



Jak jsme pomohli digitalizovat sbírku rané barevné fotografie National Geographic Society

Jan Hubička | Linda Kimrová | Sara Manco | Kenzie Klaeser | Doug Peterson

Seznámení



CHARLES
UNIVERSITY



Jan Hubička

Univerzita Karlova
Muzeum fotografie
Šechtl a Voseček



Linda Kimrová

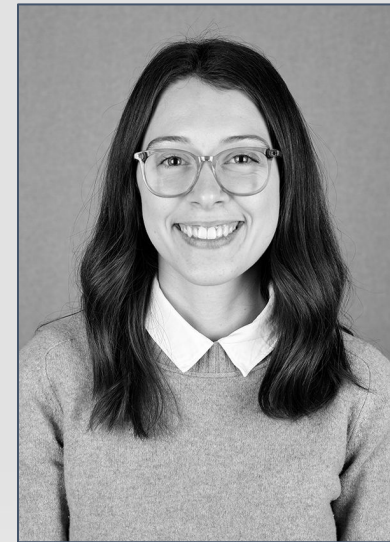
Univerzita Karlova



Sara Manco

National Geographic
Washington D.C.

*Photo by Becky Hale
and Mark Thiessen*



Kenzie Klaeser

Digital Transitions
New York



Doug Peterson

Digital Transitions
Washington D.C.

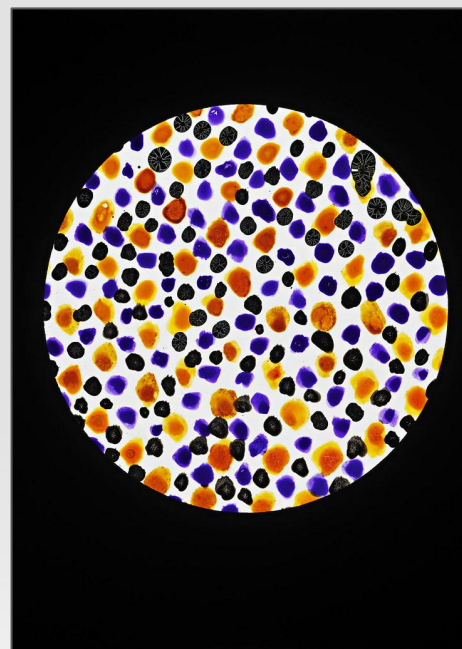
Obsah

- Sbírka a její historie
- Restaurování
- Digitalizace
- Problémy s dlaždicema
- Problémy s barvou
- Radost z výsledku
- Digitální laboratoř
- Stroj času

Historie



První fotografie
1826



**Raná barevná
fotografie**
1890 - 1950



**„Moderní“ barevná
fotografie**
1935-

Historie

Náhodný filtr	
1903-1933	Autochrome
1916	Agfacolor

Oddělený filtr	
1896–1900	Joly Colour screen
1897–1900	McDonough plates
1908–1910	Thames Colour Screen
1909–1910	Duffay Dioptichrome
1913–±1922	Paget Color screen
1926–±1928	Duplex Screen Plate
1929–1941	Finlay Colour Plate

Geometrický filtr součásti emulze	
1909–1934	Thames Colour Plate
1909–1911	Omnicolore
1910–1912	Duffay Dioptichrome-B Plate
1912–1914	Duffay Improved Dioptichrome-B Plate
1933–1940	Finlaychrome
1909–1911	Krayn Line Screen
1910–1911	Krayn Color Film
1935–1958	Dufaycolor Film

Aditivní raná barevná fotografie s pravidelným rastrem



Agfa Agfacolor



Autochrome Lumière



Dufay Diophtichrome



Thames-Finlay

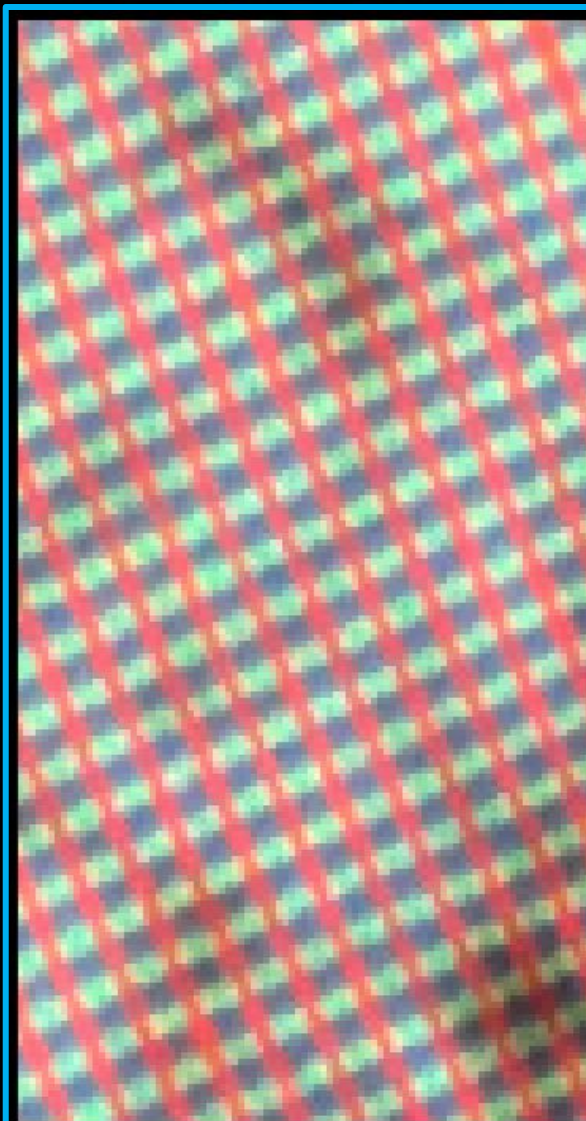
Aditivní raná barevná fotografie s **pravidelným** rastrem



Agfa Agfacolor



Autochrome Lumière



Dufay Diophtichrome

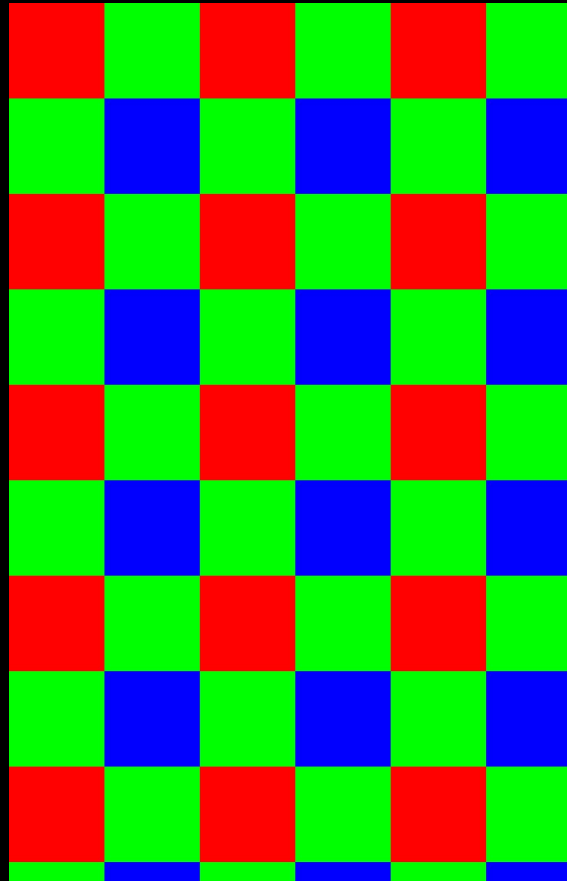


Thames-Finlay

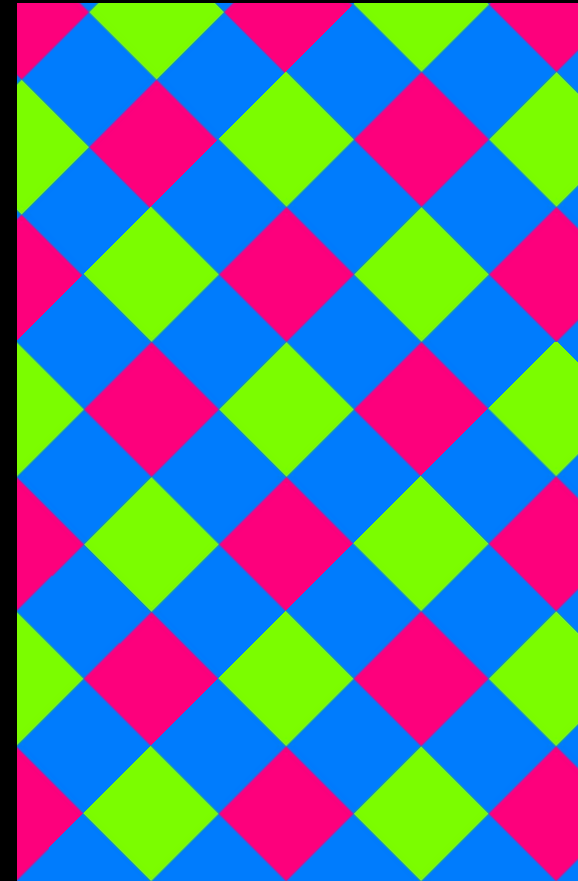
Aditivní raná barevná fotografie s pravidelným rastrem



Thames-Finlay
(~1929)



Bayer
(1976)

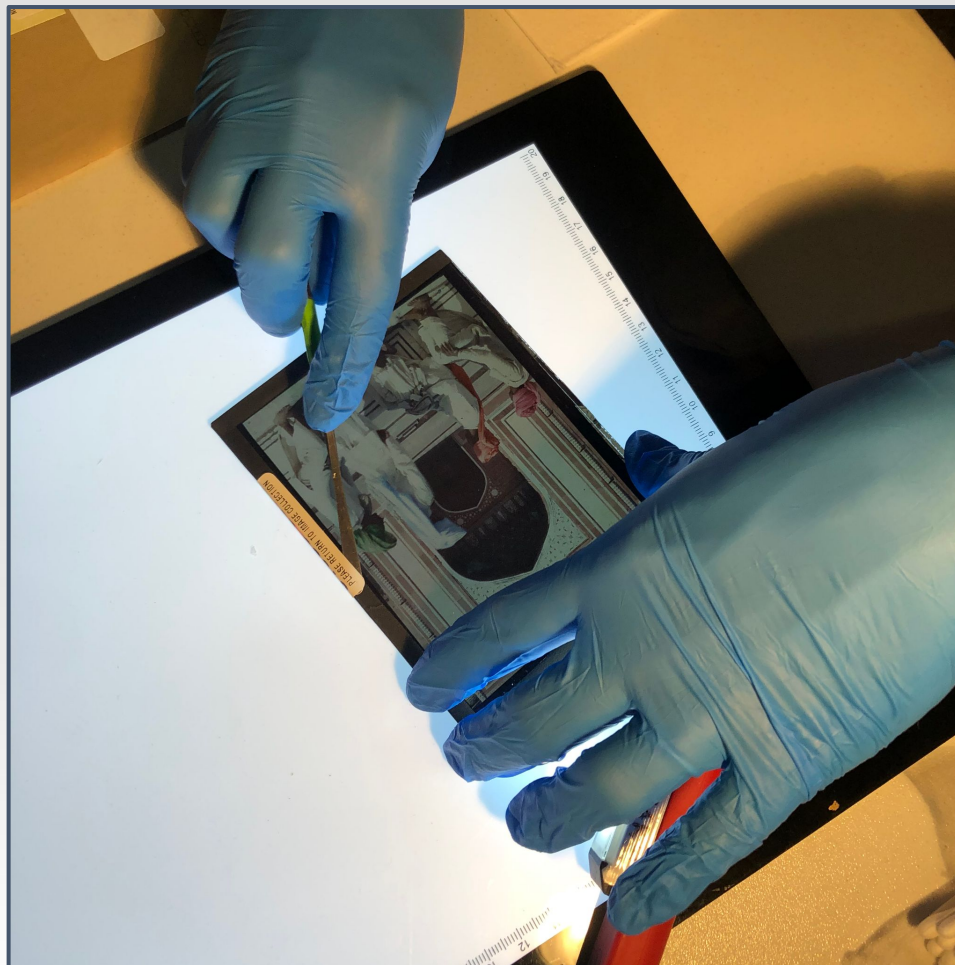


Modified Bayer
+90° otočení odstínu
+45° otočení v prostoru

Sbírka



Sbírka



Sbírka



early color [X] All Available Records [Microphone] [Magnifying Glass] ADVANCED SEARCH

NG Staff: Sign in to get complete results and to request items [Sign in] [DISMISS]

Active filters

- Digital X
- Remember all filters
- Reset filters

Tweak your results

Sort by Relevance

Resource Type Photographs and Art (5,192)

Format

Subject

Author/Creator

Creation Date

0 selected PAGE 1 1-50 of 5,192 Results

1



PHOTOGRAPHS AND ART
(Untitled photograph); 340183
 Wakeman, Bernard
 A passer-by pauses to admire some color.; 36/30
 Early Color Photography Collection: Unpublished
[Available Online >](#)



2



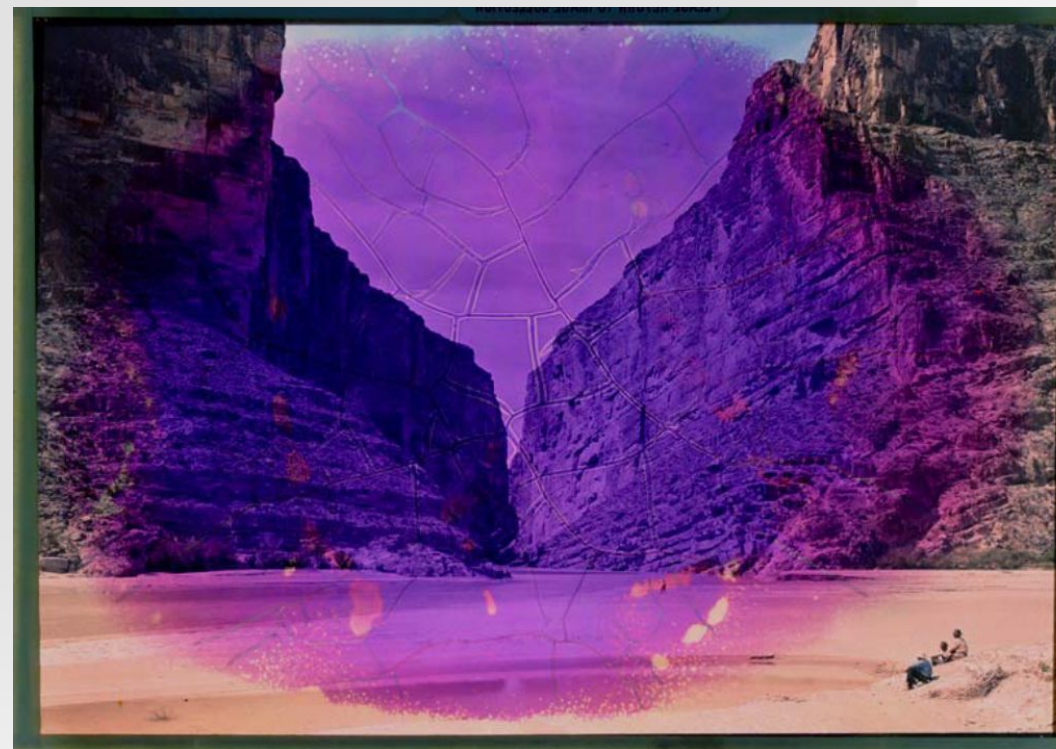
PHOTOGRAPHS AND ART
(Untitled photograph); 339932
 Gervais-Courtellemont, Jules; 1923
 Arab tents (or curtains) a mosaïque of color in cloth.; 850 (2305)
 Early Color Photography Collection: Unpublished
[Available Online >](#)



Vinegar syndrom



Listopad 2002



2003

Siegel RE. Filmbase deterioration in Dufaycolor film. Topics in photographic preservation. 2003;10:132-8.

