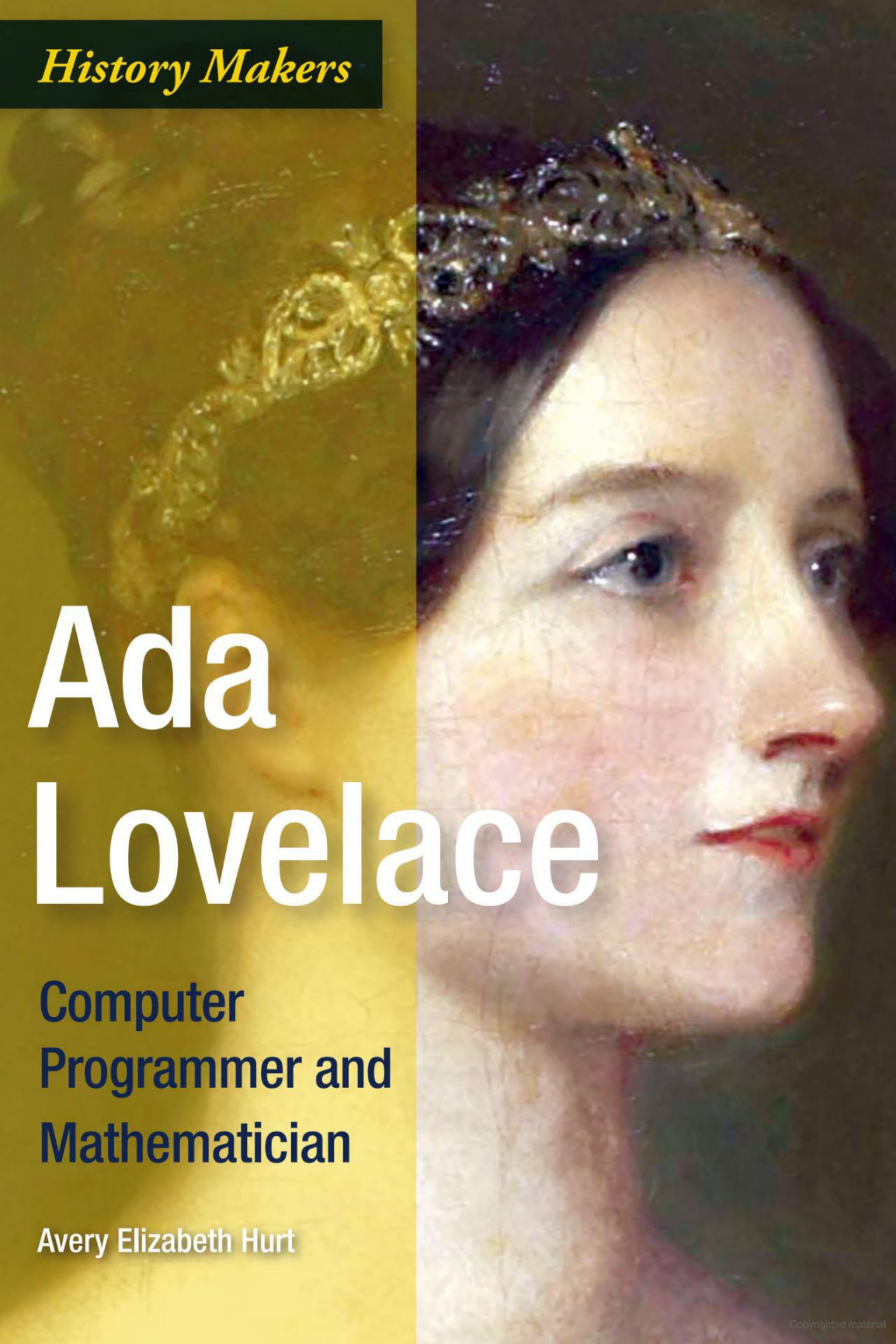
History Makers



Ada Lovelace

Computer Programmer and Mathematician

Avery Elizabeth Hurt

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AUGUSTA ADA BYRON
COUNTESS OF LOVELACE

