corks, or sewing machines?
4. PDP is a trademark of the Digital Equipment Corporation. PDP was originally an acronym for what phrase?
5. The Cray 2 supercomputer has a nickname inspired by the froth in its cooling system. What is the nickname?
6. At IBM's San Jose labs, how did engineers control the grain size of the oxide on the platters of the IBM RAMAC hard disk? Did they use a colander, sift it through a pair of nylons, or polish each grain to size?
7. American Airlines' SABRE airline-reservation system grew out of the SAGE system. What do these acronyms stand for?
8. Are the Grey Eagles a computer-music rock group, a group of retired Data General executives, or a special-interest group on computers and the aging?
9. Control Data Corporation, Packard Bell, Digital Equipment Corporation, and Fairchild Semiconductor were all founded in the same year. What year was it?
10. What was under the bench around the Cray 1 supercomputer?
11. By 1956, were there more IBM mainframes in use, more UNIVAC mainframes, or more Crays?
12. During the mainframe era, the Bryant Company built what is probably the largest-diameter hard-disk platter ever constructed. It held three megabytes when formatted. Was the diameter of this disk slightly over one meter, slightly over two meters, or slightly over three meters?
13. According to John McAffee's book, *Computer Viruses,* what computer was most likely the first to be infected by a computer virus: the Xerox 530, the PDP-11, or the IBM 360?
14. How did the Winchester drive get its name?
15. How many columns does an IBM standard computer punched card have?
16. How many jobs can an IBM 360 computer execute at once?

1. Sperry Rand, Control Data (or CDC), Honeywell, RCA, NCR, GE, and Burroughs
2. About the same (according to John Backus)
3. The machinery was designed for making pills.
4. Programmed Data Processor
5. Bubbles
6. They sifted the oxide through a pair of nylons.
7. Semiautomated Business Research Environment and Semi-automatic Ground Environment
8. Retired Data General executives
9. 1957
10. Parts of the power supply
11. More IBMs—they had 76; UNIVAC had 46. (Cray had, of course, not been invented yet.)
12. Slightly over one meter
13. The Xerox 530
14. It had two spindles, each with a capacity of 30 megabytes, and was called the 3030, synonymous with the popular rifle made by Winchester.
15. Eighty columns
16. One

17. IBM's 1960-vintage computer, the 7090, had an unusual quirk. If you issued a "Read" instruction to the printer, did the printer read some input, tell you to go to lunch, or give you the correct time?
18. Several different people invented variations of the core memory and patented them. Who sold his core memory patent to IBM?
19. According to the book *The Computer Establishment*, a single computer introduced the concepts of multiprocessing, multiprogramming, and virtual memory to commercial data processing in 1959. What was the computer?
20. In the 1970s, the Minsk-32 was a well-known standard computer built in the USSR. This machine was a copy of what American computer: the IBM 360, the Data General NOVA, or the DEC PDP-8?
21. In the early 1950s, Bank of America installed one of the first computerized banking systems, called ERMA. Who built ERMA for Bank of America: Texas Instruments, GE, or RCA?
22. In Tracy Kidder's book, *Soul of a New Machine*, Steve Wallach was working on the Data General MV 8000. What series of machines has he designed since then?
23. In what year did RCA deliver the first full-scale all-optical memory to NASA, then withdraw from the computer business: 1968, 1971, or 1975?
24. Some famous computer architects were involved with more than one computer. For each group of computers, tell us the architect: (A) WISC, IBM 360, and IBM 370; (B) PDP-4, -5, -6, -8, VAX, Multimax, and Titan; (C) Bendix G-15 and SDS-940.
25. Is there a way to read a magnetic tape if you don't have a tape reader?
26. Japan is thought to have entered the computer revolution at a late date, but two Japanese companies actually built computers during the 1950s. Who were they and what were the names of the computers?
27. John Cocke headed the team that designed the first RISC computer, the IBM 801. But according to Cocke, who is the real "father of RISC": John von Neumann, Seymour Cray, or Gordon Bell?
28. What shape are the holes in standard computer-readable punched cards?

17. It gave you the correct time.
18. An Wang
19. The Burroughs B5000
20. The DEC PDP-8
21. GE. (ERMA stands for Electronic Recording Method of Accounting.)
22. The Convex series of mini-supers.
23. 1975
24. (A) Gene Amdahl; (B) Gordon Bell; (C) Max Palevsky
25. Yes. By using a special magnetic powder or fluid.
26. Fujitsu (the FACOM computer) and NEC (the NEAC computer)
27. Cray, for the CDC 6600
28. Rectangular

29. What was the first commercially available computer with a 12-bit word: the DEC PDP-8, the PDP-5, the LINC, or the CDC-160?
30. Name the independent software company—still in business—that was the first to sell systems software for IBM 360 mainframes. It was started by Ken Kolence and Dave Katch.
31. During the 1960s, one of the first precursors to today's pen-based computer systems was developed. It was a graphics-input device with its own pen-like stylus. Where was the device developed: Xerox PARC, the RAND Corporation, IBM, or Bell Labs?
32. Of the following three, which is the name of an actual type of computer memory: Biax, Triax, or Quadrax?
33. The first auto part completely designed by computer was a truck lid. Was this designed in 1963, 1968, or 1973?
34. The IBM 7094 computer had a light that came on when the oil pressure got low. What was the oil used for?
35. The Illiac IV was known as one of the first multiprocessing supercomputers. Although designed at the University of Illinois, it did not operate there. Was it because of concern over possible student riots, a lack of sufficient electrical power, or lack of space?
36. What is SABRE?
37. What obsolete computer I/O device is abbreviated PTR?
38. The SDS 920 was an early minicomputer frequently used for scientific and laboratory work. What company bought the rights to this machine?
39. The term "beta test" was first used at what computer company?
40. The UNIVAC 80/90 was a solid-state (that is, transistorized) computer. What did the numbers 80/90 indicate?
41. There was a machine nicknamed "CADET" made by IBM. What was its real name?
42. Was the 68000 microprocessor instruction set modeled after that of the IBM 360, the Data General Nova, or the PDP-11?
43. Was the Model 33 a tape drive, a teletype machine, or a video terminal?
44. What company developed the first integrated circuit in 1959? Was it Fairchild, IBM, or Bell Labs?

