



# One of Mankind's Greatest Inventions!

When dinner table philosophers discuss inventions that have most benefited mankind, numerous medical advances get a mention. However, there's a strong argument that spectacles are the greatest gift to humanity. **Norm Lipson**

**There was a** kind-hearted optometrist who took pity on a struggling artist who was near-sighted and having great difficulty painting her pictures. Her career was at risk, so the kindly optometrist tested the artist's eyes and provided a pair of spectacles – free of charge.

The artist was so grateful, she insisted on painting a mural on the wall of the optometrist's practice – free of charge. The mural turned out to be a gigantic eye and, when unveiled, attracted enormous public interest. A local newspaper reporter noticed the giant eye and asked the optometrist his reaction when he first saw the painting – to which he answered: "Thank goodness I'm not a proctologist".

This anecdote is a quirky illustration of just how important the advent of spectacles has been to mankind. There are many who believe spectacles (and other vision enhancers) are one of the most important inventions of all times.

Giving people with failing eyesight the ability to see clearly has undoubtedly changed the course of history, but whenever there is a debate about the most important inventions to mankind, spectacles never seem to be in the picture.

## The Great Invention

The celebrated American historian, Professor Spencer Di Scala fully understands the affect specs have had on the development of mankind and summed it up with this recent statement: "The art of making a pair of spectacles was an

achievement of monumental significance for mankind that has had an incalculable impact. Although it has been relatively unknown to the general public, the evolution and development of spectacles over the past seven centuries qualifies as a long, significant, and quite fascinating journey through history, whose impact deserves to be better recognised and more widely appreciated."

Nobody knows who invented spectacles, but it is claimed that about the time of the birth of Jesus, Roman philosopher Lucius Annaeus Seneca read every book in Rome by peering through a glass globe of water. As a confidante of Nero, it is said that he showed the inept Roman Emperor his reading aide, who was impressed. If only Nero had read a book instead of practicing his fiddle playing! However, Nero did use an emerald held up to his eyes and filtering the sunlight as he watched gladiatorial contests. Could this have been the first advent of sunnies?

## Presbyopic Monks

A thousand years later, using the theories of refraction of Arab mathematician Alhazen, presbyopic monks, who constantly read and copied texts, used glass spheres, laid against reading material to magnify the letters.

Greek scientist Ptolemy was one of the significant figures in the history of optics thanks to his discovery of the basic rules of light diffraction and his extensive writings and work on optics. He wrote about properties of light, including, reflection, refraction and colour.

Fast forward to 1268 and English Franciscan Friar Roger Bacon is credited with the first scientific paper on lenses for vision correction and possibly the first pair of spectacles.

So we know the use of convex pieces of glass for correcting long-sightedness, was known at the end of the 13th Century and the fact that people's sight could be enhanced by the use of these converging lenses had a huge impact on society, allowing writers, scholars, artists and even artisans to extend their working lives.

## Craftsmen in Venice

Just who invented the spectacle is debatable, craftsmen in Venice, Italy, began making small disks of glass that were convex on both sides and could be worn in a frame.

Two monks from the St. Catherine's Monastery, Giordano da Rivalto and Alessandro della Spina, provide the earliest (primary source) documentation to support this fact. On February 23, 1306, Giordano mentioned them by stating in a sermon "it is not yet twenty years since there was found the art of making eyeglasses which make for good vision, one of the best arts and most necessary that the world has." He coined the word "Occhiale" (eyeglasses) and its use began to spread throughout Italy and Europe. Friar Spina's 1313 obituary notice mentions: "when somebody else was the first to invent eyeglasses and was unwilling to communicate the invention to others, all by himself he made them and good-naturedly shared them with everybody".

The first mention of actual glasses is found in a 1289 manuscript when a member of the di Popozo family wrote: "I am so debilitated by age that without the glasses known as spectacles, I would no longer be able to read or write. These have recently been invented for the benefit of poor, old people whose sight has become weak."

## Through the Ages

By the middle ages, spectacles had become the symbol of learning and knowledge and artists wore them, especially when painting detailed portraits. Monks of the time introduced "reading stones" based on the theories of Alhazen, using rock crystal or semi precious stones, ground and polished into hemispheres to magnify writings.

Spectacle makers were also making concave glasses for what has been described as "aiding the weak vision of the young" or, rather, as you know catering for those with myopia or near-sightedness.

And so history rolls on with corrective lenses being improved and being used by more and more of the population.

In the 1760's, U.S inventor Benjamin Franklin developed bifocal glasses. He was getting old and was having trouble seeing both up-close and at a distance. Getting tired of switching between two types of glasses, he devised a way to have both types of lenses fit into the frame. The distance lens was placed at the top and the up-close lens was placed at the bottom.

## The Advent of Shades

Even though it's believed Nero was one of the first wearers of sunglasses, and that in the 12th Century, they were worn in China, mainly by judges, to hide their eyes from defendants (hmm, and today they're worn by poker players to hide their eyes from opponents), sunglasses did not change until about the 18th century when James Ayscough experimented with tinted lenses in spectacles, believing that glasses tinted with a blue or green colour could potentially correct specific vision problems.

Sunglasses underwent the change into the popular item they are today when Sam Foster introduced them to America in 1929. These sunglasses were designed to protect people's eyes from the sun.

In 1936, "shades" became polarised when Edwin H. Land began using his patented Polaroid filter. Famous movie stars and musicians also began to wear sunglasses. They were not only used to protect the eyes against sun glare but to reflect just

how "cool" the wearer was. They became a cultural phenomenon.

## An Important Reminder

The history of spectacles is far more detailed than we can chronicle here. This potted history is merely a reminder of the importance of the noble profession of optometry and its continued development.

We should never underestimate the impact to an individual of putting on spectacles for the first time. That "wow" factor of being able to see clearly or read newsprint for the first time is not only indescribable, it's life-changing.

As development of spectacles and other visual aids surges ahead at a rate of knots, glasses are no longer the domain of the intelligentsia or nerd. They're now a vital part of most of our lives. Nowadays, every pair of specs is also a major fashion statement. Today, you can "look good and see good" at the same time.

Retired American ophthalmologist, Dr. David Fleishman, who is also the curator of the On-Line Museum and Encyclopedia of Vision Aids, recently wrote: "Consider this. The earth was formed 4.5 billion years ago. Society has been around for about twenty thousand years. Spectacles did not appear until just over seven hundred years ago. Before that time, nearsighted youth endured a world that was clear only to within four to five feet from where they stood. Farsightedness and more specifically presbyopia (typically brought on by the aging process after the age of 40) affected almost everyone. Active, productive members of society had to stop working, writing, reading, and using their hands for skillful tasks at a relatively young age."

Dr. Fleishman sums it up this way: "Certainly one of the most significant inventions of all time, they are symbols of man's incredible ingenuity and craftsmanship! Yet they are taken for granted by nearly everyone, worldwide".

Groucho Marx once said, when caught by his lover, in a compromising position with another woman: "Who are you going to believe...me or your lying eyes?"

Well, Groucho would not be able to use that line today because, thanks to one of the greatest and under-rated inventions ever, there is no need for most of us to have "lying eyes".

1. www.antiquespectacles.com. Antique Spectacles and Other Vision Aids. Curator, David A. Fleishman M.D.

2. The Foundation of the American Academy of



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