Vinegar syndrom



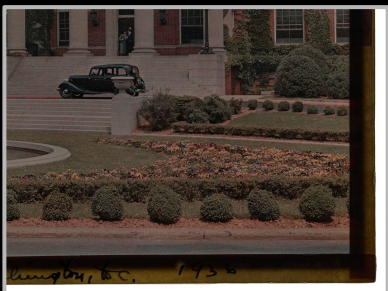
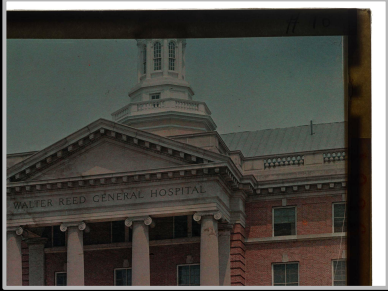
Digitalizace





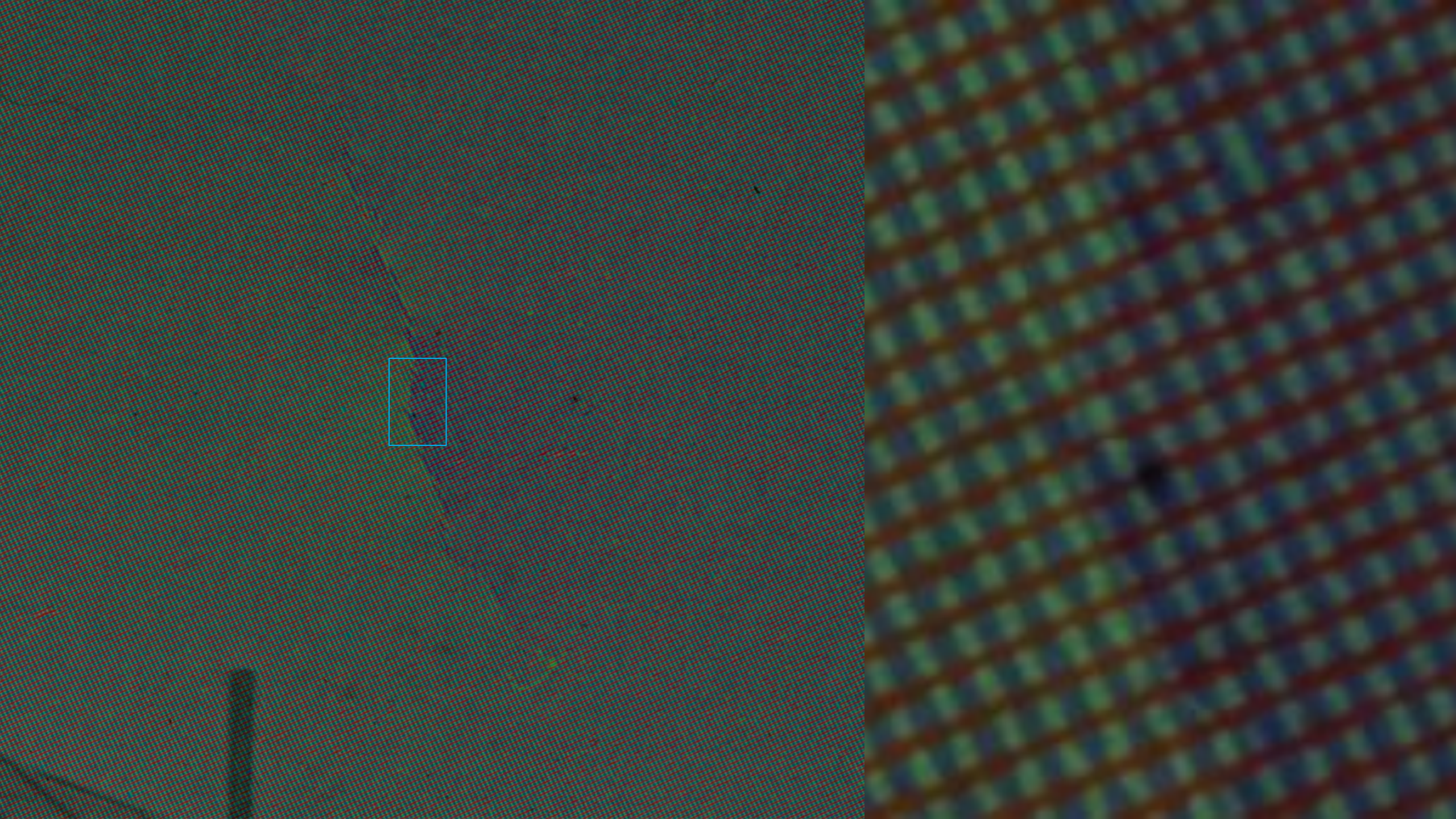
Building - Walter Reed Hospital - Washington, D.C. - 1930

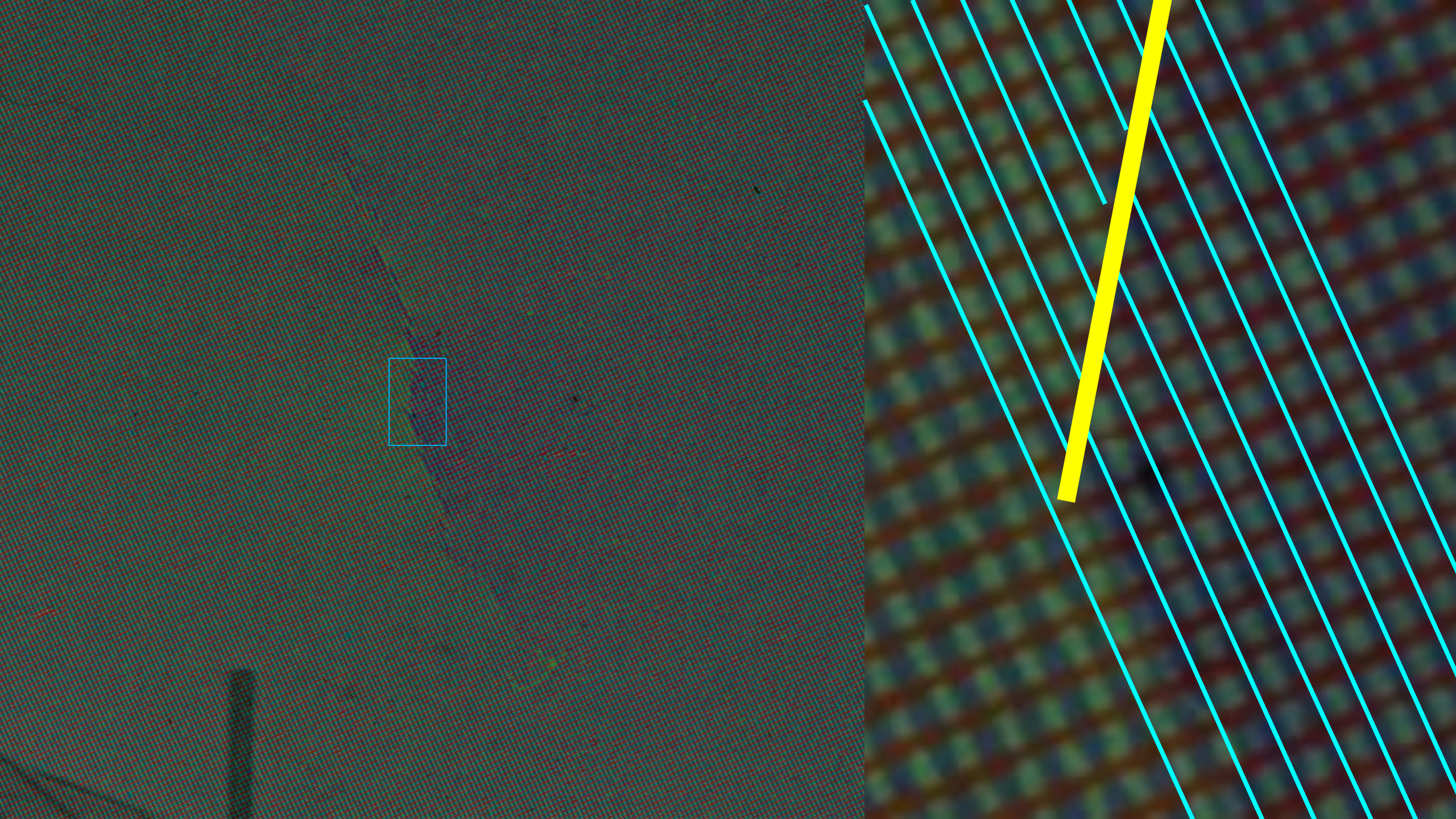
WALTER REED

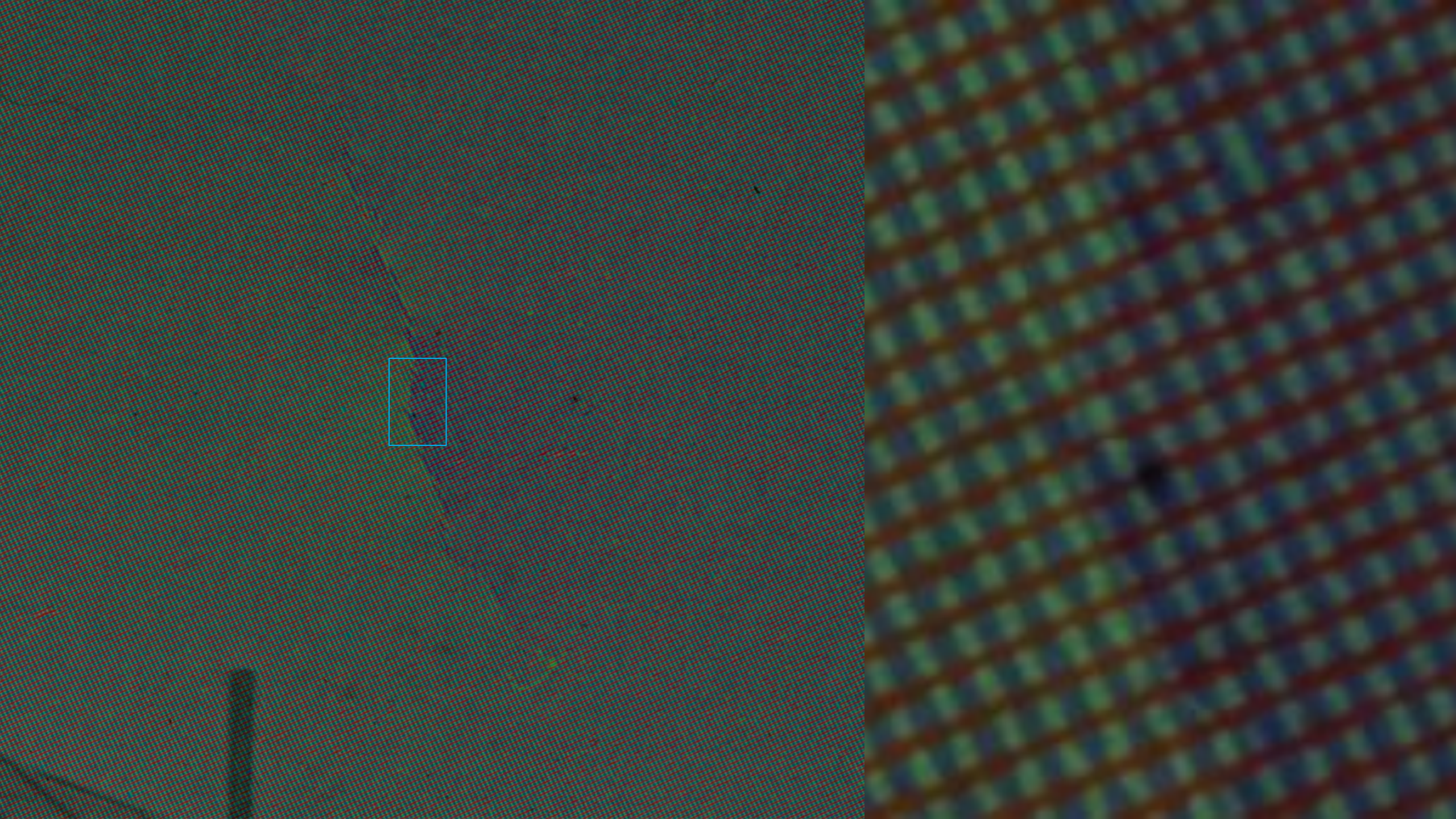


Dufaycolor 13x18cm, 4600 PPI









Problémy s dlaždicema



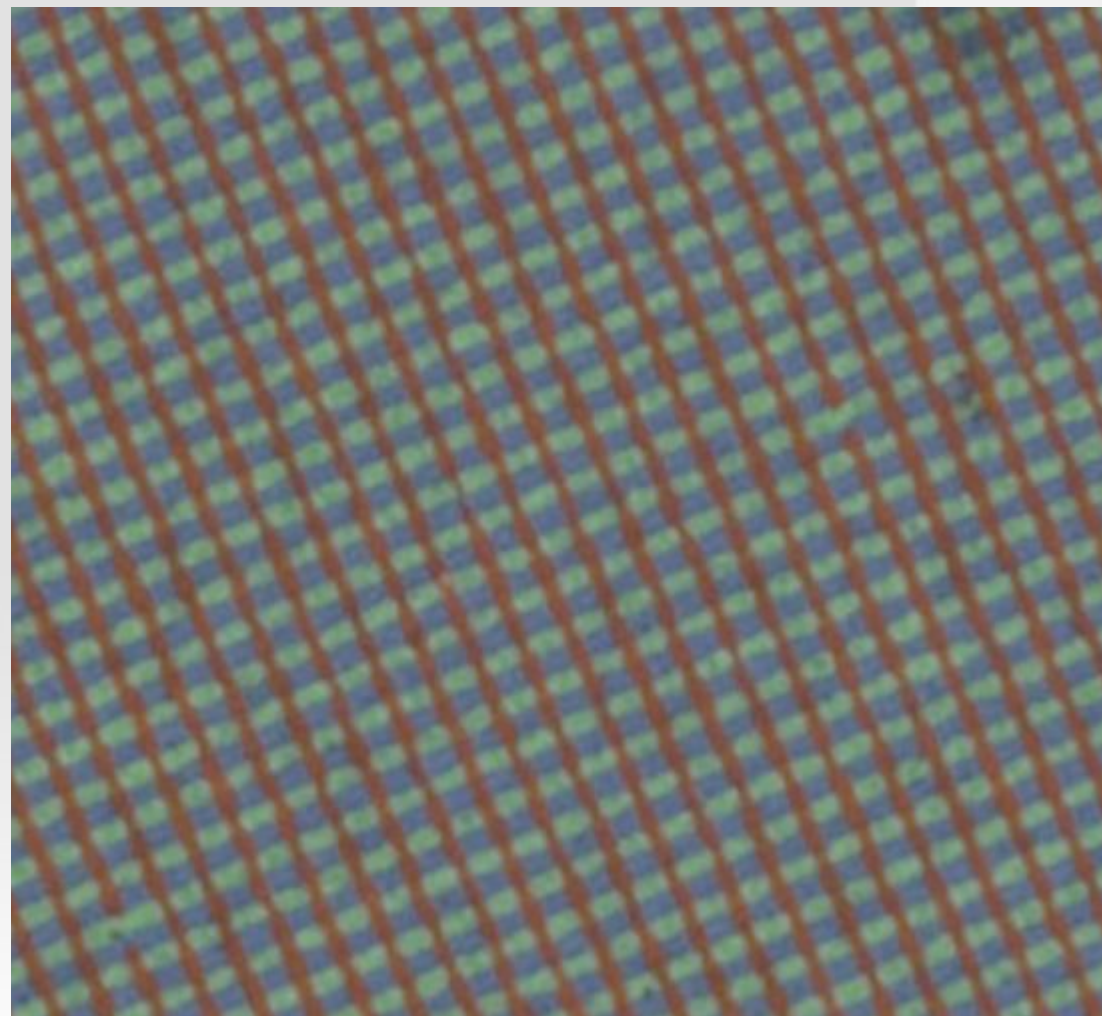
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It's not a bug; it's a feature!

