

those who create elaborate track systems and layouts to those who simply display their trains on shelves. The key words in model value and appreciation are realism and authenticity to detail, not only of equipment and environments but also to historical periods as settings. Some consider the "HO" scale (1/87th of a full-size train) the true scale for track gauge, and the "universal" size on the continent and the U.S. Popular with collectors, also, are O scale trains represented by Lionel models, 1/48th the size of their iron prototypes. A train set can cost from \$10 to \$10,000.

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Tramiel, Jack (1928-), founded Commodore Business Machines and produced the most popular home computers of the 1980's. He was symbolic of the early period of personal computer manufacturing.

A Polish-born Holocaust survivor, Tramiel emigrated to New York in 1947. In 1958, he opened a typewriter sales and repair shop, later expanding into typewriter manufacturing by acquiring a factory in West Berlin. While in Japan to acquire an adding machine factory, Tramiel saw an early electronic calculator and decided adding machines were a dead end. In 1969, Commodore produced the first hand-held calculator, the C108, using Texas Instruments chips. One of Commodore's purchased subsidiaries, MOS Technology, developed the 6502 microprocessor, the foundation of the first generation of home computers. The first Commodore computer, introduced in 1977, was the PET (Personal Electronic Transactor), a single casing holding a keyboard, processor and monochrome screen.

Commodore's consumer breakthrough came in 1980 with the VIC-20, an 8-bit unit with 5K of RAM memory. Aided by placement in department stores and saturation advertising (starring William Shatner), Commodore sold a million of the \$300 VIC-20's by early 1983.

In August, 1982, the first Commodore 64 shipped as a direct competitor to the Apple II and Atari 400 lines. It had 64K of memory, three music synthesizer chips, game sprites and a \$500 list price (which dropped under \$200 within 16 months). Soon, more 64s were being sold each month than Apple IIs. By the end of 1983, nearly 2.5 million VIC-20s and 64s had been sold.

Tramiel, however, resigned as president of Commodore in January, 1984, after a power struggle. By July, he had purchased the ailing Atari from Warner Communications. (see

Bushnell, Nolan K.). He took enough Commodore technicians with him make the 68000-based ST series, priced starting at \$400.

Atari was first to introduce the CD-ROM drive. Tramiel, managing Atari with his three sons, actually brought the firm out of debt, but he also failed to ride the second wave of video gaming, and Nintendo dominated Atari's former market. Atari had become old news. Tramiel eventually abandoned the ST computer and worked on a new game machine, the Jaguar, finally unveiled in 1994. But it did not succeed. Atari was folded into a Silicon Valley disk-drive manufacturer, JTS, and Tramiel has retired.

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Trampolining enjoys deserved popularity not only for its vertigo-delivering properties, but also for teaching advanced twisting movements in sports such as springboard diving, the pole vault, and aerial gymnastic sequences. Happily, the trampoline continues to be a basic tool for the education and training of circus performers at their various winter retreats in Florida.

The founding father of the trampoline was George Nissen. Born in Iowa in 1914, he designed the prototype model T in 1936, and he both promoted and popularized the trampoline for the physical education training of American soldiers during World War II. The concept was innovative but remarkably simple. A trampoline was no more than a sheet of strong webbed canvas pulled tight over a firm, but lightweight, portable shell frame. Nissen's design provided for a higher bounce and allowed a greater number and variety of tricks. By 1948, the NCAA had included trampolining as an element in their annual gymnastics championship. In 1967, the trampoline was removed from intercollegiate gymnastics competition due to accidents and injuries. The sport was included in the 1955 Pan-American Games. In 1964, the International Trampoline Association was founded; and the sport became part of the gymnastics events at the 2000 Olympics.

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Transistor Radio was a technological innovation of the 1950s that allows radio audiences to listen wherever they are. The transistor was invented in 1948 in Bell Laborato-