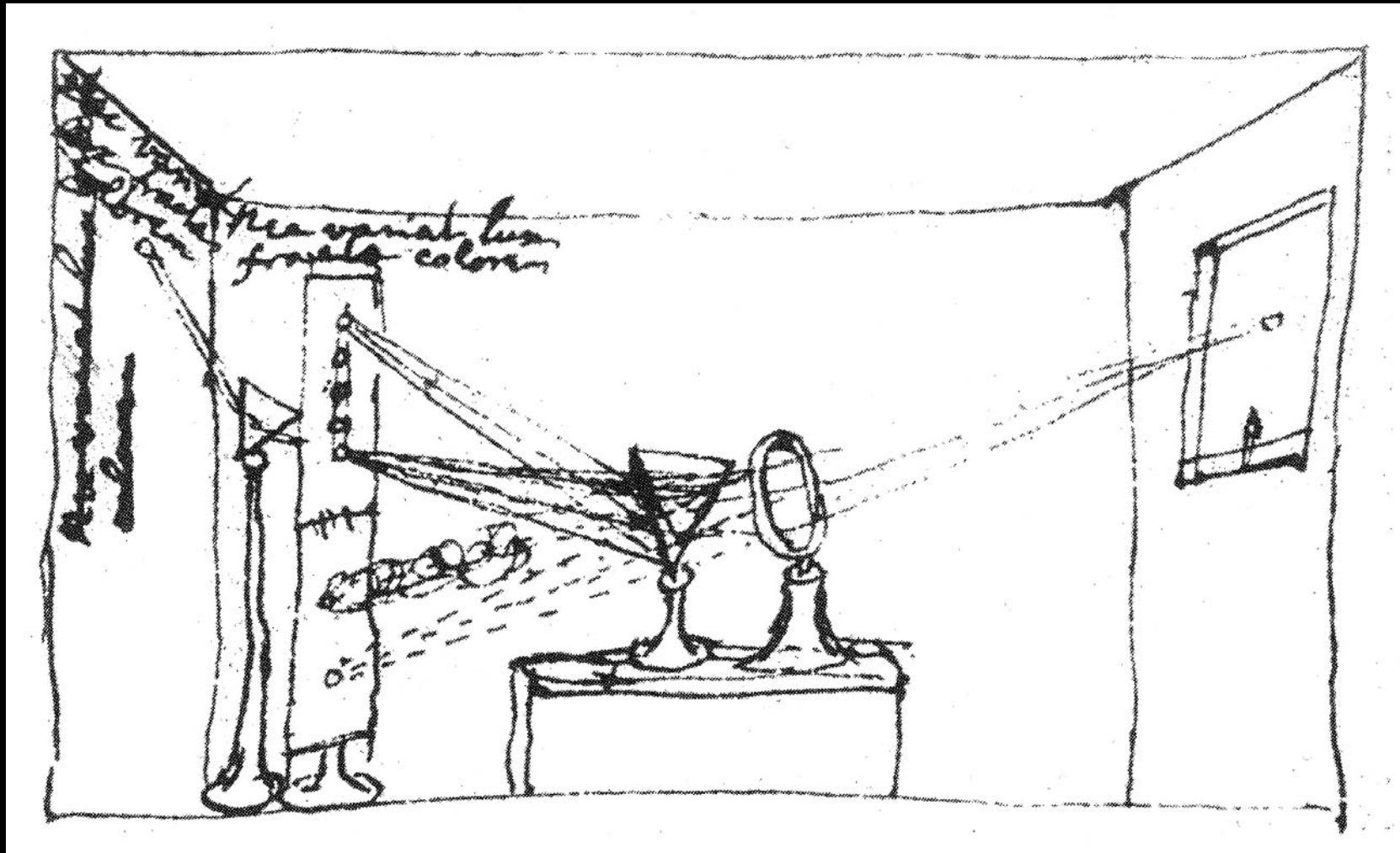


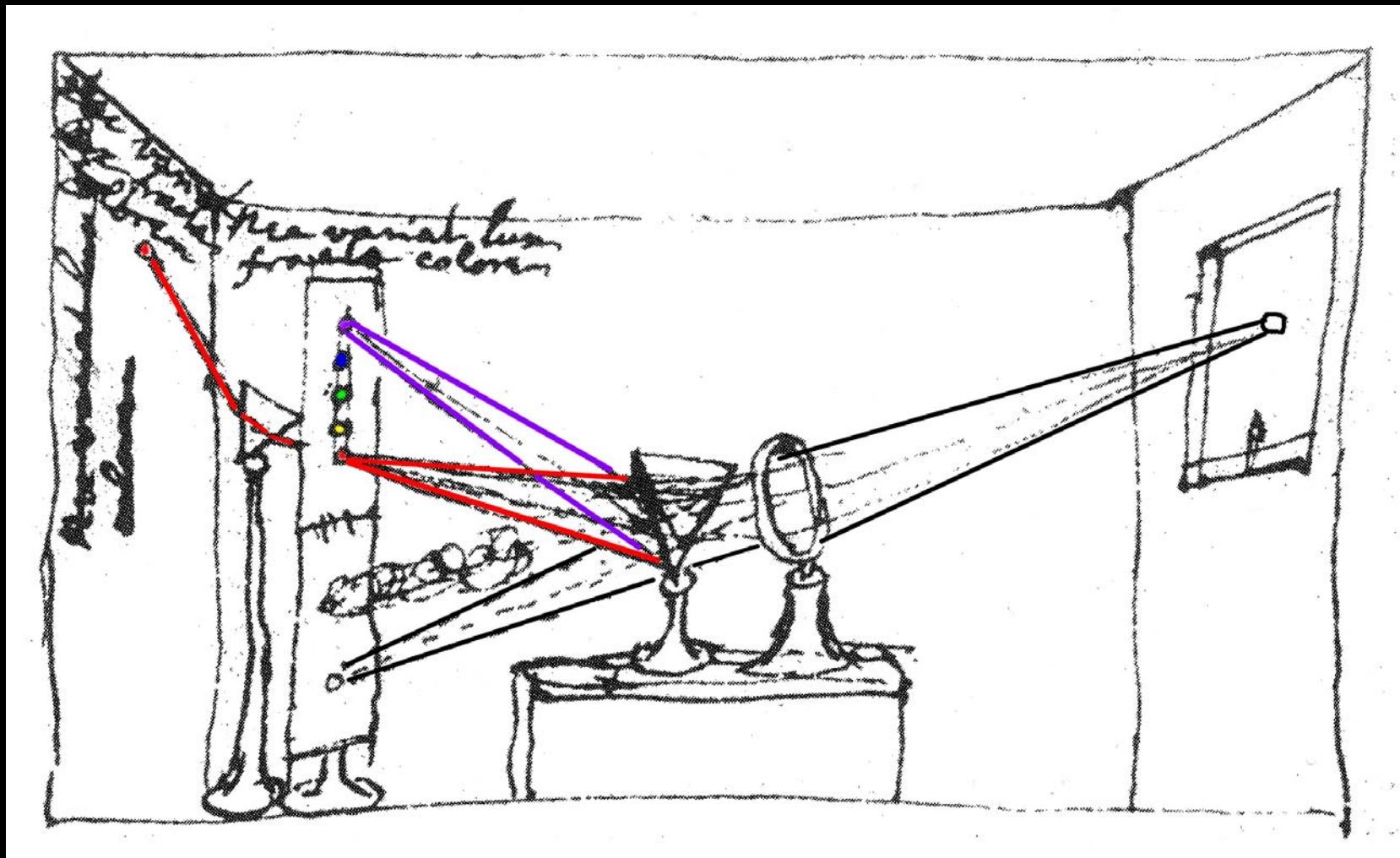
Ton und Farbe bei Young, Goethe und Helmholtz Farben

Daniel Muzzolini
2011

Newton's Experimentum crucis 1666



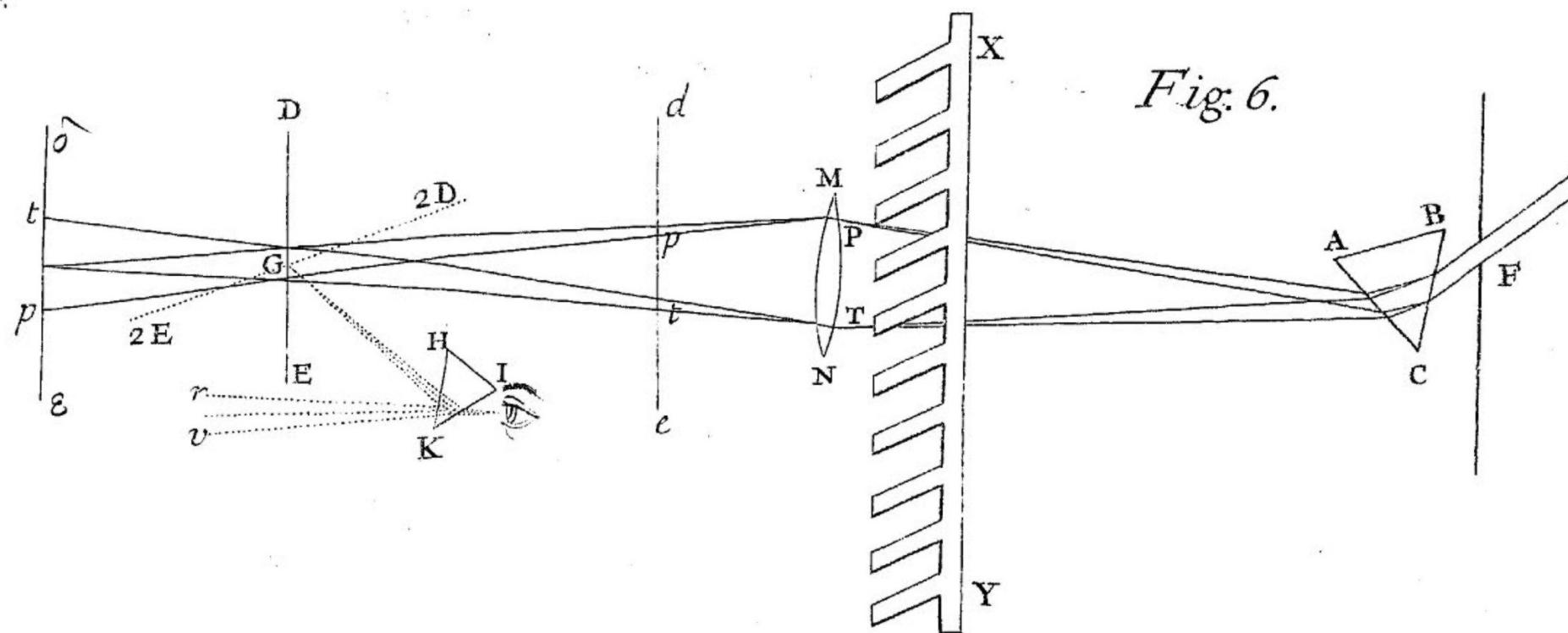
Newton's Experimentum crucis 1666



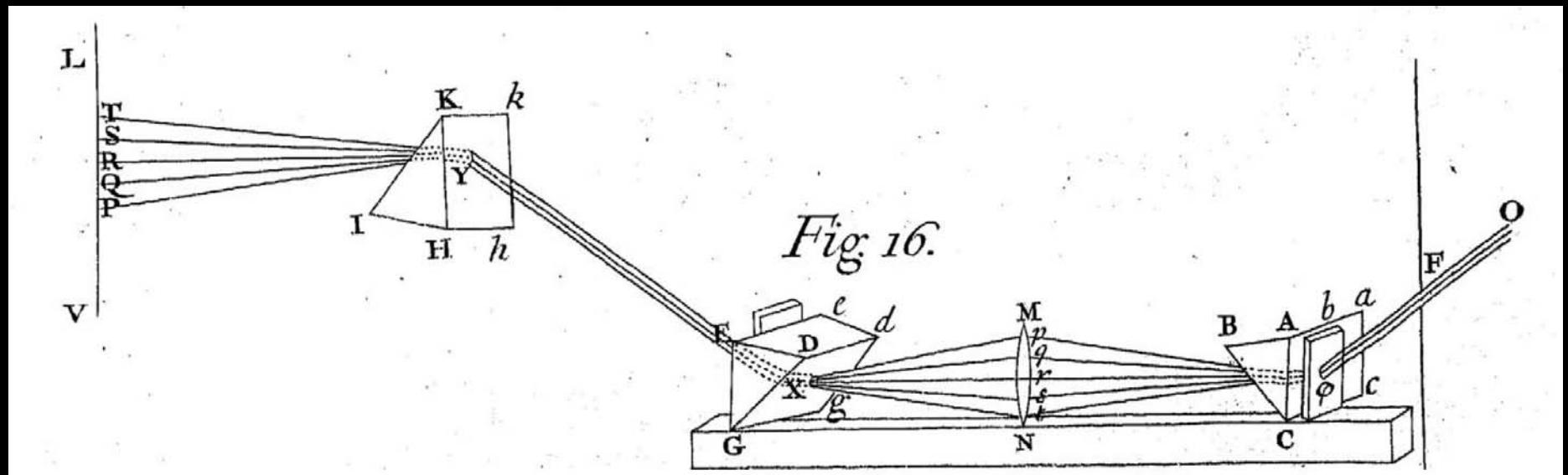
Newton: Prisma, Kamm, Linse

Book I. Part II. Plate II.

Fig: 6.



Newton: Drei Prismen, Linse



Newton's Rings

Fig. 1.

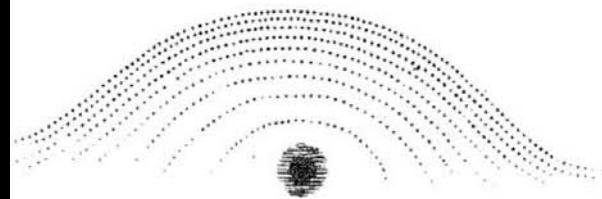
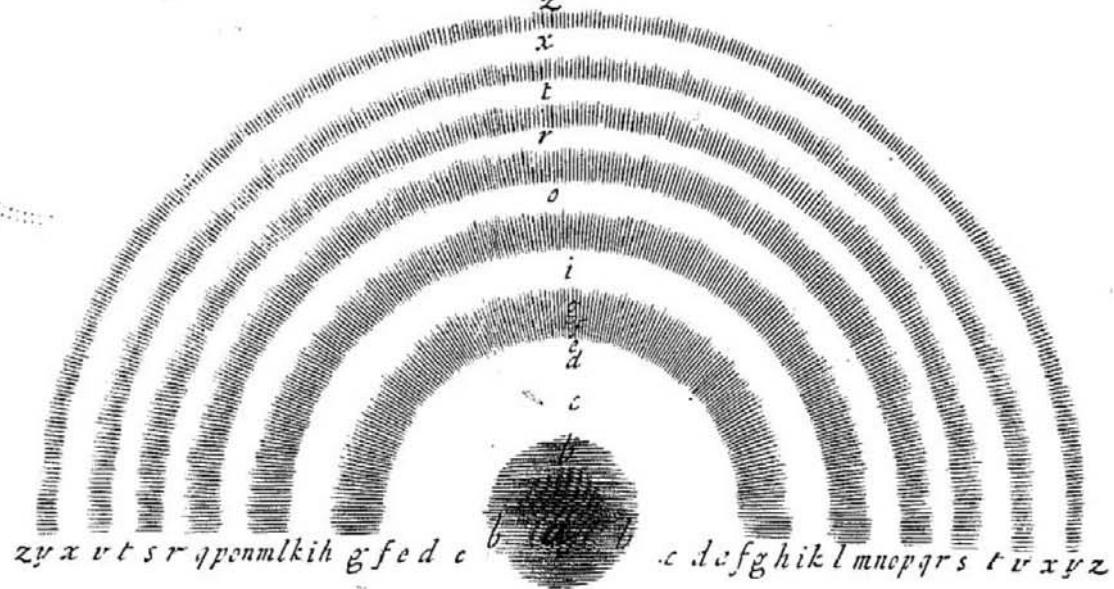


Fig. 2.



Book, II. Plate, I.

Newton: Komplementärfarben

Fig: 3.