Krocení dlaždic

1. **Identifikace primárních barev**
2. Detekce rastru
3. Oprava geometrie
4. Lepení & prolnutí



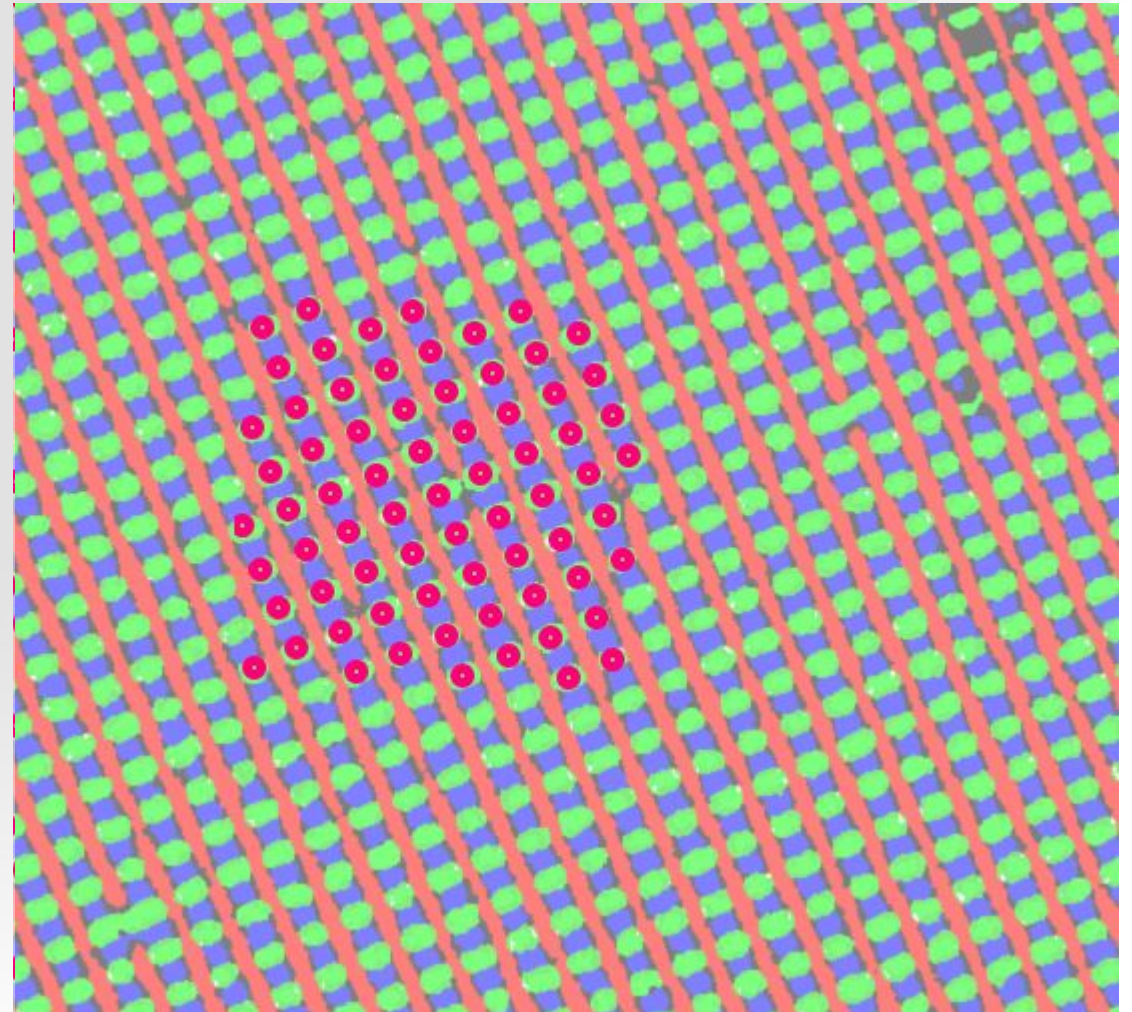
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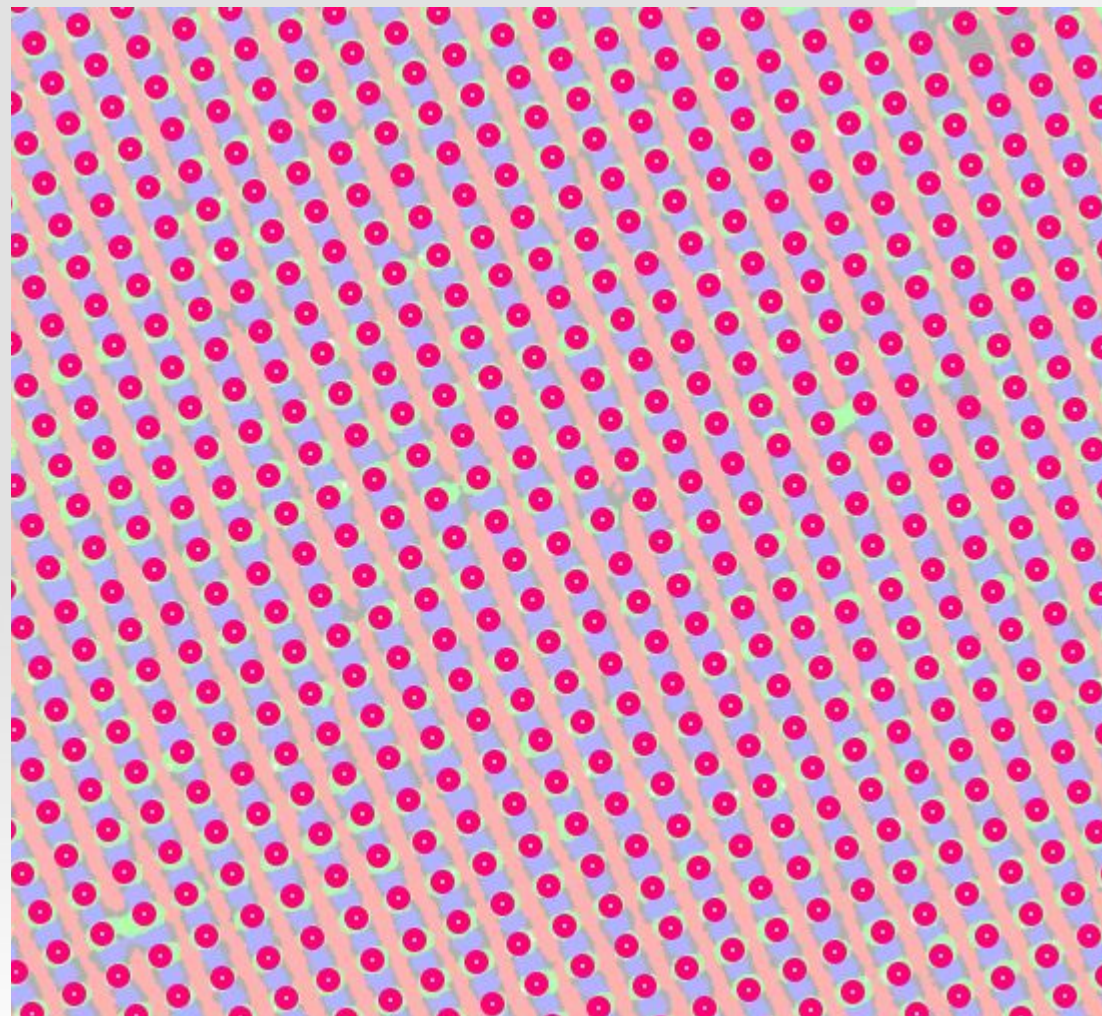
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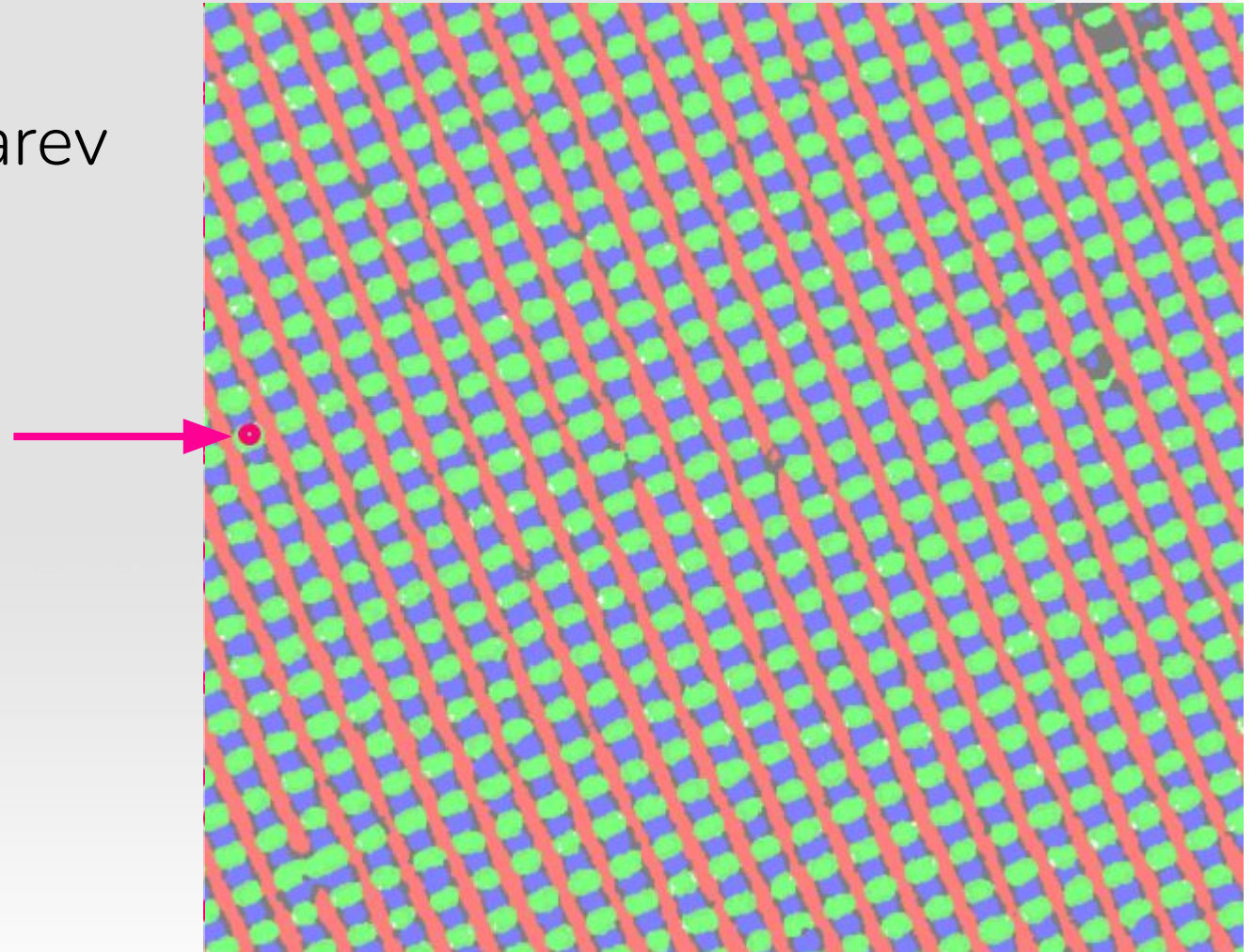
Krocení dlaždic

1. Identifikace primárních barev
2. **Detekce rastru**
3. Oprava geometrie
4. Lepení & prolnutí



Krocení dlaždic

1. Identifikace primárních barev
2. Detekce rastru
3. **Úprava geometrie**
4. Lepení & prolnutí



Krocení dlaždic

1. Identifikace primárních barev
2. Detekce rastru
3. **Úprava geometrie**
4. Lepení & prolnutí



Krocení dlaždic

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2. Detekce rastru
3. Úprava geometrie
4. **Lepení & prolnutí**



Krocení dlaždic

1. Identifikace primárních barev
2. Detekce rastru
3. Úprava geometrie
4. **Lepení & prolnutí**



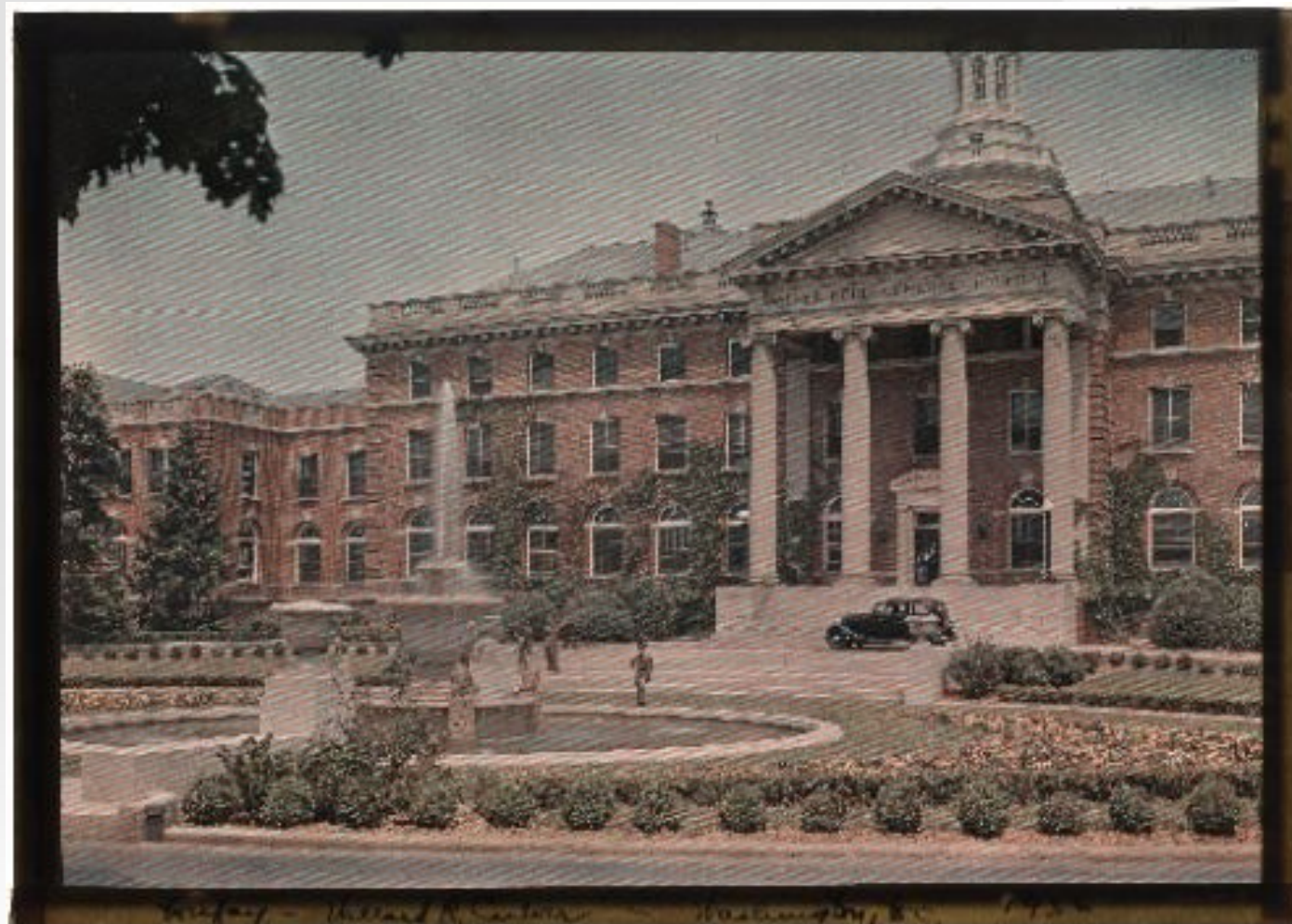
Problémy s barvou

1. **Obraz je tmavý**
2. Barvy vybledly
3. Moaré



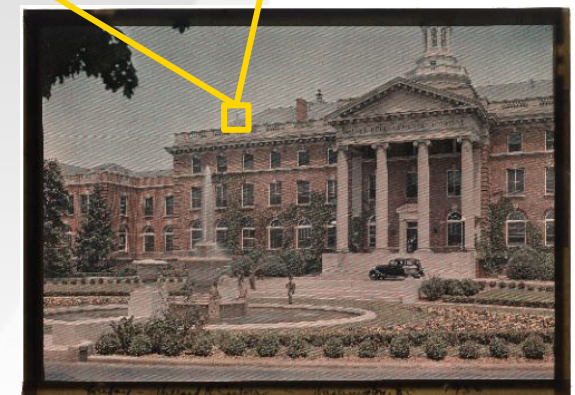
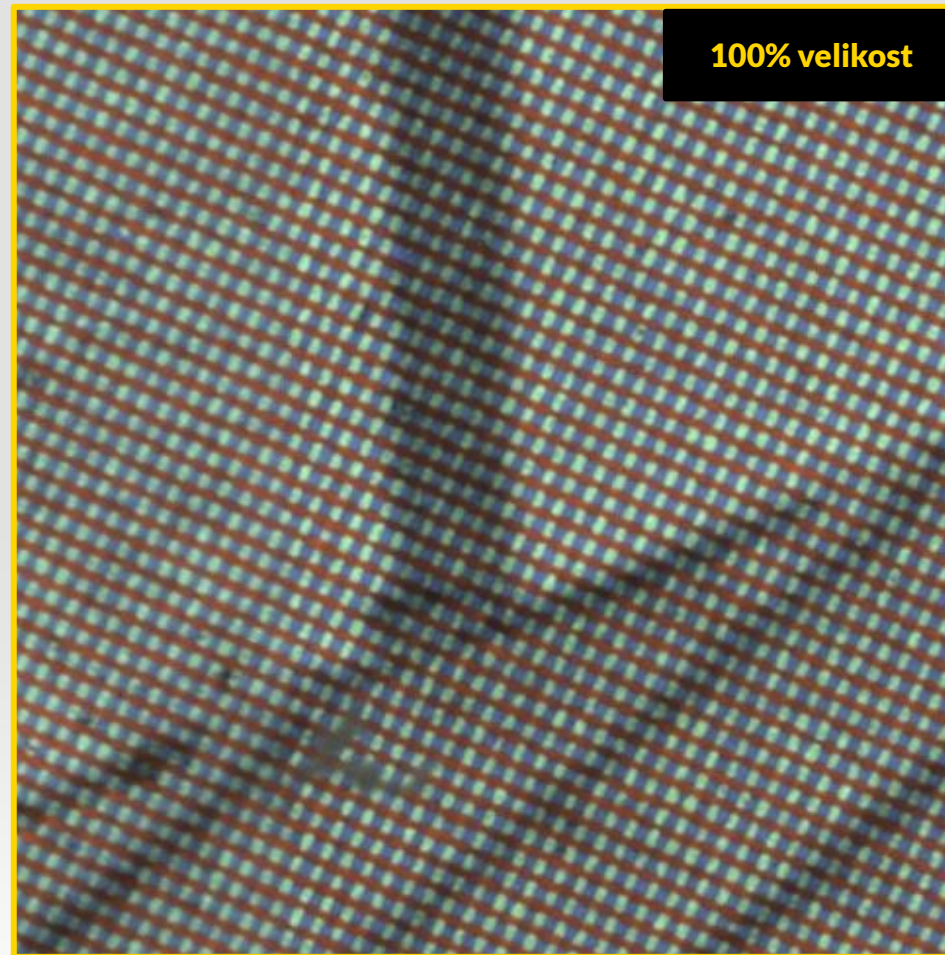
Problémy s barvou

