



# SECURITY FEATURES OF POLISH CIRCULATION BANKNOTES (and not only)

dr inż. Mateusz Kowalcze SJ

FORENSIC LABORATORY OF THE PROVINCIAL POLICE HEADQUARTERS IN KRAKOW



# POLICE FORENSIC LABORATORIES IN POLAND





# SELECTED TASKS OF FORENSIC LAB

- performing forensic examinations and opinions
- performing research and analysis of the collected evidences
- participating in the inspection of crime scenes
- cooperation with other scientific and research units





**Experts + professional  
research equipment**



# SELECTED RESEARCH SPECIALTIES

**Chemistry**

**Genetics**

**Mechanoscropy**

**Weapons  
and ballistics**

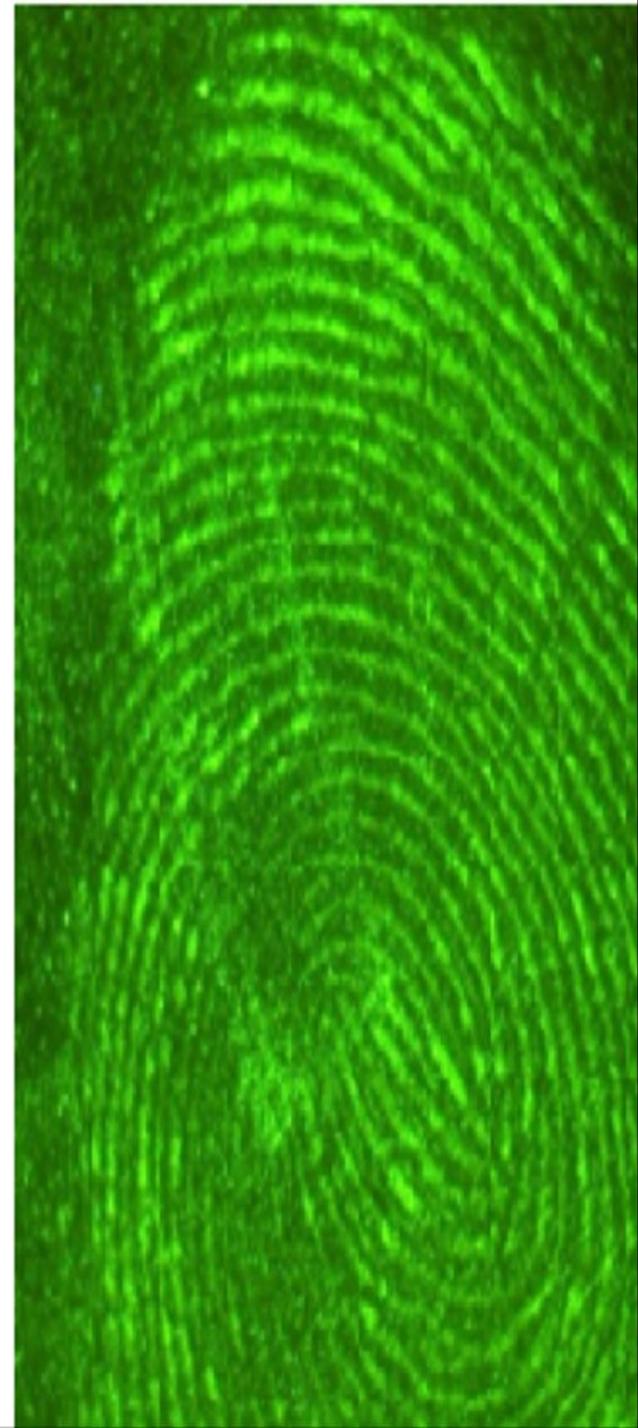
**Classic  
document  
examinations**

**Technical  
document  
examinations**

**Digital data  
analysis**

**Dactyloscopy**

**Traceology**





# Polish circulation banknotes



- Polish paper money (banknotes) are denominated in Polish zloty and issued by the National Bank of Poland as part of the monetary system introduced as a result of the denomination of the Polish zloty.
- In 1995, the following denominations were introduced: PLN 10, 20, 50, 100 and 200.
- These denominations were modernized in 2014 (PLN 10, 20, 50 and 100) and 2016 (PLN 200).
- The denomination of PLN 500 was introduced in 2017.
- The banknotes - part of the "Polish Rulers" series - were designed by Andrzej Heidrich.
- Since 1997, all denominations have been produced by PWPW in Warsaw.