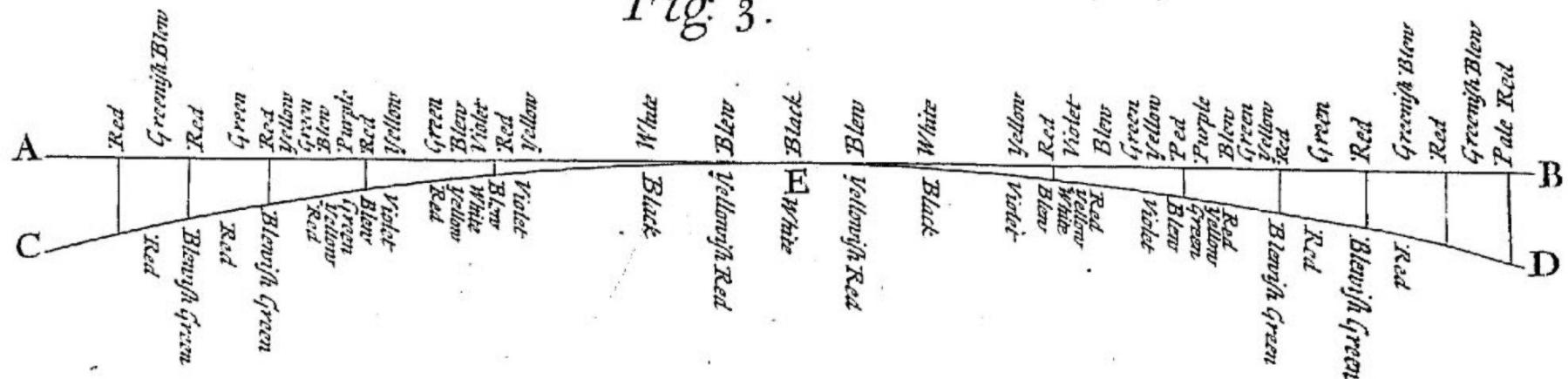
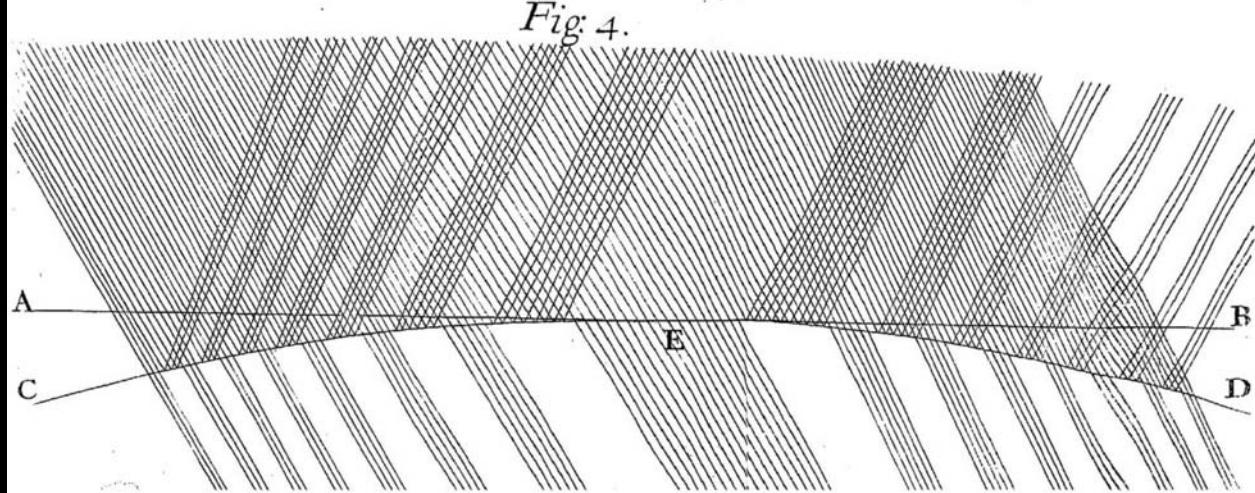


Fig: 4.

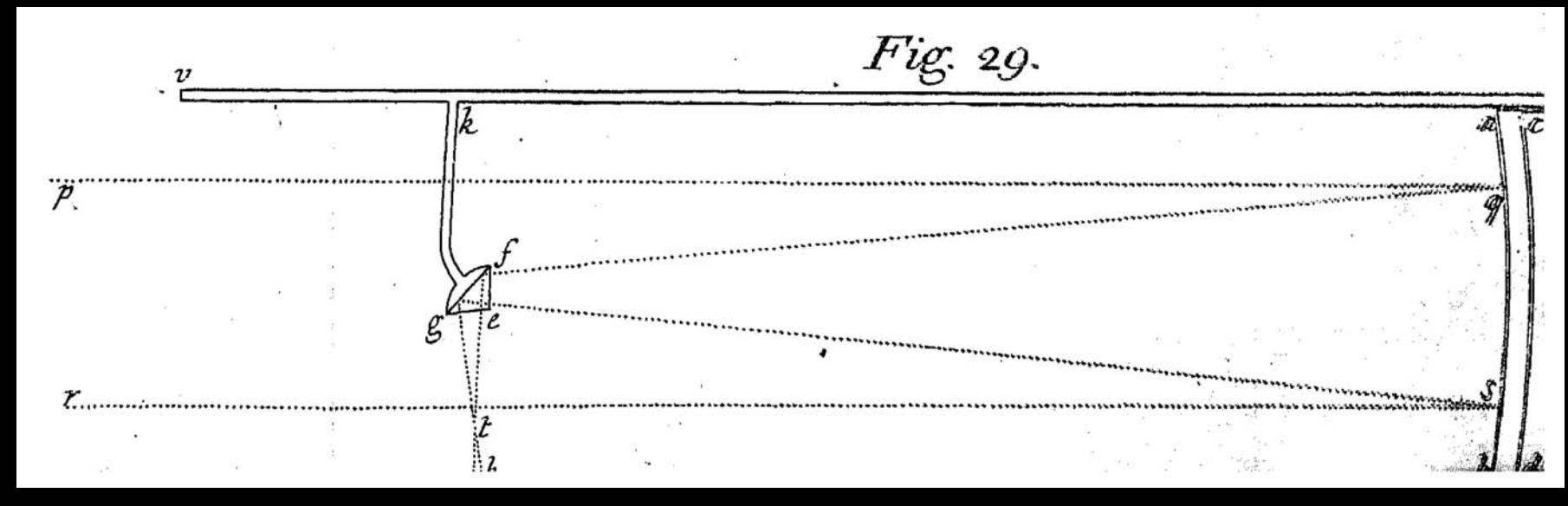


Newton: Spiegelteleskop 1672



Replica

Newton (1704)

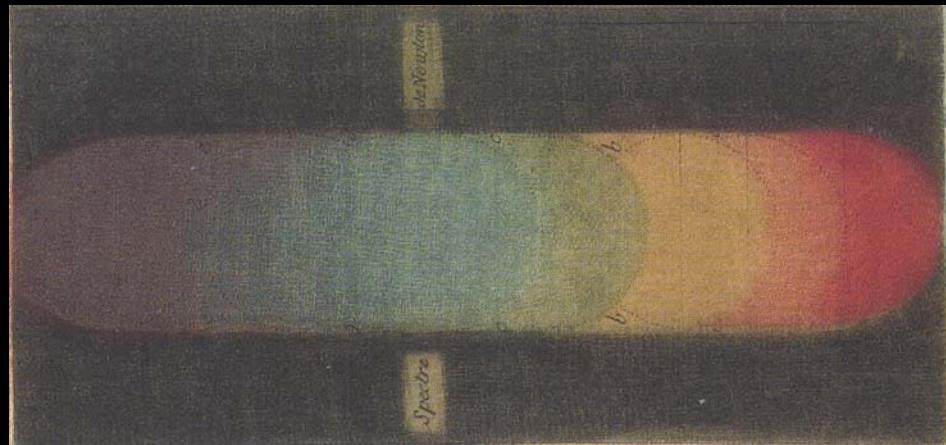




Johannes Van Eyck 1434

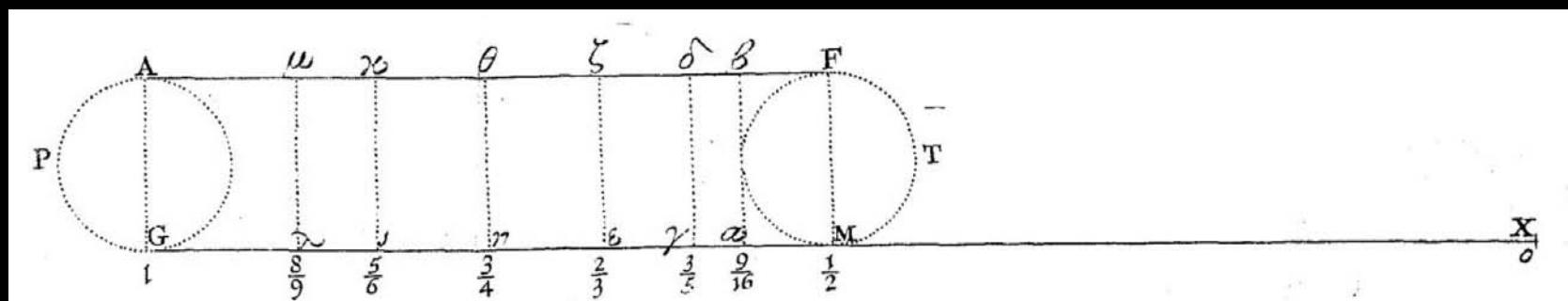


Newton's Spektrum

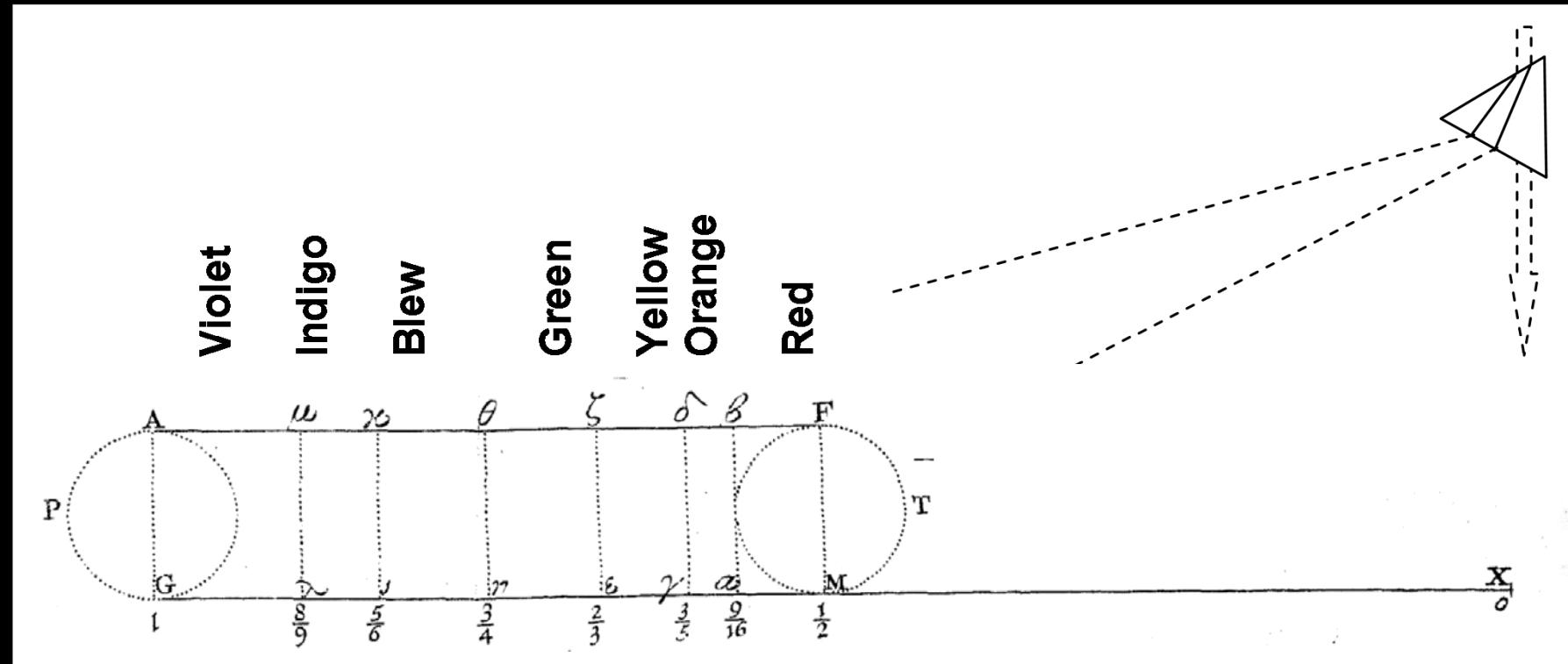


D'Agoty (1752)

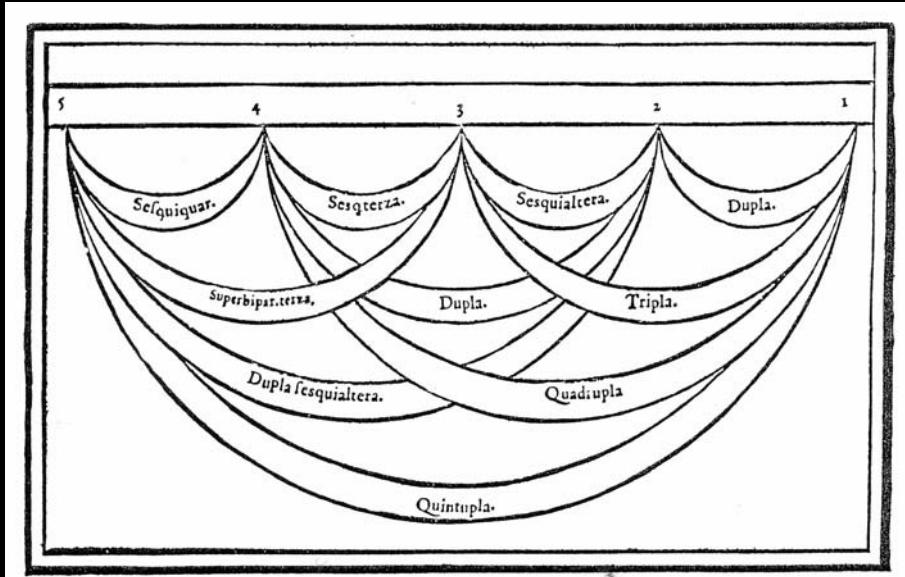
Newton (1704)



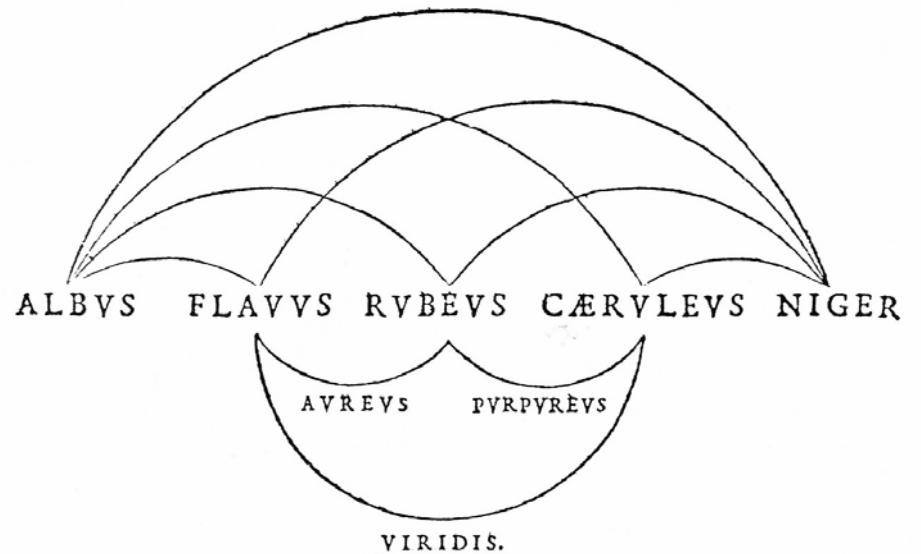
Newton: Spektrum / Monochord



Harmonische Proportionen

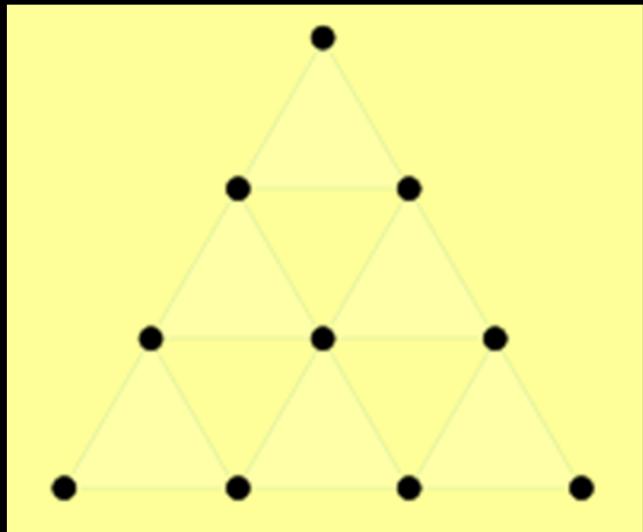


Gioseffo Zarlino 1573

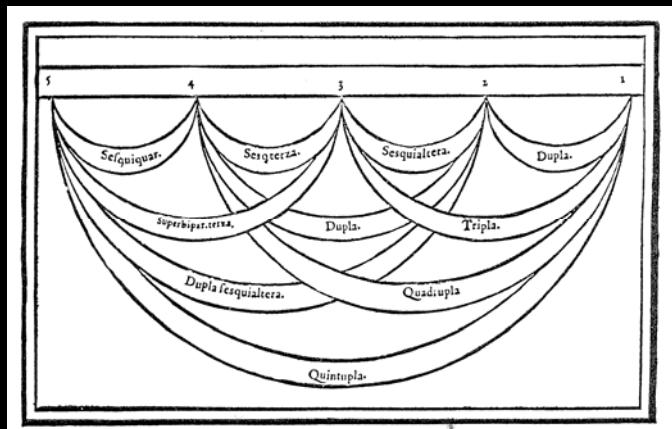
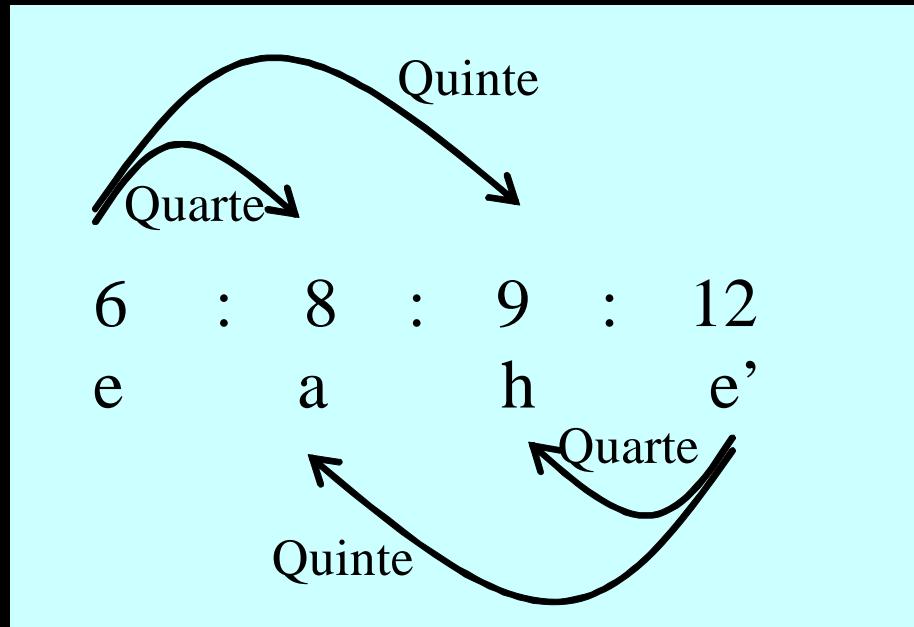