1. Obrázek je tmavý
2. **Barvy vybledly**
3. Moaré



Problémy s barvou

1. Obrázek je tmavý
2. Barvy vybledly
3. **Moaré**



Krocení barev

1. Rekonstrukce barev filtru
2. Interpolace (demosaic)
3. Ruční úprava expozice, kontrastu a bílého bodu



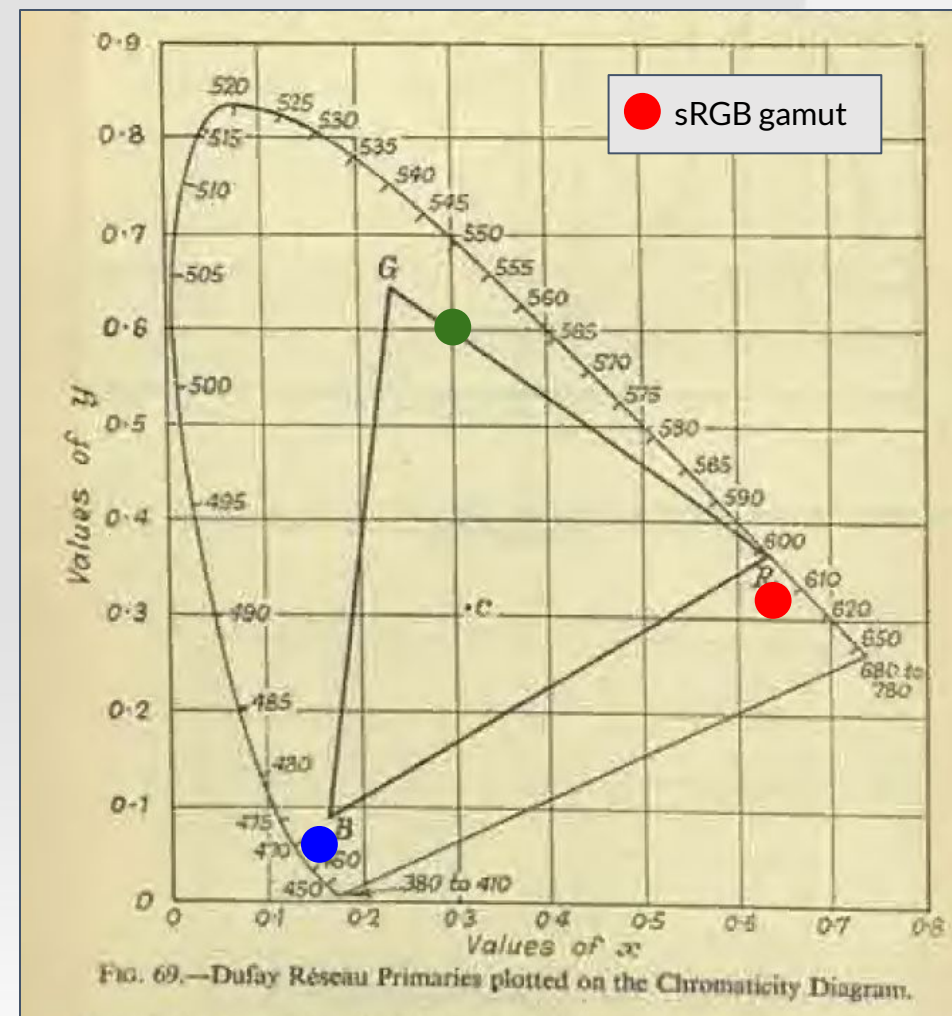
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Krocení barev

1. Rekonstrukce barev filtru
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COLORIMETRIC SPECIFICATION OF RÉSEAU ELEMENTS					
	x .	y .	Y (%).	<i>Dom. Wave-</i> <i>length</i> ($M\mu$).	
Red Element	0.633	0.365	17.7	601.7	
Green Element	0.233	0.647	43	549.6	
Blue Element	0.14	0.089	3.7	466.0	

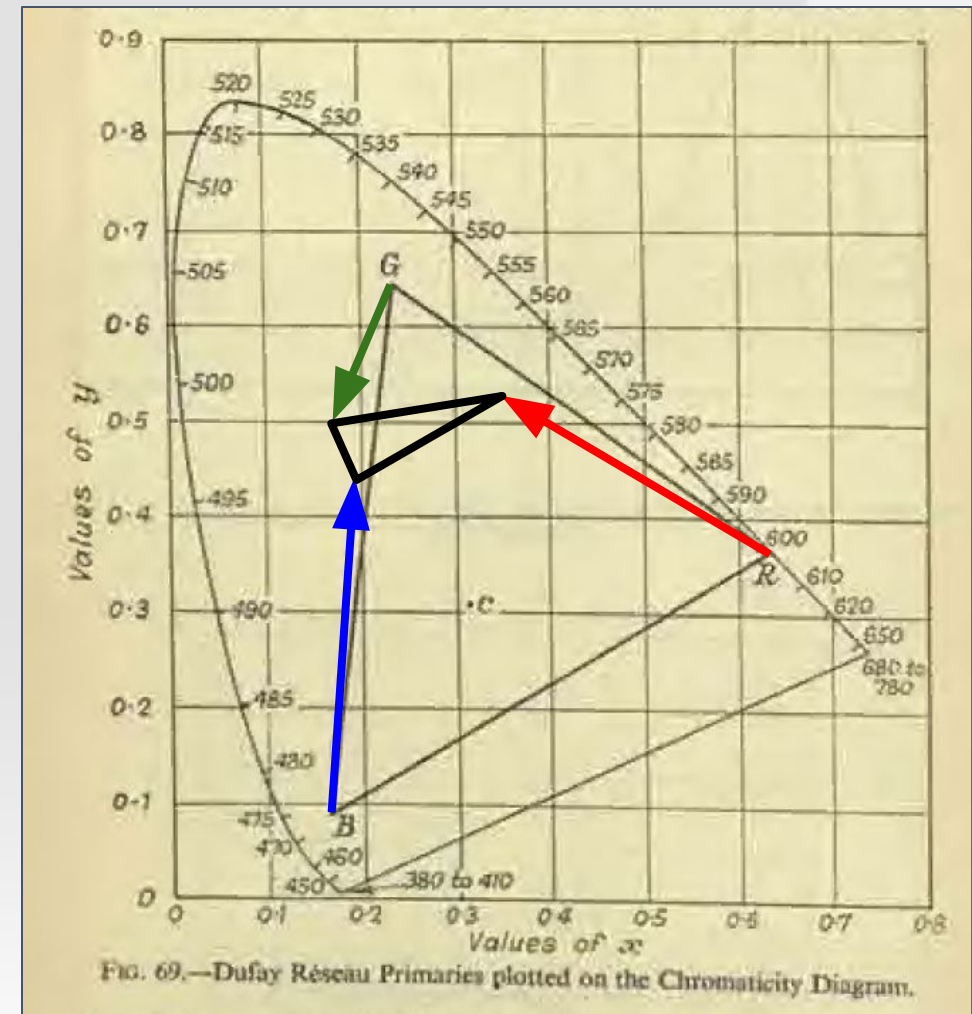


A. Cornell-Clyde: Color Cinematography, third edition 1951

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G Trumpy, S Chatterjee, U Ruedel, B Flueckiger: A Material Investigation of Color Film Technology through the Koshofer Collection, 2021

Krocení barev

1. **Rekonstrukce barev filtru**
2. Interpolace (demosaic)
3. Ruční úprava expozice, kontrastu a bílého bodu



Barevnost dnes

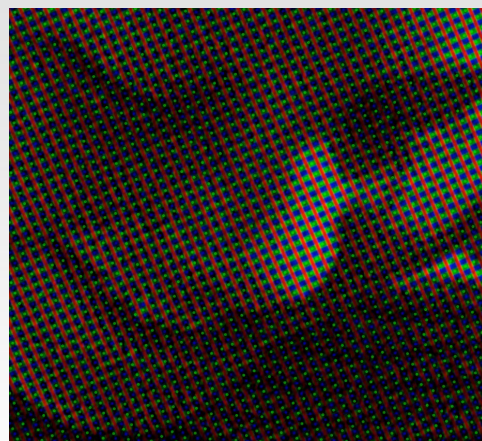
Dufaycolor, 9×6 cm, třicátá léta, pravděpodobně fotografoval J.B.S. Thubron

Krocení barev

1. Rekonstrukce barev filtru
2. Interpolace (demosaic)
3. Ruční úprava expozice, kontrastu a bílého bodu



Infračervený sken, 4000 ppi



Digitální simulace rastru



Rekonstruované barvy

Dufaycolor, 9×6 cm, třicátá léta, pravděpodobně fotografoval J.B.S. Thubron

Krocení barev

1. Rekonstrukce barev filtru
2. **Interpolace (demosaic)**
3. Ruční úprava expozice, kontrastu a bílého bodu



Krocení barev

1. Rekonstrukce barev filtru
2. Interpolace (demosaic)
3. **Ruční úprava expozice, kontrastu a bílého bodu**



Color-Screen

Color-Screen is a collection of tools for working with scans of additive screen processes of early color photography.



Flowers, Paget lantern slide 8x8cm, ca 1921 (left) and digital color reconstruction (right)

What is an additive color screen process?

Additive color screen processes used panchromatic negative which was exposed through a color screen filter pretty much same was as today CCD and CMOS chips use Bayer filter. The negative was then copied to (black and white) transparency which yield to color picture when viewed through the viewing screen filter.

What we aim for?

Our tool can:

Pages **7**

Home

Color-Screen

What is an additive color screen process?

What we aim for?

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Collections

Installation on macOS with Apple Sil...

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TODO

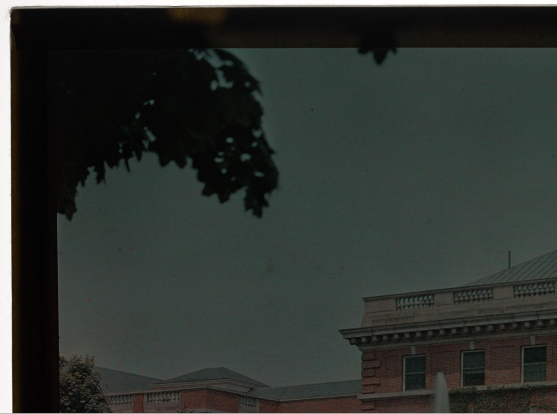
+ Add a custom sidebar

Clone this wiki locally

<https://github.com/janhubicka/Ci>



<https://github.com/janhubicka/Color-Screen/wiki>



Wesley - Willard R. Carver

W.R. Carver - Washington, D.C.

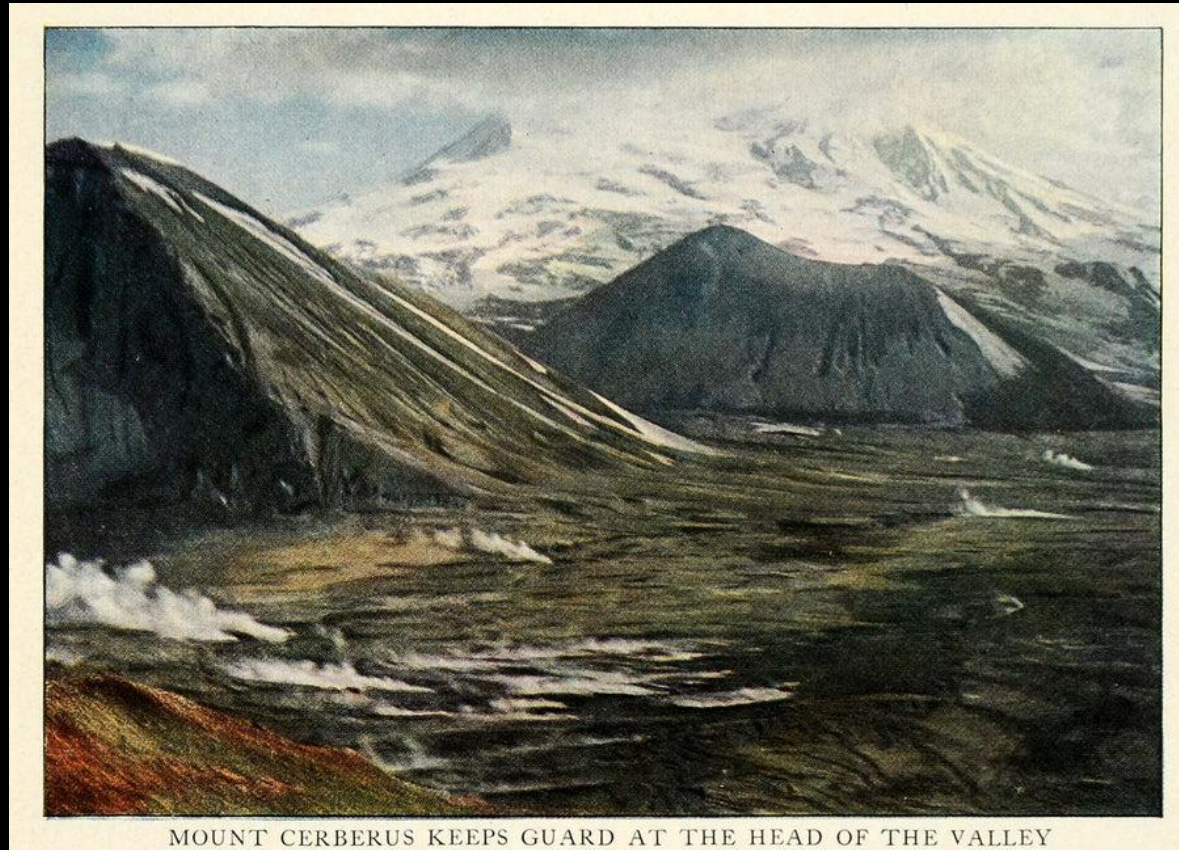
Washington, D.C. 1930



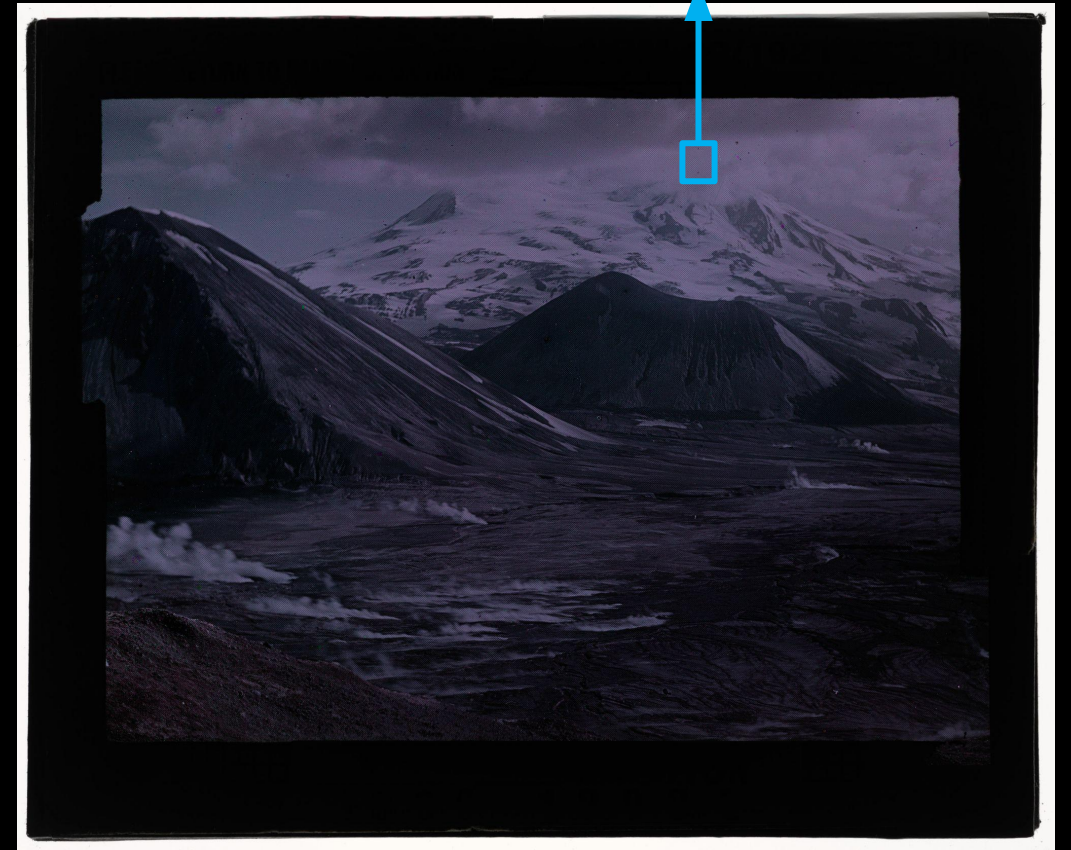
Willard Culver, 1936 Dufaycolor pořizený pro National Geographic Magazine