29. The CDC-160
30. Boole and Babbage of Sunnyvale, California
31. RAND Corporation
32. Biax
33. 1963
34. To cool the core memory
35. Concern over student riots
36. American Airlines' computerized ticket-reservation system
37. Paper Tape Reader
38. Xerox. The machine became the XDS 920.
39. IBM
40. The machine could read both 80-column and 90-column punched cards.
41. The IBM 1620
42. PDP-11
43. A teletype machine (used as a computer terminal in the seventies)
44. Fairchild

45. What computer was the immediate predecessor of the PDP-10? Was it the PDP-4, the PDP-6, the PDP-8, the 750, or the 1130?
46. What computers preceded the PDP-8 and the IBM 360-90?
47. What do you call the tiny round pieces of paper created by punching paper tape: pulp, chad, or fluff?
48. What does CADET mean?
49. What was the first computer manufacturer to use the term "minicomputer" in referring to one of its products? Was it DEC, Computer Control Corporation, Honeywell, Interdata, or Hewlett Packard?
50. What was the first computer to have 64 parallel processors?
51. What was the "Liberator"? What did it liberate?
52. What was the word size in bits of the PDP-1?
53. Which of the following companies did not eventually become part of UNISYS: Engineering Research Associates, Eckert-Mauchly Computer Corporation, Computer Control Corporation, or Sperry?
54. Who designed the CDC 160: Gordon Bell, Gene Amdahl, Seymour Cray, or Fred Brooks?
55. What organization purchased the first Cray-1 computer in 1977?
56. Why did the Digital Equipment Corporation use the name "Programmed Data Processor" (or "PDP") for its computer line?

45. The PDP-6
46. The PDP-5 and the IBM Stretch
47. Chad
48. Can't Add, Doesn't Even Try
49. Interdata
50. ILLIAC IV in 1972
51. It was an early software emulator that allowed software for the IBM 1401 to run on the Honeywell 200 faster than it would on its native hardware.
52. 18 bits
53. Computer Control Corporation
54. Seymour Cray
55. Los Alamos National Laboratory
56. Because, at the time, many organizations were not authorized to buy "computers," but could buy devices such as "processors."

9

SOFTWARE

In the beginning, there was hardware, and it was good, though a bit inflexible. If you wanted to program, you had to "hardwire" it. Software didn't start softening things up until later, with the appearance of operating systems, compilers, languages, tools, and lots and lots of application programs. With these new developments came new forms of media to hold the precious information. Most interesting of all was the creation of high-level languages, such as BASIC, that made it possible for anyone with a high-school math background to program a computer to do useful things. Some of the most famous high-level languages were created by rugged individualists rather than by committees, and the trivial facts about them are plentiful.

Fortunately, the computing community does a good job of chronicling its triumphs as well as its peccadilloes in the form of active folklore newsgroups on the Internet (such as the lively alt.folklore.computers) that preserve the more interesting anecdotes about software and hardware, though some of the information looks suspiciously apocryphal.

Luckily for us, programmers are whimsical people, as a thor-

ough reading of *The New Hacker's Dictionary* or *The Jargon File* (on the Internet) will show. If you doubt this, just remember that programmers can use terms like "Claris the dog-cow" without smiling.

1. BASIC is one of the most popular high-level computer languages. What do the letters stand for?
2. According to *The Courier Mail,* a newspaper in Queensland, Australia, China once executed someone for committing a computer-related crime. What was the offense: illegally breaking into the government's computer systems, introducing a computer virus, or embezzling funds by computer?
3. As of 1994, what was the most widely installed PC operating system?
4. How many computer languages can you identify that are named after real people?
5. Did the following odd dialogue take place between (A) George Burns and Gracie Allen; (B) a human being and the Racter software program; or (C) two dialogue-simulation programs at MIT and Stanford?

   "A truck hit Willy."
   "What truck?"
   "The truck that didn't have lights on."
   "Why didn't it have lights on?"
   "It didn't have to. It was daytime."
   "Why didn't the truck driver see Willy?"
   "He didn't know it was Willy."
6. The Los Angeles police department uses a special computer program called HITMAN. What type of crime does it help solve, and what do the letters HITMAN stand for?
7. Ada is the Defense Department's official computer language, named after Ada Lovelace, Charles Babbage's friend and the first "computer programmer." (A) Did the Defense Department get official permission from Ada Lovelace's descendants to use the name Ada? And, as a bonus: (B) Did Nicklaus Wirth get permission from Pascal's descendants before naming his high-level language Pascal?
8. Microsoft produced one software package in 1976 that reportedly never sold a single copy. What was it and who wrote it?
9. "More than iron, more than lead, more than gold, I need electricity. I need it more than I need lamb or pork or lettuce or cucumber." That's an excerpt from the first book written by a computer, entitled *The Policeman's Beard Is Half Constructed.* What computer program wrote it: Eliza, Racter, or Bard?