Francois D'Aguilon 1613

Tetrakty (Pythagoreer)



1 : 2 : 3 : 4



Zarlino

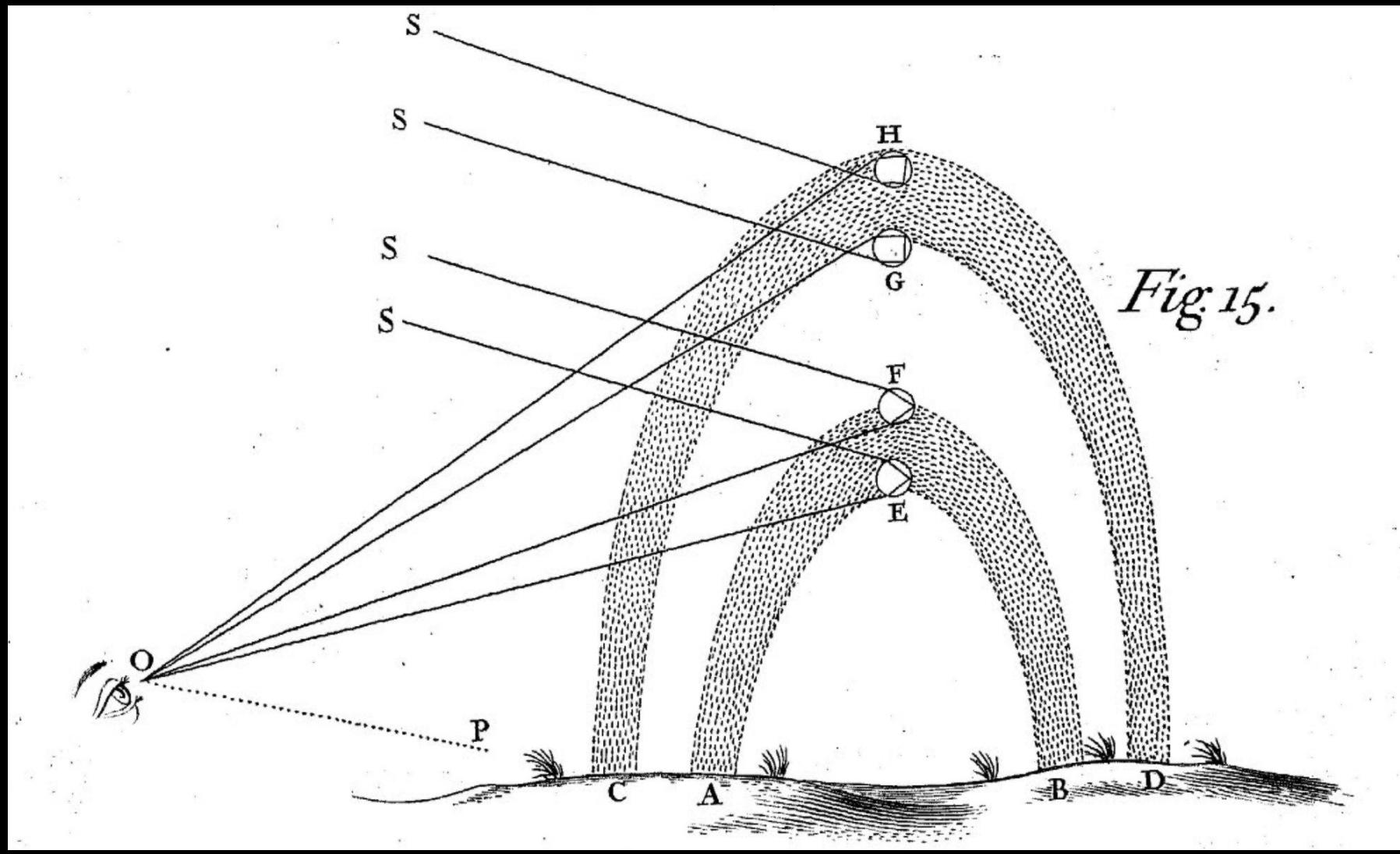
1 : 2 : 3 : 4 : 5

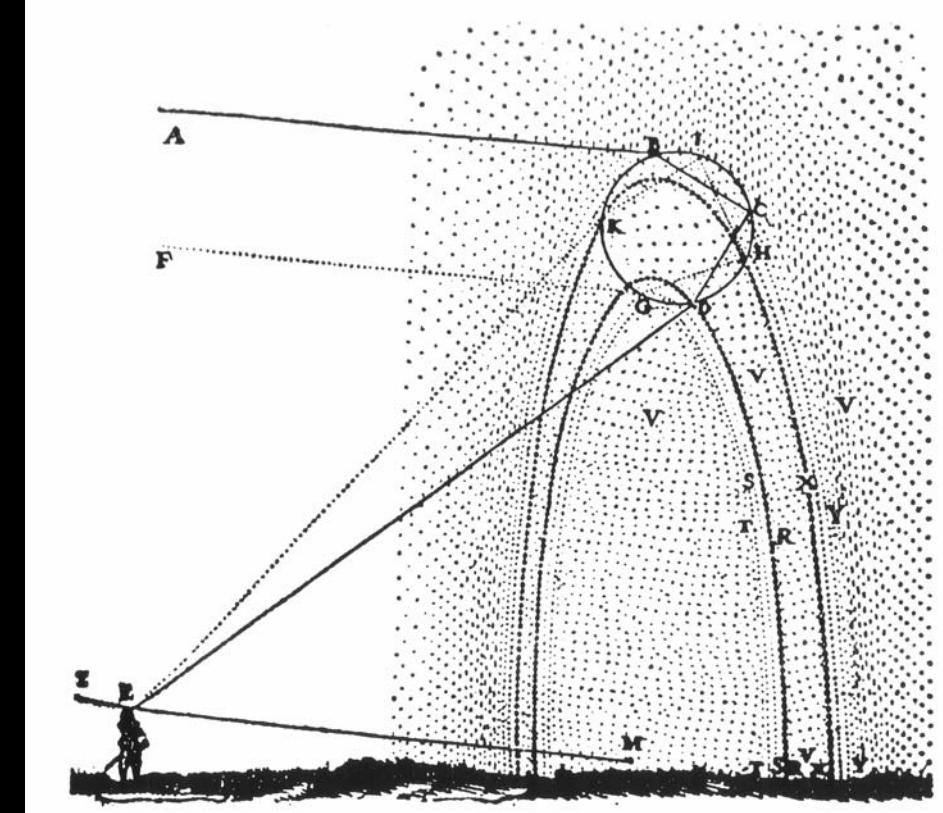
4 : 5 grosse Terz

3 : 5 kleine Sexte

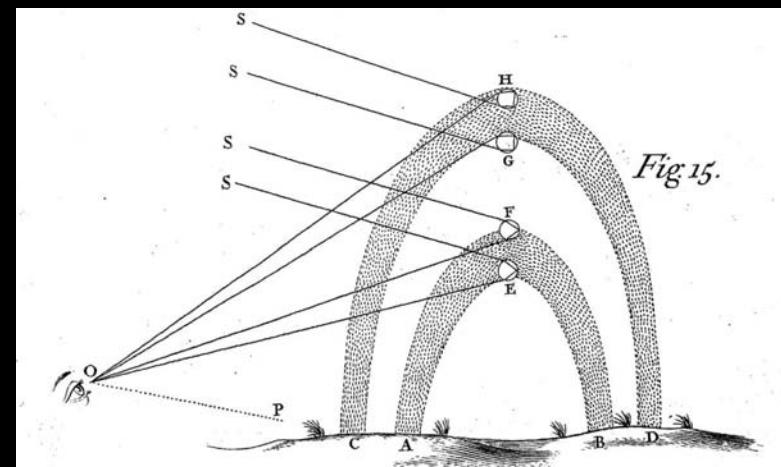
? kleine Terz

Newton: Regenbogen

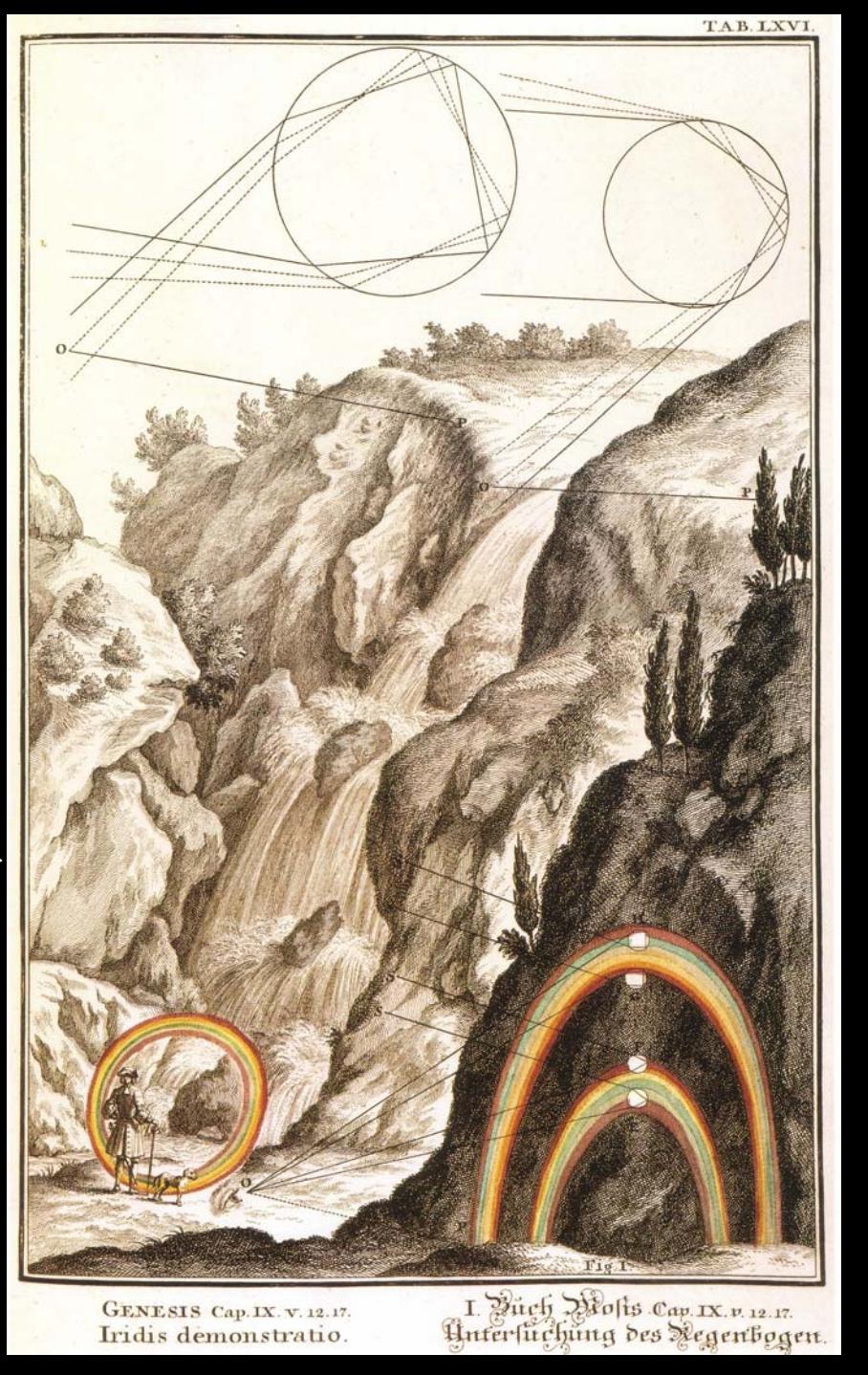


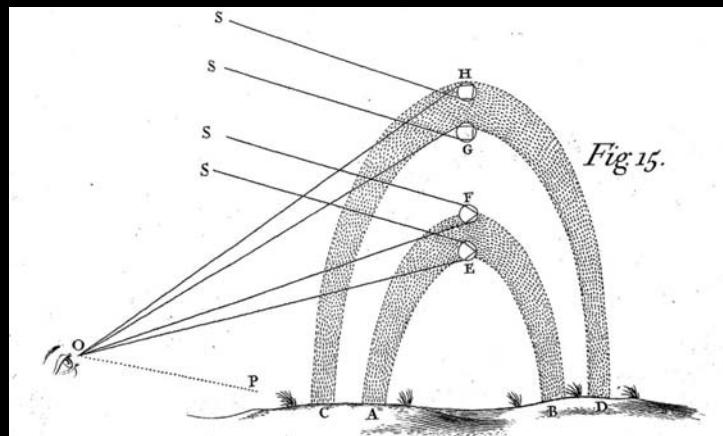


Descartes ↑
Newton ↓



Scheuchzer 1731 →





Newton 1704
Kaufmann 1780



Goethe 1826
Constable 1831



Basel Juni 2011

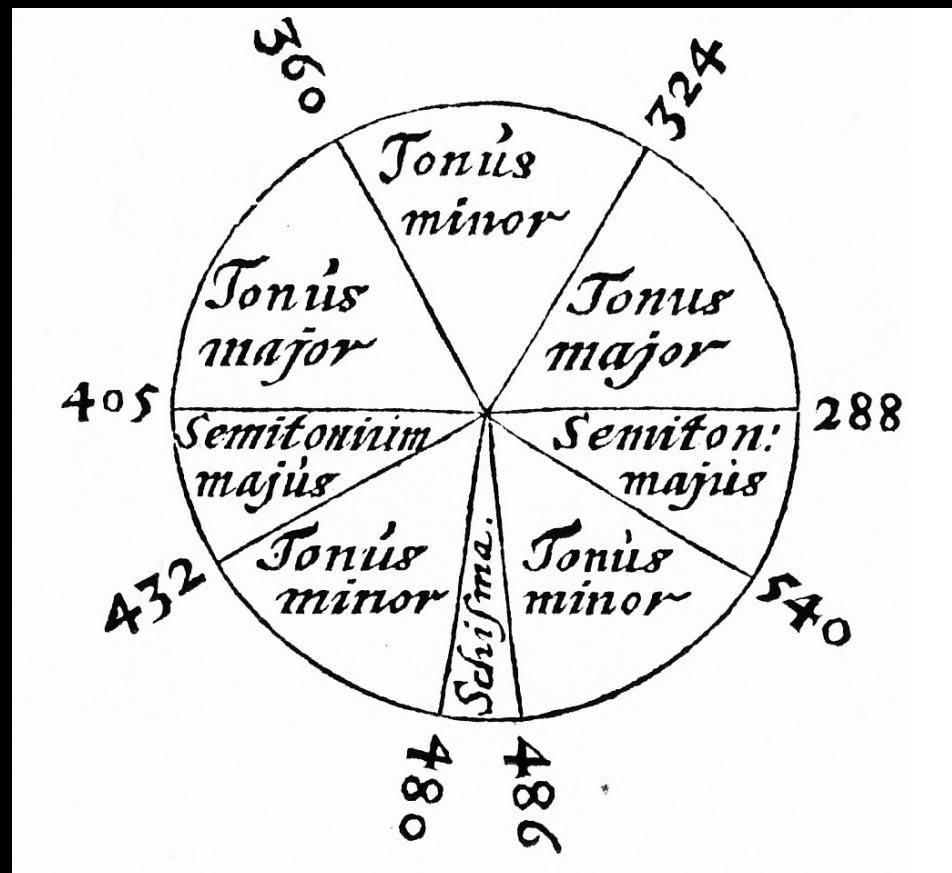


Van Eyck um1433

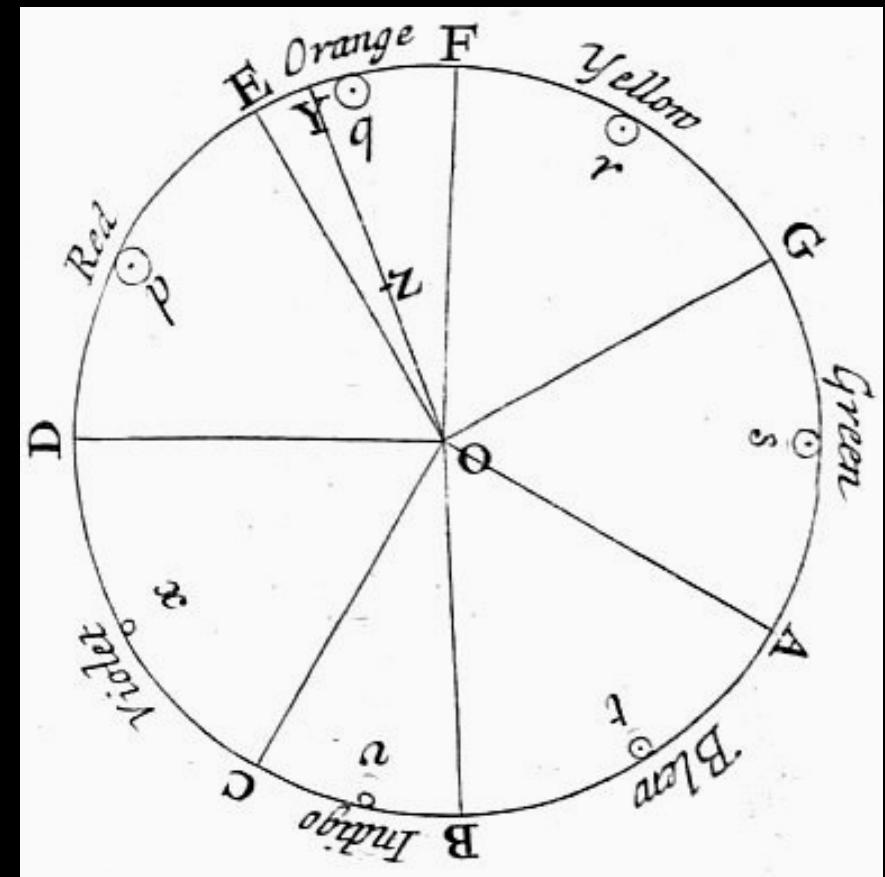


Ute Schendel, Himmel über Menzingen (Juni 2011)

