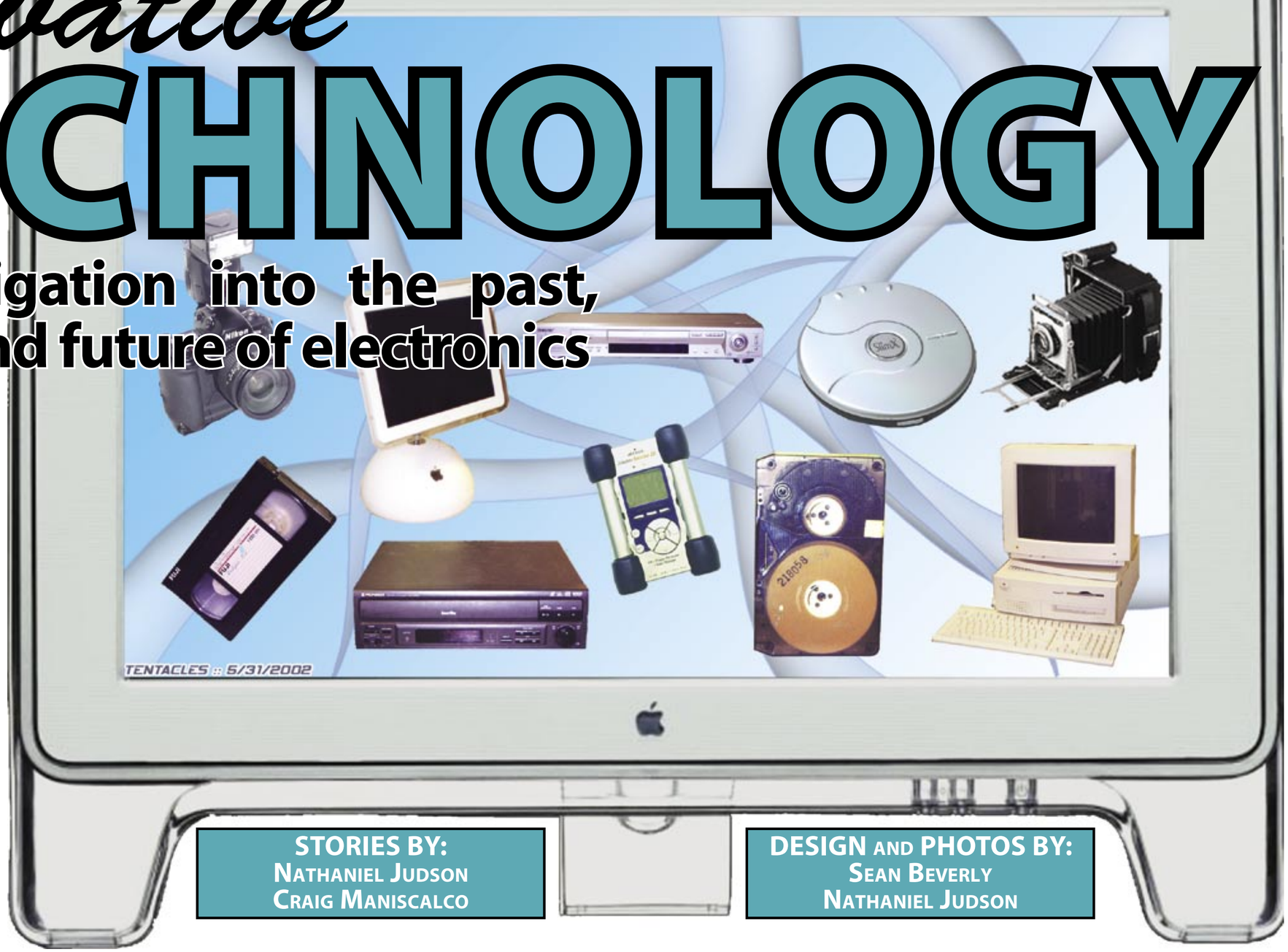
Innovative TECHNOLOGY

An investigation into the past, present, and future of electronics



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What is technology? To some it is such things as computers that can fold to half an inch thick, cars that can travel 200 m.p.h., and planes that can fly you from New York to Paris is 2 hours. All of these represent the technologies of our modern age. These things seem normal today, but looking back onto the days when computers would take up 3 rooms, it is amazing to see how far the world has come in the last thirty years.

Personal Computers

The 1970's were the age when computers came into home use. In 1971 Intel made the first microprocessor chip. This chip was a marvel for the time, and as Intel was the first, they got rather big rather fast, and Intel has gone onto making the Pentium processing chip that is used today in most IBM and IBM clone computers. Then in 1972, the first optical laser disc was developed by Phillips and MCA, the optical laser disc was the generation 1 DVD, it was about 12 inches in diameter and could hold 30 minutes of video and audio on each side.