1. Beginner's All-purpose Symbolic Instruction Code
2. Embezzling funds by computer
3. DOS (or MS-DOS)
4. Ada, Pascal, and Euclid are three well-known examples, though there may be many others.
5. George Burns and Gracie Allen
6. Homicide or murder; HITMAN stands for Homicide Tracking Management Automation Network.
7. (A) Yes; (B) No
8. FOCAL, a port of a small language originally for DEC's PDP-8; developed by Bill Gates and Paul Allen
9. Racter

10. LOGO has long been a popular educational computer language aimed at children. Who created LOGO?
11. LIPS is an acronym for a measure of computer performance. What does LIPS stand for?
12. In desktop publishing, what is the opposite of letterspacing?
13. APL is a high-level software language. What do the letters stand for?
14. dBase IV was preceded by dBase III, which was preceded by dBase II. What was the name of the first version: dBase I, Vulcan, or EMACS?
15. According to *The 1991 World Almanac,* a computer software company received the first U.S. copyright for a computer program that generates type fonts. What was the company?
16. Dennis Ritchie coinvented UNIX along with whom?
17. DirecTV is the name of a satellite-based digital television service. What is the name of the compression standard used to encode the TV signals in DirecTV?
18. For each of the following artificial-intelligence expert systems, name the famous person who wrote, or supervised the writing of, the system: (A) HEARSAY; (B) MYCIN; and (C) DENDRAL.
19. A book by Clifford Stoll containing a bird's name in its title deals with illegal computer network break-ins. What is it called?
20. A traditional method for creating random numbers by hand is called the sieve of ———?
21. What software company originally developed the Paradox database?
22. Sorcim was a personal-computer software developer in the early days of the industry. What is notable about the name "Sorcim"?
23. What is the term for software permanently stored in ROM?
24. For each of the following versions of UNIX, identify where it was developed: (A) XENIX; (B) UNICOS; (C) OSF/1; and (D) TNIX.
25. Gary Kildall once wrote an alternative language for kids. Was it called Dr. Pascal, Dr. Logo, or Dr. Dobbs?
26. In 1963, an MIT professor developed a computer program that simulated a conversation between a therapist and a patient. What was the name of the program, and who wrote it?

10. Seymour Papert
11. Logical Inferences per Second
12. Kerning
13. A Programming Language
14. Vulcan
15. Adobe Systems
16. Ken Thompson
17. MPEG
18. (A) Raj Reddy; (B) Edward Shortliffe; and (C) Edward Feigenbaum
19. *The Cuckoo's Egg*
20. Eratosthenes
21. Ansa
22. It's "micros" backward.
23. Firmware
24. (A) Microsoft; (B) Cray; (C) Open Software Foundation; and (D) Tektronix
25. Dr. Logo
26. Eliza; Dr. Joseph Weizenbaum

27. In 1975, Encounter, said to be the first microcomputer game, was introduced. On what medium was it sold: floppy disk, cassette tape, or paper tape?
28. In DOS, what is the name of the file that contains the command processor?
29. Is CADUCEUS a high-level language, a computer virus, or a medical-diagnosis program?
30. Is Rocky's Boots a program to teach children logic, a walking robot, or a PC bootstrap program?
31. Many of today's object-oriented programming concepts appeared years ago in which one of the following four high-level languages: FORTRAN IV, Simula 67, SNOBOL, or FP?
32. Of the following, which is a valid IBM 360 Assembler language-instruction mnemonic: FA, LA, DA, or RA?
33. Of the following, which is not the name of a file format: RIFF, HIFF, TIFF, or SPIFF?
34. What was both the first interpreted language and the first assembly language?
35. What was the name of the early word processor written by Lifetree Software?
36. PLATO is a familiar computer education environment. What do the letters stand for?
37. Since 1984, a contest has been held yearly on the USENET computer network to identify the most unreadable, creative, bizarre, but working C program. What is the name of the contest?
38. What is the name of the data-compression feature in DOS 6.0?
39. What language did John Backus write prior to writing FORTRAN?
40. The 1992 ACM Turing Award winner was Robin Milner. Which of the following languages did he develop: Icon, ML, FP, or Lisp?
41. The letters in most software languages form acronyms. Which of the following two language names is not an acronym: FORTRAN or ADA?
42. What does SNOBOL stand for?
43. The name of the high-level language Forth used to be one letter longer, spelled Fourth. Why did it lose its extra letter?
44. The public-domain bitmap font "Cream" is based on the bitmap font used by what programming language?

27. Paper tape
28. COMMAND.COM
29. Medical-diagnosis program
30. A program to teach children logic
31. Simula 67
32. LA
33. SPIFF
34. The Short Code
35. Volkswriter
36. Programmed Logic for Automatic Teaching Operations
37. The Obfuscated C Contest
38. DoubleSpace
39. Speedcoding
40. ML
41. Ada
42. String-Oriented and Symbolic language
43. The operating system would not accept names over five letters.
44. Smalltalk-80

45. The term "Cybernetics" comes from the Greek word *kybernetes*. What does this literally mean?
46. What was Microsoft's original internal name for Windows?
47. What was the first AI program called: The Logical Theorist, Logician, or Quertyuiop?
48. TIFF files are common in desktop-publishing graphics. What do the letters TIFF stand for?
49. What company created the 16-bit version of DOS that Microsoft purchased for the IBM PC project?
50. What computer language inspired the design of the IBM Selectric type ball: FORTRAN, BASIC, or APL?
51. The computer language Simula was developed by two people from what country?
52. What computer language uses turtles?
53. What computer languages are credited to the following four people: (A) Kenneth Iverson; (B) John Backus; (C) John McCarthy; (D) Nicholas Wirth?
54. True or False: The chkdsk command in DOS finds logical errors but not physical disk errors in the file system.
55. What do the computer acronyms EMACS and JCL stand for?
56. What do the letters DDE and OLE stand for?
57. What do the letters MIMD stand for?
58. The first issue of *Doctor Dobb's Journal* was devoted entirely to a single computer language. What was it?
59. What does CP/M stand for, who wrote it, and what company did he work for at the time?
60. What does FTP stand for?
61. What does MULTICS stand for?
62. The GEOS operating system from GeoWorks was originally developed to run on what computer?
63. What does the GW stand for in "GW-BASIC"?
64. What high-tech company determined whether the 18-minute gap in the Nixon tapes was deliberate: IBM; Bolt, Beranek and Newman; or Tektronix?
65. Who invented the computer language FORTH?
66. What is the name of the C program used by UNIX programmers to examine a program closely for style, language usage, and portability problems?
67. What is the name of the computer program used by British mathematician and physicist Stephen Hawking for communicating with other people?