Descartes/Newton: Ton-/Farbkreis

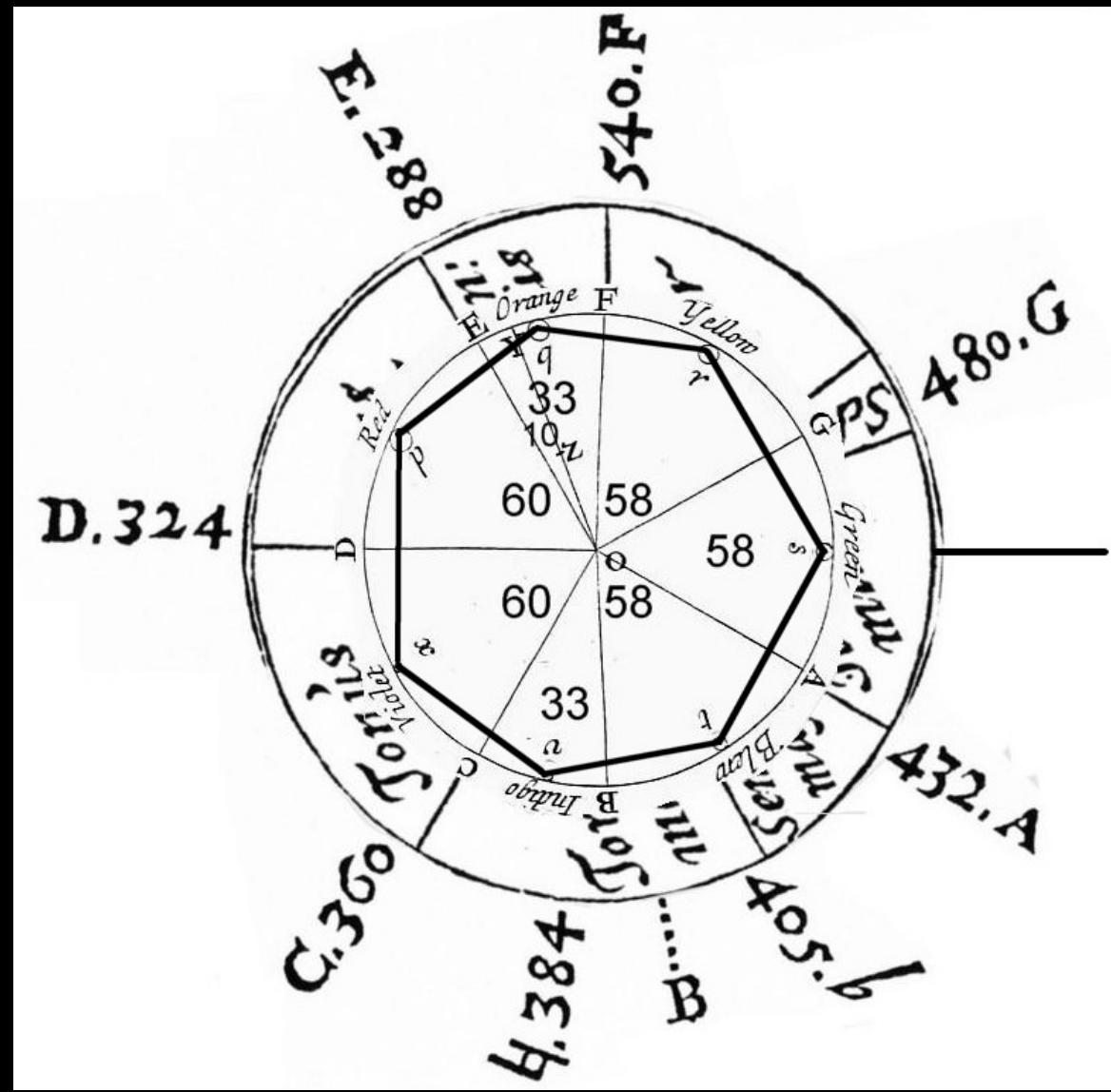


Descartes (1619/51)

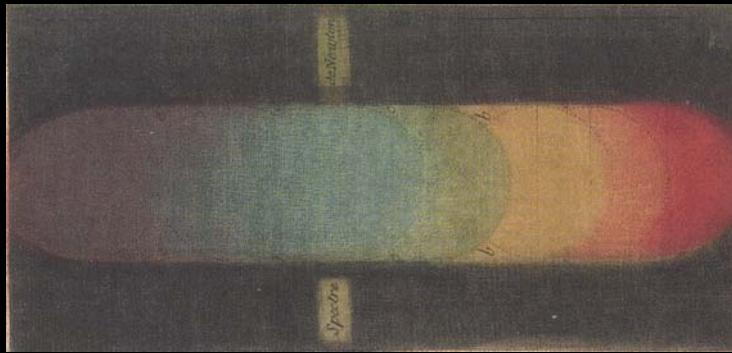
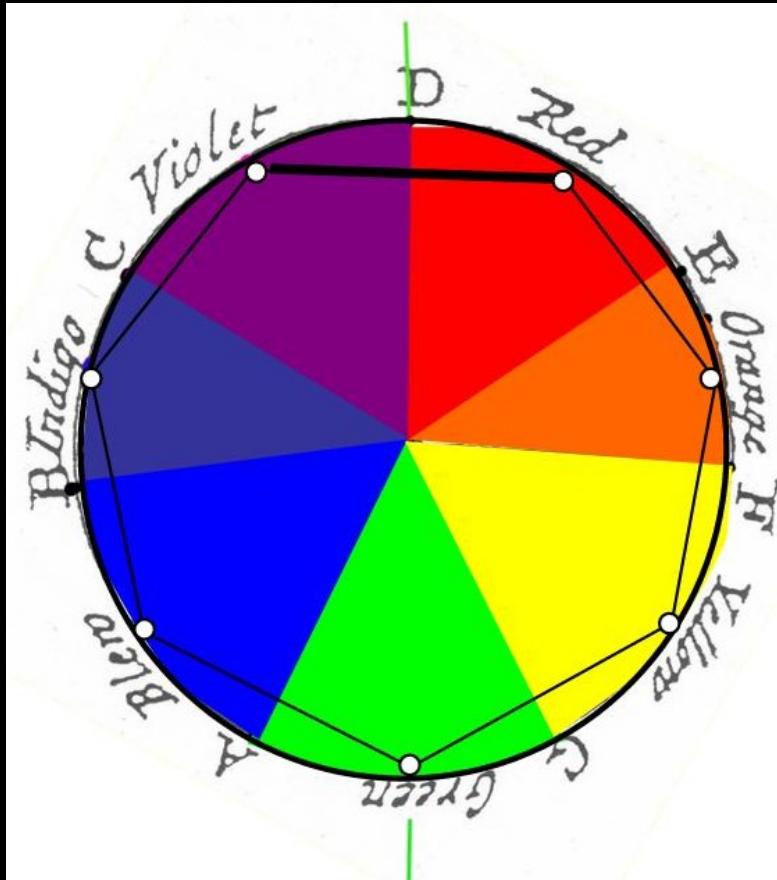


Newton (1704)

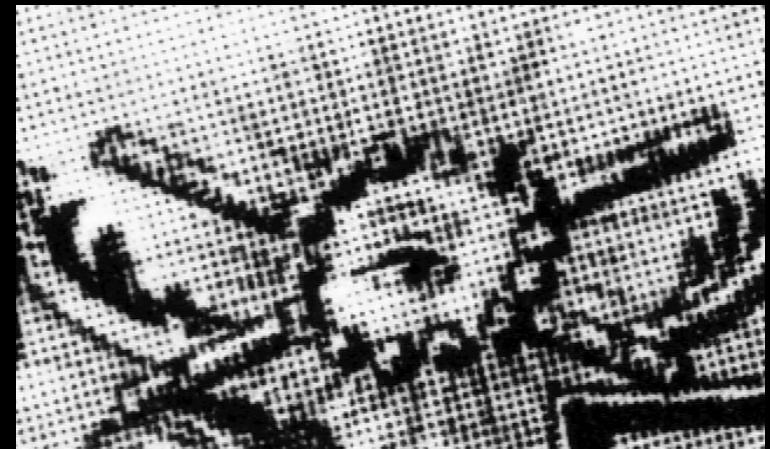
Descartes/Newton: Ton-/Farbkreis



Newton's Farbkreis



Newton / Goethe



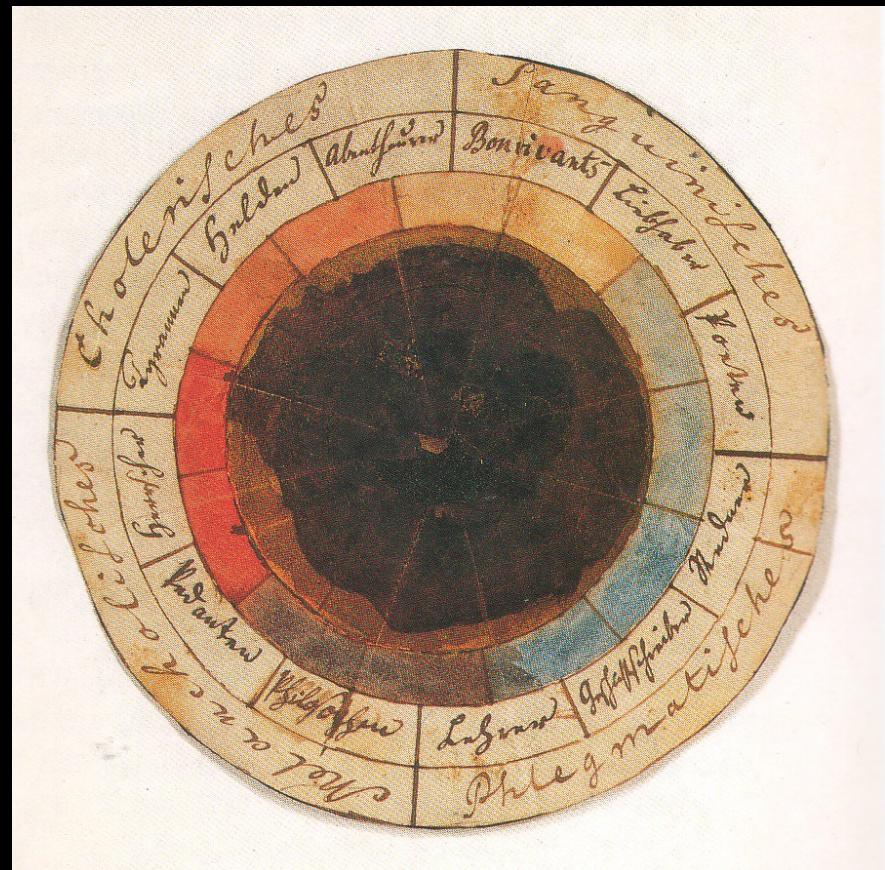
Newton, Optice 1740



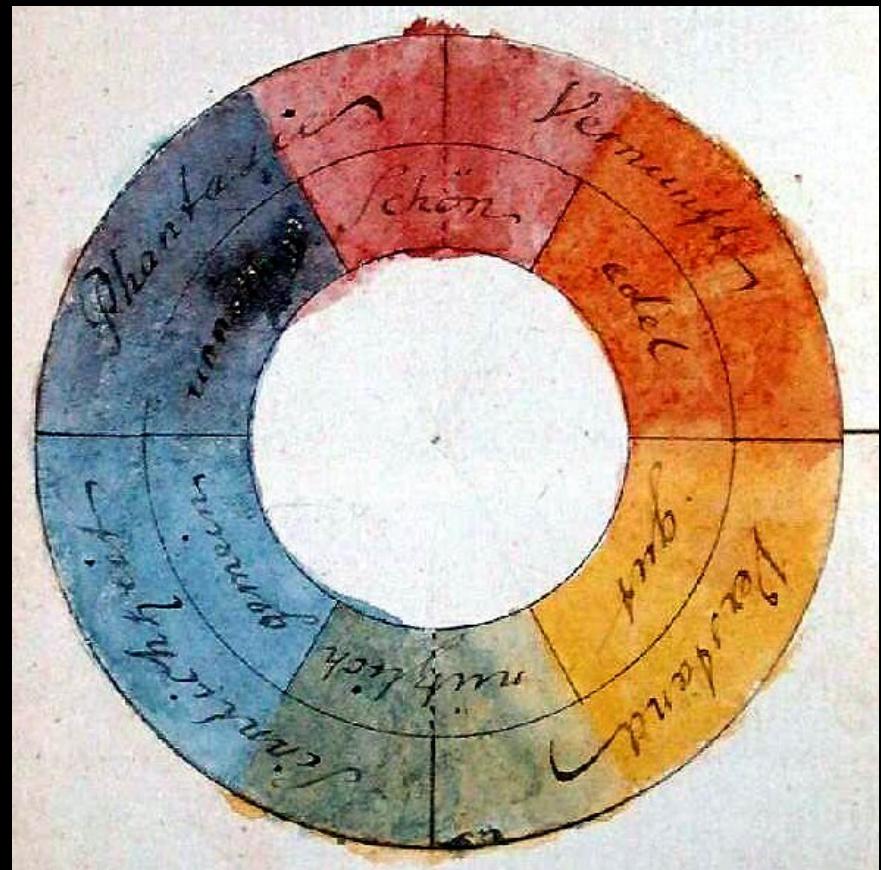
← Goethe, Farbenlehre 1810
Van Eyck 1432 ↓



Goethe/Schiller

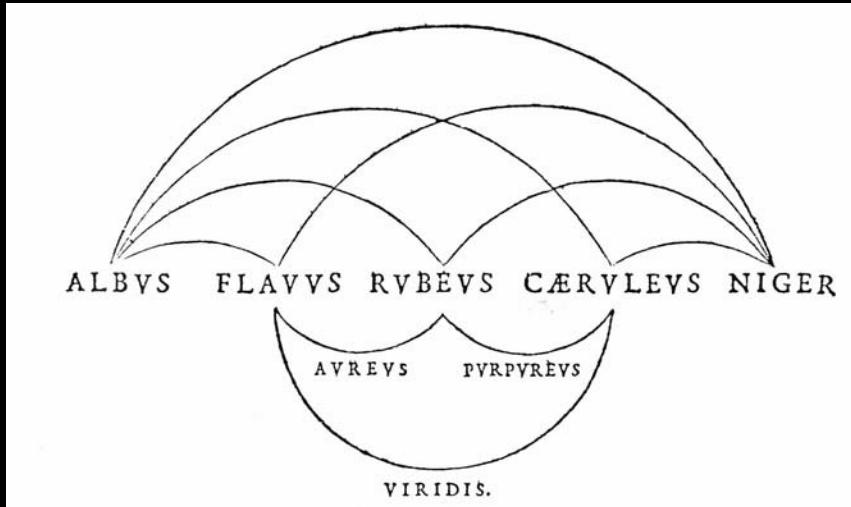


Goethe / Schiller (1799)

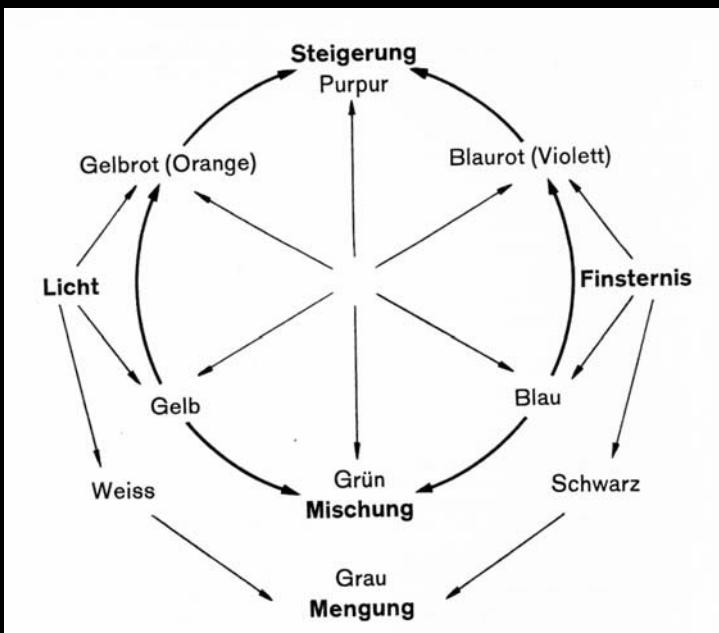


Goethe (1809)

