

- » Understanding portable computing
- » Reviewing laptop history
- » Discovering modern laptops
- » Getting to know the subnotebooks
- » Recognizing the tablet PC

Chapter **1**

The Portable Computing Quest

One summer day, in his 42nd year, Eugene noted how pleasant the weather was outside. He was inspired to attach wheels to the room-size, vacuum tube computer. Then he and the other three computer scientists, despite their utter lack of muscle tone, pushed the 17-ton beast out of the lab to work outside. It was this crazy notion that sparked the portable computer revolution.

Today the revolution continues. Computers are not only shrinking — they're becoming more portable. Their names represent a pantheon of portable PC potential, including portables, laptops, notebooks, netbooks, convertibles, and tablets. Indeed, portable computing has a rich history, from the first dreams and desires to the multitudinous options now available.

The History of Portable Computing

You can't make something portable by simply bolting a handle to it. Sure, it pleases the marketing folk, who are interested in things that sound good more than things that are practical. For example, you can put a handle on an anvil and call it portable, but that doesn't make it so.

My point is that true portability implies that a gizmo has at least these three characteristics:

- » It's lightweight.
- » It needs no power cord or other wires.
- » It's practical.

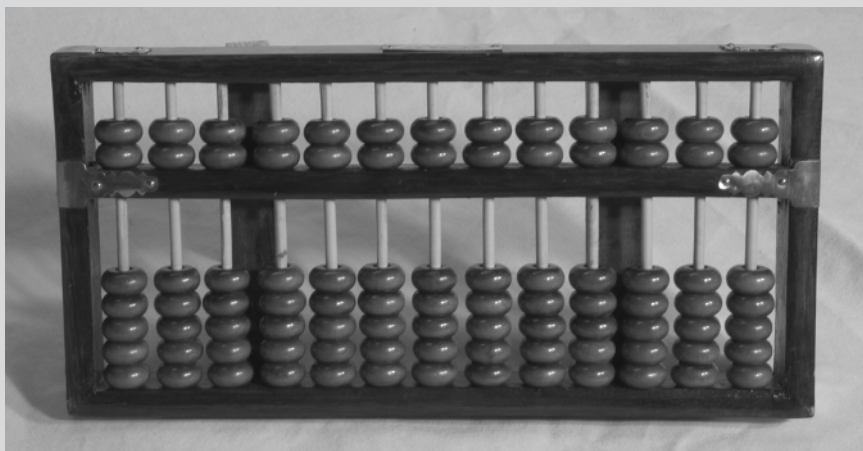
In the history of portable computing, these three things didn't happen all at once, and definitely not in that order.

THE ANCIENT PORTABLE COMPUTER

Long before people marveled over credit-card-size calculators, merchants and goatherds used the world's first portable calculator. Presenting the *abacus*, the device used for centuries to rapidly perform calculations that would otherwise induce painful headaches.

Abacus comes from the Greek word meaning "to swindle you faster." Seriously, the abacus, or counting board, is simple to master. Schoolkids today learn to use the abacus as a diversion from more important studies. In the deft hands of an expert, an abacus can perform all the same operations as a calculator — including square roots and cubic roots.

In his short story *Into the Comet*, science fiction author Arthur C. Clarke wrote of stranded astronauts using many abacuses to plot their voyage home when the spaceship's computer wouldn't work because the Internet was down and their version of Windows couldn't be validated.



The Xerox Dynabook

The desire to take a computer on the road has been around a long, long time. Back around 1970, when Bill Gates was still in school and dreaming of becoming a chiroprapist, Xerox PARC developed the Dynabook concept.

Today, you'd recognize the Dynabook as an eBook reader, similar to the Amazon Kindle: The Dynabook was proposed to be the size of a sheet of paper and only a half-inch thick. The top part was a screen; the bottom, a keyboard.

The Dynabook never left the lab, remaining only a dream. Yet the desire to take a computer on the road wouldn't go away. During the three decades after the Dynabook concept fizzled, many attempts were made to create truly portable computers.