45. "Steersman" or "helmsman"
46. Interface Manager
47. The Logical Theorist
48. Tagged Image File Format
49. Seattle Computer
50. APL
51. Norway
52. LOGO
53. (A) APL; (B) FORTRAN; (C) LISP; (D) Pascal
54. True
55. EMACS is short for Editing MACroS; JCL stands for Job Control Language.
56. Dynamic Data Exchange and Object Linking and Embedding
57. Multiple instruction, multiple data
58. Tiny BASIC
59. Control program for microcomputers; Gary Kildall; Digital Research
60. File Transfer Protocol
61. MULTiplexed Information and Computing Service
62. The Commodore 64
63. Gee-Whiz
64. Bolt, Beranek and Newman
65. Charles Moore
66. Lint
67. The Equalizer, designed by Walt Woltosz

68. Who is generally credited with coining the phrase "desktop publishing": Ted Nelson, Paul Brainerd, Bill Atkinson, or John Warlock?
69. Who wrote *The Art of Computer Programming*?
70. What software product was on the Official *PC Letter* Vaporlist (which lists programs that are late to market) for the longest time? Was it Lotus 1-2-3 for the Macintosh; Microsoft Windows; or Ashton-Tate's dBase IV?
71. What UNIX text-processing language got its name from the authors Alfred Aho, Peter Weinberger, and Brian Kernighan?
72. Where was C++ developed: Bell Labs, Xerox PARC, or Carnegie-Mellon?
73. Which of the following characters is not valid for use in an MS-DOS filename: the dollar sign, the percent sign, or the plus sign?
74. Which of the following is not the name of a computer language: PAIN, STRESS, AESOP, or JOVIAL?
75. Who coined the term "artificial intelligence"?
76. Who wrote *The Mythical Man-Month*, a famous book about IBM's OS-360?
77. Who wrote the oft-quoted and more-often-parodied article "Goto Statement Considered Harmful" in the March 1968 issue of *Communications of the ACM*?
78. Who wrote the Sorcim spreadsheet?
79. Who wrote Tiny BASIC?
80. Would you use a trapdoor algorithm to design a floor, decode a message, or sort data?
81. The word "morph" is derived from the Greek word *morphos*. Morphing is the popular computer technique for changing one shape into another, featured in scores of TV commercials and in such movies as *Terminator 2*. What does *morphos* mean?

68. Paul Brainerd
69. Donald Knuth
70. Lotus 1-2-3 for the Macintosh. Fifty months went by from the announcement of the program in October 1987 until its appearance in December 1991.
71. awk
72. Bell Labs
73. The plus sign
74. PAIN
75. John McCarthy
76. Fred Brooks
77. Edsger W. Dijkstra
78. Richard Frank
79. Tom Pittman
80. Decode a message
81. "Shape" ("Form" or "structure" is also acceptable.)

10

PIONEERING COMPUTING

Unlike Athena, computing did not spring full-grown from the head of Zeus. Instead, it evolved through many stages that involved mathematics, logic, weaving, accounting, and engineering.

It's still extraordinary to realize that Charles Babbage and Countess Ada Lovelace laid down many of the foundations for modern computing decades before the age of electricity. But beyond their immeasurable contribution to the computing art lies the fodder for endless trivia, for Mr. Babbage and Ms. Lovelace were colorful characters—as indeed were many of the mavericks you'll read about here. The age of pioneering machines lasted into the 1950s. If you're a history buff, you've found the right place.

1. In 1952, CBS television made computer history by using a computer to forecast the U.S. presidential election. What computer did it use: the Whirlwind, the ENIAC, or the UNIVAC I?
2. During the 1940s, computer pioneer Grace Murray Hopper found an insect that was literally jamming a computer relay. She jokingly referred to it as the first computer "bug." What kind of insect was it, and in what machine did she find it?
3. A famous computer pioneer was also an opium addict and a gambler. Was it Ada Lovelace, Alan Turing, or Norbert Wiener?
4. During World War II, the Allies used computers to decode secret messages written by the Nazis using a special machine that could both encode and decode information. What was the name of this machine: the Ultra, the Ace, or the Enigma?
5. According to most sources, the abacus originated in Babylonia several thousand years ago and gradually made its way to other countries. In what order did the following countries get the abacus: China, Greece, and Japan.
6. During the development of computers in the 1930s and 1940s, what was *not* used for storing computer data: old movie film, aluminum tape, or snake scales?
7. Computer pioneer Conrad Zuse escaped from the Nazis in 1945 with one of his computers hidden in a wagon. Was he helped by John von Neumann, Albert Einstein, or Wernher von Braun?
8. Ada Lovelace, the famous friend of nineteenth-century computer pioneer Charles Babbage, was a software pioneer in her own right. In her writing, was she in favor of, or against, the idea of artificial intelligence?
9. Who said "[Sherlock] Holmes is as inhuman as a Babbage's Calculating engine." Was it Arthur Conan Doyle, Lord Kelvin, or Mark Twain?
10. Charles Babbage is often referred to as the father of the computer. The following geographical sites are named after Babbage. Which is fictional: the Babbage Crater on the moon; the Babbage Lake in Florida; the Babbage River in the Yukon, or the Babbage Mountains in Australia?