Goethes Farbordnung

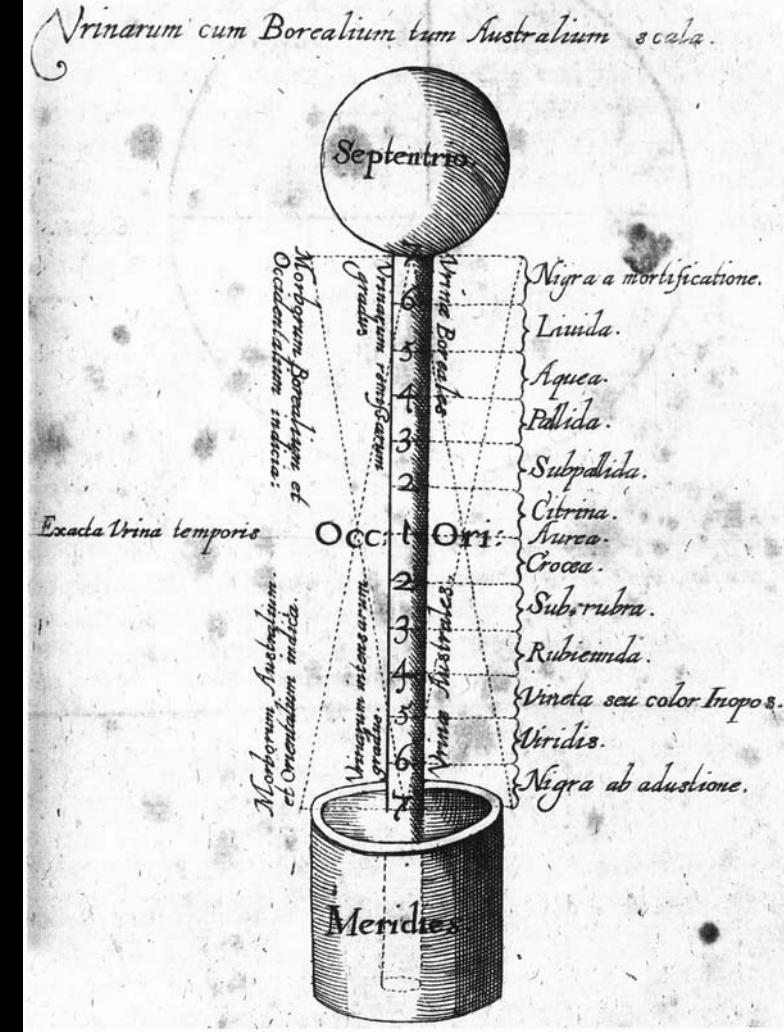
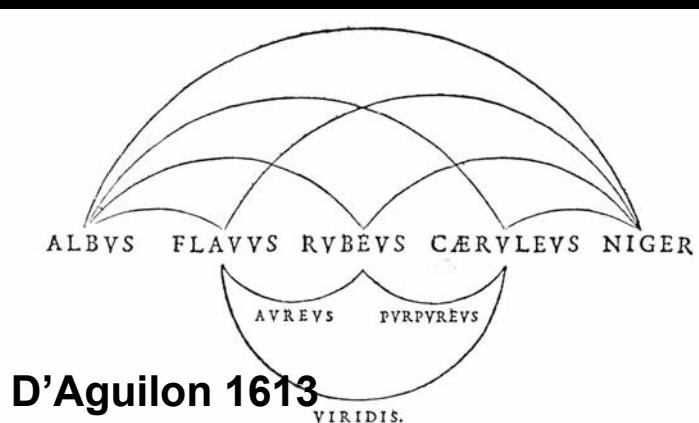


Francois D'Aguilon 1613



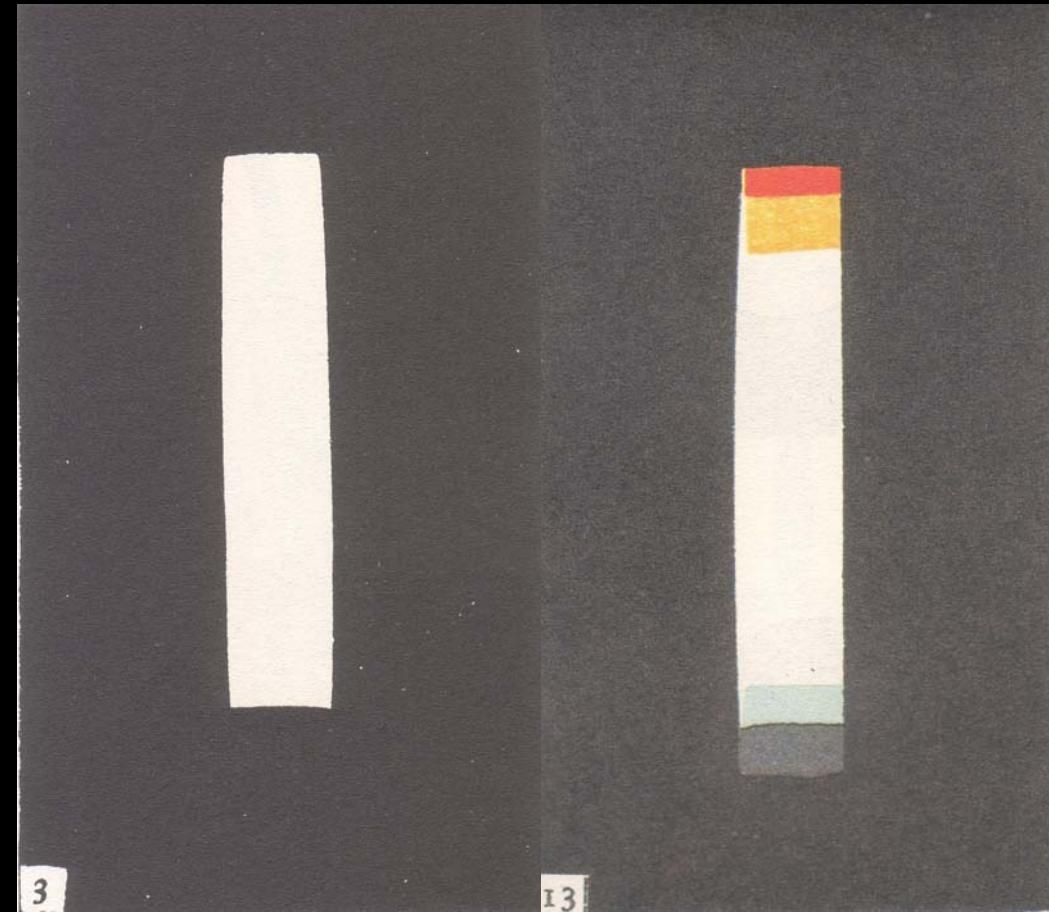
Goethe's Farbordnung
(gemäss Proska 1968)

Robert Fludd 1626/29

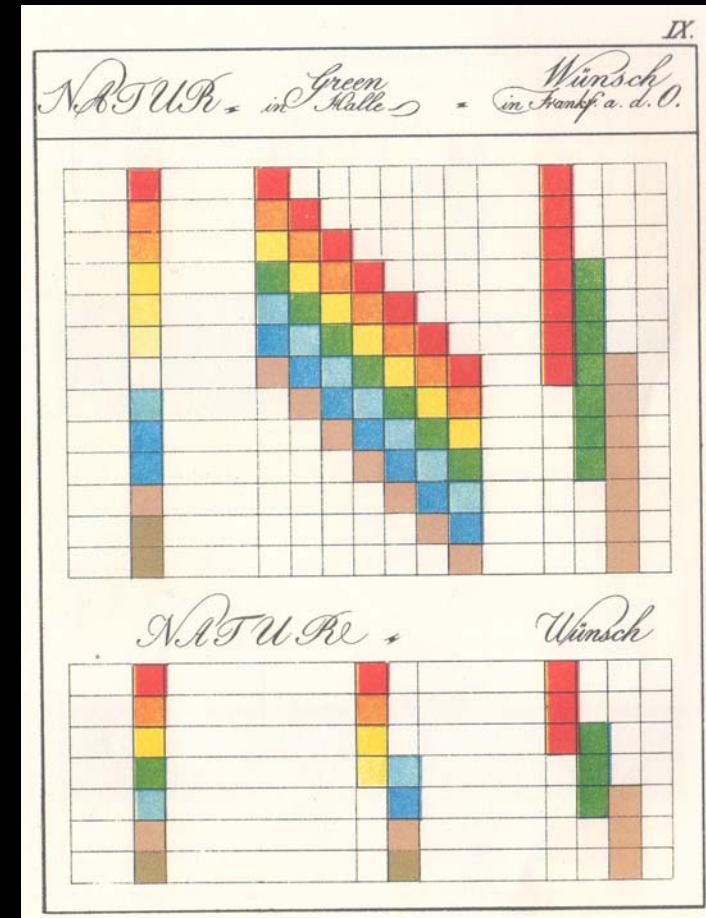


Medicina Catholica, 1629
Farben des Urins

Goethes Prismenversuche (1)

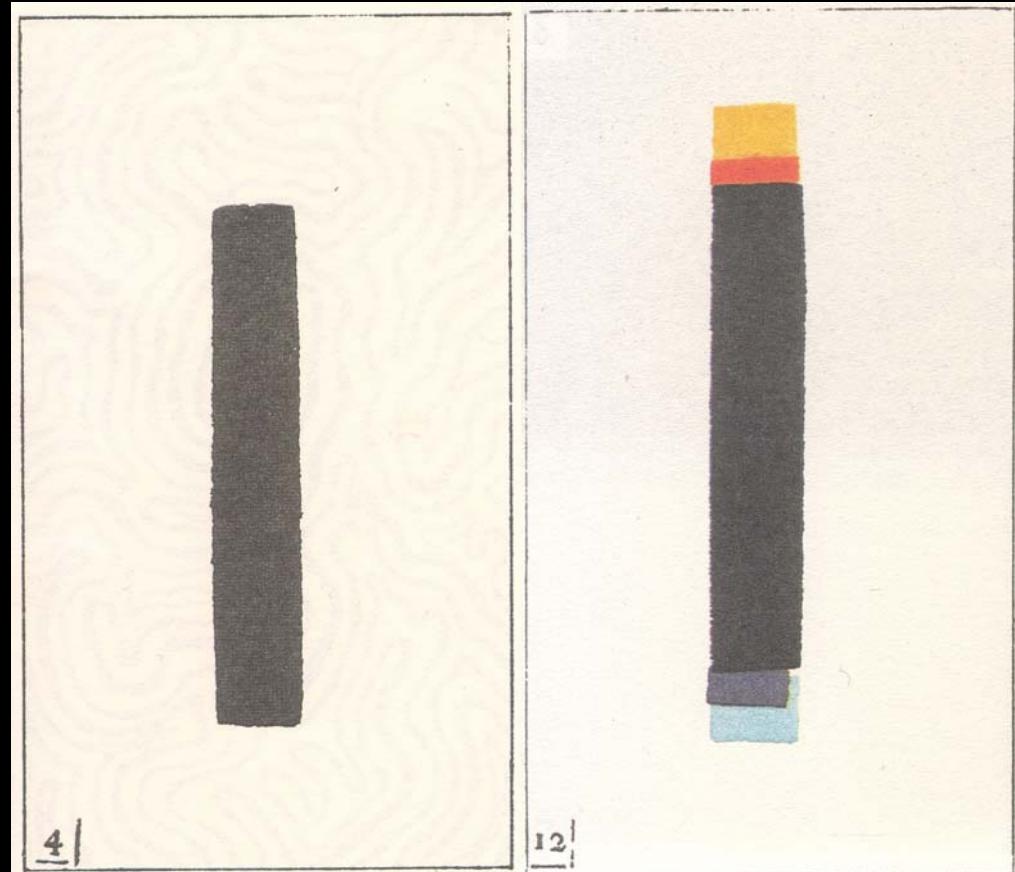


Goethe WA II 5 1: T 3 / 13



Goethe WA II 4 : IX
Kommentar 361-367

Goethes Prismenversuche (2)

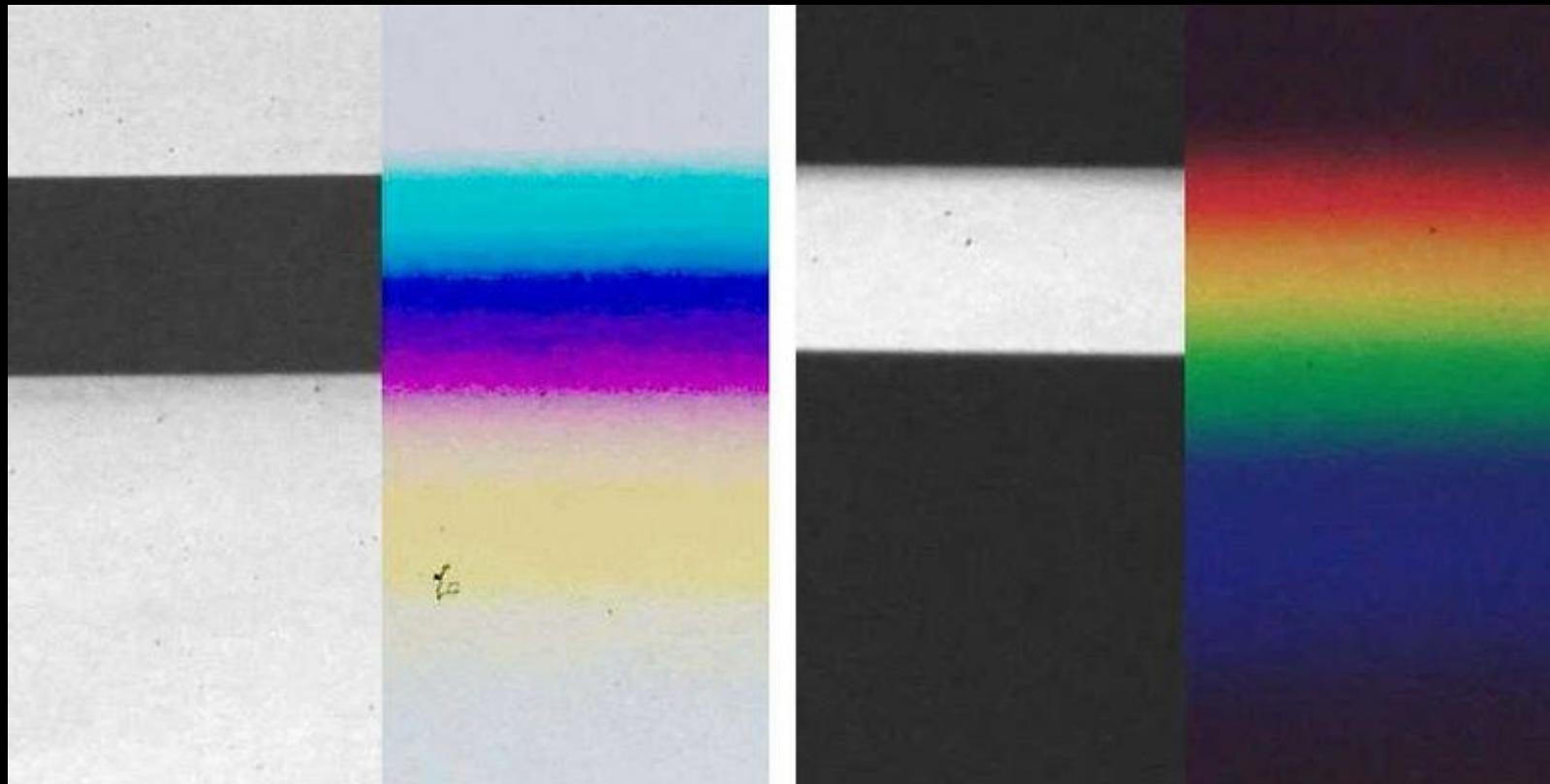


Goethe WA II 5 1: T4/12

A newspaper clipping from the 'Allgemeine Literatur Zeitung' (1792), No. 31. The top part of the image shows a grid of colored squares with labels 'E', 'D', 'C', 'B', 'A' on the top row and 'm', 'h', 'i', 'k', 'l', 'p' on the left column. The grid contains various colors: red, yellow, green, blue, purple, and brown. To the right of the grid, there is a column of labels: 'r', 'r g', 'r g gr', 'r g gr b', 'r g gr b v', 'g gr b v', 'gr b v', 'b v', 'v', 'r', 'r g', 'r g gr', 'r g gr b', and 'r g gr b v'. Below this grid, the word 'N.R.T.U.R.' is written. The bottom part of the image shows another grid labeled 'Wünschl' (Wishes) with a similar color pattern.

