

by R. Emmett Tyrrell, Jr.

The Internet Turns 30



This September marked the thirtieth birthday of the Internet, though historians may quibble. It was in September 1969 that UCLA's Professor Leonard Kleinrock, working on a Defense Department-financed project called Arpanet (Advanced Research Projects Agency Network), installed its first Interface Message Processor (Imp) and *voilà*, computers began having intercourse with each other. Soon there were other developments to ease this communication, for instance, the development of Ethernet and LAN. Still, Professor Kleinrock's work was seminal, and Bob Metcalfe (the inventor of Ethernet, another key advance towards Internet) has been congratulating Kleinrock on his parenthood and celebrating the Internet's thirtieth birthday. So is the faculty at UCLA. So why should we not light the candles and celebrate a historic date in the emergence of Computer Civilization? Moreover it is a fitting time to observe recent developments towards this era of Internet and to note the impending threats from Big Brother, and if she is elected in New York, Big Sister.

Throughout this century changes often stole across the populace without warning, like the 1918 influenza epidemic or Political Correctness. Now in the last years of the twentieth century we have been overcome by this giddy enthusiasm for cyberspace. Its arrival is proclaimed everywhere with cheers for e-mail, e-commerce, E.coli—just kidding. The cheers resound even at the staid *American Spectator*, where we have auspicated a second magazine out there in cyberspace, *The American Spectator Online* (www.spectator.org), complete with interactive correspondence and Ben Stein online. We are all cyberspace voyagers now!

Unlike the epidemic of 1918, the Computer Civilization is mostly for the good. In material terms the computer has dramatically improved lives. In intellectual terms it has rejuvenated the reputation of entrepreneurial capitalism. It probably accounts for about a third of the present economic boom. Consider only the digitalis it has given to productivity growth. This Computer Civilization unites and enriches the developed world. It arrived in stages going back centuries. Pascal devised a kind of Neanderthal computer in the seventeenth century. Later scientists such as J.M. Jacquard conceived a Cro-Magnon forerunner of the computer. Charles Simonyi, one of the pioneers of the most recent stage in Computer Civilization, traces the digital computer back to the nineteenth century when Charles Babbage, the British mathematician, conjured up its theoretical outlines. Though Babbage had the principles right, he lived in the wrong century. What could power his computer? Steam? Perhaps a water wheel? The digital computer had to await the development of electricity and a half dozen other technologies before the computer could achieve its present omnipresence. Now we have the Internet.

Curiously the intelligentsia has been uncharacteristically mum as Computer Civilization has expanded. In the 1950's and 60's the intelligentsia sounded an Orwellian alarm when the computer addressed us by our number rather than our name. But today with the computer serving us in home and office, the intelligentsia has fallen almost speechless. On the op-ed pages there will appear an occasional Naderite squawk of Luddite dread, but otherwise in their journals—say, in the *Nation* or the *New York Review of Books*—there are only continuations of their 30-year obsession over power struggles between the boys and the girls, perceived anemia among the flora and fauna,

some local outbreak of the Ominous: the disappearance of hair from the head of Mrs. Mildred Smellytot several weeks after she bought her new cell phone, yellow spots on the Brussels sprout crop near Bull Snort, Georgia. Oh, yes, and a decade after the peaceful conclusion of the Cold War the intelligentsia is still discovering shocking evidence of collusion between the Pentagon and anti-Communist colonels—most recently, I believe, in Guatemala sometime in the 1970's. Thank goodness, Tony Blair has Pinochet in custody! Better it would be if the intelligentsia moved beyond the old obsessions (about which they were usually in error—think of the Alger Hiss pother) and gave fresh thought to the wonder and subversion of the microchip.