1. UNIVAC I
2. A moth; in the Harvard Mark II
3. Ada Lovelace
4. The Enigma
5. Greece got the abacus first, circa 250 B.C. (It was introduced into China circa A.D. 1200 and into Japan circa A.D. 1600.
6. Snake scales
7. Wernher von Braun
8. Against
9. Doyle
10. The Babbage Lake in Florida

11. Charles Babbage was a close friend of a famous British author who, some say, patterned one of his fictional characters after Babbage. Was this author Sir Walter Scott, John Galsworthy, or Charles Dickens?
12. After Tom Watson Sr. funded the Harvard Mark I computer, he funded another university computer. Was it Princeton's IAS machine, Columbia University's SSEC machine, or Wisconsin's WISC machine?
13. A computer language is named after a famous seventeenth-century mathematician. What was his first name?
14. Dartmouth College is famous for many computer firsts. Of the following three pioneering events, which did not take place at Dartmouth: the first remote computer linkup; the first AI workshop; or the first color video terminal?
15. During World War II, Alan Turing helped develop a machine called the Colossus to decrypt secret German messages. Prior to the Colossus, he used several relay-based machines. Were these machines collectively called the Robinsons, the Babbages, the EDSACs, or the ENIACs?
16. Ada Lovelace's father did something for a living that had nothing to do with computing. Who was he and what did he do?
17. Computer pioneer Alan Turing contributed to the design of one computer that was actually built. Was it the ENIAC, the Atanasoff machine, or the Pilot ACE?
18. Some computer scientists are a bit odd. What famous computer pioneer filed a lawsuit against street musicians for performing in front of his house? Was it Charles Babbage, Konrad Zuse, or Herman Hollerith?
19. During WWII, ENIAC was funded by the Army. Was it built with the purpose of calculating ballistic tables, decoding secret messages, or designing radar?
20. A Japanese calculating device related to the abacus is called what?
21. Eckert and Mauchly are two famous pioneers in computing. Of the following four computers, which were they not involved with: the Whirlwind, the ENIAC, the EDSAC, or the BINAC?
22. England's Science Museum in South Kensington built a full-scale model of a famous precursor to the modern computer during the early 1990s. What was the device?

11. Dickens
12. Columbia's SSEC
13. Blaise (Pascal)
14. The first color video terminal
15. The Robinsons
16. He was a poet (Lord Byron)
17. The Pilot ACE
18. Charles Babbage
19. Calculating ballistic tables—though it was a general-purpose machine
20. Soroban
21. The Whirlwind
22. Babbage's difference engine

23. For each location, identify the famous computer that was developed there: Harvard; Iowa State College; the Moore School, Philadelphia; Bletchley Park, England.
24. In 1642, the first calculator that could both add and subtract was developed: Was it called the Rabdologia, the Monroematic, or the Pascaline?
25. In 1671, who said, "It is unworthy of excellent men to lose hours like slaves in the labor of calculation which could safely be relegated to anyone else if machines were used"? Was it Pascal, Leibnitz, Oughtred, or Babbage?
26. In 1679, Leibnitz helped perfect what numerical system currently used in computers?
27. In 1888, William Burroughs was granted a patent. Was it for the printing/adding machine, the difference engine, or the punched card?
28. In 1936, Alan Turing published possibly the most important paper in the history of computer science. Was it called "The Turing Test," "On Computable Numbers," or "The Computer and the Mind"?
29. In 1950, Edmund Berkeley designed and built a simple automatic computer containing 130 relays and a five-hole paper-tape input. It made the cover of *Scientific American*. What was the name of this machine? Was it SIDAC, SILLIAC, ELECTRO, or SIMON?
30. In 1993, a computing artifact was auctioned off at Christie's for the amazing price of $11.8 million. Was it a Greek calendar computer from 80 B.C., a nineteenth-century mechanical calculator, or a vacuum tube assembly from ENIAC?
31. In his 1945 essay, "As We May Think," Vannevar Bush proposed a nonlinear information-retrieval system reminiscent of a concept familiar to today's computing world. Is that concept hypertext, object-oriented programming, or CASE?
32. In his 1950 article, "Computer Machinery and Human Intelligence," Alan Turing talked about questions that could be posed to computers, but could not be answered with a simple Yes or No. One example he gave was the question, "What do you think about _____?" where _____ is a famous artist. Which artist did Turing use in this example: Michelangelo, da Vinci, or Picasso?

23. Mark I; the Atanasoff computer; ENIAC; Colossus
24. The Pascaline (named after its inventor, Blaise Pascal)
25. Leibnitz
26. The binary number system
27. The printing/adding machine
28. "On Computable Numbers"
29. Simon
30. A nineteenth-century mechanical calculator, made in 1822 by Johann Christoph Schuster of Ansbach, Germany. Bought by Edgar Mannheimer of Switzerland—but the sale was later canceled when the owner refused to pay.
31. Hypertext
32. Picasso

33. In the 1940s, various divisions of the U.S. government funded computers. For each of the following computers, tell which branch of the government funded it: (A) ENIAC; (B) Whirlwind; (C) SEAC; (D) Atanasoff-Berry Computer.
34. In the early twentieth century, John Ambrose Fleming invented a device essential to the development of early computers. What was it?
35. In what year was the ENIAC first switched on?
36. Ivan Sutherland described the first interactive graphics program. What was it called?
37. Leibnitz was persuaded by a famous Chinese invention to think that the Chinese had invented the binary number system before he had. What was this invention?
38. MANIAC was an early computer. What do the letters in MANIAC stand for?
39. Who wrote *The Ninth Bridgewater Treatise*?
40. Who coined the phrase "Lady Lovelace's objection"—Turing, Von Neumann, or Aiken?
41. Name the three inventors of the transistor.
42. Of the following, who was not a computer pioneer: George Stibitz, Konrad Zuse, Enrico Fermi, or Maurice Wilkes?
43. "Plankalkul" was the name of a computer language developed by a computer pioneer. Was it Zuse, Atanasoff, or Stibitz?
44. Presper Eckert and John Mauchly established a company to produce a computer that eventually became the UNIVAC I. What was this company's name at the time it was founded?
45. Prior to their use in computers, punch cards were used in which of the following machines: silk-weaving machines, calculators, or drilling machines?
46. Punch cards were developed in 1801 by a textile mill owner to automate the patterns woven into cloth by his textile loom. Who was he?
47. The Bombe and Colossus are names of two computing devices developed during World War II. Were they used for designing the A-bomb; for cryptography; or for designing radar?

