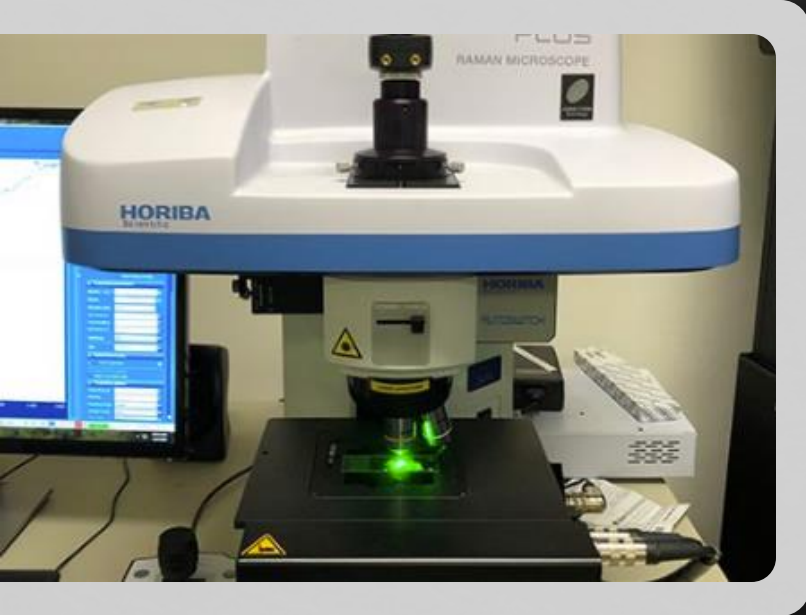


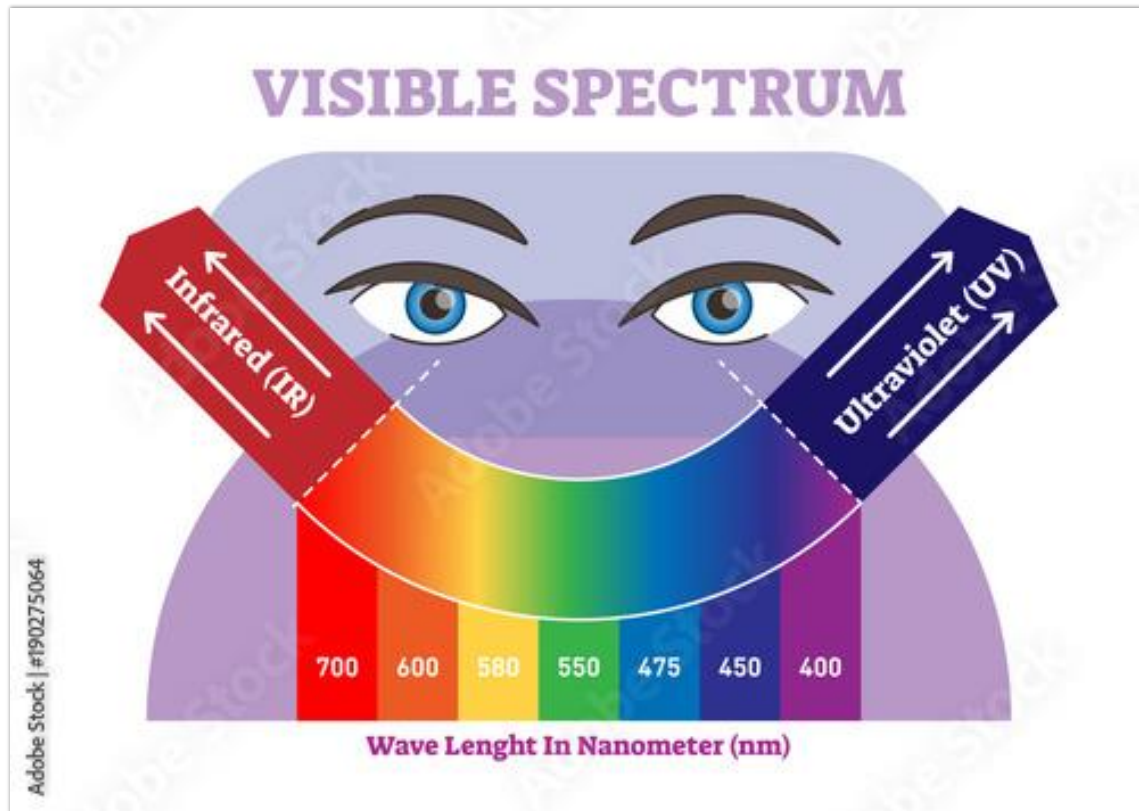
Researcher-based opportunities for image-based investigation