Robert Moore, Umajjovská mešita v Damašku. Dufaycolor pořízený National Geographic Magazine



Fotografie otištěná v roce, 1921



Originální diapositiv skenovaný 2023



Frank Jones I, Pohled na horu Cerberus u údolí 1921. Paget color plate, 3.25 x 4 in



Moore, W. Robert. Krems, Rakousko září 1937. Dufaycolor přizpený pro National Geographic



Walker, H. Howell .Massachusetts listopad 1937,
Dufaycolor přizemý pro National Geographic







Sapinger

Gasthof Seep

Gasthof Seep

Mobiloil

Tabak Trafik

Niederlage
Julius Meinel
Kaffee-Import

L. Leihmann

GEMISCHTWAREN-HANDLUNG

Zimmer
zu vermieten

Grosse Pluswa
Trachten-Luch
aus Seide
Wolle u. Baumw
Seiden u. Was
schürzen-Str
Bauernborten

Titze
Luzern-Poppenkaffee



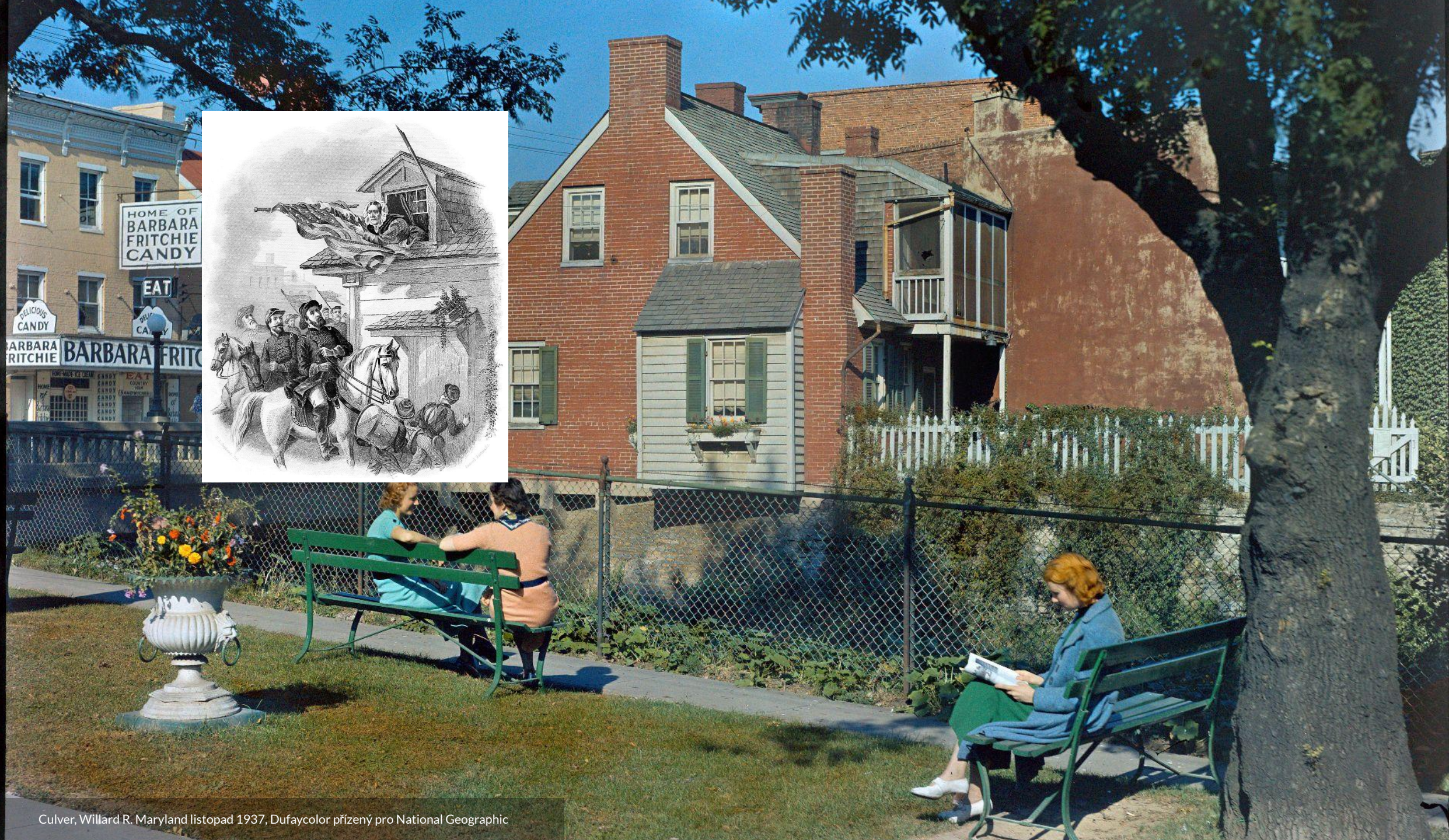
RESTAURANT

1956





Culver, Willard R. Maryland listopad 1937, Dufaycolor přizeny pro National Geographic



Culver, Willard R. Maryland listopad 1937, Dufaycolor přizeny pro National Geographic

Dufaycolor versus Kodachrome v digitálním světě





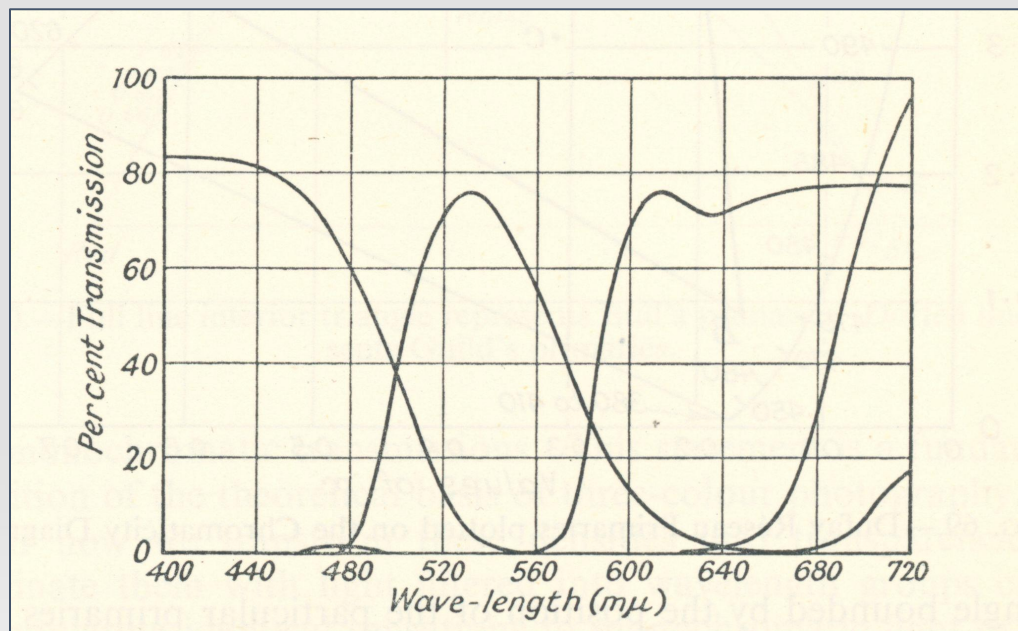
Richard H. Stewart, Havajský ostrov Oahu, 1937. Dufaycolor přiznžený pro National Geographic Magazine



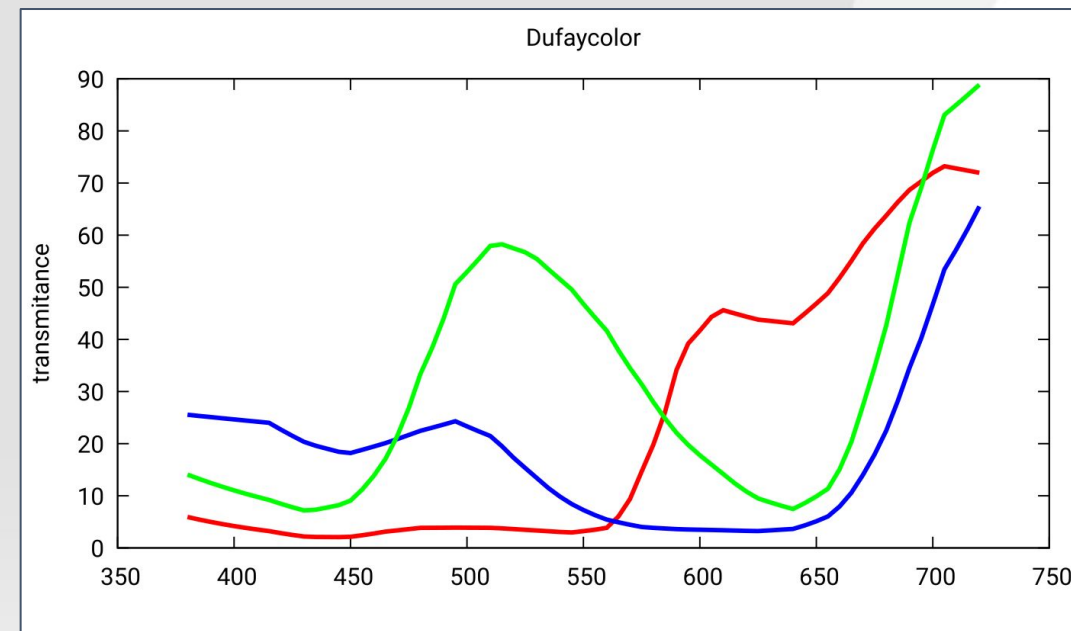
Richard H. Stewart, Havajský ostrov Oahu, 1937. Dufaycolor přiznéný pro National Geographic Magazine



Barvy Dufaycoloru

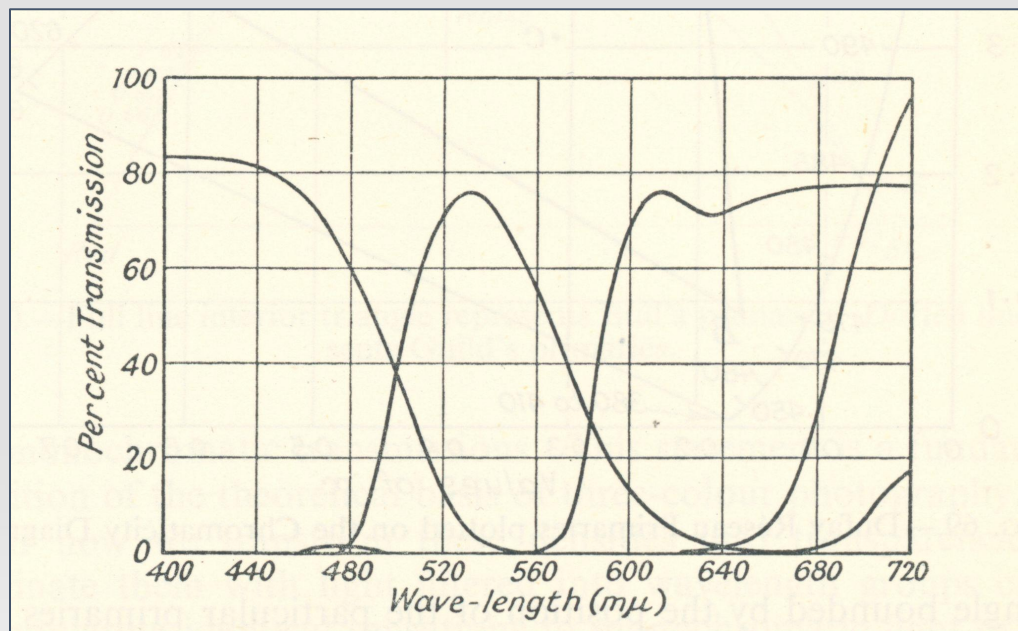


A. Cornell-Clyde: Color Cinematography, third edition 1951

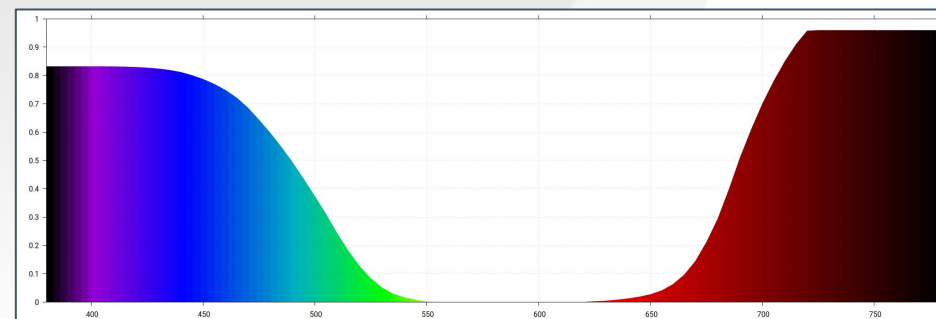
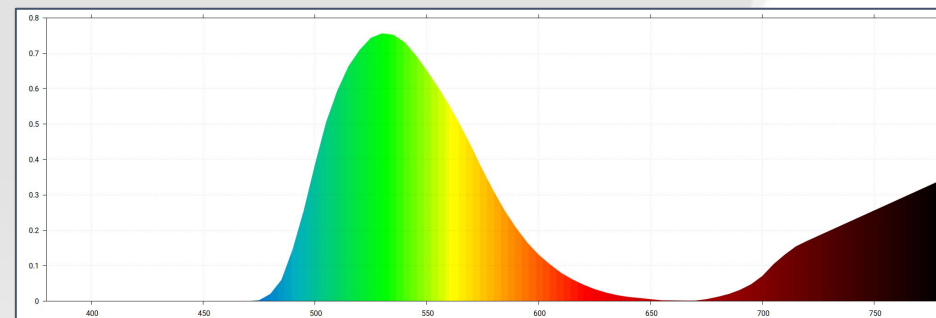
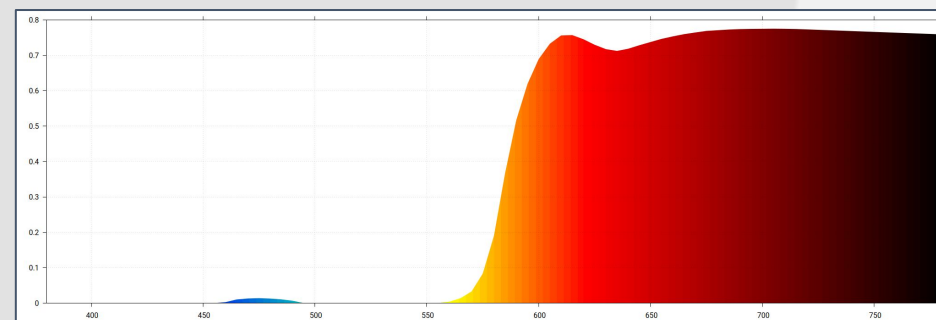


G Trumpy, S Chatterjee, U Ruedel, B Flueckiger: A Material Investigation of Color Film Technology through the Koshofer Collection, 2021

Barvy Dufaycoloru



A. Cornell-Clyde: Color Cinematography, third edition 1951



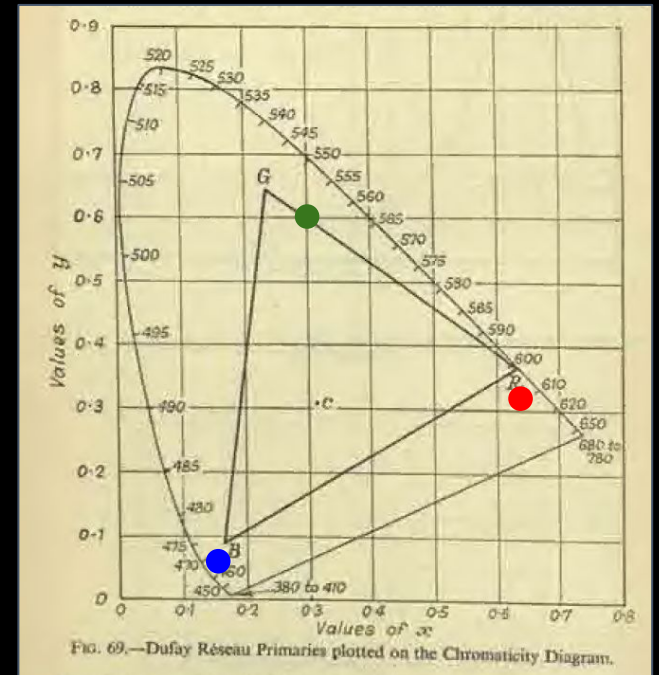
Digitální Laboratoř!