33. (A) Army; (B) Navy; (C) Bureau of Standards; (D) Department of Agriculture
34. The vacuum tube diode (or valve)
35. 1946
36. Sketchpad
37. The I Ching
38. Mechanical And Numerical Integrator And Computer
39. Babbage
40. Turing
41. Shockley, Bardeen, and Brattain
42. Enrico Fermi
43. Zuse
44. The Electronic Control Company, formed in October 1946 (Shortly thereafter, Eckert and Mauchly reorganized to form the Eckert-Mauchly Computer Corporation.)
45. Silk-weaving machines
46. Joseph Marie Jacquard
47. For cryptography

48. The book *Digital Deli* mentions that computer pioneer Charles Babbage tried his hand at a variety of inventions. Which of the following did he attempt to invent: a portable steam engine, a cotton-candy machine, or shoes for walking on water?
49. The computerized reservation system currently used by American Airlines is called SABRE. Back in 1945, Teleregister Corporation developed and installed an earlier system for American. What was it called: AutoTicket, DAGGER, or Reservisor?
50. The ENIAC was patented in 1964. In what year was the patent invalidated: 1967, 1970, or 1973?
51. The first computer designed for use in business, the LEO, was built in England and was commercially used before the UNIVAC I. Maurice Wilkes built it for what company: IBM, the Lyons Tea Company, or Rolls Royce?
52. The first computers had a variety of funding; match the following three computers with their funders. Computers: Zuse Z3; AC; and SSEC. Funders: IBM Research; U.S. Army; and the German air force.
53. The first fully mobile robot could navigate through the laboratories of the Stanford Research Institute and is now in the Computer Museum's robot theater. Is it called Shakey, Speedo, or Mo-bo-ro?
54. The last two letters in the names of many early computer companies were "A-C," as in ILLIAC and ENIAC. What did the letters stand for?
55. The National Physical Laboratory in England built the ACE, or Automatic Computing Engine. What did they call its successor?
56. There has been a long-term controversy about what computer debuted the concept of the "stored program." What are the two contending computers generally named in this dispute: (A) the EDSAC and the Manchester Mark I; (B) the ENIAC and the Harvard Mark I; or (C) the EDVAC and the Whirlwind?
57. True or False: Charles Babbage was once a high-wire performer.
58. Was the first computer magazine called *Computers and Automation, Datamation,* or *ComputerWorld*?

48. Shoes for walking on water
49. Reservisor
50. 1973
51. The Lyons Tea Company
52. The correct matches are: Zuse Z3/German air force; AC/U.S. Army; SSEC at Columbia/IBM Research.
53. Shakey
54. Automatic Computer
55. The Deuce
56. (A) The EDSAC and the Manchester Mark I
57. False
58. *Computers and Automation,* first published by Edmund Berkeley in 1950

59. Was the first real-time computer the Whirlwind, the UNIVAC 418, the DEC PDP-8, or the IBM 701?
60. Was the first slide rule developed in 1622, 1750, or 1880—and who developed it?
61. In 1945, the *Atlantic Monthly* published an article called "As We May Think," which foreshadowed the personal computer, distributed databases, and hypertext. Who wrote the article?
62. What was the first name of the inventor of Boolean algebra?
63. What computer used punched cards with round holes?
64. What computer company made the Internal Revenue Service's W2 form a practical reality in 1943?
65. What computer-science pioneer liked to play outdoor endurance chess, during which a player made a move, then ran around a large garden while the other player made a move: Alan Turing, John von Neumann, or Norbert Wiener?
66. What did computer pioneer Alan Turing do in the woods to guard against wartime inflation?
67. What is the popular slang term for Napier's "Rabdologia," the small numbered rods John Napier invented in the sixteenth century as aids to calculation?
68. What was the first computer John von Neumann used: the Harvard Mark I or the Pilot ACE?
69. What was the name of the first computer to control a machine tool: the ENIAC, the Whirlwind, or the MOBIDIC?
70. When John von Neumann received funding to build the IAS computer at Princeton's Institute for Advanced Studies, the agreement drawn stipulated that the plans had to be shared with other research institutions, who could develop their own versions. Name at least three of these alternate computers.
71. When punched cards first became popular in the 1890s, they had something in common with the dollar bill. What was it?
72. Where did Alan Turing do his research during his stay in the United States?
73. Which came first, George Boole's Laws of Thought or Alexander Graham Bell's telephone patent?
74. Which of the following is not a binary machine: the Atanasoff Machine, the Bell Labs 1, the UNIVAC, or the CDC 1604?

59. The Whirlwind
60. In 1622, by William Oughtred
61. Vannevar Bush
62. George Boole
63. The UNIVAC
64. IBM, by supplying the government with the equipment to track withholding pay
65. Alan Turing
66. He buried two silver ingots.
67. Napier's "Bones" (from the fact that they were small sticks made out of ivory)
68. The Harvard Mark I, which he used in his work at Los Alamos
69. MIT's Whirlwind
70. ILLIAC, MANIAC, JOHNNIAC, SILLIAC, and WIZAC
71. They were the same size. (The card was designed to use files built for storing dollars.)
72. Princeton (at the Institute for Advanced Study)
73. Boole's Laws of Thought
74. The UNIVAC

75. Which of the following was not the name of a computer during the 1950s: Leprechaun, MOBIDIC, BABBAGE, or MANIAC?
76. Who designed the EDSAC computer (and coauthored the first book,about computer programming): Maurice Wilkes, John Mauchly, or Alan Turing?
77. Who designed the punched-card machines used in the 1890 census—whose name later became closely linked with modern-day punched cards?