Nick Wagner



Options for Imaging MSS

- ❖ Cheapest and in most cases best method: Phone (newer!)
- ❖ Middling: Digital camera/microscope + infrared red
- ❖ High: Multispectral Imaging (MSI), Hyperspectral Imaging (HIS), Raman Spectroscopy (RS)



Spectra (nanometer)

Visible: 400-700 nm

UV: 100-400 nm

IR: 700+ nm

IR Photography (700+ nm)

- ◇ Introduced c. 1910 and commercially available in 1930s.
- ◇ Popular among photographers and artists beginning in 1960s.
- ◇ 1960s gains popularity among manuscript collectors.
- ◇ In the 1960s-70s Duke has early manuscript collection photographed in IR.

DIY IR Digital Photography

- ◇ What you need:
 - ◇ New or used digital camera: DSLR (digital single-lens reflex) or mirrorless (mirrorless preferred) - \$200+
 - ◇ Many cameras made after c. 2012 are suitable!
 - ◇ Full spectrum conversion - \$200-300
 - ◇ External filters (to select preferred nm) - \$50+
 - ◇ Pros/Cons



P.Duk. Inv. 282
Coptic (Sahidic) Isaiah



P.Duk. inv. 282

- ◇ Top: IR (830 nm)
- ◇ Bottom: "Visible light"



P.Duk. inv. 282

◆ Top: “Visible light”

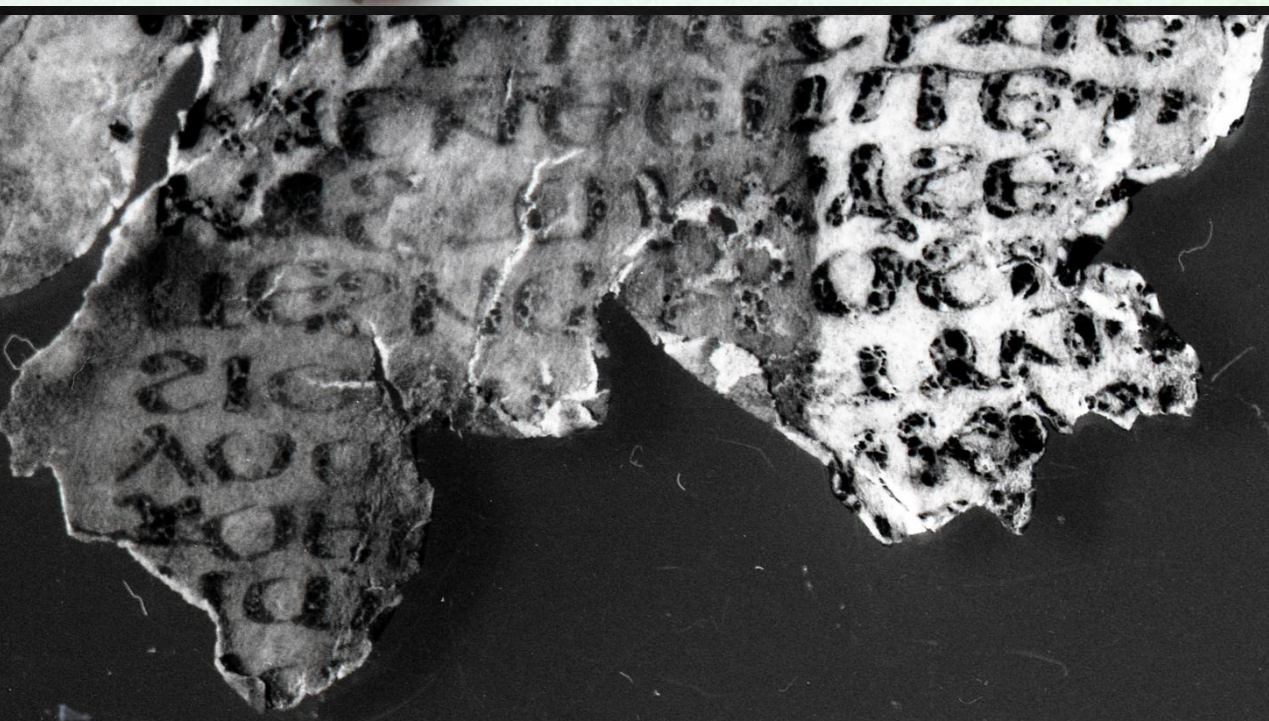
◆ Bottom: IR (830 nm)





