

# Harold Hopkins and Karl Storz

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Figure 1 (left): Karl Storz (with permission of Karl Storz Ltd).

Figure 2 (right): Harold Hopkins (picture provided by Mr Jo Smith).



In this series of articles I am going to show you some of the exhibits contained in the BAUS Virtual Museum of the History of Urology which is part of the BAUS website

(www.baus.org.uk). In the last article I wrote about Joseph Charrière, the instrument maker. In this issue I will explain how another instrument maker and a scientist changed modern urology.

In 1965 George Berci, a German surgeon, told his friend Karl Storz (Figure 1), an instrument manufacturer, about a new cystoscope designed by British scientist Harold Hopkins (Figure 2). Storz telephoned Hopkins speaking in broken English; Hopkins, a talented linguist, replied in fluent German allowing them to discuss his new invention. Using Hopkins's design and Storz's instrument making skills they were able to launch the Rod Lens cystoscope in 1967.

Harold Hopkins (1918-1994) was born in Leicester; he gained his degree in physics and mathematics from Leicester University and worked for a time in a Leicester optics company, Taylor, Taylor and Hopson, and then at WW Watsons and Son Ltd. He later became Professor of Optics at the University of Reading. In the 1950s he was approached by Jim Gow, Urologist from Liverpool, who was frustrated by the difficulty in photographing bladder tumours via a conventional cystoscope. The main problem was the lack of



Figure 3: Two experimental cystoscope lenses from W.W. Watsons and Sons Ltd (5p for scale).

illumination. Hopkins's solution was to redesign the lens system (Figure 3). This, combined with a double anti-reflective coating, increased light transmission by 80 times.

Karl Storz (1911-1996) was a precision instrument manufacturer working in Tuttlingen in Germany. Storz began producing instruments for ENT specialists in 1945. His goal was to improve the available technology of instruments to look inside the body. At this time, illumination was by miniature electric bulbs on the end of scopes; they were notoriously fragile and emitted heat. In 1960 he developed a cold light source which reflected very bright

light from an external light source into the body cavity.

The conventional lens system had a series of glass lenses arranged one behind the other with large air gaps between. The rod lens system reversed this with long glass lenses and small air gaps. Glass is a better conductor of light than air and less air / glass interfaces reduced scatter. The Hopkins lens and the Storz cold light system revolutionised endoscopy and urology.

The story of Harold Hopkins and his talents is too long and too important to summarise here. There will shortly be a room dedicated to him and to Storz in the BAUS Museum but also, I will continue the story in the next article.