75. BABBAGE
76. Maurice Wilkes
77. Herman Hollerith

APPENDIX A: FOR FURTHER READING

If you're hooked on computer trivia and want to study up, here's a list of useful books. For completeness' sake, we've included several out-of-print titles, which you might find in libraries or used book stores. Note, however, that information in some of the earlier books may be obsolete.

IN PRINT:

Eames, Charles and Ray, *A Computer Perspective—1990 Edition.* Cambridge: 1990. Harvard University Press. $19.95, trade paperback. Updated by Bernard Cohen, who added a new chapter to the 1973 edition. A serious history in pictures of the computer age, but with enough whimsy and "offbeat" information to make it interesting to trivia mavens.

Juliussen, Karen and Egil, *The Computer Industry Almanac.* This useful annual is, as the name implies, a comprehensive compendium of facts and figures about the computer industry. It's particularly strong on "lists," such as the top ten software packages, the top ten companies by revenue, and so on. Published by Computer Industry Almanac Inc., 225 Allen Way, Incline Village at Lake Tahoe, NV 89451-9608; (800) 377-6810.

Raymond, Eric, *The New Hacker's Dictionary.* Second Edition, 1993: MIT Press. Simply the best book ever published about computer slang.

"The Jargon File." An exhaustive compendium of computerese—available on the Internet at: http:/crl.nmsu.edu/dicts/jargon

OUT OF PRINT (BUT POSSIBLY STILL AVAILABLE):

Rochester, Jack B., and Gantz, John, *The Naked Computer.* New York: 1983. William Morrow and Company, Inc. Hardcover, $15.95. Intriguing computer tidbits and trivia.

Ditlea, Steve, ed. *Digital Deli: The Comprehensive, User-Lovable Menu of Computer Lore, Culture, Lifestyles, and Fancy.* New York: 1984. Workman Publishing. Excellent compendium of arcana about microcomputing.

Edelhart, Mike, and Garr, Doug, *The Complete Computer Compendium: An Entertaining, Provocative Chronicle of the Computer Revolution—for Computerphile and Computerphobe Alike.* Reading, Massachusetts: 1984. Addison-Wesley. $12.95, trade paperback. A useful book that contains trivia information available nowhere else.

APPENDIX B: COMPUTER BOWL STATISTICS

1988 Bowl

Panelists

West Coast Team: Adele Goldberg, Bill Joy, Casey Powell, Allen Michaels, and Team Captain David Bunnell (Most Valuable Player: Bill Joy)

East Coast Team: Esther Dyson, Mitchell Kapor, David Hathaway, Bill Poduska, and Team Captain Dick Shaffer (Most Valuable Player: Mitchell Kapor)

Examiner: William Randolph Hearst III

Judge: Mike Perkowski

Official Accountancy Firm: Price Waterhouse, represented by Patrick Grey

Winning Team: East Coast

NOTE: There was no Bowl in 1989.

1990 Bowl

Panelists

West Coast Team: Bill Gates, John Doerr, Larry Tesler, Charles House, and Team Captain Stewart Alsop (Most Valuable Player: Bill Gates)

East Coast Team: William Foster, Bob Frankston, Edward Fredkin, Russell Planitzer, and Team Captain Pat McGovern (Most Valuable Player: Bob Frankston)

Examiner: Mitch Kapor

Judges: Bill Poduska and Bill Joy

Official Accountancy Firm: Price Waterhouse

Winning Team: West Coast

1991 Bowl

Panelists

West Coast Team: Dave House, Ed Juge, John Markoff, David Liddle, and Team Captain Heidi Roizen (Most Valuable Player: David Liddle)

East Coast Team: Dr. John Armstrong, James E. Clark, Samuel Fuller, Philippe Kahn, and Team Captain Pamela McCorduck (Most Valuable Player: Pamela McCorduck)

Examiner: Bill Gates

Judges: L. John Doerr and Pat McGovern

Official Accountancy Firm: Price Waterhouse

Winning Team: East Coast

1992 Bowl

Panelists

West Coast Team: Jeff Kalb, Ruthann Quindlen, Vern Rayburn, John Warnock, and Team Captain John Shoch (Most Valuable Player: Jeff Kalb)

East Coast Team: Dave Nelson, Andrew S. Rappaport, Paul Severino, Bill Machrone, and Team Captain Charles Bachman (Most Valuable Player: Dave Nelson)

Examiner: Bill Gates

Judges: Pamela McCorduck and Heidi Roizen

Official Accountancy Firm: Price Waterhouse

Winning Team: East Coast

1993 Bowl

Panelists

West Coast Team: Jean-Louis Gassée, Jerry Kaplan, Michael A. McConnell, Lisa G. Thorell, and Team Captain Harry J. Saal (Most Valuable Player: Harry J. Saal)

East Coast Team: John F. Burton, Neil Colvin, Alain J. Hanover, Patricia Seybold, and Team Captain Mitchell E. Kertzman (Most Valuable Player: Neil Colvin)

Examiner: Bill Gates

Judges: David Nelson and John Shoch

Official Accountancy Firm: Price Waterhouse

Winning Team: West Coast

1994 All-Star Bowl

Panelists

West Coast Team: Bill Gates, Jeff Kalb, David Liddle, Harry Saal, and Team Captain Bill Joy

East Coast Team: Neil Colvin, Bob Frankston, Pamela McCorduck, David Nelson, and Team Captain Mitch Kapor

Examiner: Andy Grove

Judges: Pat McGovern, Charles Bachman, L. John Doerr, Heidi Roizen, and John Shoch

