Who Made That Eye Chart?

By PAGAN KENNEDY
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Buying eyeglasses in the 1700s was tricky: you had to diagnose the problem yourself and then pick the correct lenses. Some vendors helped customers along by scratching ages onto their spectacles, so that a 40-year-old would be steered to “40” lenses — the assumption being that everyone’s vision deteriorated at a similar rate as they grew older.

But these shortcuts no longer sufficed in the mid-19th century, as doctors began to understand that patients needed bespoke lenses. At a hospital in the Netherlands, Dr. Franciscus Donders devised a method for diagnosing vision problems: he would ask people to gaze at a chart on a distant wall and report what they could see. Apparently too busy to make the chart himself, he enlisted the help of a colleague, Herman Snellen.

Snellen first printed up a chart with dingbats — squares, circles, plus signs — of various sizes, but that proved to be a bad idea. “When you look at a symbol, how do you describe it?” says August Colenbrander, a scientist at the Smith-Kettlewell Eye Research Institute who has researched the history of the eye chart. (It was probably easy to cheat, too.) In the end, Snellen realized that letters would work best.

The chart spread all across Europe, an instant hit. “The first big order was from the British Army, in 1863 or so,” Colenbrander says. “Obviously the soldiers who fired their muskets had to be able to see.” Soon after that, printers everywhere copied it. A low-tech solution to a complex problem, the chart has remained popular because it was cheap and easy to use.

But widespread reproduction and success are two different things. The EFPTOZ chart (pictured here) has practically become iconic, undermining its medical value, Colenbrander says. A recognizable eye chart is not a very useful one.

MAKING SPECTACLES

David Fleishman, a retired eye surgeon, curates an online museum of antique eyeglasses.

Tell me about what it was like to buy glasses in the 18th century. Peddlers went around the countryside selling spectacles out of baskets. In the early part of the century, these would have been nose glasses, with no side arms. We know when side arms began to appear because of pictures on advertising trade cards showing glasses with hinged temple...
You have done a lot of research on Abraham Lincoln’s glasses. When Lincoln was assassinated he had two pairs of glasses in his pockets. One pair was given to him by his close friend Ward H. Lamon; that pair broke, and Lincoln repaired them himself with a little string. The other pair of glasses were, I believe, his favorite. The nose bridge folded so that the glasses would fit in a case that was only about two inches long. If you saw the movie “Lincoln,” they don’t show the right glasses.

You travel the world hunting down rare and historical glasses. Why? They were a phenomenal invention and one that transformed our society. The senior work force wouldn’t have been able to create anything without them. The world relies on glasses.

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4 Comments

Share your thoughts.

Frank J. Weinstock, MD  Boca Raton, FL
Having spent some time doing ophthalmology in Papua New Guinea, we did not have eye charts or any way to actually refract the eyes. For those who could read (primarily missionaries), I had boxes of glasses, donated by Lions clubs, from which they could select what was best. They checked themselves by looking in the distance and by looking at newspaper or other print, picking what was best for them.

Exams were carried out by using the ophthalmoscope (the only equipment that I had available). It was remarkably effective, enabling all types of diagnoses.

Don Salmon  Asheville, NC
Ellen Langer did an interesting experiment. She inverted the eye chart - this way, the chart begins with the smallest letters and proceeds to larger ones. Because people began with the mindset that the letters would get easier and easier to read, they were actually able to read letters they *couldn’t* read when the chart was presented the normal way.

I’m not aware of many optometrists or ophthalmologists who take the mind into account when examining eyes.
Behind Bars
A new federal study shows that too many prisons and jails tolerate sexual abuse.