Libertarian conservatives have been ahead of the curve. Richard Rahn, the libertarian economist, writes in a timely new book, *The End of Money and the Struggle for Financial Privacy* (Discovery Institute Press, Seattle, 223 pages, \$25), that within a few years many Americans will have largely given up cash for computer transfers of digital money and smart cards (money on a microchip). The workers at the Internal Revenue Service will be thrown into despair. Perforce there will be a reduction in the involuntary taxation of financial capital, thus forcing a downsizing in government. The Clinton administration has glimpsed the future. Now the administration that so successfully implemented Filegate is boldly advancing policies to obliterate the citizenry's private communications along the Internet. It opposes strong encryption of Internet communication on the grounds of national security and police surveillance of white-collar crime. Additionally it wants authority to monitor the Internet, again to protect us from harm.

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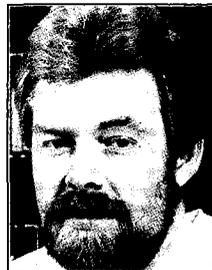
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Though, as Rahn writes, such policing by the government will doom the era of digital finance with its promises of lower crime rates (the citizenry will carry even less cash) and continued low inflation, increased productivity, and still higher standards of living.

Rahn's book provides a sense of Computer Civilization's future. To gain a sense of how the present Renaissance Age of Computer Civilization so speedily arrived turn to Michael Hiltzik's *Dealers of Lightning* (HarperCollins, 448 pages, \$26). The spread of the microchip, personal computing, and the Internet do in fact constitute the rise of a historic epoch whose origins trace back to the early 1970's when a small coterie of brilliant scientists was lured by the Xerox Corporation to a complex near Stanford University that would come to be known as Xerox PARC. Hiltzik provides the non-tech reader with at least a rudimentary sense of the equipment being developed in this period, though he never explains some of the reasons for its development. For instance, how was it that the tech wizards gathering at Xerox PARC could envisage such a wild leap from the bulky, limited computer of the 1960's to the diverse computer technology of today? Hiltzik almost makes these scientists appear as the adepts of science fiction.

Heroes of *Dealers*, such as Bob Taylor and Alan Kay, Metcalfe, Butler Lampson, Gary Starkweather, and Simonyi, envisaged a transformation of the huge corporate computers of the 1960's into dozens of different computing machines, some mammoth, some small and personal, some for graphics, office transactions, scientific experiments, and entertainment—and all capable of communicating with each other and eventually the world. Thitherto the modern computer had been a huge block of wires and tubes about the size of an outhouse. The really powerful computers that cracked spy codes and guided inter-continental ballistic missiles were about the size of a roadside restroom along the side of the Pennsylvania Turnpike and with as much charm. These ugly contraptions jiggled punch cards and made computations. But prior to Xerox PARC the computer was bereft of colorful screens, joyous speakers, floppy discs, and all the strangely piquant terminology the engineers dreamed up.

The behemoth computers of the past were used mainly by grim groups of scientists and bureaucrats. They had to schedule time on the machine. When time was up they withdrew while another group fed its boxes of punch cards into the monster. The practice was called "time-sharing." George Gilder tells us how things have changed. In the era of "time-sharing" the machine came first and the human programmer second. The computer's time was dear, say \$300 per hour, while the programmers' time was cheap, say \$300 per week. The development of software has reversed the relationship. Now the money goes to the humans who spend it in the market, enriching society.

The pre-Xerox PARC computer could compute and store whole libraries of information. But an engineer named Gordon Moore somehow figured that computer power would grow ever cheaper and more portable. According to Moore's Law, Hiltzik tells us, "computing power would exponentially increase in performance and diminish in cost over the years. Moore contended [in 1965] that this trend could be predicted mathematically, so that memory costing \$500,000 in 1965 would come all the way down to \$3,000 by 1985." By 1998 the cost had dropped to a few hundred dollars. Apparently the trend will continue. This summer *Science* magazine reported that researchers from Hewlett-Packard and UCLA envisage a development in molecular computing that could make computers 100 billion times as powerful as today's. Americans wishing immortality will be able to swear off jogging and disgusting health foods by affixing a computer chip the size of a molecule to their vital organs. Like the microchips in our cars that notify us that we are in need of new brake pads, tomorrow's molecular microchips will tell us when we are in need of, say, a new liver.