Official Accountancy Firm: Price Waterhouse

Winning Team: East Coast

All-Time Most Valuable Players: David Nelson (East Coast) and David Liddle (West Coast)

1995 Bowl

Panelists

West Coast Team: Eric Benhamou, Steve Blank, Andy Hertzfeld, Roel Piper, and Captain Cheryl Vedoe (Most Valuable Player: Steve Blank)

East Coast Team: Joseph Alsop, Katherine Clark, Paul Gillin (Captain and Most Valuable Player), John Landry, Carl Ledbetter

Examiners: Nicholas Negroponte, Chris Morgan

Judges: Bob Frankston, Dave Nelson

Winning Team: West Coast

NOTE: On occasion during the Computer Bowl competitions, we have ruled a contestant wrong on a question he actually got right, such as Mitch Kapor's correct identification of the random number sieve's creator and Dave Nelson's correct definition of ERMA. John Shoch was unfairly penalized on a Xerox-related question, and Paul Gillin of ComputerWorld and a few others during the 1995 Bowl were not given their due. And, of course, there were many "gray" areas during the bowls when contestants gave nearly correct answers and the judges had to make split-second rulings. Our panelists have been unfailingly patient and forgiving in these situations. Our apologies to all!

APPENDIX C: MORE QUESTIONS, PLEASE!

We love computer-trivia questions! If you have an interesting trivia question (and its answer!), we'd like to hear from you for use in future editions of the book and for the Computer Bowl. Please send your questions and answers to:

Chris Morgan
c/o The Computer Museum
300 Congress Street
Boston, MA 02210

You can send E-mail to me at morgan@acm.org. *Please* be sure to include the source for your question(s), indicating the page number and date of periodicals, books, etc.

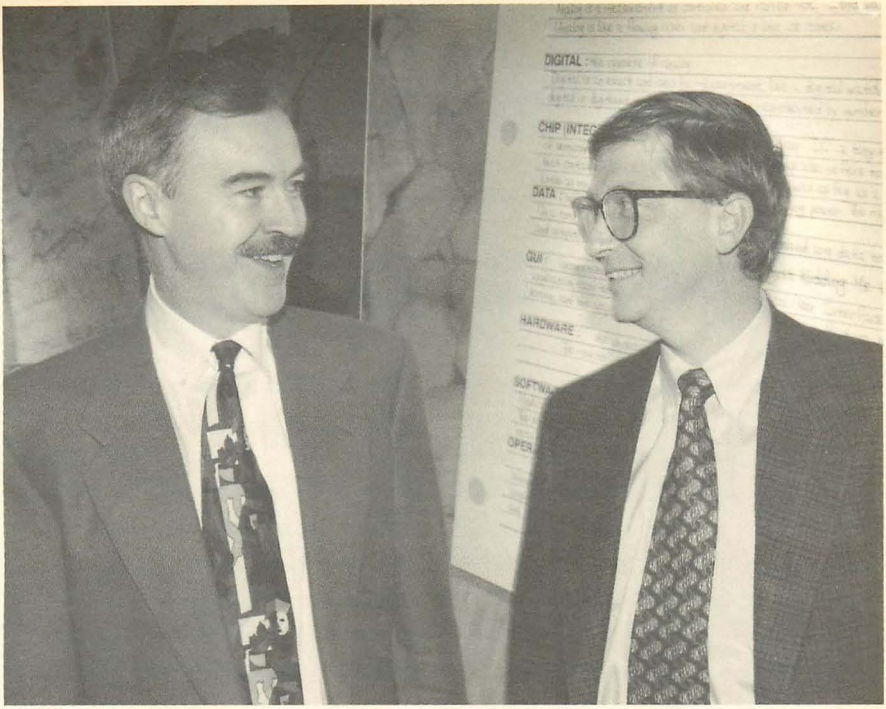
Also, visit my web site home page at: http://www.acm.org/~morgan

APPENDIX D:
ABOUT THE COMPUTER MUSEUM

Located on Boston's waterfront, The Computer Museum is the sponsor of the Computer Bowl. It features the most extensive collection of computers and robots in the world, with more than 170 dynamic hands-on exhibits, the award-winning Walk-Through Computer™, two theaters, plus a remarkable multimedia show.

Each year, the museum attracts hundreds of thousands of visitors from around the world. Millions more are served by the museum's Exhibit Kits Program, educational videos, and other materials, and learn about the museum in extensive news and TV coverage.

Visit the museum's Internet Web site at http://www.tcm.org.



FAYFOTO: John Rich

The author, Christopher Morgan, with Bill Gates
at The Computer Museum.

ISBN 0-517-88403-8

$10.00/REFERENCE
(Canada: $14.00)

What is the President of the United States' Internet E-mail address?

Which computer company was represented by Alan Alda? Bill Cosby? William Shatner?

In what year did the computer replace the abacus for the Chinese census?

The Computer Bowl, an annual, nationally televised contest of computer smarts between teams of industry leaders (Bill Gates and Mitch Kapor have been among the competitors), has become one of the major events of the year for millions of computer fans. *The Official Computer Bowl Trivia Book* challenges readers with questions asked in the first six Computer Bowls, along with hundreds of additional questions that weren't used on the air. They range from the lighthearted (What did computer pioneer Alan Turing bury in his backyard during World War II, and why?) to the tough-techie (How long would it take to send the *Encyclopaedia Britannica* over a 2-gigabit fiber-optic cable?), and are grouped into such categories as "Computers in the Media," "Fun and Games," and "People in Computing."

The Official Computer Bowl Trivia Book is the most computer fun you can have without a mouse in your hand!

CHRISTOPHER MORGAN is the former editor of *Byte* magazine and a former vice president of Lotus Development. He currently heads Christopher Morgan Communications, a high-tech consulting firm in Boston, Massachusetts, where he also lives.

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