The Osborne 1

The first successful portable computer was the Osborne 1, created by computer book author and publisher Adam Osborne in 1981. Adam believed that in order for personal computers to be successful, they must be portable.

His design for the Osborne 1 portable computer was ambitious for the time: The thing needed to fit under an airline seat — and this was *years* before anyone would even dream of using a computer on an airplane.

The Osborne 1 portable computer, shown in Figure 1-1, was a whopping success. It featured a full-size keyboard and two 5¼-inch floppy drives but only a teensy, credit-card-size monitor. It wasn't battery powered, but it did have a handy carrying handle so that you could lug around the 24-pound beast like an overpacked suitcase. Despite its shortcomings, 10,000 units a month were sold; for \$1,795, you got the computer plus free software.

The loveable luggables

The Osborne computer was barely portable. Face it: The thing was a *suitcase*! Imagine hauling the 24-pound Osborne across Chicago's O'Hare Airport. Worse: Imagine the joy expressed by your fellow seatmates as you try to wedge the thing beneath the seat in front of you.

Computer users yearned for portability. They wanted to believe the advertising images of carefree people toting the Osborne around — people with arms of equal length. But no hipster marketing term could mask the ungainly nature of the Osborne: Portable? Transportable? Wispy? Nope. Credit some wag in the computer press for dreaming up the term *luggable* to describe the new and popular category of portable computers ushered in by the Osborne.

FIGURE 1-1:
A late-model
Osborne.



Never mind its weight. Never mind that most luggable computers never ventured from the desktops they were first set up on — luggables were the best the computer industry could offer an audience wanting a portable computer.

In the end, the Osborne computer's weight didn't doom it. No, what killed the Osborne was that in the early 1980s the world wanted IBM PC compatibility. The Osborne lacked it. Instead, the upstart Texas company Compaq introduced luggability to the IBM world with the Compaq 1, shown in Figure 1-2.

The Compaq Portable (also called the Compaq 1), introduced in 1983 at \$3,590, proved that you could have your IBM compatibility and haul it on the road with you — as long as a power socket was handy and you had good upper-body strength.

Yet the power cord can stretch only so far. It became painfully obvious that for a computer to be truly portable — as Adam Osborne intended — it would have to lose its power cord.

The Model 100

The first computer that looked even remotely like a modern laptop, and was fully battery powered, was the Radio Shack Model 100, shown in Figure 1-3. It was an overwhelming success.



FIGURE 1-2:
The luggable
Compaq Portable.

WHAT'S A PC?

PC is an acronym for *politically correct* as well as for *personal computer*. In this book's context, the acronym *PC* stands for personal computer.

Originally, personal computers were known as *microcomputers*. This term comes from the microprocessor that powered the devices. It was also a derisive term, comparing the personal systems with the larger, more intimidating computers of the day.

When IBM entered the microcomputer market in 1982, it called its computer the *IBM PC*. Though it was a brand name, the term *PC* soon referred to any similar computer and eventually to any computer. A computer is basically a *PC*.

As far as this book is concerned, a *PC* is a personal computer that runs the Windows operating system. Laptop computers are also *PCs*, but the term *PC* more often implies a desktop model computer.



FIGURE 1-3:
The Radio Shack
Model 100.

The Model 100 wasn't designed to be IBM PC compatible, which is surprising considering that PC compatibility was all the rage at the time. Instead, this portable computer offered users a full-size, full-action keyboard plus an eensie, 8-row, 40-column LCD text display. It came with several built-in programs, including a text editor (word processor), a communications program, a scheduler, and an appointment book, plus the BASIC programming language, which allowed users to create their own programs or obtain BASIC programs written by others.

The Radio Shack Model 100 was all that was needed for portability at the time, which is why the device was so popular.