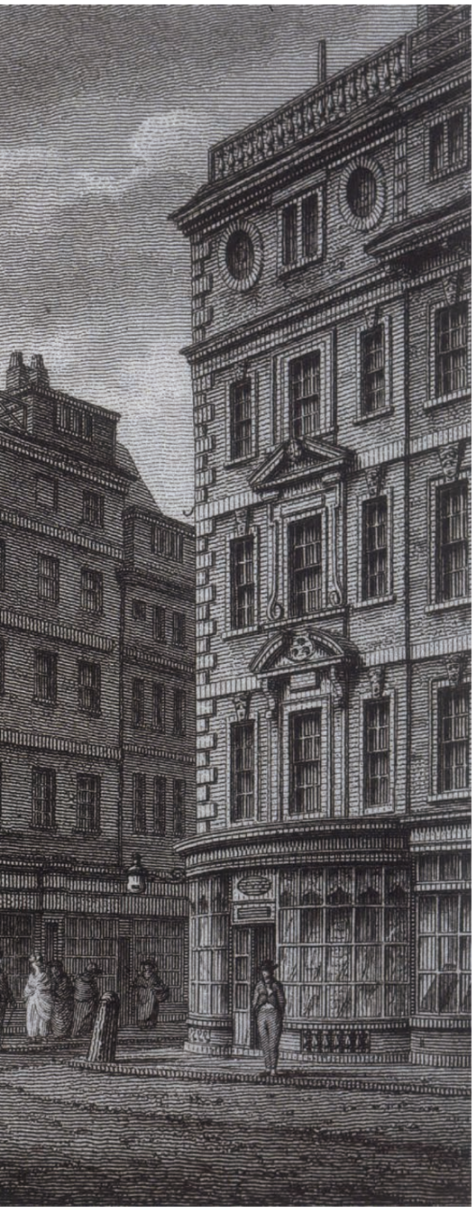
1 A Child of Two Worlds

"Ada! Sole daughter of my house and heart …"

Lord Byron

A wife and mother with no formal university education wrote the first computer program more than one hundred years before anyone built a computer that could run it. She signed her work with only her initials so as not to draw attention to the fact that she was a woman. No one much noticed anyway. For one hundred years after her death, she was more or less forgotten. The world, it seemed, was not ready for what Ada Lovelace had to say.

Opposite: Many think Ada Lovelace wrote the world's first computer program.



Ada Lovelace (or more officially, Augusta Ada Byron) was born in December 1815, in London, England, in the midst of two important historical **epochs**: the Industrial Revolution and the Romantic period in art and literature.