# Security features of Polish circulation banknotes



NARODOWY  
BANK  
POLSKI

WARSZAWA  
12 STYCZNIA 2017 r.

500 zł

OWY

**Security  
in a paper base**

**Security using optically  
variable elements or inks**

**Security in the printing  
process and technique**



# Secured paper

Commemorative \$10 Note





**SECURITY  
IN A PAPER BASE**

# The watermark





**SECURITY  
IN A PAPER BASE**

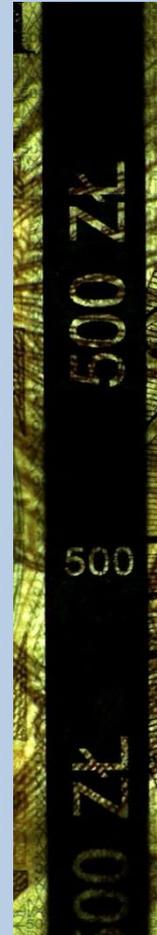
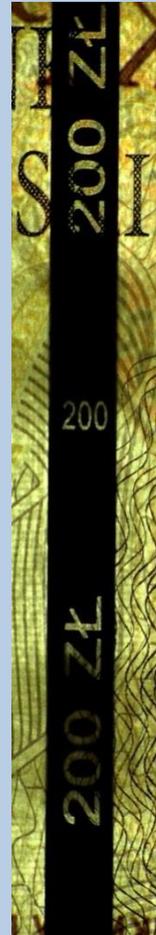
# The watermark





