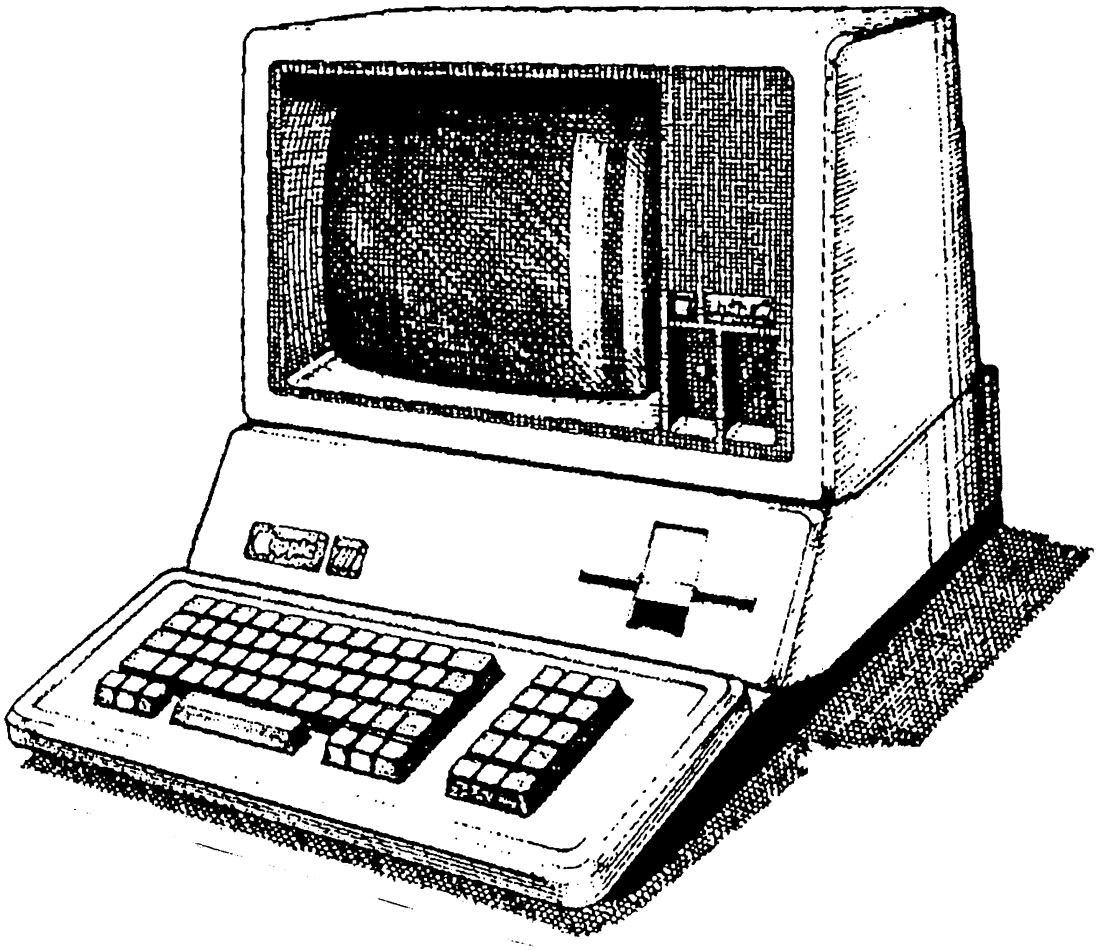
Apple /// Computer Information



DOCUMENT NAME

APPLE III HISTORY FROM BOOK "THE LITLE KINGDOM"

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Ex Libris David T. Craig

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Information about the Apple /// computer from The Little Kingdom

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DAVID T. CRAIG

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One of the consequences of visible corporate glory was reflected in the ambitious schedules established for the Apple III. Those timetables reflected none of the perils of developing computers that had been carefully spelled out in numerous articles and books. "We were terribly optimistic about the schedules on the Apple III," said product designer Jerry Mannock. "The Apple II had been so successful that everybody was walking around thinking they could do anything." From the start the Apple III was supposed to be a stopgap product, a bridge between the time that Apple II sales were expected to drop and the day that Lisa was ready.

It also came to be seen as a test of Apple's ability to build a computer as a company. The circumstances had obviously changed since the days when Wozniak made gross modifications to the Apple I, and though Apple's payroll had lengthened so had the company's commitments. There was a growing band of customers who needed attention and support, there were the sundry distractions of corporate life, and there was also the need to have large numbers of the new computer ready to ship at the time of introduction rather than the dozens that were needed after the announcement of the Apple II. The schedule for the Apple III was the sort of timetable that might have been set by a hobbyist determined to show off a design at the Homebrew Club. It called for a computer that would be designed, tested, and ready for manufacture within ten months of conception.

Building a computer as a company, Apple soon discovered, was far more laborious than knocking together a machine in a garage. "The Apple III was designed by committee," Randy Wigginton complained. "Apple felt that was the way a proper company should design a computer. Everybody had certain ideas about what the Apple III should do and unfortunately all of them were included." The general plan was for a computer that contained all the features that were missing from the Apple II and to stretch the powers of the 6502 microprocessor since more powerful processors were not available at low prices. It was to have a larger memory, a built-in disk drive, a better operating system, a display of eighty

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columns that would be suitable for word processing and spreadsheet calculations, an upper- and lower-case keyboard, a keypad, improved color, and a faster microprocessor. It was also supposed to run all the programs developed for the Apple II and so become instantly useful in scores of different applications.