- » The Model 100 provided the *form factor* for laptops of the future. It was about the size of a hardback novel. It ran for hours on standard AA batteries. And it weighed just 6 pounds.
- » So popular was the Model 100 among journalists that it was common to hear the hollow sound of typing on its keyboard during presidential news conferences in the 1980s.
- » Despite its popularity and versatility, people wanted a version of the Model 100 that would run the same software as the IBM PC. Technology wasn't ready to shrink the PC's hardware to Model 100 size in 1983, but the Model 100 set the bar for what people desired in a laptop's dimensions.

PORTABILITY AND COMMUNICATIONS

Long before the Internet came around, one thing that was deemed necessary on all portable computers was the ability to communicate. A portable computer had two communications duties: First, it had to be able to talk with a desktop computer, to exchange and update files; second, it needed a *modem*, to be able to communicate electronically over phone lines.

Nearly every portable computer, from the Radio Shack Model 100 onward, required a modem, or at least an option for installing one. This was before the Internet era, back when a modem was considered an optional luxury for a desktop computer. Out on the road, away from a desktop at the office, early proto-road-warriors needed that modem in order to keep in touch.

The lunch buckets

Before the dawn of the first true laptop, some ugly mutations slouched in, along with a few rejects from various mad scientists around the globe. I call them the *lunch bucket* computers because they assumed the shape, size, and weight of a hardhat's lunch box. The Compaq III, shown in Figure 1-4, was typical of this type of portable computer.

- » The lunch box beasts weighed anywhere from 12 to 20 pounds or more, and most weren't battery powered.
- » The lunch bucket portables were the first PCs to use full-screen LCD monitors. (The Osborne and Compaq portables used glass CRTs.)
- » Incidentally, around the same time as the lunch bucket computers became popular, color monitors were becoming standard items on desktop PCs. All portables at the time, even those with LCD monitors, were monochrome.
- » Honestly, the lunch bucket did offer something over the old transportable or luggage: less weight! A late-model lunch bucket PC weighed in at about 12 pounds, half the weight and about one-eighth the size of the suitcase-size luggage.

Dawn of the PC laptop

The computer industry's dream was to have a portable computer that had all the power and features of a desktop computer yet was about the same size and weight as the Model 100. One of the first computers to approach this mark was the Compaq SLT, back in 1988, as shown in Figure 1-5.



FIGURE 1-4:
The Compaq III.



FIGURE 1-5:
The Compaq SLT.

The Compaq SLT was the first portable computer to resemble a modern laptop: A hinged lid swings up and back from the base, which contains the keyboard. This design is known as the *clamshell*.

Feature-wise, the SLT had what most PC desktop users wanted in a portable system: a full-size keyboard, full-size screen, floppy drive, and 286 processor, which meant that the computer could run the then-popular DOS operating system. The computer lacked a hard drive.

Weight? Alas, the SLT was a bowling ball at 14 pounds!

What the Compaq SLT did was prove to the world that portability was possible. A laptop computer was designed to feature everything a desktop computer could and to run on batteries for an hour or so. Believe it or not, consumers were *delighted*.

The search for light

Just because the marketing department labeled the computer a *laptop* didn't mean that it was sleek and lightweight. For a while there, it seemed like anyone could get away with calling a portable PC a laptop, despite the computer's weight of up to 20 pounds — which is enough to crush any lap, not to mention kneecaps.

In the fall of 1989, NEC showed that it could think outside the laptop box when it introduced the UltraLite laptop, shown in Figure 1-6.

The UltraLite featured a full-size screen and keyboard but no disk drives or other moving parts! It used battery-backed-up memory to serve as a *silicon disk*, similar to today's solid-state drives (SSDs). The silicon disk stored 1 or 2MB of data — which was plenty back in those days.

As was required of all laptops, the UltraLite featured a modem, and it could talk with a desktop computer by using a special cable. Included with the UltraLite was software that would let it easily exchange files and programs with a desktop PC.

The weight? Yes, the UltraLite lived up to its name and weighed in at just under 5 pounds — a feather compared to the tumid laptops of the day. And the battery lasted a whopping 2 hours, thanks mostly to the UltraLite's lack of moving parts.