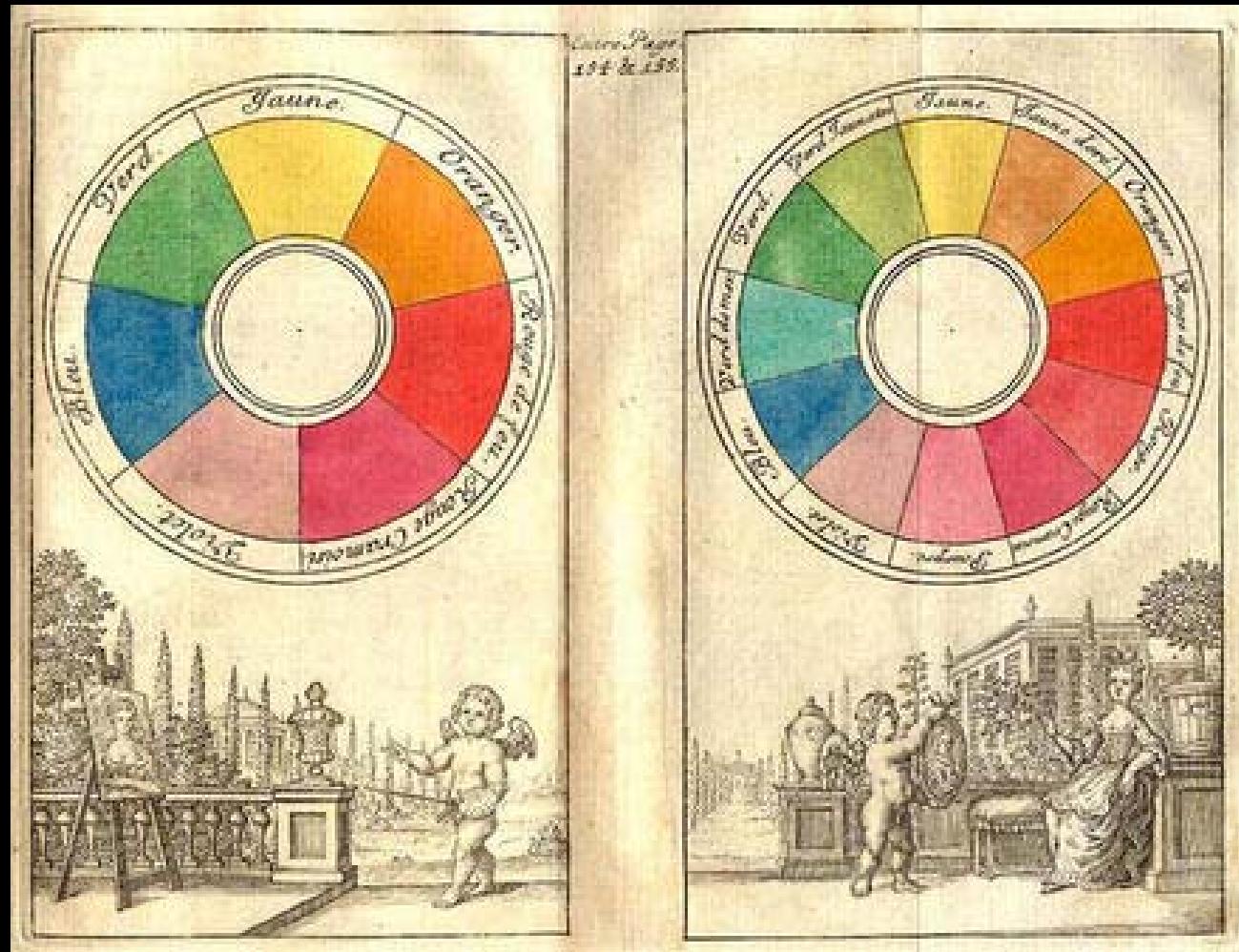
Goethe WA II 4 : X
Kommentar 368-375

Kantenprismen



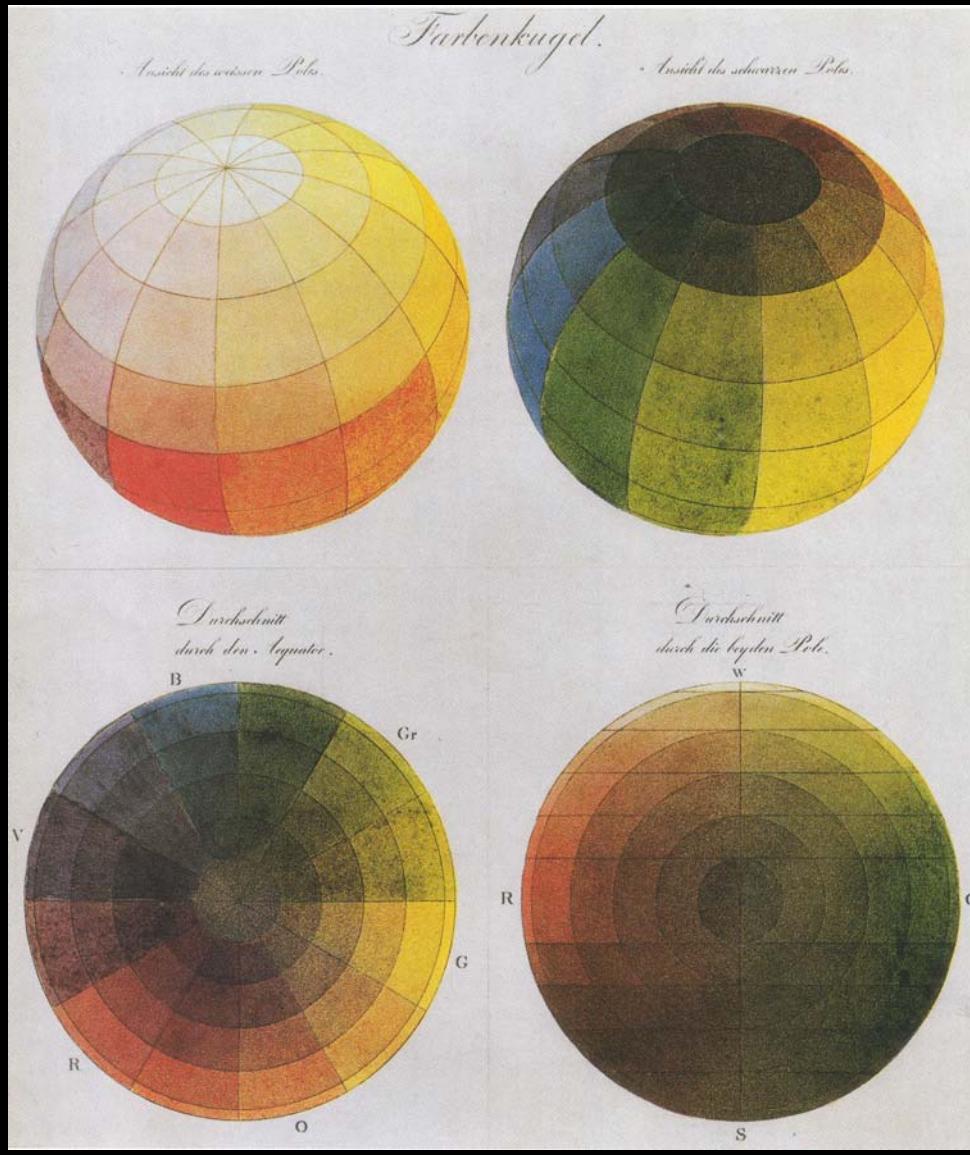
http://de.wikipedia.org/wiki/Zur_Farbenlehre

Farbkreise (Boutet 1708)

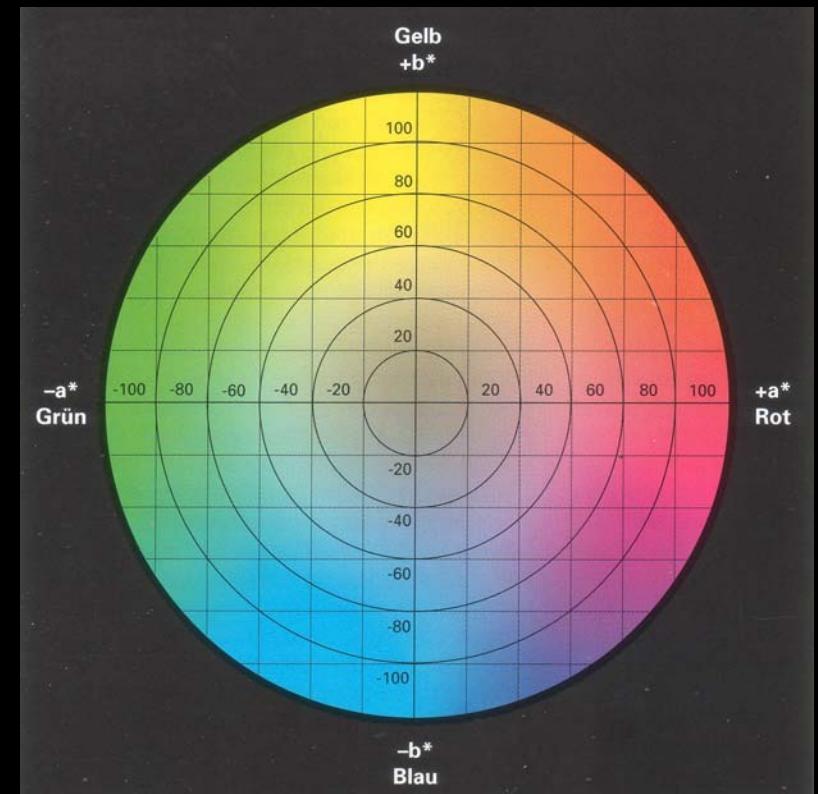
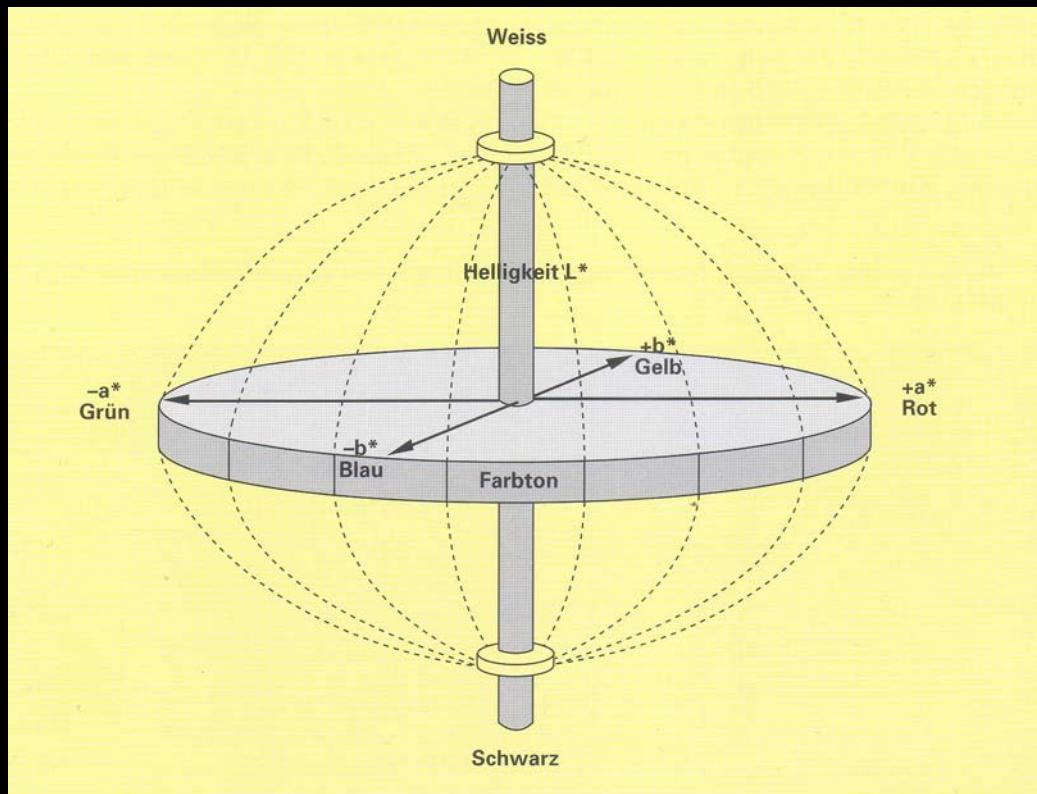


Claude Boutet 1708
Traité de la peinture en miniature

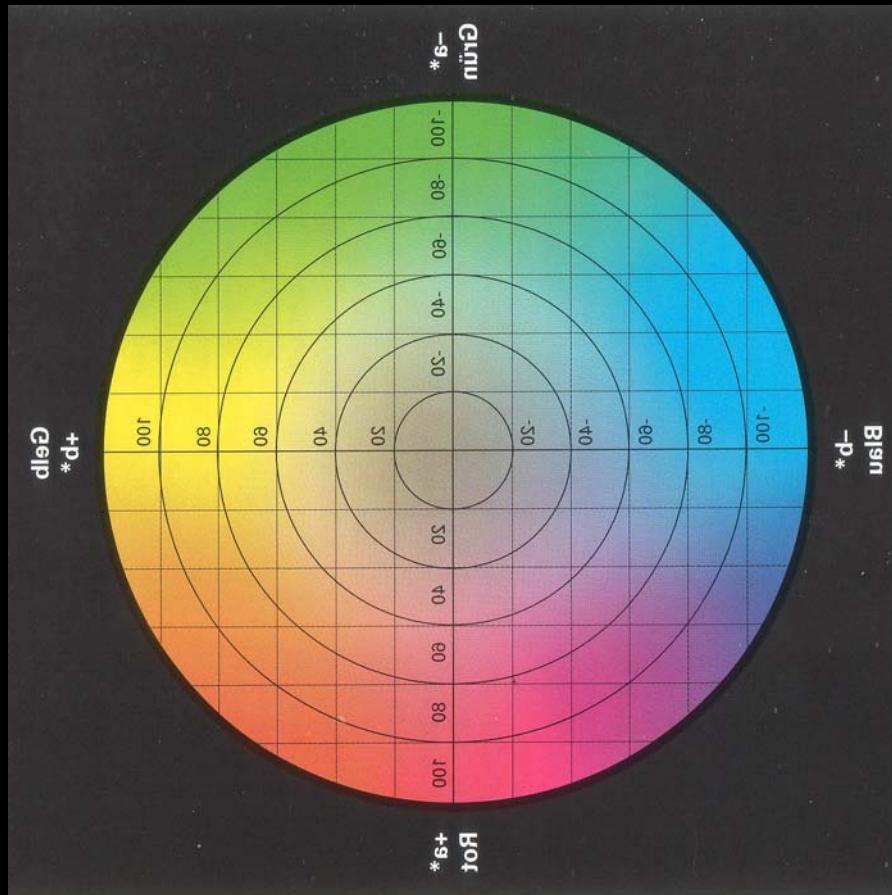
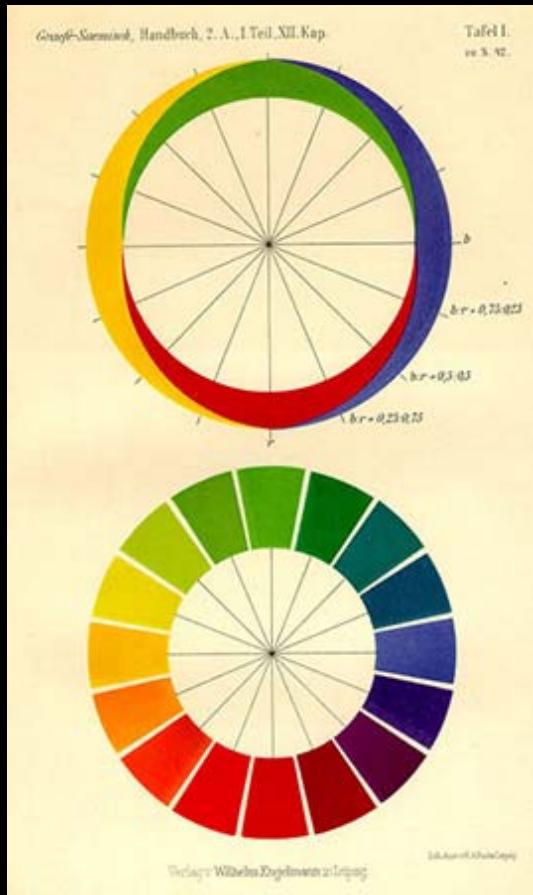
Runge: Farbkugel 1810



Cielab: Farbkugel



Hering - Cielab



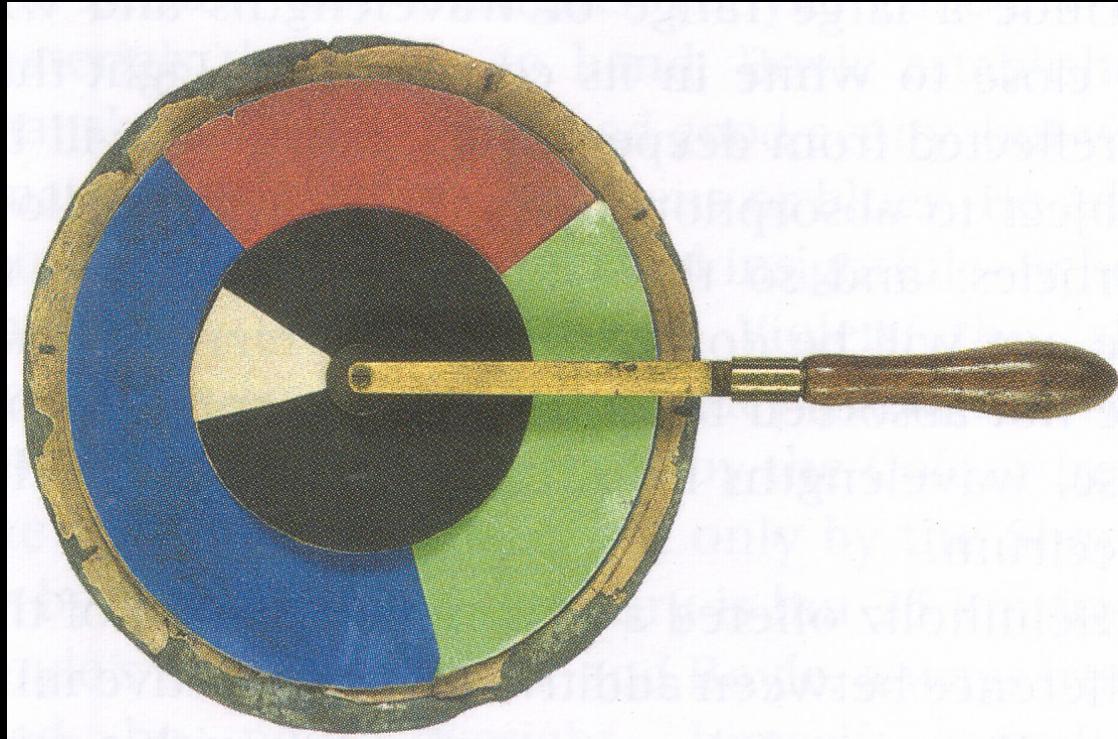
Young: Wellenlängen 1802

Colours.	Length of 10 Undulations in parts of an Inch, in Air.	Number of Undulations in an Inch.	Number of Undulations in a Second.	Wavelength nm
Extreme - -	.0000066	87640	463 millions of millions	
Red - -	.0000056	89150	480	650
Intermediate	.0000046	40790	301	
Orange - -	.0000040	41610	512	609
Intermediate	.0000035	42510	523	
Yellow - -	.0000037	44000	548	576
Intermediate	.0000039	45600	561 (= 5" nearly)	
Green - -	.0000031	47460	584	536
Intermediate	.0000028	48890	607	
Blue - -	.0000016	51110	629	497
Intermediate	.00000189	52910	652	
Indigo - -	.00000185	54070	668	469
Intermediate	.00000181	55240	680	
Violet - -	.00000174	57490	707	444
Extreme - -	.00000167	59730	725	