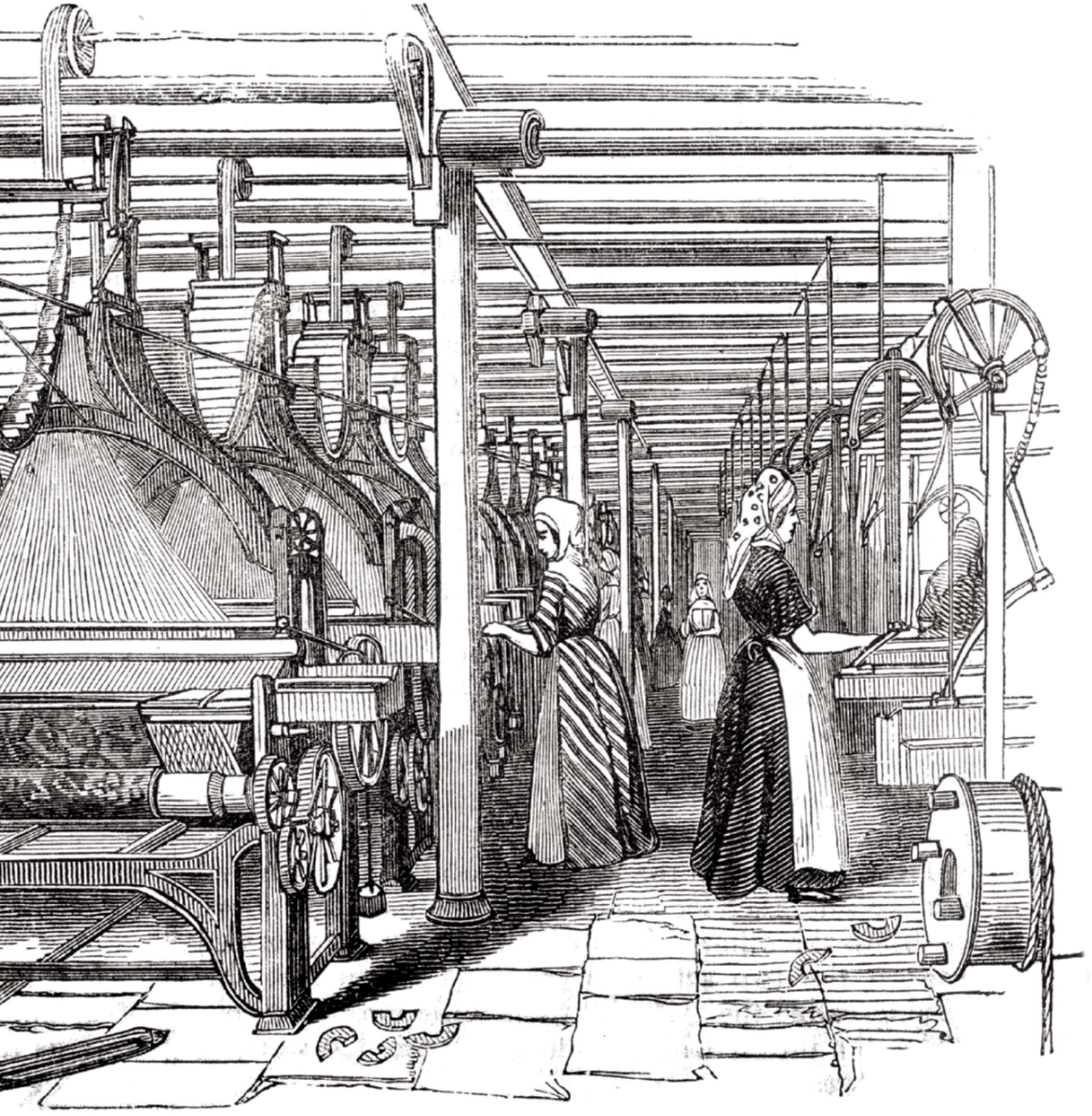
The Industrial Revolution, which in England lasted roughly from 1780 to 1850, was a time of almost dizzying technological and social change. Jobs that had previously been undertaken by human or animal power were now being carried out much more efficiently by a variety of new machines powered by steam or electricity. Steam-powered trains crisscrossed the country; factories employed workers to produce cotton on **spinning jennies** and fabric on power looms; and people sent messages across the country rapidly by telegraph. The industrial age was both powered by and the inspiration for scientific change. Scientists were charting the stars, exploring the secrets of magnetism and electricity, and discovering the history of the planet

England's Industrial Revolution was a time of great change and excitement.

by the study of geology. The period was described by Richard Holmes in *The Age of Wonder* as a time "driven by a common ideal of intense, even reckless, personal commitment to discovery." But as Holmes also points out in his book's subtitle, *How the Romantic Generation Discovered the Beauty and Terror of Science,* the change was not welcomed by everyone.

Like most change, the industrial age was both thrilling and scary, and some people greatly resisted it—or at least certain aspects of it. Romanticism was in many ways a reaction to the **rationalism** and **materialism** that made the technological accomplishments of the period possible. Romanticism valued the imagination, the individual, and spontaneity. It revered nature and preferred the emotions to reason, the senses to intellect, the creative spirit to a strict adherence to rules and systems. The factories of the Industrial Revolution were offensive to the spirit of

Not everyone appreciated the changes brought by the Industrial Revolution. Loom operators were especially troubled.