Three vertical bars of equal height and width are positioned in the center of the slide. From left to right, they are colored orange, green, and blue. They are set against a solid black background.

Digitální Laboratoř!

COLORIMETRIC SPECIFICATION OF RÉSEAU ELEMENTS

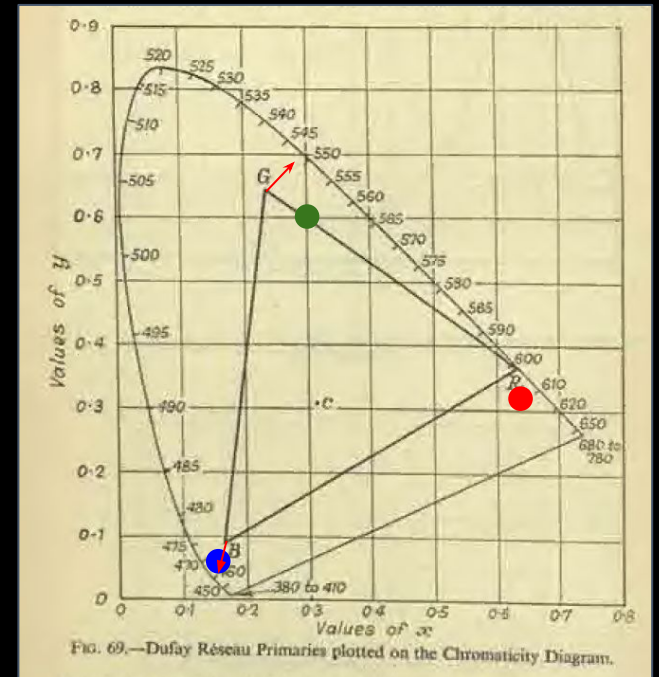
	x .	y .	Y (%).	Dom. Wave- length ($M\mu$).
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Digitální Laboratoř!

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Red Element	0.633	0.365	17.7	601.7
Green Element	0.233 0.298	0.647 0.694	43	549.6
Blue Element	0.14 0.133	0.089 0.042	3.7	466.0

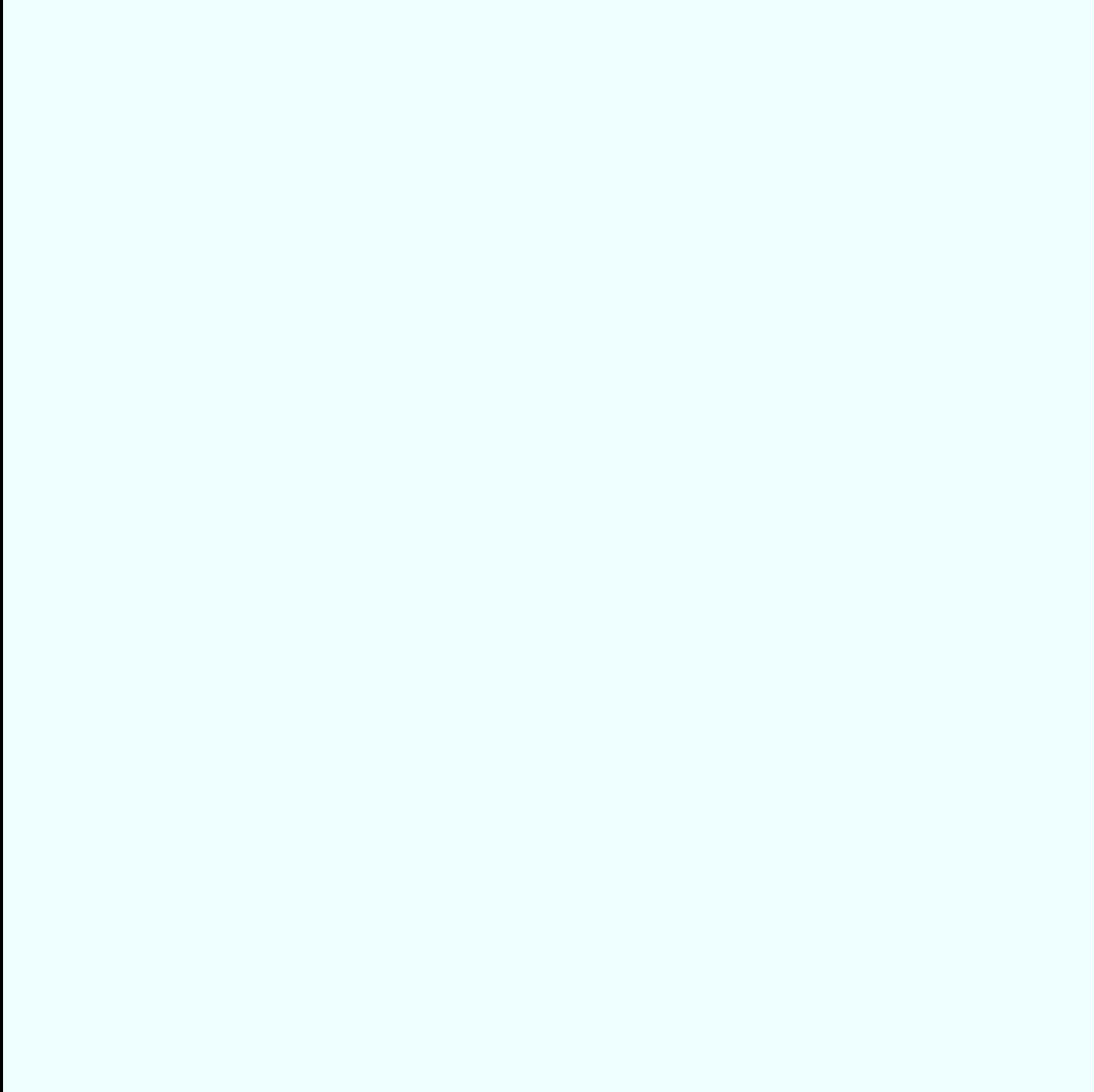


Digitální Laboratoř!

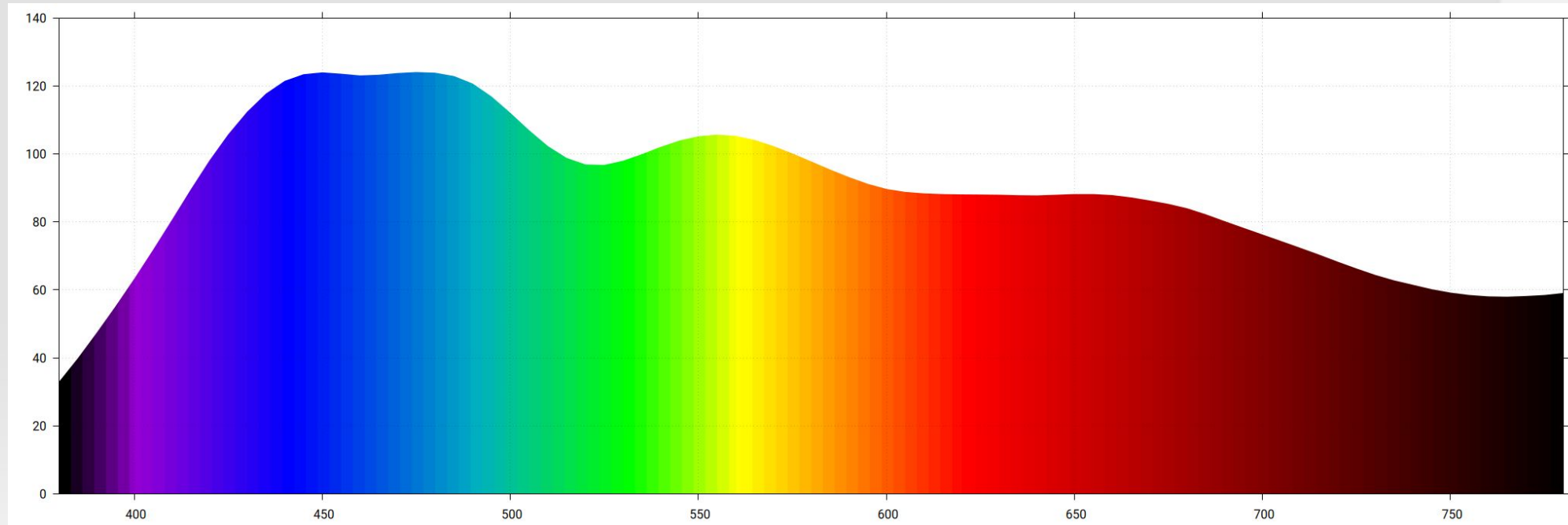


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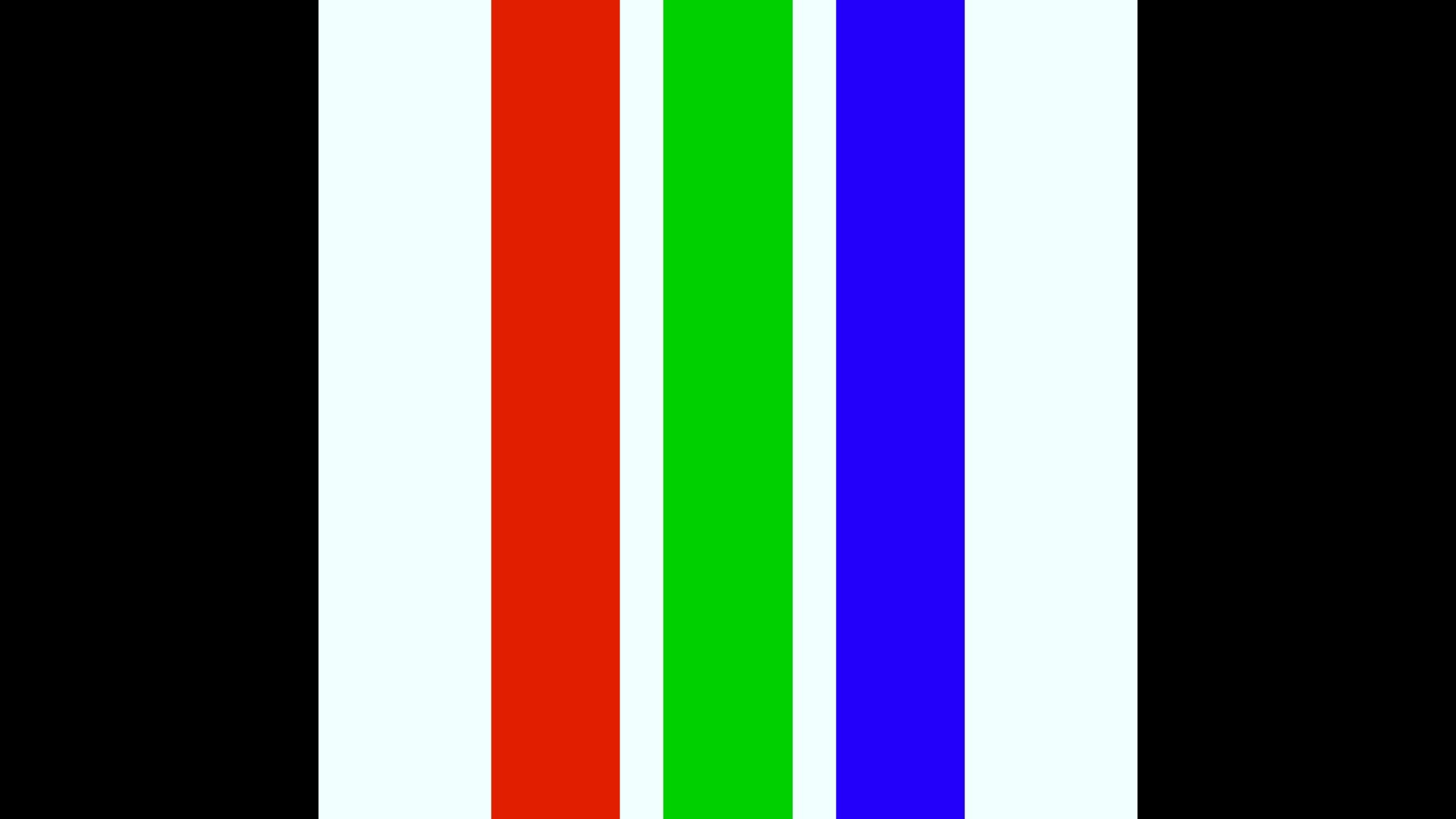
	<i>x.</i>	<i>y.</i>	<i>y</i> (%).	<i>Dom. Wave-</i> <i>length</i> (<i>Mμ.</i>)
Red Element	0.633	0.365	17.7	601.7
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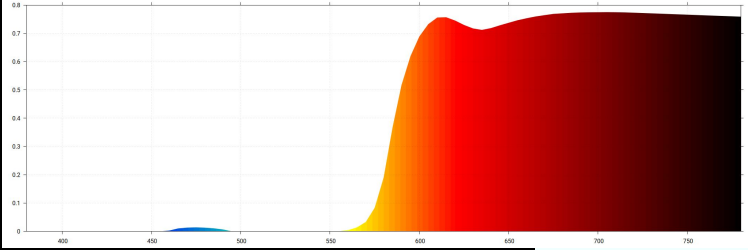


Zdroj světla

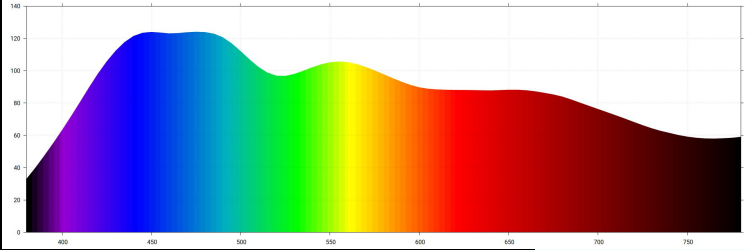


Illuminant C: Rozptýlené denní světlo 6774K simulované lampou.