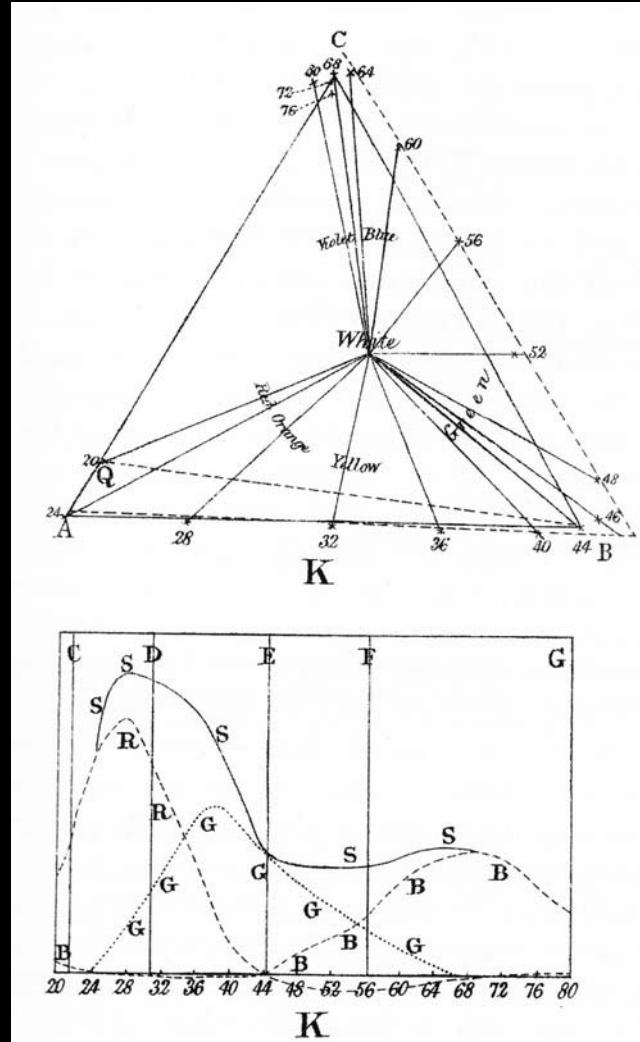
Helmholtz: Gegenfarben 1867/96

Farbe.	Wellenlänge.	Complementärfarbe.	Wellenlänge.	Verhältniss der Wellenlängen.
Roth	656,2	Grünblau	492,1	1,334
Orange	607,7	Blau	489,7	1,240
Goldgelb	585,3	Blau	485,4	1,206
Goldgelb	573,9	Blau	482,1	1,190
Gelb	567,1	Indigblau	464,5	1,221
Gelb	564,4	Indigblau	461,8	1,222
Grüngelb	563,6	Violet	von 433 ab	1,301

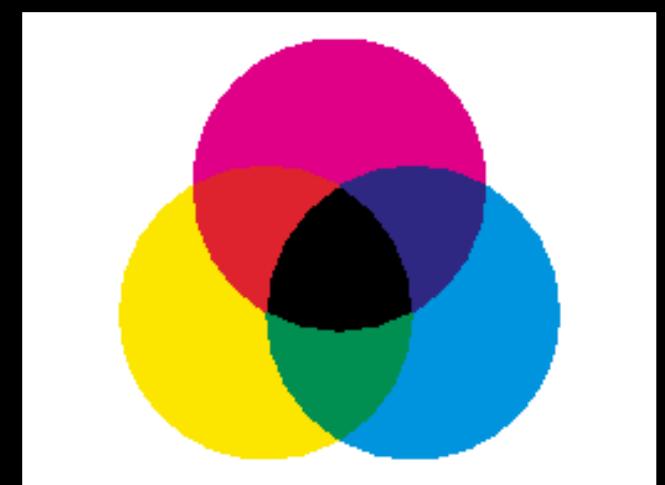
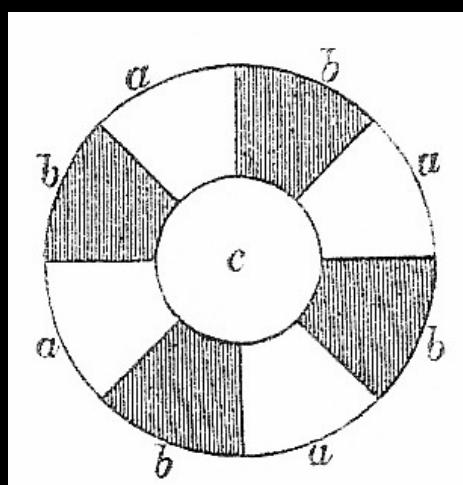
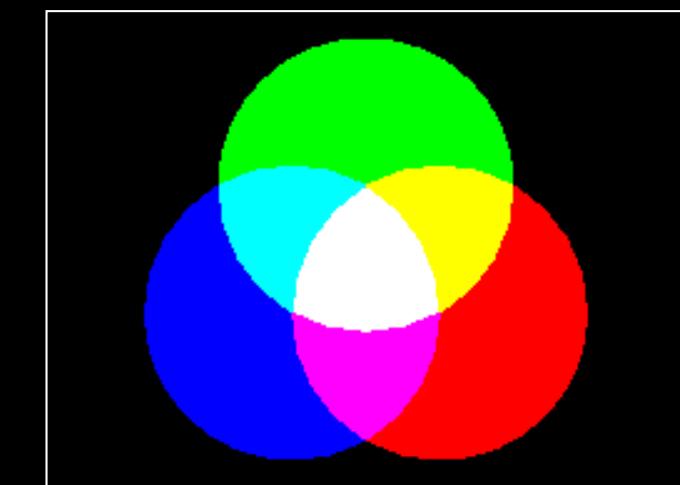
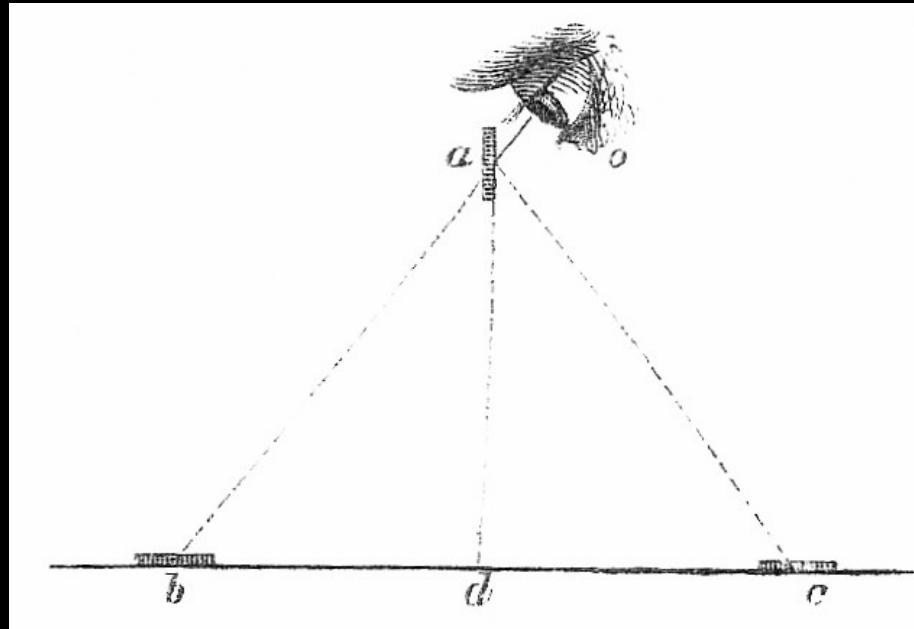
Maxwell: Farbkreisel 1860



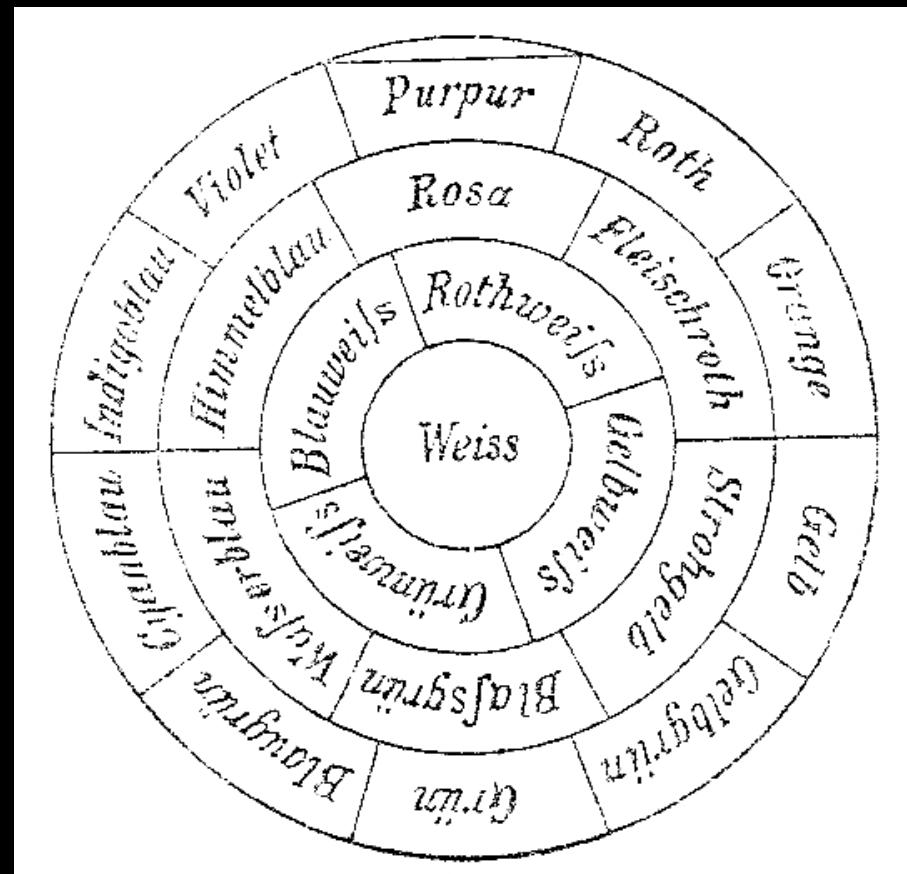
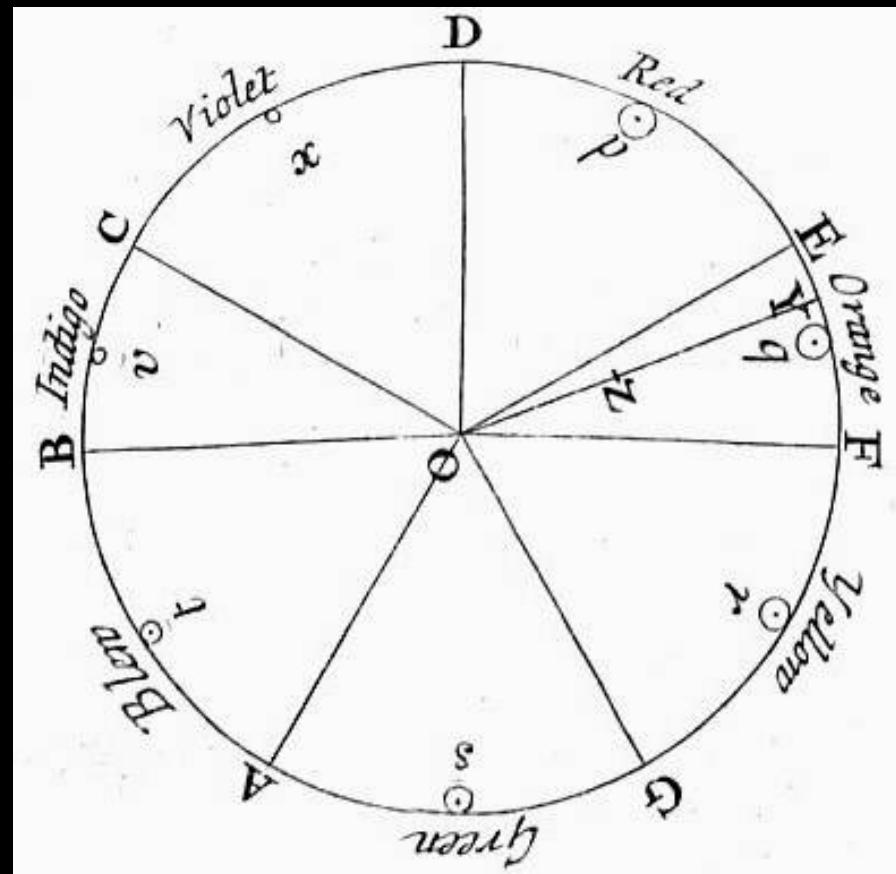
Farbkreisel, Farbtopologie,
Empfindlichkeitskurven