**SECURITY  
IN A PAPER BASE**

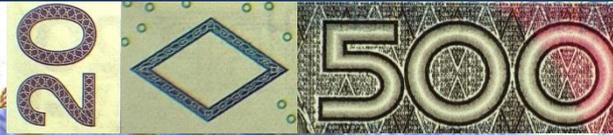
# Security thread





SECURITY  
IN THE PRINTING PROCESS  
AND TECHNIQUE

# Relief printing

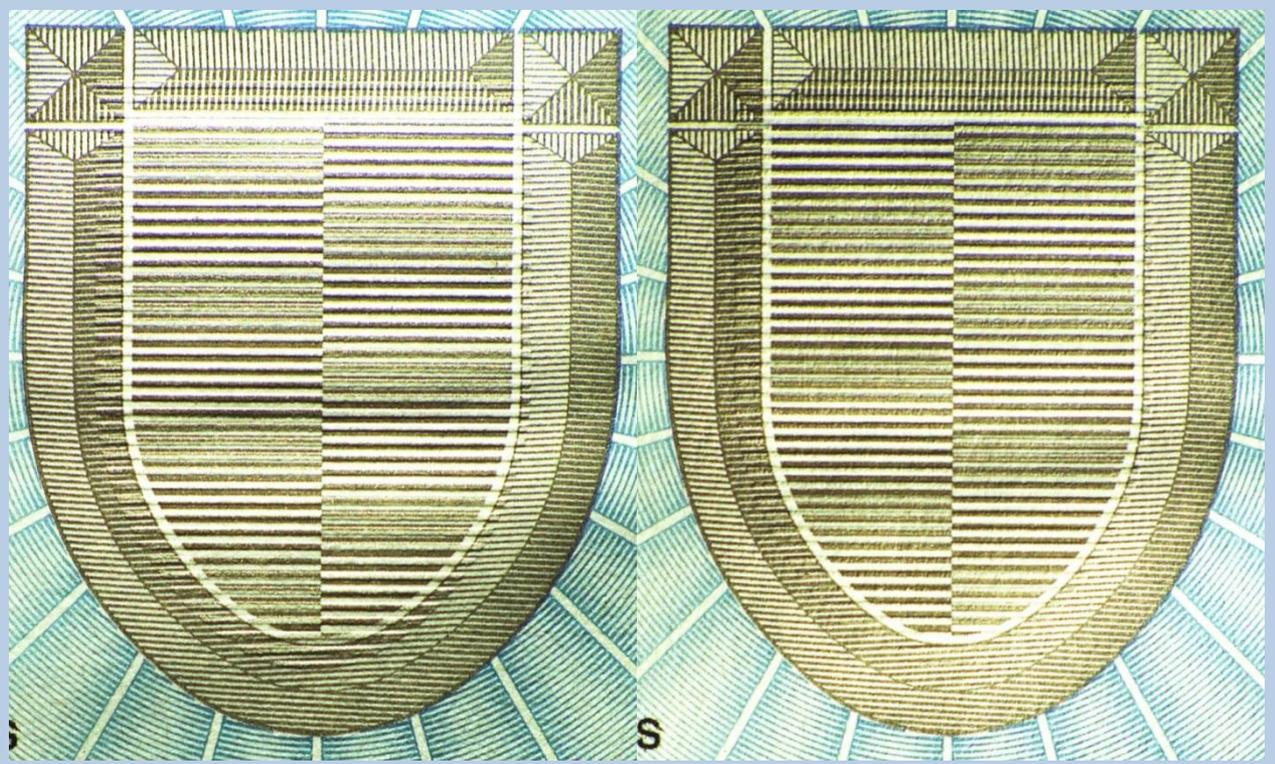
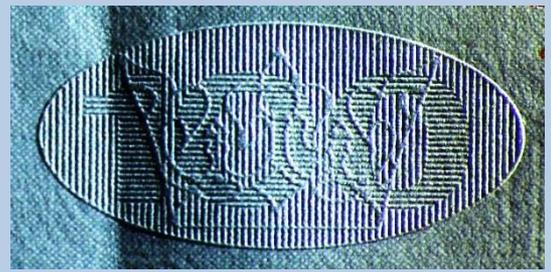