A fearsome pressure built up inside the company and helped promote stomach-contracting schedules. Some of this stemmed from marketing projections that repeatedly forecast imminent declines in the sales of Apple IIs. Wendell Sander, the chief hardware engineer on the Apple III, said, "We kept wondering when the bubble was going to burst on the Apple II. We could have done with more professionalism from the marketing side." Pressure also sprang from the commitments to ship the Apple III that were made in the prospectus prepared for the public stock offering. None of this was helped by Jobs who, a few months before the computer was announced, doled out some glossy posters carrying the line THE DECISION YOU'RE MAKING NOW HELPED SHIP 50,000 APPLE IIIS IN 1980. The combination of pressures was sufficient to squelch the cries of anguish and dam the stream of frantic memos that circulated among the people under the most strain. "It was the classic story," said Jef Raskin, "of people at the bottom saying, 'Things aren't working here. We're in trouble.' Then the next level up would say, 'We're in some trouble with this,' and the level above would say, 'We're getting around the trouble,' and the people at the top would say, 'It will be okay. Let's ship.'"

The rush to ship the computer resulted in an all-out scramble that was reflected most keenly in the publications department where the technical writers were again sandwiched between the changes being made on the laboratory bench and the implacable demands of the marketing department. The writers did not see the Apple III until nine weeks before it was announced, and the deadlines offered so little slack that the procedures for reviewing the manuals and the computer were all but ignored. Drafts of the completed manuals were sent to the engineering, marketing, and new-product-review departments on the same day they were delivered to the production department for paste-up. There the programmers worked two-hour shifts helping the graphic artists lay out the pages.

Meanwhile, Apple was also learning that there was nothing like

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software development to illustrate how quickly a year could slip by. Though the Apple III was supposed to run all the programs written for the Apple II, the improvements and modifications made adjustment of the Apple II software a complicated and tiresome venture. The programmers had to accommodate all the changes in the hardware: The computers started differently, the keyboards and disk drives were laid out differently, and the memory had been expanded. The programmers were also submerged beneath the sheer weight of the programming, which was ten times as much as for the Apple II.

Though the burden had increased Apple decided to try to develop as much software as possible inside the company. Little attention was paid to working closely with outside software houses, and there was a distinct effort to tighten up on the distribution of technical information about the intimate secrets of the Apple III. This made it almost impossible for independent software companies to develop programs for the computer. Two weeks before the announcement, a prototype machine was delivered to Visicorp accompanied by a request for a demonstration program of Visicalc. It was a year after the announcement before Apple's programmers had finished modifying the Pascal language so it would work on the computer and thus give independent software a way to write programs other than with BASIC or assembly language.

The Apple III was announced with great fanfare at the National Computer Conference in Anaheim in the summer of 1980. Apple rented Disneyland for an evening, distributed twenty thousand free tickets, and hired a fleet of red double-decker buses to ferry guests to the amusement park. The splash didn't deceive anybody in Cupertino. Sherry Livingston recalled, "They blew the Apple III and they knew it when they announced it." Once the public promises had been made, Apple was hoist with its own petard. The pressure to ship started backbiting between the competing interests of the engineering, marketing, manufacturing, and corporate sides of the company.

Problems with the design, some of which resulted from creeping elegance, made it impossible to squeeze the computer into its case. This resulted in a second, clumsy board which had to be piggybacked on the main printed circuit board. In addition Apple didn't pay much attention to testing quality. In the garage Jobs and

Wozniak had performed their own crude, yet competent, tests, but as Apple grew no department had been formed to monitor the quality of parts. Wendell Sander said, "We didn't have any way of comparing the quality of components. We didn't have enough component-evaluation engineers to test the choice of connector We listened to the salesmen and believed what they said." A chip from National Semiconductor, which was supposed to provide the computer with a clock, usually failed after about three hours, and though Jobs savagely berated the chief executive of the semiconductor company, that didn't solve the problem.

Lines on the printed circuit boards were too close together and that led to shorts. "We screamed that it shouldn't be shipped without new boards," said Rick Auricchio, "but the marketing people said it wouldn't be a problem. The engineers said it would be." The production team had its own gripes. Screws were so positioned that they pierced cables inside the computer. A heavy metal case was used because of uncertainty about some FCC regulations, but this made it unwieldy for many of the smaller women working on the assembly line. "It finished up as a mechanical nightmare," said Roy Mollard, the production man. "The engineers washed their hands of it and said it was a manufacturing problem." The connector between the two printed circuit boards didn't have enough plating and kept shorting; chips slipped from sockets and the cables to the keyboard were too short. As a test and to help fasten the chips into the sockets, the engineers suggested that the computer be dropped three inches. The shock of the fall, the engineers said, was guaranteed to coax the computer to life. The manufacturing men devised a more scientific test to see if everything worked: They started hitting the computer with rubber hammers.

By then the damage had been done. The Apple III was bollixed up at almost every stage of its development. What was shipped was unreliable and prone to failure. Visicalc was included in the early shipments because no other piece of software was ready. The Apple software that accompanied the computer was untested. The manuals looked shoddy and were accompanied by twenty pages of corrections. Word began to seep out when buyers discovered that the computer was full of startling surprises. SYSTEM FAILURE flashed in an aberrant manner across the screen. Damaging newspaper articles began to appear which wreathed the machine in a funereal cloud. Apple stopped advertising the computer, subjected

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the machines to arduous tests, redesigned the circuit board, readied some software, allowed early customers to swap their machines for ones that worked, and reintroduced the machine (with an expanded memory) a year later. What eventually became a sound, reliable workhorse and a capable business computer was ruined by the disastrous introduction and Jobs's optimistic poster became an embarrassing reminder of what might have been. For in the three years following its introduction only sixty-five thousand Apple IIIs were sold.

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