P.Duk. inv. 282

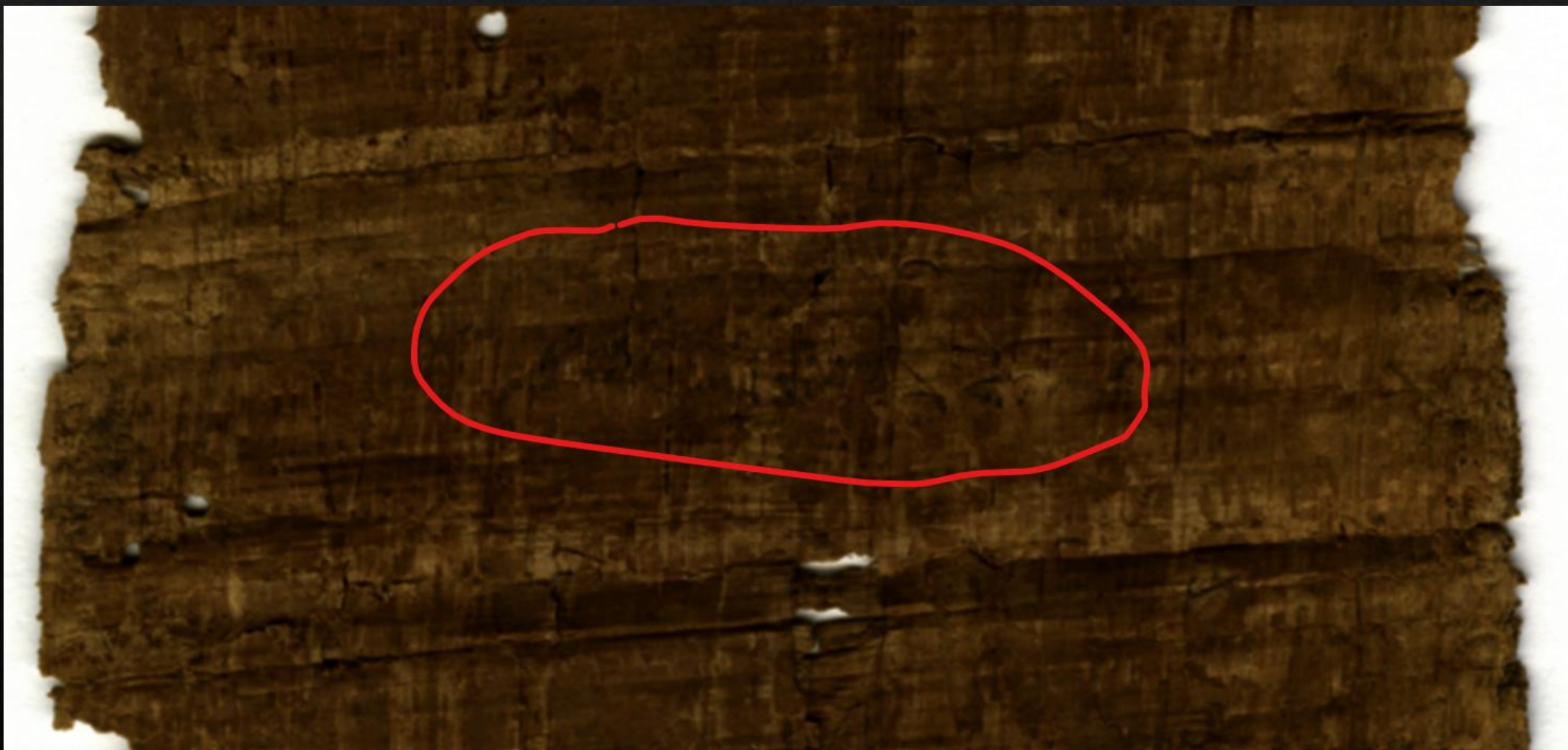
- ◇ Top: "Visible light"
- ◇ Bottom: IR (830 nm)