Romanticism. The rigid procedures of the scientific method were off-putting to the Romantic ideal.

Ada Lovelace's parents were the perfect embodiments of the contradictions and insecurities of the age. Her mother, Annabella Milbanke, was unusually well educated for a woman of her time. She was also deeply religious and had no patience for the changing morals that were another hallmark of the period. Though she had a reputation for being snobbish, overbearingly moralistic, and difficult to get along with—and seemed to have alienated more than a few people—she spent much of her life supporting a variety of charitable causes. These included programs to reform education so that children of all social standings could go to school. Her support for the abolition of slavery inspired the American abolitionist Harriet Beecher Stowe. Annabella was particularly interested in mathematics and maintained a lifelong interest in machines and the innovations of the emerging factories.

While Lovelace's mother toured factories and admired their new machines, her father supported a movement to destroy them. Lovelace's father was Lord Byron, perhaps the greatest of the Romantic school of poets. His work included the extremely popular poem "Childe Harold's Pilgrimage," a semiautobiographical poem about a young man seeking to find meaning in the world, and "Don Juan," an epic poem that is generally considered one of the finest such pieces in English literature. Byron was also a nobleman and a member of the House of Lords. His very first address to that body, which he gave in February 1812, was an

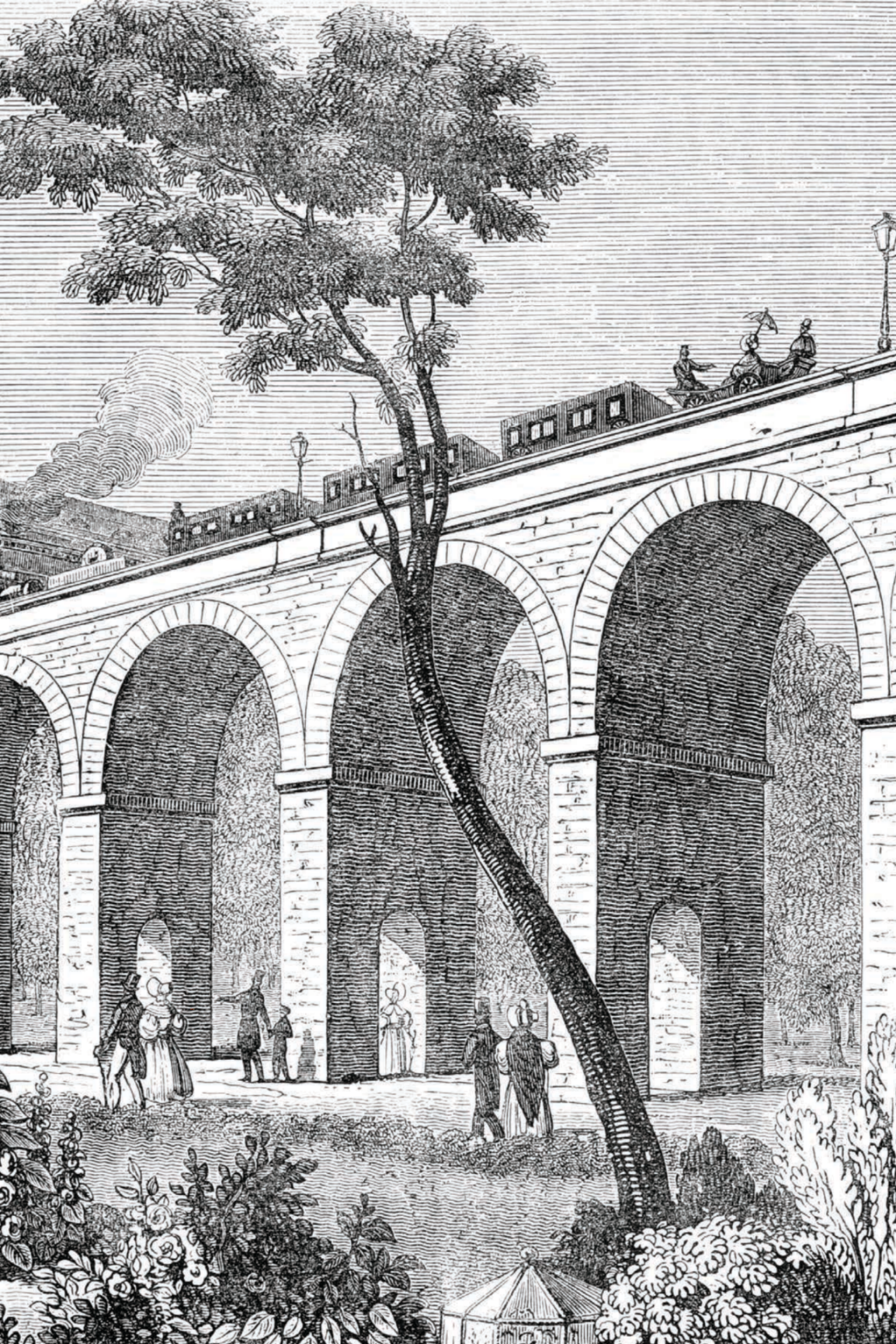
Annabella Milbanke Byron was exceptionally well-educated for a woman of that period. She was active in educational reform and in the abolition movement.

