



Coming into Focus

The story of eyeglasses, from scholarly orb to fashionable necessity, isn't always crystal clear

BY LINDSAY ROYLANCE

Imagine if as you got older and had to hold this magazine farther and farther from your eyes, there was nothing you could do to correct the problem. Eventually, you would have to rely on family or friends to read aloud for you as your sight continued to decline in old age.

In ancient cultures, there were no spectacles to assist wise men whose eyesight might be failing. Marcus Tullius Cicero (106-43 B.C.), one of Rome's greatest statesmen, orators and philosophers, wrote to his friend Atticus-Cicero, complaining that his old age forced him to have his slaves read aloud to him as he could no longer read for himself.

A solution to Marcus Cicero's problem was not discovered for more than 1,000 years.

It was medieval Venetian glass blowers who applied the mathematical research conducted by the "father of modern optics," Arabian physicist Abu Ali Hasan Ibn al-Haitham, known in the West as Alhazen, to create reading stones. With a flat surface and a convex curved top, the clear

stones magnified text as they were dragged over it, allowing European monks to pore over manuscripts as they aged and their eyesight failed.

Evidence of spectacles—a pair of hand-ground quartz lenses encased in metal, bone or leather whose handles were joined in an inverted "V"—didn't appear until 1289, when a man named di Popozo wrote from Florence, "I am so debilitated by age that without the glasses known as spectacles, I would no longer be able to read or write."

Only the wealthy and scholars had access to books, so over the next century eyeglasses were a mark of status, as well as a symbol of intelligence. Then, German Johannes Gutenberg's invention of the printing press around 1450 and the spread of books fueled demand all over Europe.

Despite advances in lens technology including German Cardinal Nicolas de Cusa's 15th-century concave lenses allowing the "nearsighted" to see far away, the mechanical design of glasses changed little in 300 years. Finally, during the 17th century, Spanish craftsmen took advantage of human anatomy by looping silk ribbons around the ears to hold lenses in place.

Demand—and affordability—increased with the launch of the first newspaper, *The London Gazette*, in 1665. Street peddlers with baskets of eyeglasses for sale were a common sight in most European cities.

In 1730, glasses with rigid arms that clung tight above the ears appeared; soon after came longer, double-hinged temples for greater comfort and to accommodate the wigs of the Colonial era.

There is evidence to suggest that in the 1780s, Ben Franklin invented bifocals—a concave lens on the top half for distance and a convex one on the bottom for reading—so he could stop switching between two pairs. The invention, however, was not documented until 1784 when Franklin himself wrote a letter describing his "double spectacles." Although U.S. history credits Franklin as the inventor, skeptics claim that British opticians invented bifocal lenses 20 years earlier.

The next century was a time of eyeglass refinement, including the development of lenses for astigmatism (an irregularly shaped cornea) by Englishman Sir George Airy in 1825 and the first pin-in-slot side arms adjustable for length.

Then, in the 20th century, advances in plastics catapulted the popularity of eyeglasses—and introduced sunglasses—as a personal fashion statement. In 1958, France's Essilor International unveiled Varilux, the first progressive multifocal lens (bi- and trifocal lenses without the traditional lines between lenses).

Color, style, comfort and functionality have continually expanded, and "eyewear" has become a multibillion-dollar industry. ■