P.Wash.Univ. inv. 310 (*verso*)

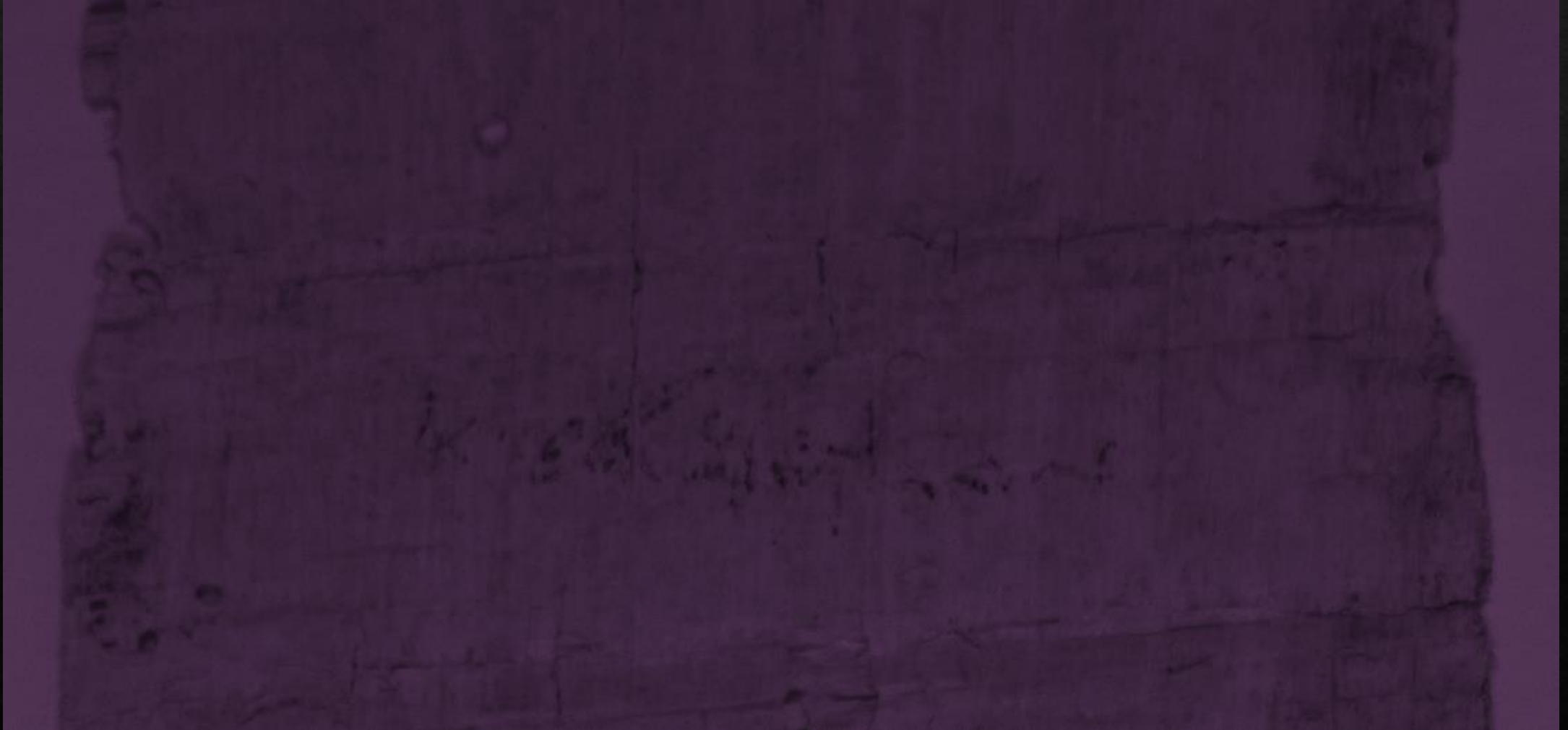


P.Wash.Univ. inv. 310 (*verso*)