impassioned plea on behalf of the Luddites, displaced factory workers in Nottingham, England, who revolted against automation in the fabric mills by destroying mechanical looms and other machinery that was costing them their livelihoods. The owners of the mills were trying to get legislation passed that would make the destruction of these machines a capital crime, punishable by hanging. According to the **argument** Byron made that day, the machinery not only cost people their jobs, but it robbed them of their essential humanity, turning them into something like machines themselves.

Byron and other romantic poets and writers had a rather complex relationship with modernity. The excitement of new vistas and discoveries, and the passion that drove a person to those discoveries was very much in keeping with the Romantic worldview. But all too often the uses to which these discoveries were put, and the often-tedious process of getting there, was not. Romantic poet John Keats once compared his feelings upon reading a particularly fine translation of the poetry of Homer to the experience of discovering a new planet. Yet other works of the period, such as Mary Shelley's novel *Frankenstein*, focused on the potential terrors of science, while the novels of Charles Dickens often criticized the social consequences of industrialization. It was most definitely the beginning of the time when the world would be divided into what twentieth-century scholar C.P. Snow called "the two cultures," a division of the academic and intellectual world into the humanities on one hand and the sciences on the

Lovelace's father, George Gordon, Lord Byron, is still considered one of England's greatest poets.

Steam locomotives were just one of the many innovations that truly changed the lives of people living during the Industrial Revolution.



other. Science and literature would move to opposite sides of the campus, and it was into a world and family so divided that Ada Lovelace was born.

Her mother was nicknamed the "princess of **parallelograms**," while her father was called the "prince of passion." Lovelace was the child of a father who glorified the life of the imagination, and the child of a mother who suppressed her own passions, tried to cure those of her husband, and went to extremes to be sure that her daughter developed neither passion nor imagination. The princess of parallelograms stood firmly on one side of the cultural divide while the prince of passion wandered exuberantly around on the other.

Lovelace was left to find her own way through this world. In doing so, she developed an approach she would call "poetical science," an attempt to fuse the worlds that her parents had so carefully carved up between them. She proved that the two worlds were not as far apart as her parents believed. Like few people at the time, she realized that the imagination and the intellect, mathematics and poetry, could never be fully separated. It was Lovelace's intellect that made her a talented mathematician, but it was her imagination that showed her the wonders of mathematics. In the end, mathematics freed her imagination, and her imagination discovered just what mathematics was capable of.

However, Lovelace never was a child of her time. In a world where steam engines and power looms were catalysts of

Ada Lovelace was ahead of her time. She could envision a world where machines would help complete any task.

enormous economic and social change, and the great innovation in communications technology was the telegraph, she looked at the design for a machine that had not even been built, and saw the modern computer.

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