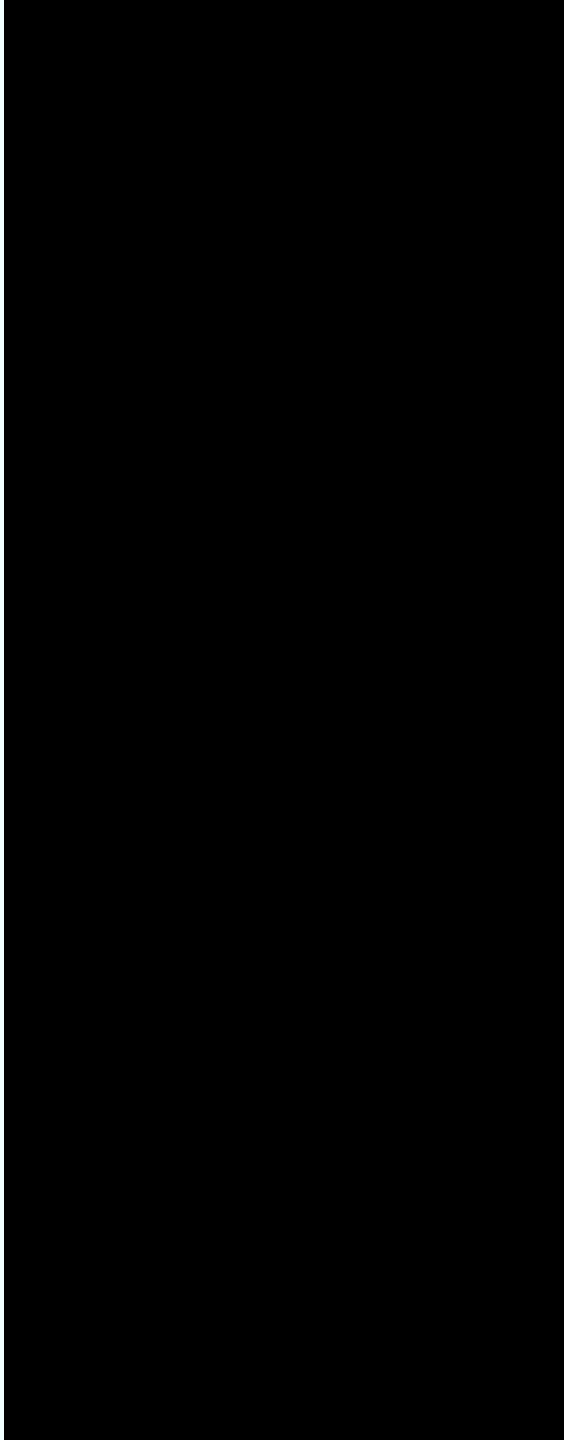
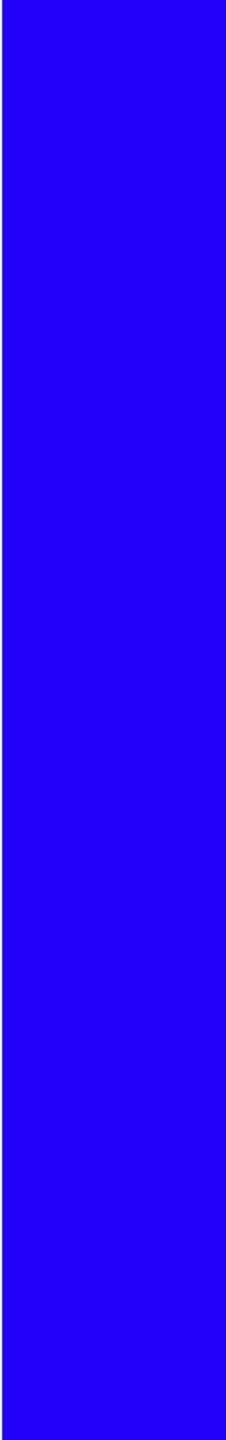
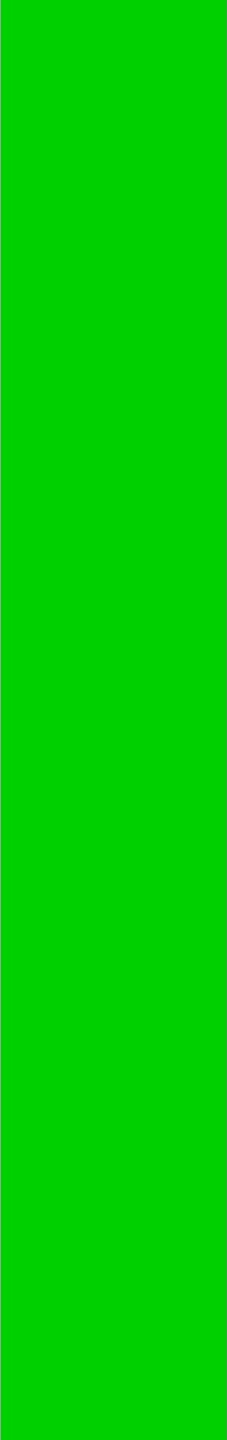
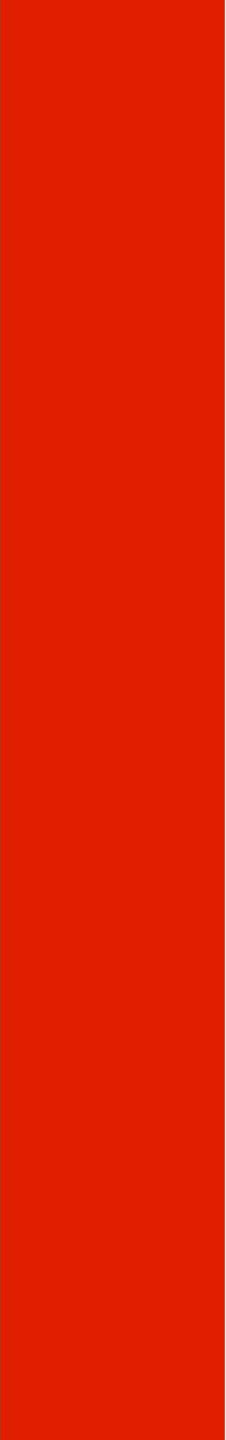
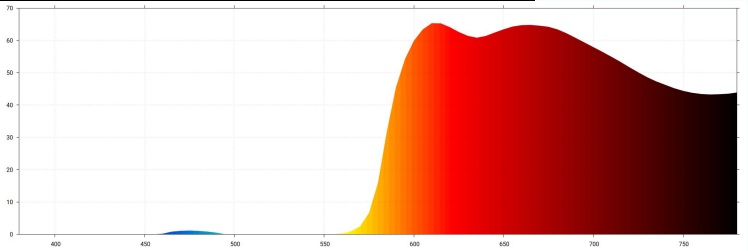


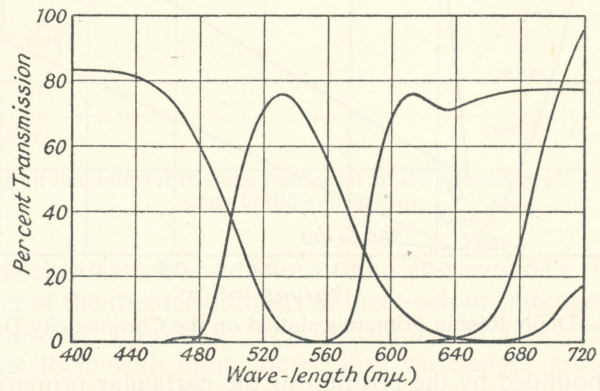


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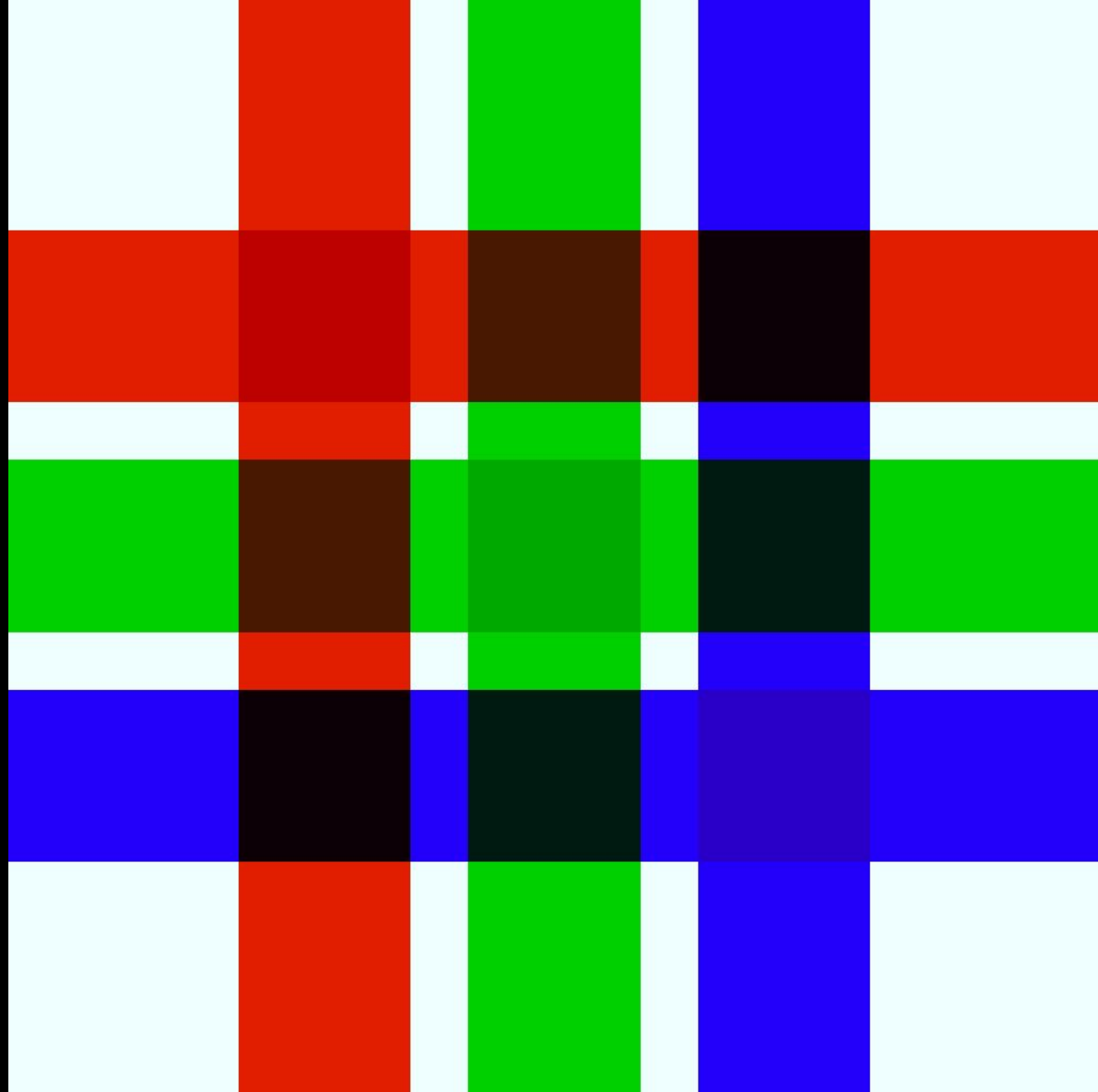
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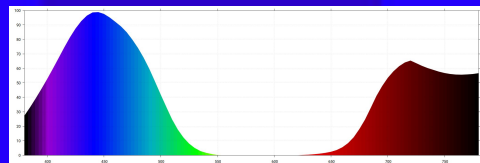
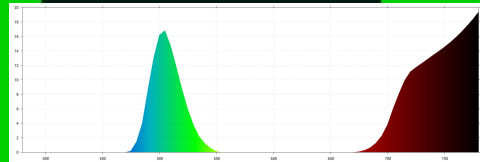
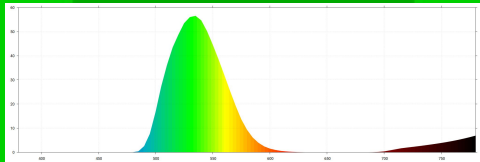
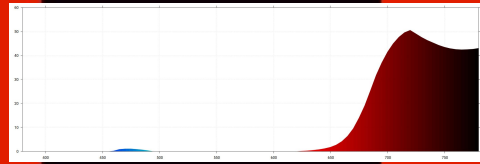
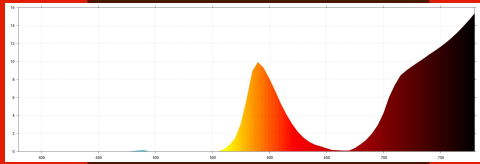
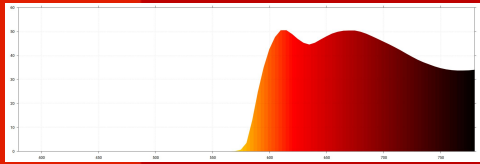