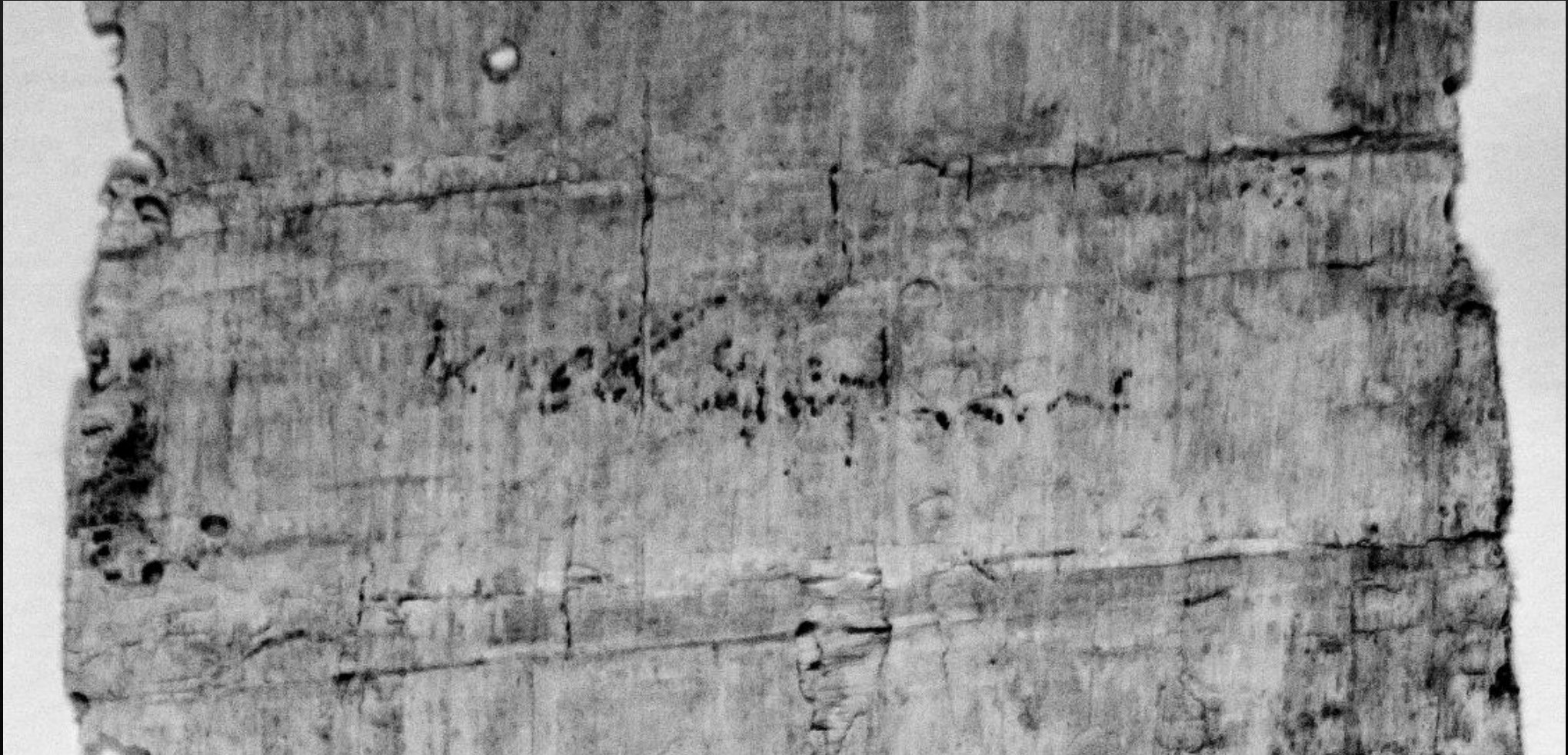


P.Wash.Univ. inv. 310 (*verso*)

Preprocessed IR: Fuji X-E1 (converted), 35 mm (830 nm filter)