CALCULATING LAPTOP WEIGHT: THE MISSING PIECES

When computer companies specify the weights of their laptops, I'm certain that they do it under ideal conditions, possibly on the moon or at another location where gravity is weak. The advertised weight is, as they say, "for comparison purposes only."

Commonly left out of the laptop's weight specs is the *power brick*, the AC adapter that connects the laptop to a wall socket. When the laptop isn't running on batteries, you need the power brick to supply the thing with juice, so the power brick is a required accessory — something you have to tote with you if you plan to take the laptop on an extended trip.

Back when laptops were novel, the advertisements never disclosed how much the power brick weighed — sometimes half as much as the laptop itself! Either that or the power brick was even bulkier than the laptop, as shown in the figure, in the obnoxiously big Dell 320LT power brick (and its cumbersome 30-minute batteries). Lugging around those items isn't convenient. Things are better today.





FIGURE 1-6:
The NEC UltraLite.

Modern Laptops

As technology careened headlong into the 21st century, it became apparent that computer users were desperate for three things from their laptops — in addition to the basic PC compatibility, portability, and communications features that had long ago been deemed must-have items:

- » Light weight
- » Long battery life
- » Full hardware compatibility with desktop systems

Over time, all these qualities were achieved — at a price. Today, the holy grail of a lightweight, PC-compatible laptop that boasts a long battery life isn't elusive; it's just expensive!

The notebook

The modern PC laptop is dubbed a *notebook*. It can sport a full-size keyboard and numeric keypad but often has a compact keyboard. The notebook weighs in anywhere from 2 to 6 pounds, and the battery lasts somewhere between 4 to 6 hours.

The rest of the typical notebook offers features similar to a desktop PC: fast processor, lots of memory, plenty of storage, LCD screen, wireless networking, and so on. Putting all these features into a laptop computer gives you today's notebook.

The subnotebook

Human laps aren't getting any smaller. Human eyes can comfortably read text that's only so big. Most important, human fingers have trouble with keyboards that are too tiny. Despite these limitations, a popular notebook category is the *subnotebook*, which is the smallest, lightest, and most portable type of laptop.

Several kinds of subnotebooks are available, such as the Ultrabook, the netbook, and the Ultra Mobile PC (UMPC). Each of these offers compromises on the notebook design, primarily to accommodate for the smaller size and weight. Figure 1-7 illustrates a typical netbook computer from the 2000s.



FIGURE 1-7:
A netbook PC,
circa 2008.

The tablet PC

Computer manufacturers have long attempted to create the electronic equivalent of a pencil and pad of paper — a very *expensive* pencil and pad of paper. What they seek is a portable computer with a monitor but no keyboard. A digital stylus is used to write directly on the screen.

Over the years, this digital triptych has had various names attached to it: the PenGo computer, the Apple Newton, Pen Windows, and eventually the tablet PC.

The *tablet PC* can be one of two things. First, it can be a traditional laptop or notebook, but one that features a touchscreen interface. The screen can even bend and twist to cover the keyboard. This type of system might also be called a *convertible* laptop.

An even lighter and thinner version of the tablet PC exists, such as the Microsoft Surface, shown in Figure 1-8. These computers are essentially laptops without a keyboard, though a keyboard is often included as a type of cover; it's shown attached in the figure.



FIGURE 1-8:
A tablet PC.

Tablet PCs can offer pen input by using a digital pen or stylus, or your stubby human finger. This device effectively brings the laptop quest full circle to a pad of paper and pencil, although fully entrenched in the digital realm.



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- » Don't confuse the tablet PC with mobile devices, such as the iPad or the Samsung Galaxy Tab. A tablet PC differs from these gizmos in that it offers features associated with traditional computers and, thanks to a keyboard, behaves as a laptop computer.
- » The ancients used something called a *tabulae ceratea* to write temporary messages. Every Greek or Roman schoolboy took with him to class a folding wooden tablet. Its insides were coated with a black wax. Using a stylus (basically a stick), the student would write into the wax, again and again. Oh, we've truly come such a long way.