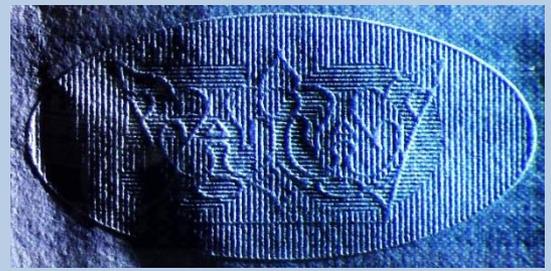
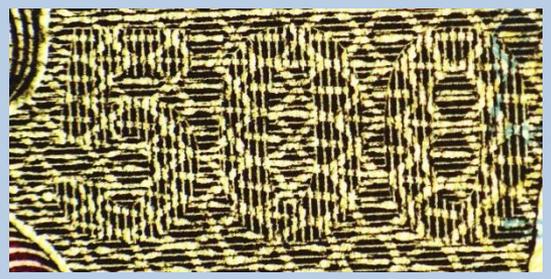
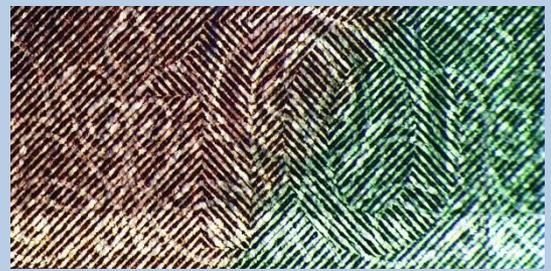
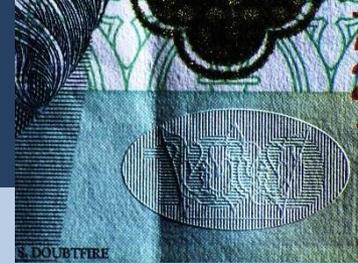


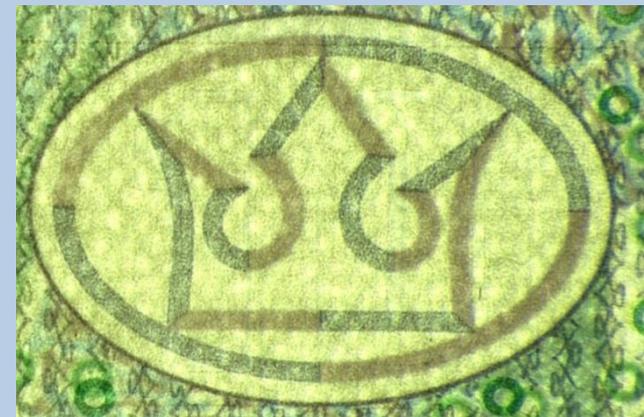
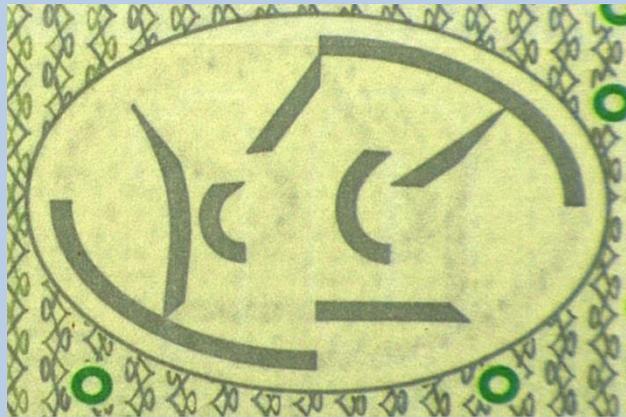
WARSZAWA