Xerox PARC witnessed the confluence of science and finance that characterizes today's tech industry. Ebullient with a *joie de science*, thirty or so of the brightest technical minds in the country created such things as the personal computer (a contraption called Alto), word processing, computer graphics, and the linkage of computers to other computers and periph-

eral equipment. Possessed of only a slippery grip on the value of the scientists' work, Xerox's businessmen bore the onerous burden of deciding if the work was marketable. Hiltzik tells the lively story of the scientists' inventiveness. They were having a grand time. What they did with computer technology was perhaps as momentous as what an earlier generation of scientists did with the Manhattan Project, though gratefully PARC's work had more pervasive consequences for society.

Yet the business types from Xerox Corp. will always have to live down the judgment of later critics, such as Apple's Steve Jobs, who believe the businessmen failed to capitalize on their scientists' inventions. Upstart entrepreneurs took that work to market creating the present Renaissance in Computer Civilization. "The record is certainly damning," writes Hiltzik. "Xerox had the Alto; IBM launched the Personal Computer. Xerox had the graphical user interface with mouse, icons, and overlapping windows; Apple and Microsoft launched Macintosh and Windows. Xerox invented What-You-See-Is-What-You-Get word processing; Microsoft brazenly turned it into Microsoft Word and conquered the office market. Xerox invented the Ethernet...."

A glance at that list of inventions suggests Xerox PARC's prodigious role in the present Computer Civilization. That the businessmen at corporate headquarters, making and mongering copying machines, did not grasp the value of their scientists' masterpieces is not surprising. Did the late Prince Anton Esterhazy grasp the financial value of the masterworks once turned out so abundantly by his piano player, Franz Joseph Haydn? PARC's Metcalfe, with Ethernet and a claim to advances in the Internet among his credits, captures the ambivalence of the problem when he tells Hiltzik, "All of us who worked there enjoyed blaming Xerox for what went wrong.... But Xerox gave us the job. Why blame them? So few of us accepted responsibility."

Metcalfe figures in another interesting book on this the latest epoch of Computer Civilization: *The Silicon Boys and Their Valley of Dreams* by David A.

(Continued on page 75)

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40	\$ 123	\$ 158	\$ 185	\$ 238	\$ 260
45	\$ 190	\$ 215	\$ 253	\$ 330	\$ 385
50	\$ 253	\$ 290	\$ 363	\$ 490	\$ 495
55	\$ 365	\$ 413	\$ 550	\$ 835	\$ 1,015
60	\$ 503	\$ 615	\$ 845	\$ 2,135	\$ 2,400
65	\$ 775	\$ 975	\$1,593	\$ 3,900	\$ 3,900
70	\$1,338	\$ 1,600	\$2,970	\$ 7,220	\$ 7,220
75	\$2,275	\$ 4,870	\$5,820	\$10,370	\$12,420

Male Premiums

Age	10 YEAR	15 YEAR	20 YEAR	25 YEAR	30 YEAR
35	\$ 123	\$ 138	\$ 165	\$ 223	\$ 253
40	\$ 148	\$ 183	\$ 225	\$ 288	\$ 335
45	\$ 225	\$ 300	\$ 360	\$ 450	\$ 513
50	\$ 338	\$ 455	\$ 525	\$ 743	\$ 828
55	\$ 500	\$ 670	\$ 768	\$ 1,640	\$ 2,330
60	\$ 783	\$ 990	\$1,335	\$ 3,630	\$ 3,630
65	\$1,330	\$ 1,650	\$2,693	\$ 5,250	\$ 5,250
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The Age of Consent

A Conservative, or a Libertarian Revolution?