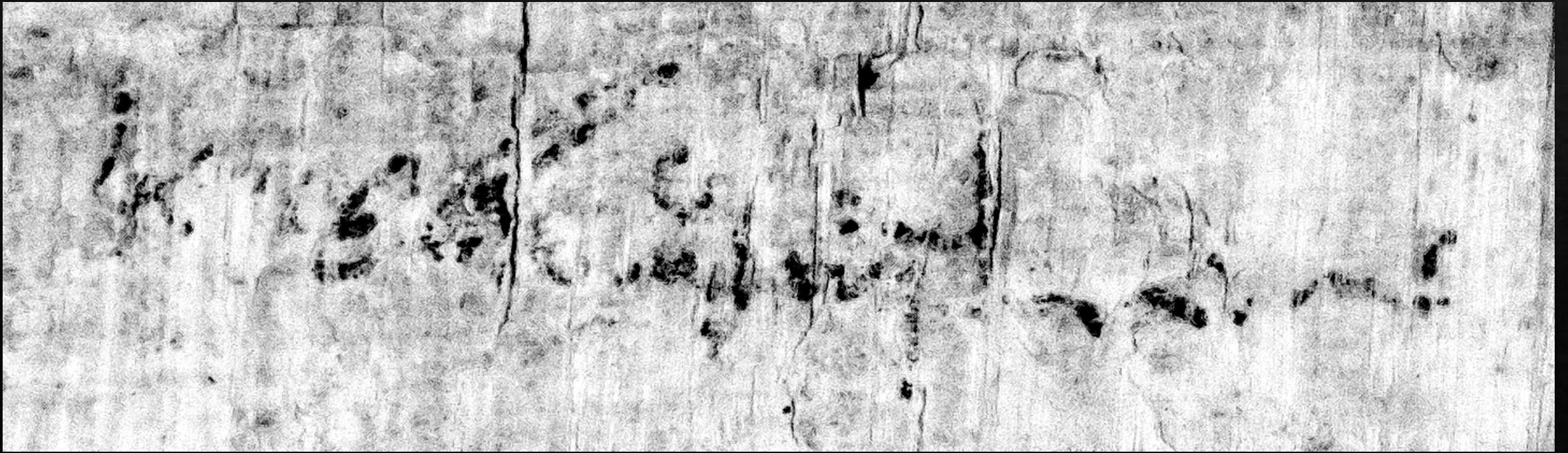


Processed (Photoshop)



Processed (Photoshop)

κυρ(ίω) μου ἀδελ(φῶ) Ἄ.....
“(Address) To my lord brother A-”

