

## Zeiss Stativ 1c comparison images

For my own interest I wished to compare the quality of the antique objectives of my 1909 'Jughandle' stand with modern Zeiss objectives. To standardise on the camera setup, [a Coolipx 950 and Leica Periplan eyepiece](#) were used.

The first slide preparation was a micro-photograph of Antonie van Leeuwenhoek photographed onto SO-343 or Kodalith Ortho emulsion. The three images were taken with

- AA achromat 9,4:1 NA 0.3 – finite-tubelength RMS thread objective from the 'Jughandle' (1909)
- plan-Neofluar 10x NA 0.3 – infinity-corrected RMS thread objective from the Axiophot 2 (1999)
- plan-apochromat 10x NA 0.45 – infinity-corrected M27 thread objective Axio-Examiner Z1 (2011)

There is more finely resolved detail in the modern NA 0.45 apochromat objective made from computer-designed glass elements and with a 50% higher numerical aperture value, but the contrast holds better for the antique AA achromat objective than the semi-apochromat of the same NA manufactured ninety years later. This is a testament to the very high manufacturing standards insisted upon by Carl Zeiss.

Microphotograph of Antonie van Leeuwenhoek



Zeiss AA achromat: 9,4:1 NA 0.3



Zeiss plan-Neofluar 10x NA 0.3

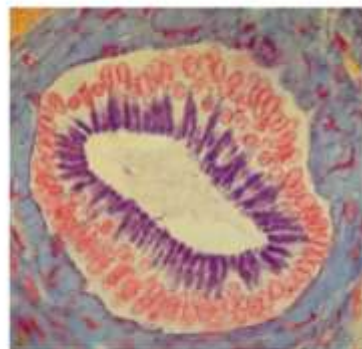


Zeiss plan-apochromat 10x NA 0.45

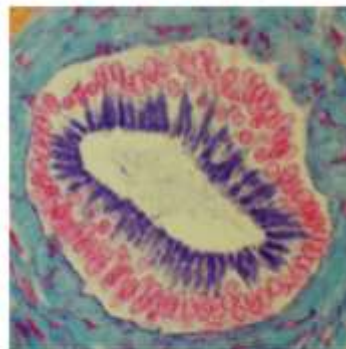
The second slide is a preparation of monkey pancreatic duct stained with aldehyde fuchsin and Heidenhain's azan by Savile Bradbury. The three images were taken with

- DD achromat 37,2:1 NA 0.85 – finite-tubelength RMS thread objective from the 'Jughandle' (1909)
- plan-Neofluar 40x NA 0.75 – infinity-corrected RMS thread objective from the Axiophot 2 (1999)
- plan-Neofluar 40x NA 1.30 – infinity-corrected M27 thread objective Axio-Examiner Z1 (2011)

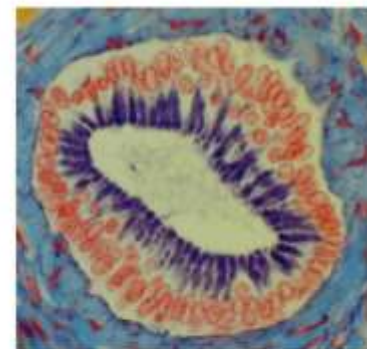
Pancreatic duct, monkey. Aldehyde fuchsin & Heidenhain's azan



Zeiss DD achromat: 37,2:1 NA 0.85  
1909



Zeiss plan-Neofluar 40x NA 0.75  
1999



Zeiss plan-Neofluar 40x NA 1.30 oil  
2011

There is some colour alteration in the image from the 1909 vintage objective, but it compares very well with the image from the 1999 semi-apochromat. Otherwise, the images from the 1999 and 2011 objectives are almost identical.