Is America moving in a more conservative, or a more liberal direction? Lee Edwards, the author of biographies of Ronald Reagan and Barry Goldwater (“The Man Who Made a Revolution”), and (this year) *The Conservative Revolution: The Movement That Remade America*, is one of those who say we are becoming more conservative. One can’t help thinking, incidentally, that the very notion of “revolution” is antithetical to that of conservatism. It is modern-day liberalism that is revolutionary, because it attempts to refashion society and regards human nature as malleable. Furthermore, it has had considerable success in reshaping the former, if not the latter. I suspect that when Edwards says “revolution” he really means “counter-revolution.” But he does think that this revolution, or counter-revolution, is succeeding. At the time of Goldwater’s death last year, he wrote that in 1962 he had attended a rally sponsored by Young Americans for Freedom at Madison Square Garden. More than 18,000 conservatives filled the arena (hard to imagine that today), and there was a passionate ovation: “We want Barry, we want Barry!” Goldwater predicted that a “wave of conservatism” would eventually triumph in America. “Unlike most political prophets, he was right,” Edwards says today.

Edwards has strongly conservative inclinations himself. As I know from meeting him over the years, he is also a man of great integrity and decency. He teaches at Catholic University and is a fellow of the Heritage Foundation in Washington. Still,

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I can’t help wondering whether the country really is becoming more conservative. The conservative movement, if you want to call it that, has more than its fair share of professional optimists; in fact, that is what the phrase “movement conservative” surely means. It describes someone who feels obliged to be optimistic, to rally the troops, to magnify small victories, no matter how adverse the overall political trend may be. Then again, maybe I’m just a congenital pessimist. As the many books and newsletters about non-materializing economic crashes attest, there is a market for doom-saying, as there is for optimism. Above all, it is difficult to see one’s own time clearly, without the influence of wishful thinking.

Another young Goldwater supporter was Hillary Rodham. In 1964 she wore a cowboy hat, a red-white-and-blue sash, a gold button reading AuH2o, and she handed out campaign brochures. She even shook hands with the great man himself. “This is the Barry Goldwater I think of so often,” she wrote after she became first lady. By then, of course, her political views had “evolved” (her word). But she befriended the elderly senator and, grateful for “his personal support for both Bill and me,” she went to see Goldwater in Phoenix in 1996. She found him as “plain spoken as ever,” and the odd couple even found themselves “once again agreeing on some things.” She passed along the president’s invitation “to ride on Air Force One.”

Goldwater, too, had “evolved,” and in much the same direction as Hillary Clinton. Is it not possible that their common direction indicates the real “movement” that has taken place in America since 1964? A movement that has not been remotely

conservative? It was abortion rights and gay rights that Mr. Conservative and Ms. Liberal found themselves agreeing on. Others have moved in the same direction. “I find Goldwater’s mindset nationwide among upper-income Republicans,” Robert Novak wrote in a column last year. In his epitaph, admittedly harsh, Goldwater was a “role model for self-satisfied country-club Republicans who don’t mind returning their party to minority status so long as they are in charge of the remnant.”

When he died, the liberals’ praise of Goldwater was extravagant. Try to imagine an America in which Mr. Liberal—Ted Kennedy, say—has moved so far to the right that he is lauded by an (imaginary) right-wing first lady, and is invited to travel on Air Force One. What kind of an America would that be? Not the country that we live in. Perhaps it would be one in which a conservative revolution really had occurred. One might even conclude that in the last generation we have indeed lived through a revolution, but a liberal rather than a conservative one.

Lest one think that this judgment is based on the eccentricities of Goldwater in his dotage, consider the man who replaced him in the Senate, John McCain. He, too, is said to be conservative. In fact, Edwards (rallying the troops, as he does so well) wrote in May that “all the contenders for the Republican presidential nomination in 2000 are conservative.” More and more, however, McCain is turning out to be the darling of the liberals. He told the *San Francisco Chronicle* recently that if elected he “absolutely” would support the appointment of gays and lesbians to his cabinet and that, “in the short term or even in the long term,” he would continue to support abortion rights. Liberal friends of mine in the Bay Area, who think Al Gore rather dull, tell me that McCain