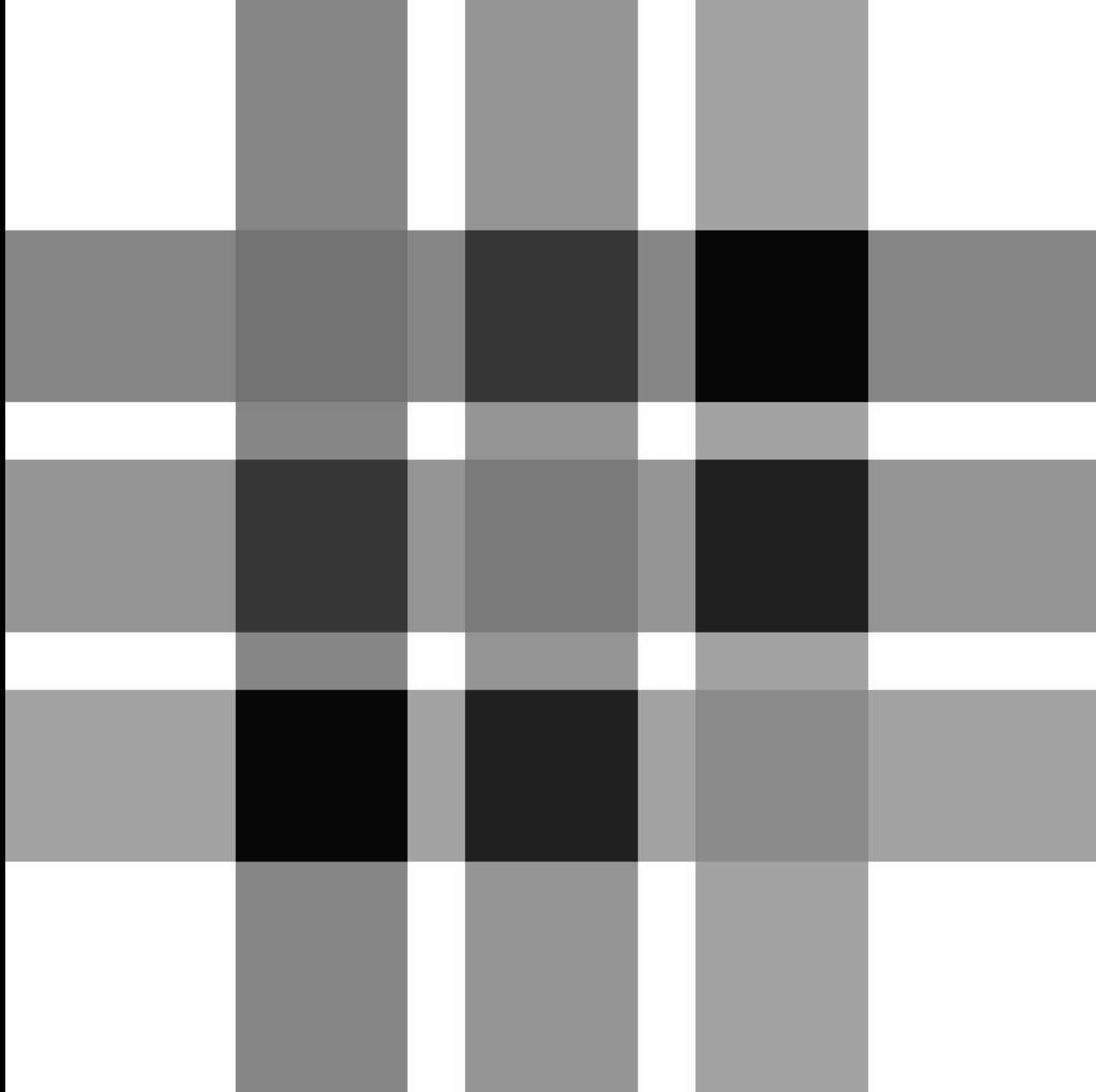


COLORIMETRIC SPECIFICATION OF RÉSEAU ELEMENTS

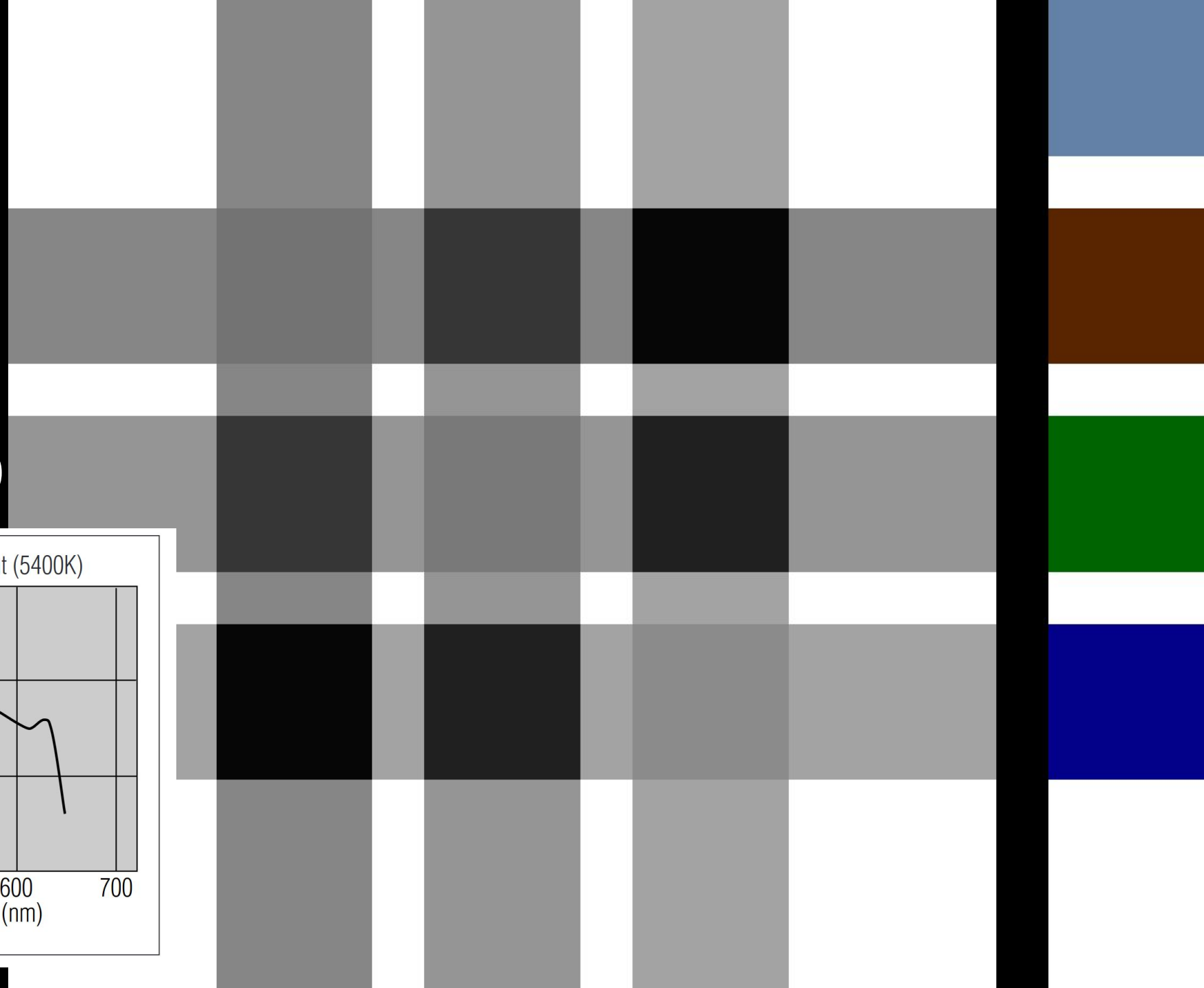
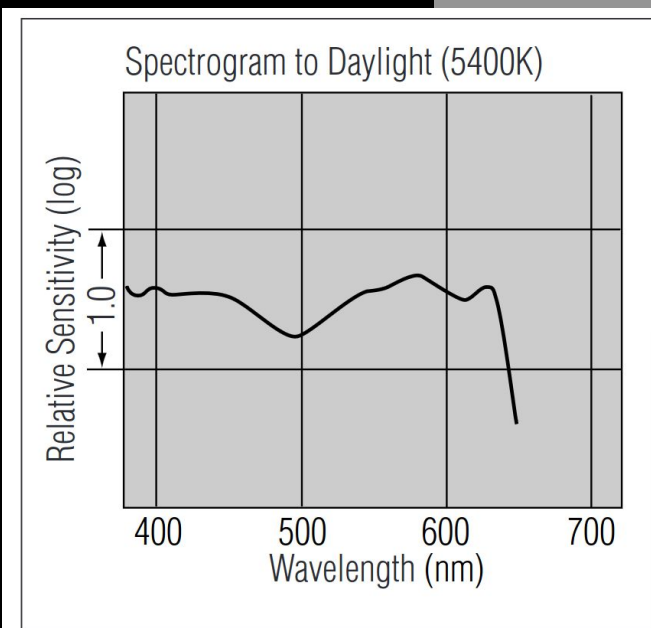
	<i>x.</i>	<i>y.</i>	<i>y</i> (%)	<i>Dom. Wave-</i> <i>length</i> (<i>Mμ</i>).
Red Element	0.633	0.365	17.7	601.7
Green Element	0.233 0.298	0.647 0.694	43	549.6
Blue Element	0.14 0.133	0.089 0.042	3.7	466.0

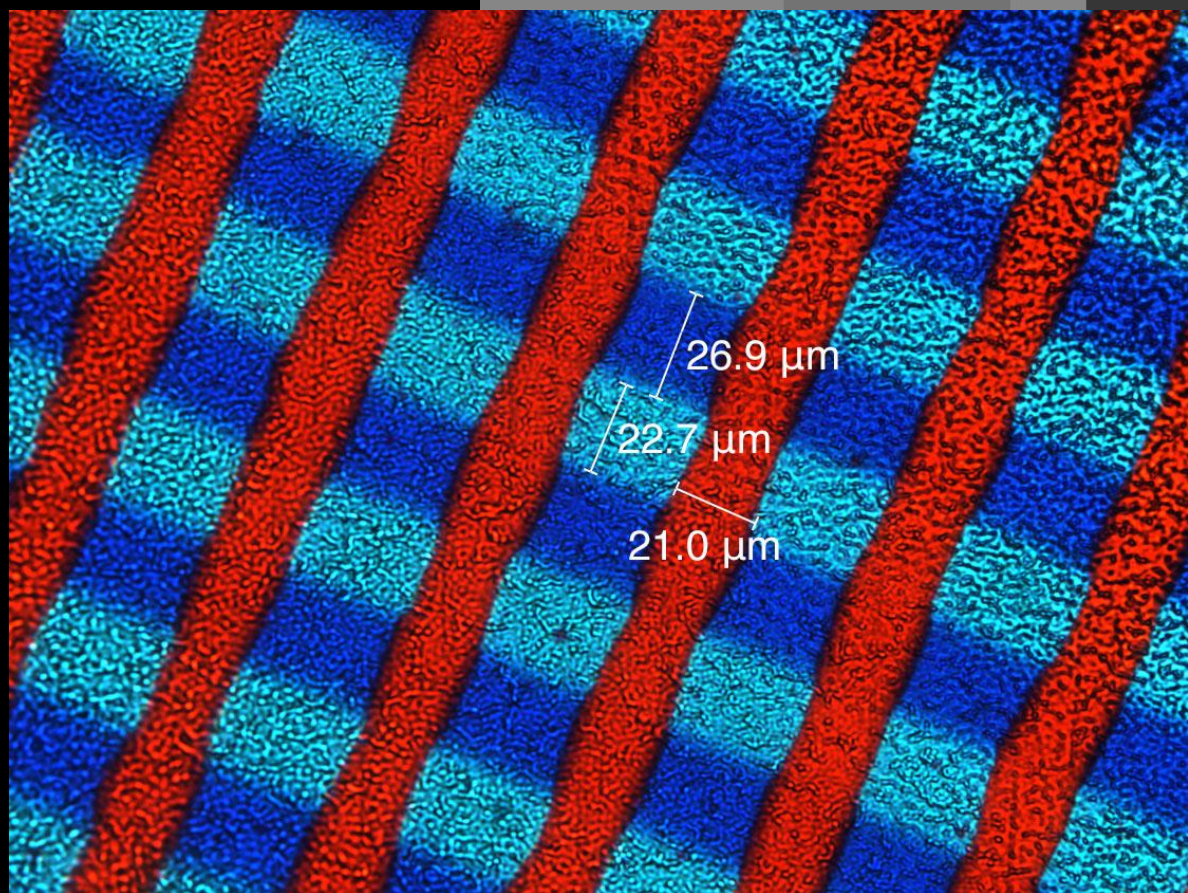






Neopan 100





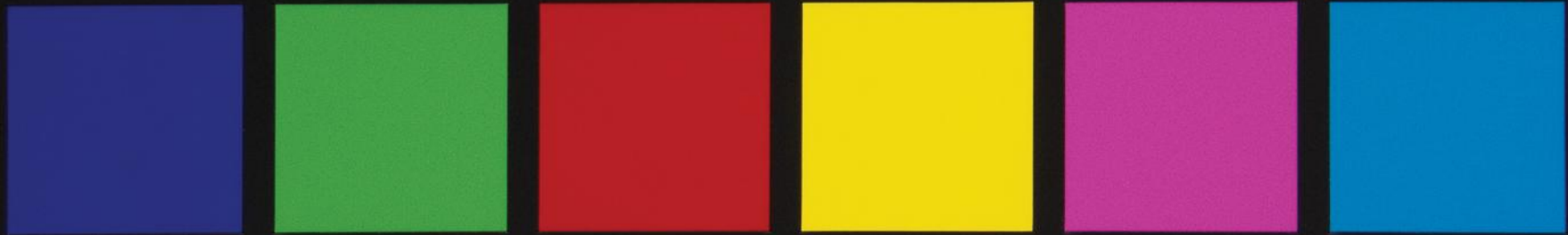
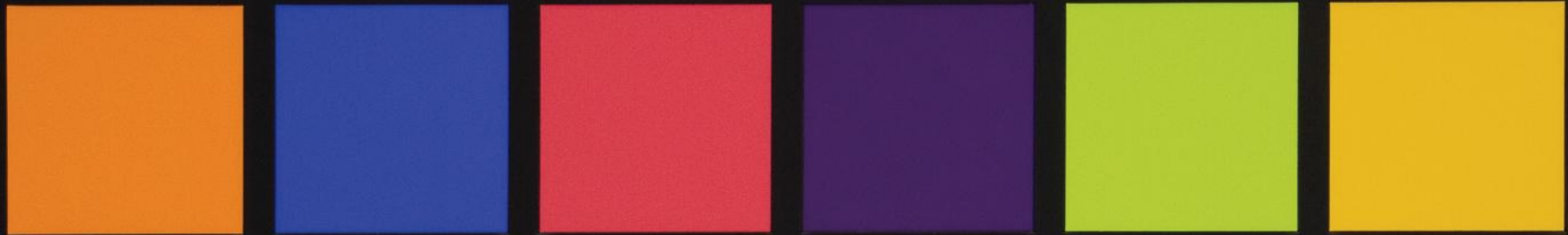
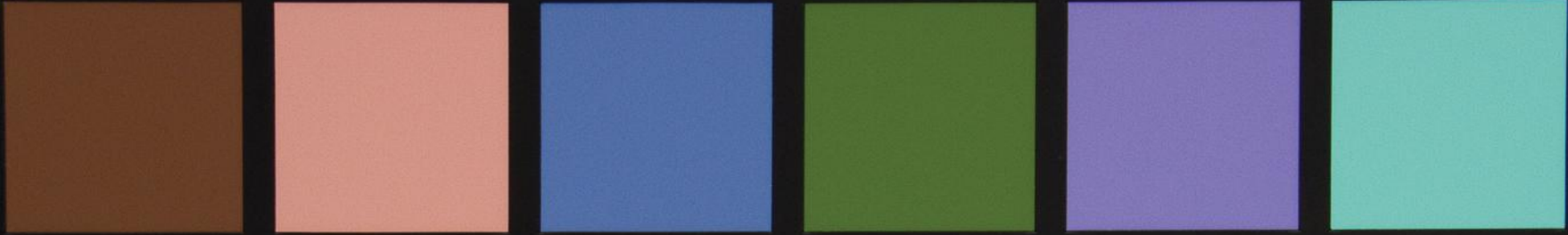








colorchecker CLASSIC



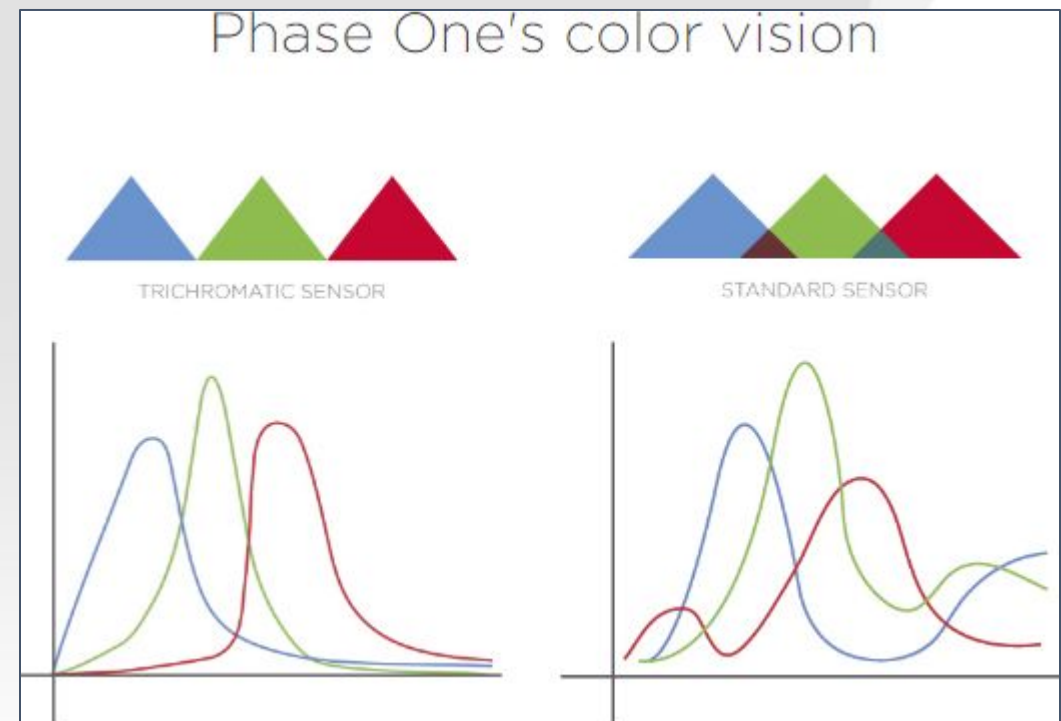
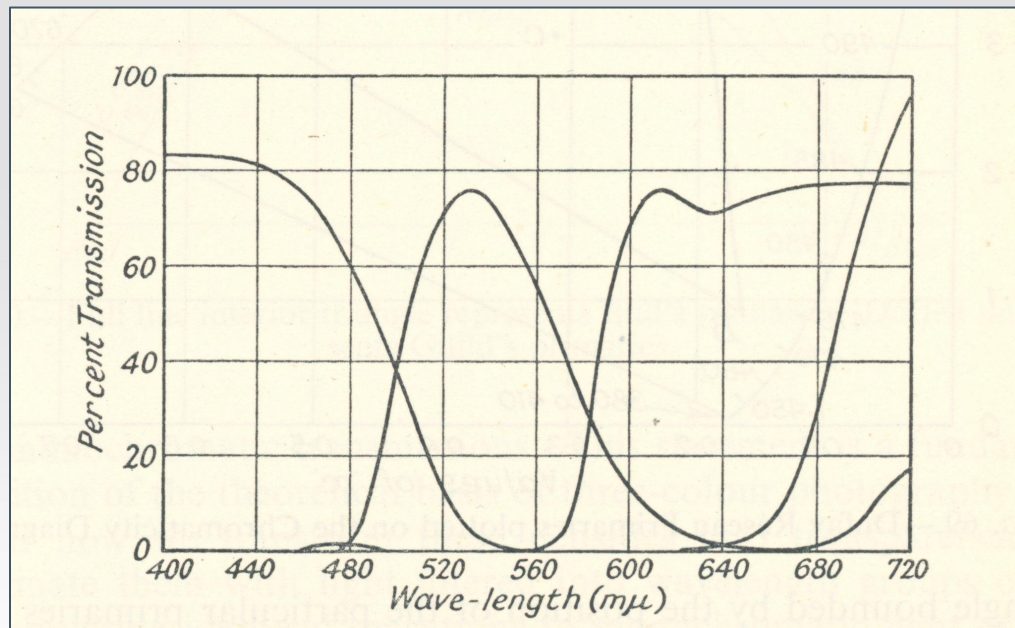
xrite





Profil Dufaycoloru

1. Dnešní digitální fotoaparáty řeší podobný problém
2. Desaturaci řeší ICC profil















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