SECURITY  
IN THE PRINTING PROCESS  
AND TECHNIQUE

# Angle effect







SECURITY  
IN THE PRINTING PROCESS  
AND TECHNIQUE

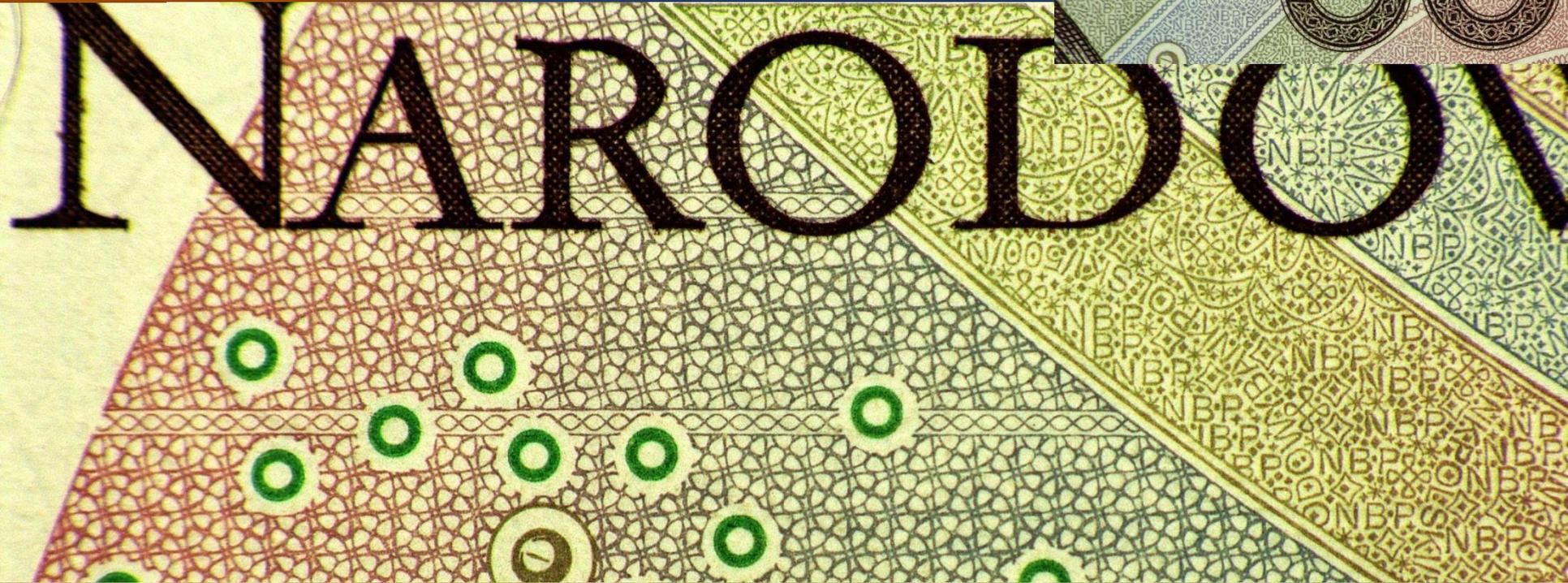
# Microprinting





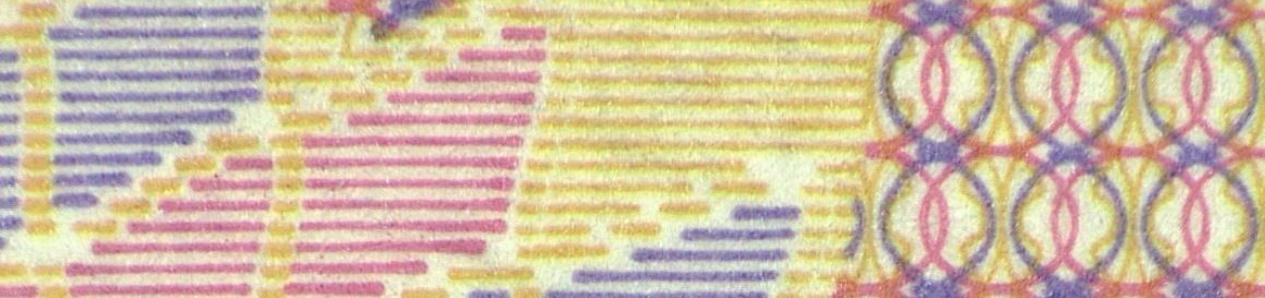
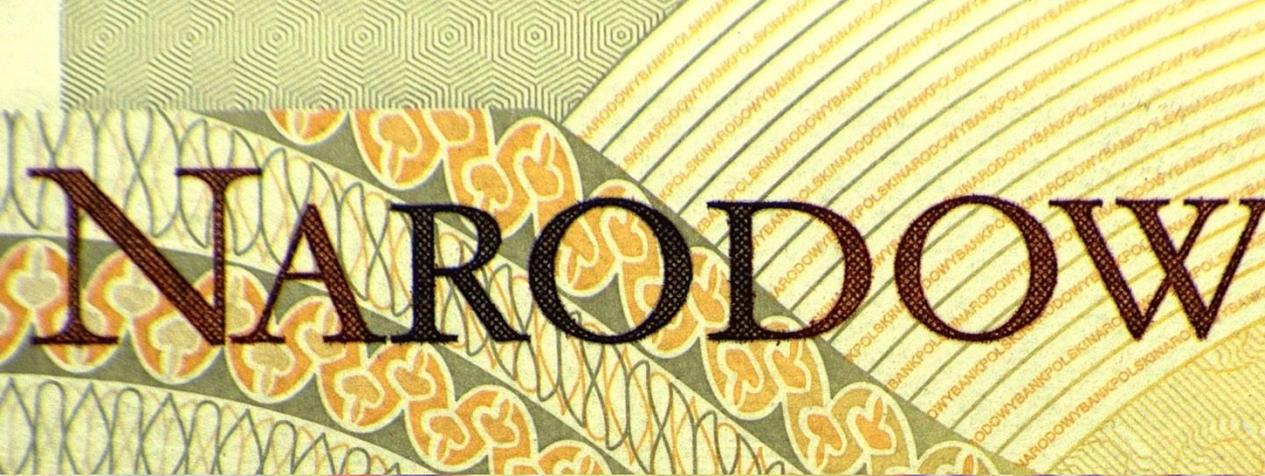
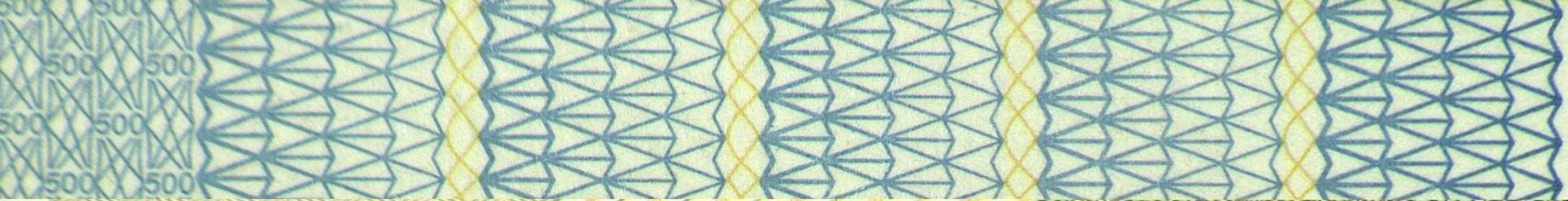
ZABEZPIECZENIA  
W DRUKU

Iris print





# Guilloche





SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Optically variable elements or inks





SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared



*Hygienic*  
NOTE

23



SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared



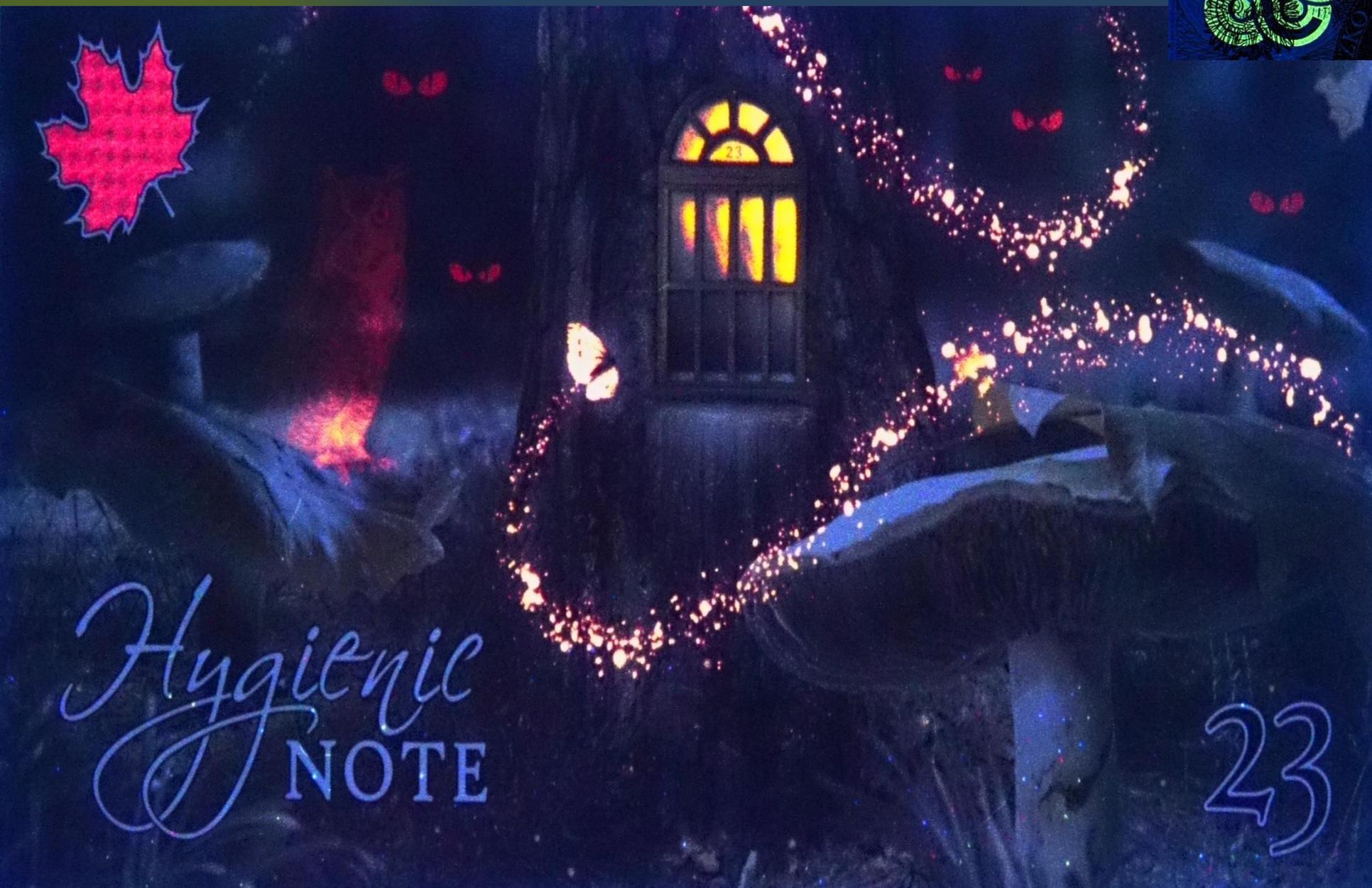
*Hygienic*  
NOTE

23



SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared



*Hygienic*  
NOTE

23



SECURITY USING  
OPTICALLY VARIABLE  
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# Ultraviolet or Infrared



*Hygienic*  
NOTE

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SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared



500

PIĘCSET ZŁOTYCH

NARODOWY  
BANK  
POLSKI  
500 ZŁ  
WARSZAWA  
12 STYCZNIA 2017 r.

500

JAN III SOBIESKI

PREZES  
GŁÓWNY  
SKARBNIK

AH2874233

AH2874233

DRUK. A. JUBBICH, 80 K. MICHAŁCZYK



SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared



NARODOWY BANK POLSKI

500



BANKNOTY EMITOWANE PRZEZ NARODOWY BANK POLSKI  
SĄ PRAWNYM ŚRODKIEM PŁATNICZYM W POLSCE

500 PIĘĆSET  
ZŁOTYCH

NBP



SECURITY USING  
OPTICALLY VARIABLE  
ELEMENTS OR INKS

# Ultraviolet or Infrared





THANK YOU FOR YOUR ATTENTION ;)



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