In 1977, Radio Shack introduced the first complete personal computer to be marketed to the general public. Unlike others before it, the Tandy/Radio Shack computer came fully assembled with a built-in keyboard and monitor. This paved the way for convenient word processing and brought about the beginning of a great revolution in thinking which gradually took hold and gained momentum during the next decade. No longer would the computer be seen as an expensive mathematical tool of large scientific, military, and business institutions, but as a communication and information management tool accessible to everyone.

The Apple II was another entry into personal computer market. The Apple II came fully assembled with built-in keyboard, monitor and operating system software. The first Apple II's used a cassette tape to store programs, but a floppy disk drive was soon available. With its ease in storing and running programs, the floppy disk made the Apple II computer the first computer suitable for use in classrooms.

From more than 30 years ago, when the first personal computers were introduced, we have come to today, when almost every household in the United States owns at least one computer. In the early days, one was lucky to find a computer that could store 365 kilobytes of information, now 30 gigabytes is standard on many introductory level computers.

Today, computers have evolved into an integral part of our society. More and more people are connecting to the internet every day, where they can meet people from around the world, and find just about any information with a few simple key strokes.

Thanks to the rise of the personal computer, people have been given the tools to do work that, as early as 30 years ago would have required professional training and specialized equipment. Now even the most novice computer user can create professional training and specialized equipment. Now even the most novice computer user can create professional-quality presentations, touch up photos for their family album, and produce their own home videos. Thanks to the internet, that same person can send their presentation halfway around the world in a matter of seconds, or share their photographs and videos with friends and family members all over the country at the push of a button.

The future holds significant potential for the advancement of personal computing. As microchips continue to shrink, science will continue to find new, innovative ways to use computing technology. True wearable computers are fast becoming a reality, and even microchip identification systems that may one day be implanted under our skin and used in place of drivers licenses or credit cards are not too far off in the future. People are becoming very dependent on computers, and as long as society is willing to integrate with computers, computers will continue to integrate with society.

Music

The development of musical recording, and thereby the reproduction of music, began when Edison invented the cylinder phonograph in 1877. From that, the record player was eventually invented. Actually, according to the Scientific American Headquarters, the original purpose for Edison's phonograph was dictating letters without a stenographer, and to read books to the blind.

With the introduction of the tape recorder, suddenly it was practical to edit sound after the fact. When multi-track tape recorders were introduced, it was possible to do much more along these lines. On heavily "produced" records like the Beatles' Sgt. Pepper's Lonely Heart's Club Band album, the music was only remotely related to anything that could be performed live by the Beatles themselves.

The record industry paid little attention to the potential market for tape, that's why the success of the 8-track tape was a bit of a surprise. The 8-track system was intended to be heard in the automobile-not surprisingly it was invented in the United States, where the car culture is strong. Home players could also be had, but manufacturers suspected that the tapes would be most appealing to commuters-and they were right. Introduced in 1965 by Ford, the 8-track sold in large numbers in the late 1960's and early 1970's until it took nearly a third of the market for recorded music. Ultimately the 8-track would fail, but it paved the way for music on cassette tapes.

Although the record still lives on, sort of, both the LP and the cassette were pushed aside by the Compact Disc. The Phillips Company, which had earlier introduced the cassette, had developed a laser disc for video recording in the late 1970's. Phillips teamed up with Sony, which had developed a digital tape recorder for making "master" recordings at about the same time.

The new discs were created by re-recording ordinary studio tapes onto the digital tape, and then using the digital tape to burn laser discs. A copy of the master laser disc was then used to press plastic duplicates, which were coated with shiny aluminum, encased in protective layers of plastic, and packaged for sale. Unlike the LP or the original Phillips video laser discs, which were quite large, the audio-only laser discs were "compact," and hence the name Compact Disc.

The CD was introduced to the public in 1982. Partly because of the high initial cost (a player cost over $2000, and the discs themselves cost $12-16), sales were limited. By about 1985, however, it was possible to buy a player for $350 or less, and prices were around $150 a few years later.

Digital recording appeared in 1990 with the introduction of Digital Audio Tape, and later with the Digital Compact Cassette, and again with the Sony Minidisk. Opposed by a recording industry fearful of music piracy, these formats failed to appeal to consumers.

About 6 years ago, it seemed that the new choice for home recording would be the record able CD. However, by the time the price of a CD burner and blank disks came down, the entire concept of storing sound on a physical medium was being called into question.

As MP3 format music began to rise in popularity, and Napster and similar music and file sharing programs have become more readily available, it became clear that the purchase of real CDs is not only becoming less popular, but also less necessary. In a poll of 100 Antioch Community High School Students, 68 use an online source to acquire more than half of their music.

(R)EVOLUTION