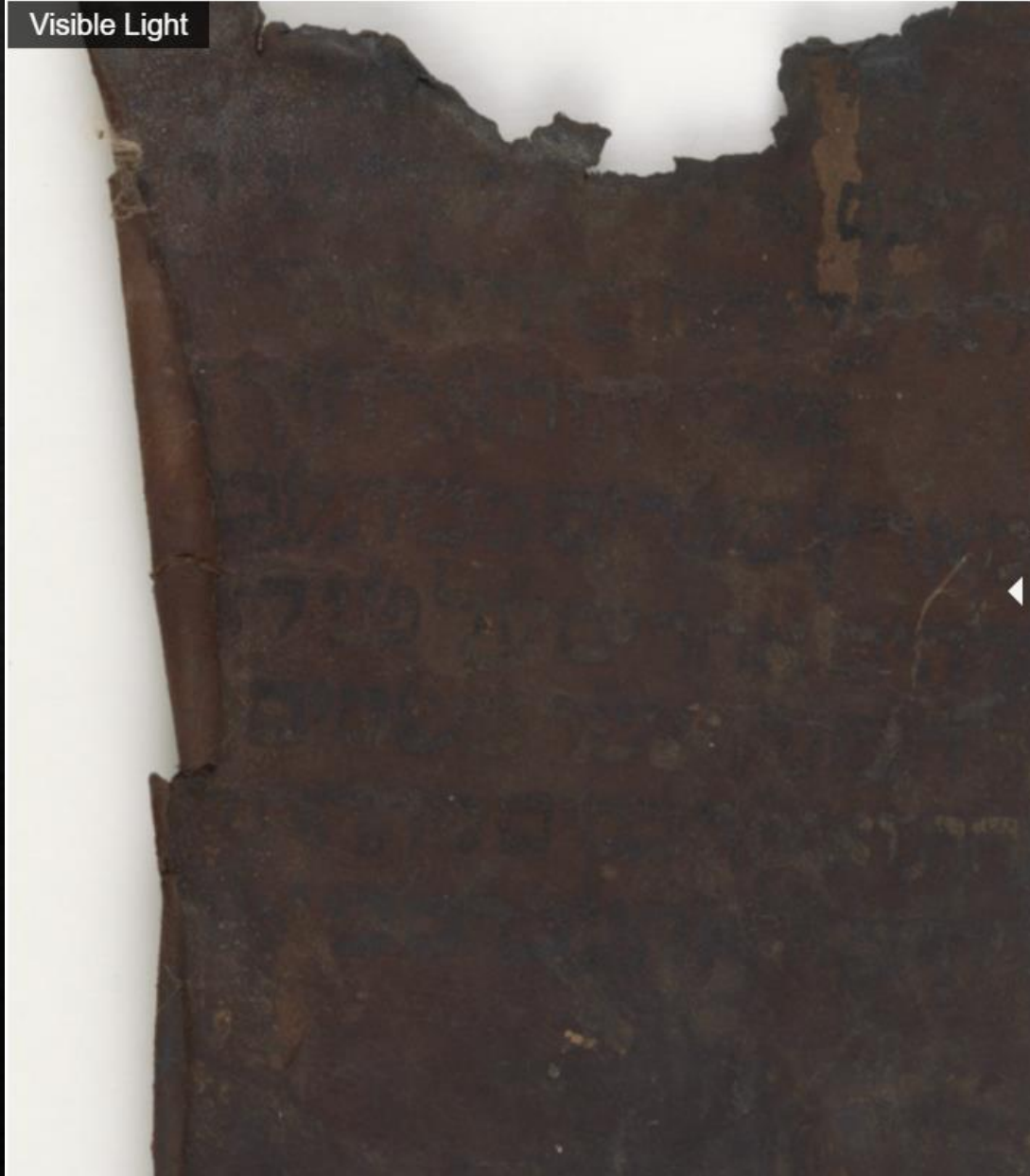


DIY IR Microscopy

- ◇ What you need:
- ◇ Dino-Lite Digital USB microscope (\$699)
 - ◇ 10x-220x
 - ◇ 3 modes: visible, IR (940 nm), UV (395 nm)
- ◇ Pros/Cons



Ashkar MS 12 (Deut. 4:2-23)

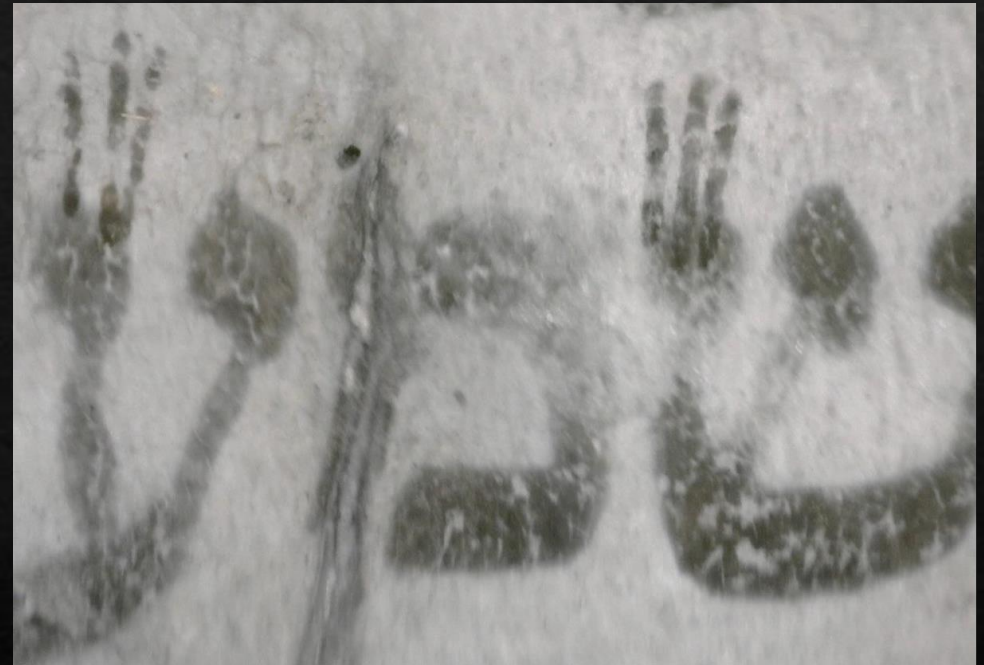




Deut 4:33's שָׁמַע [הֵ]ֿ



◇ Micro



◇ MSI



Deut 4:34's אלה [יָכֵם]



◇ Micro

◇ MSI