Helmholtz: additiv vs. subtraktiv



Farbkreise: Newton / Helmholtz



Sättigung und Farbton

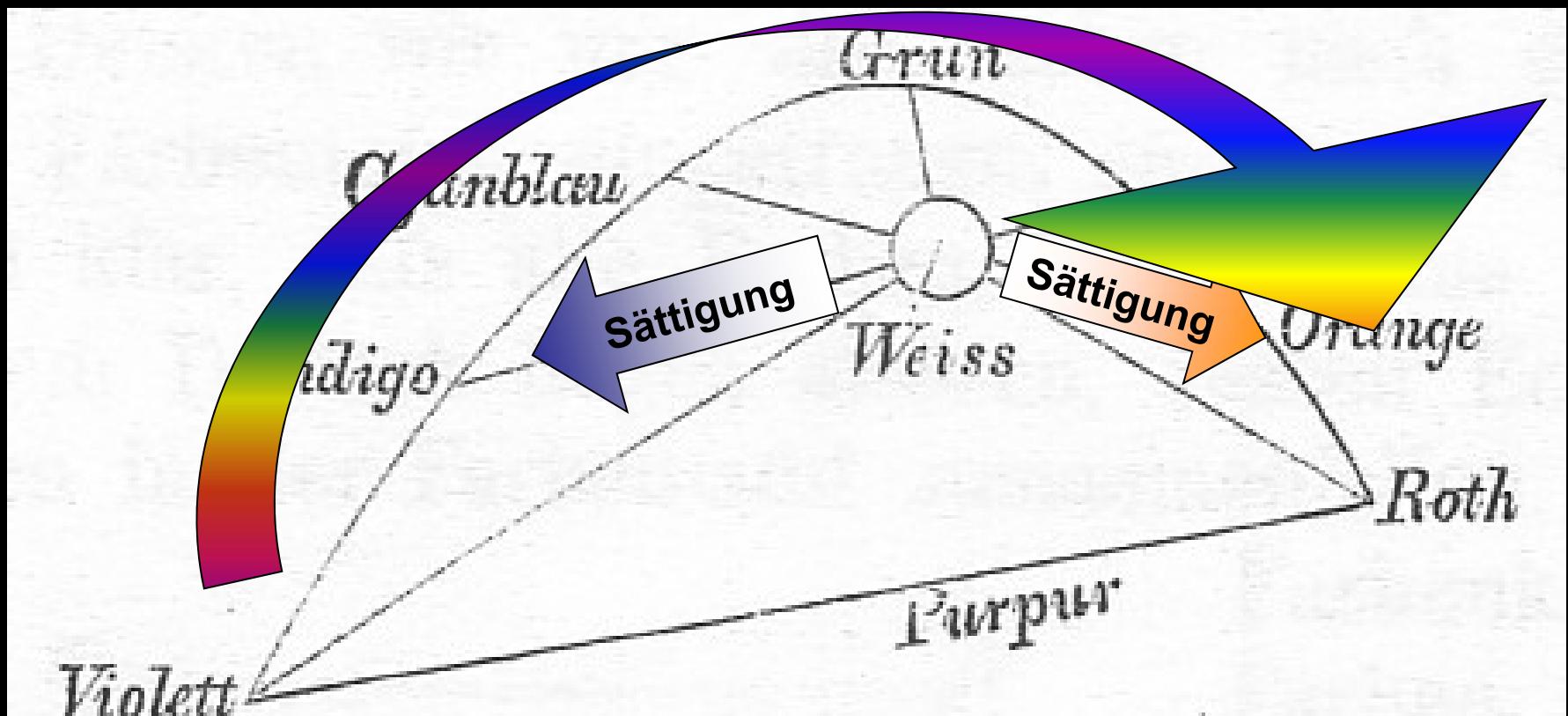
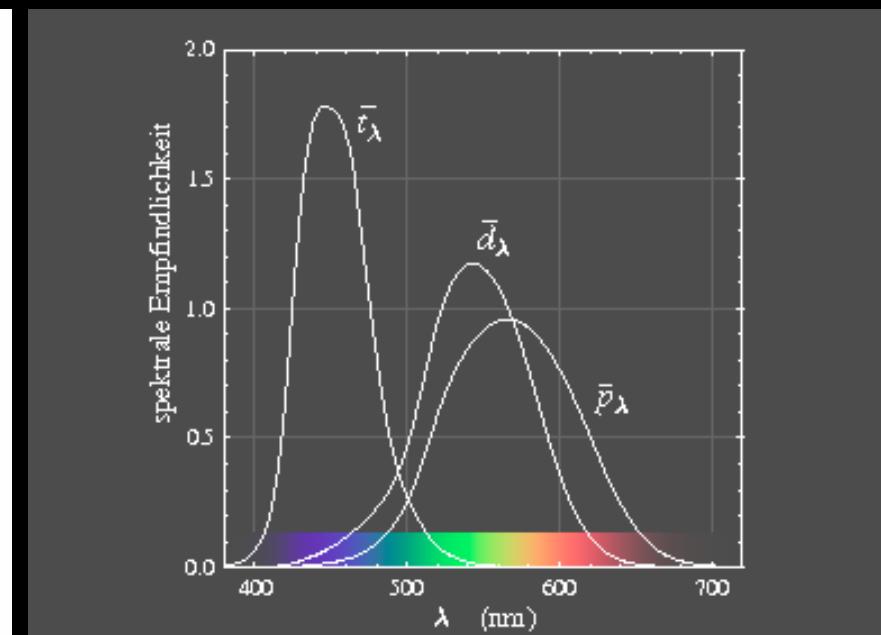
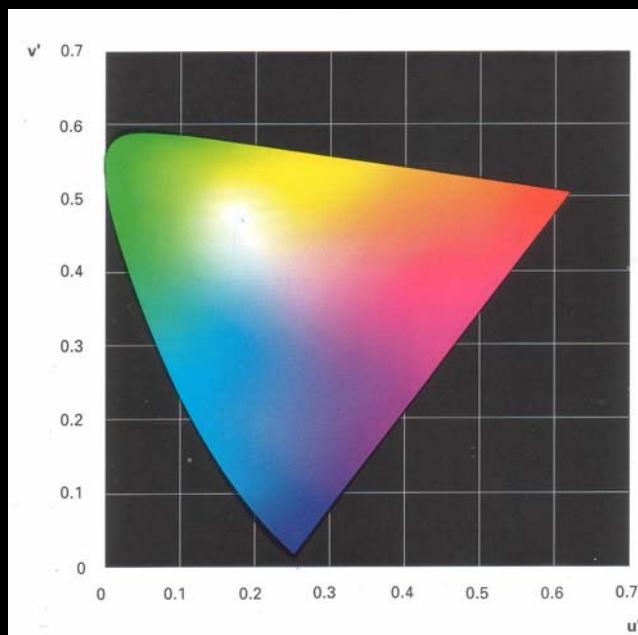
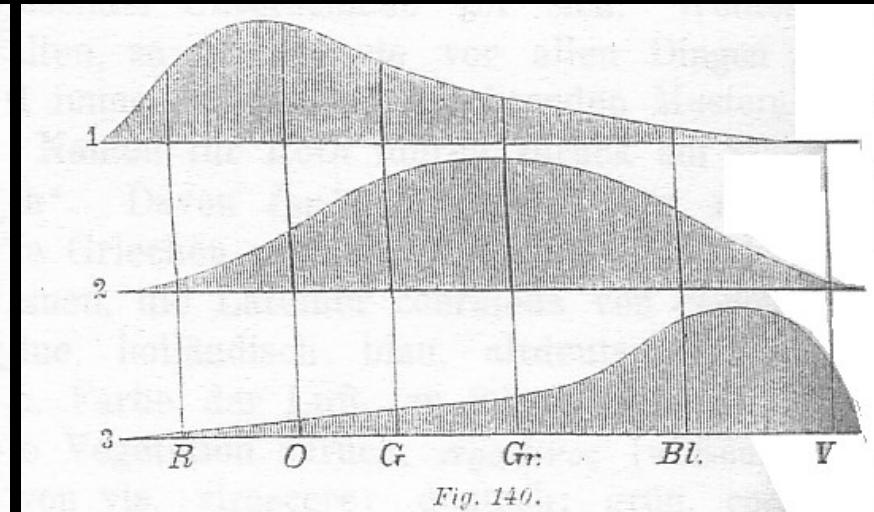
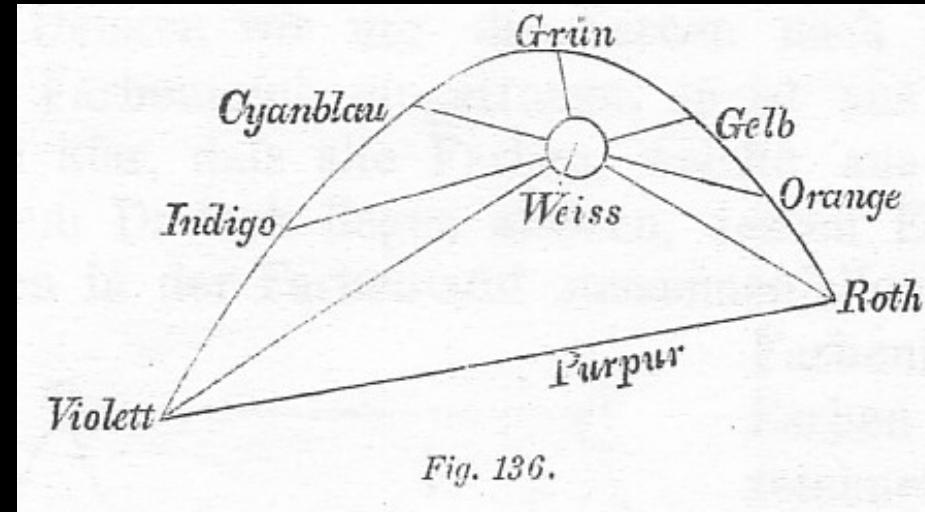
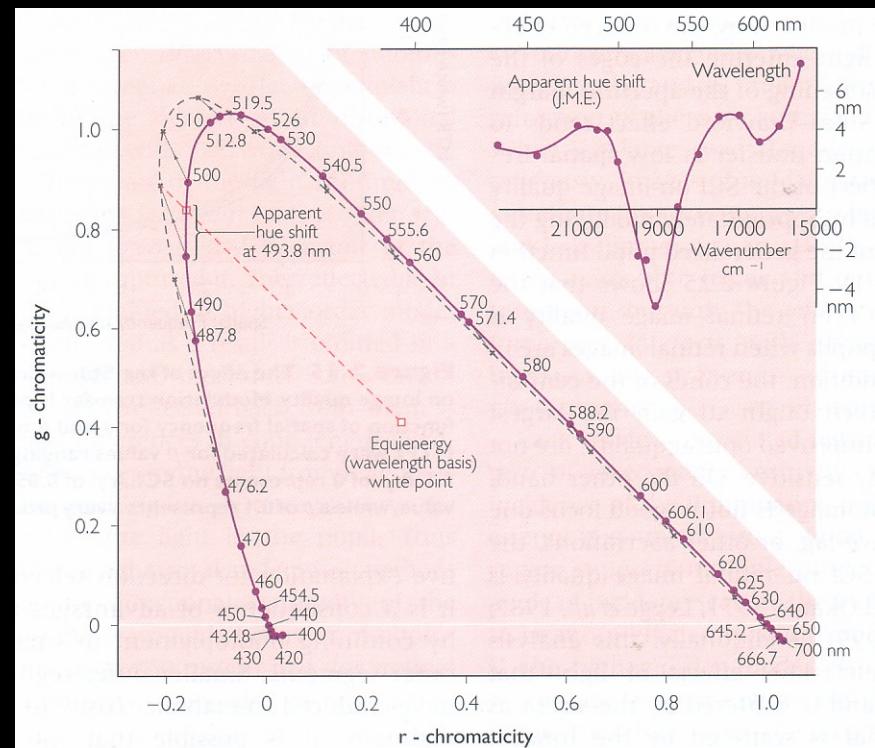
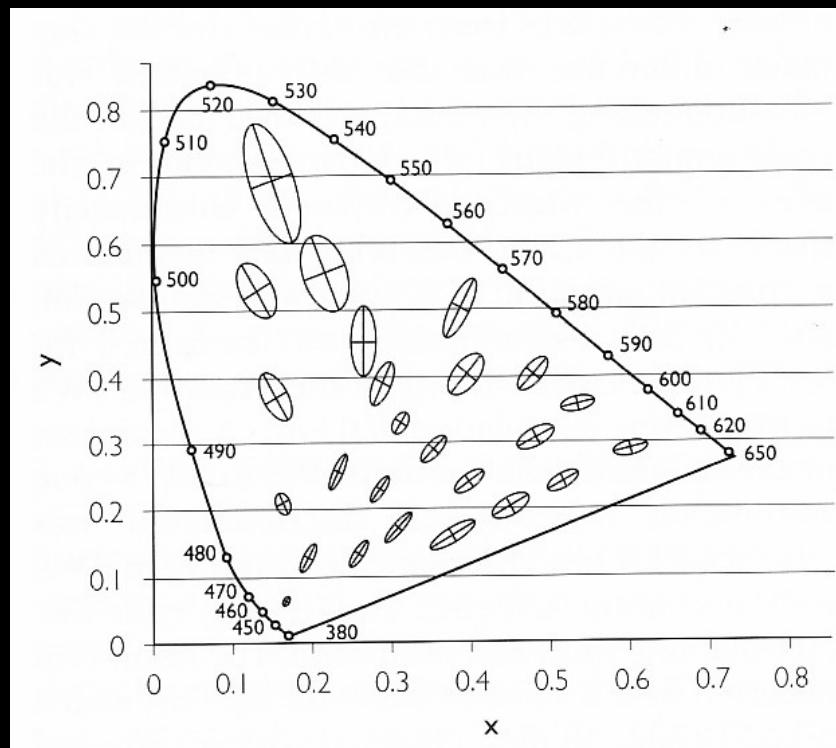


Fig. 136.

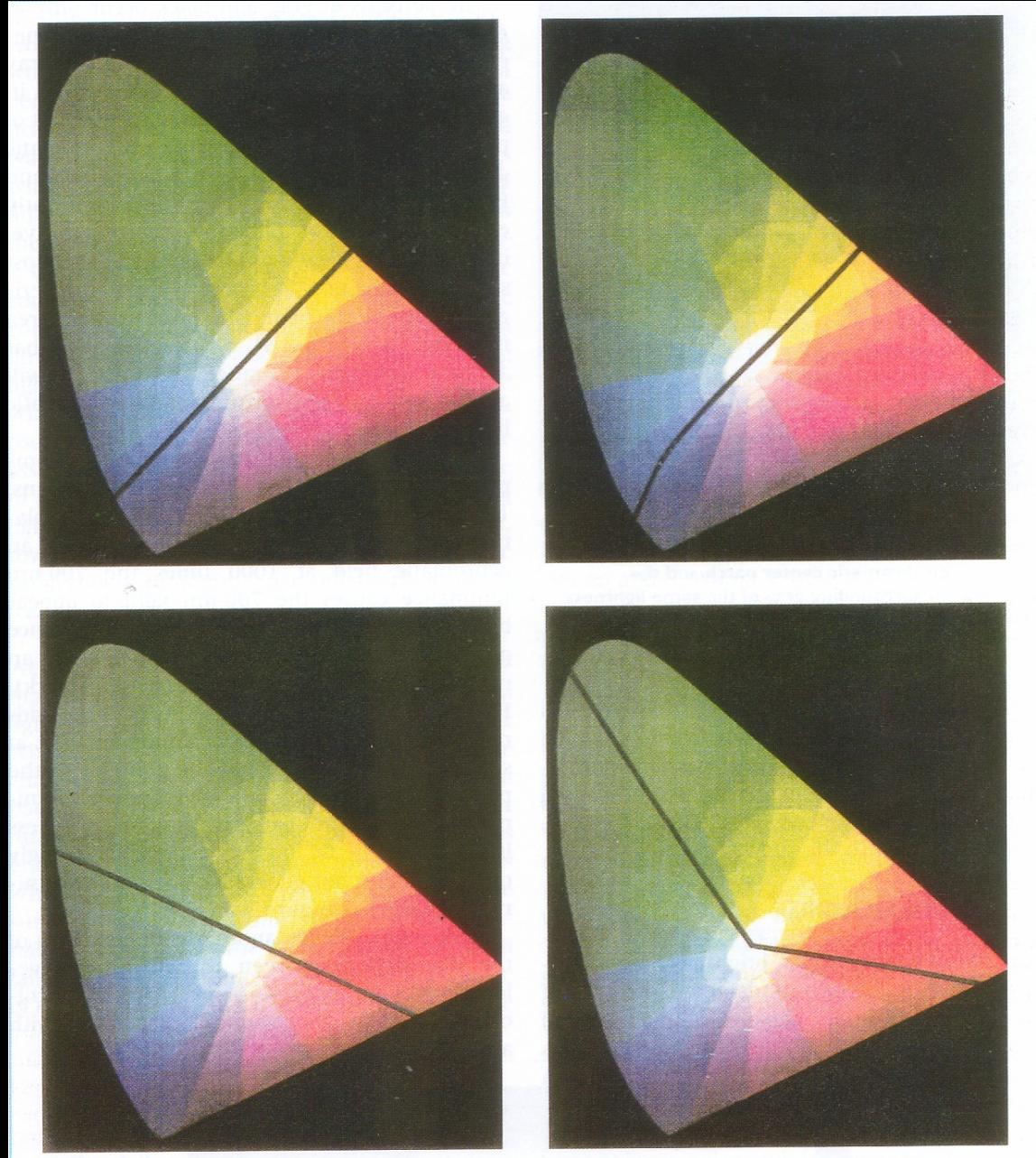
Helmholtz: Farbmodell und Resonanzkurven



MacAdam Ellipsen / Beobachtungswinkel

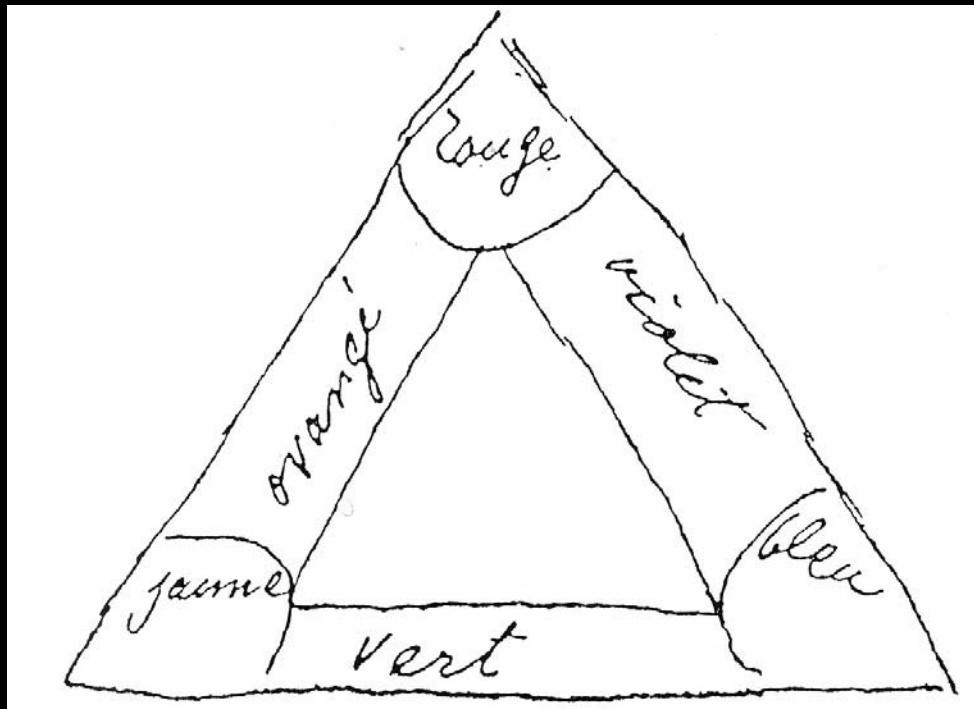


MacAdam 1942



Equilibrium Hues

Farbdreiecke (Turner/Delacroix)

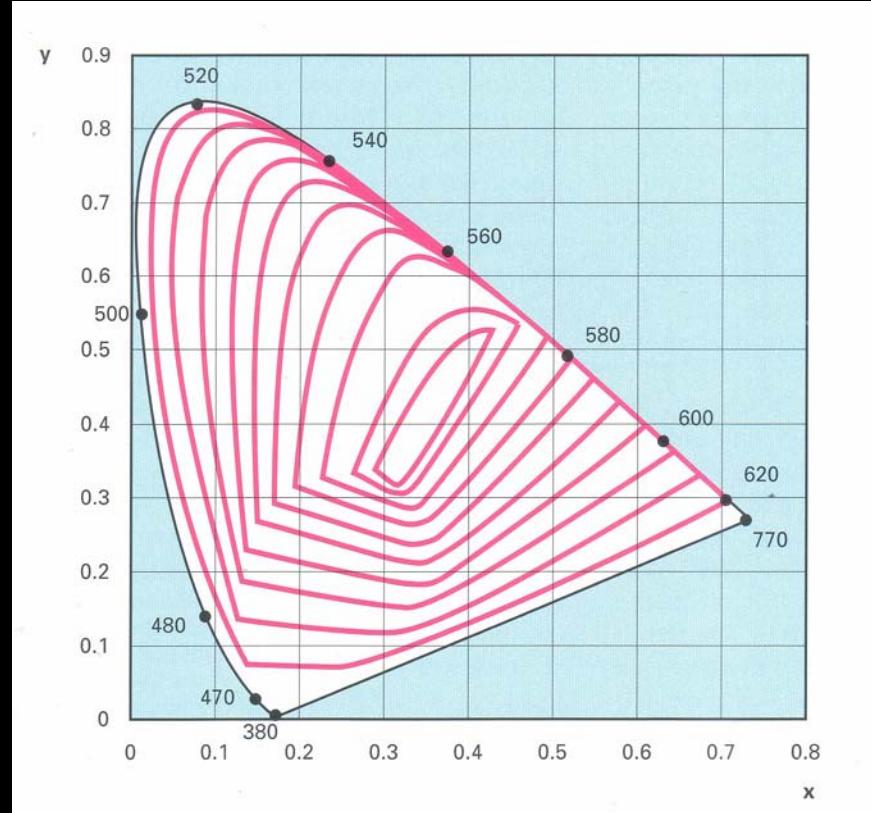
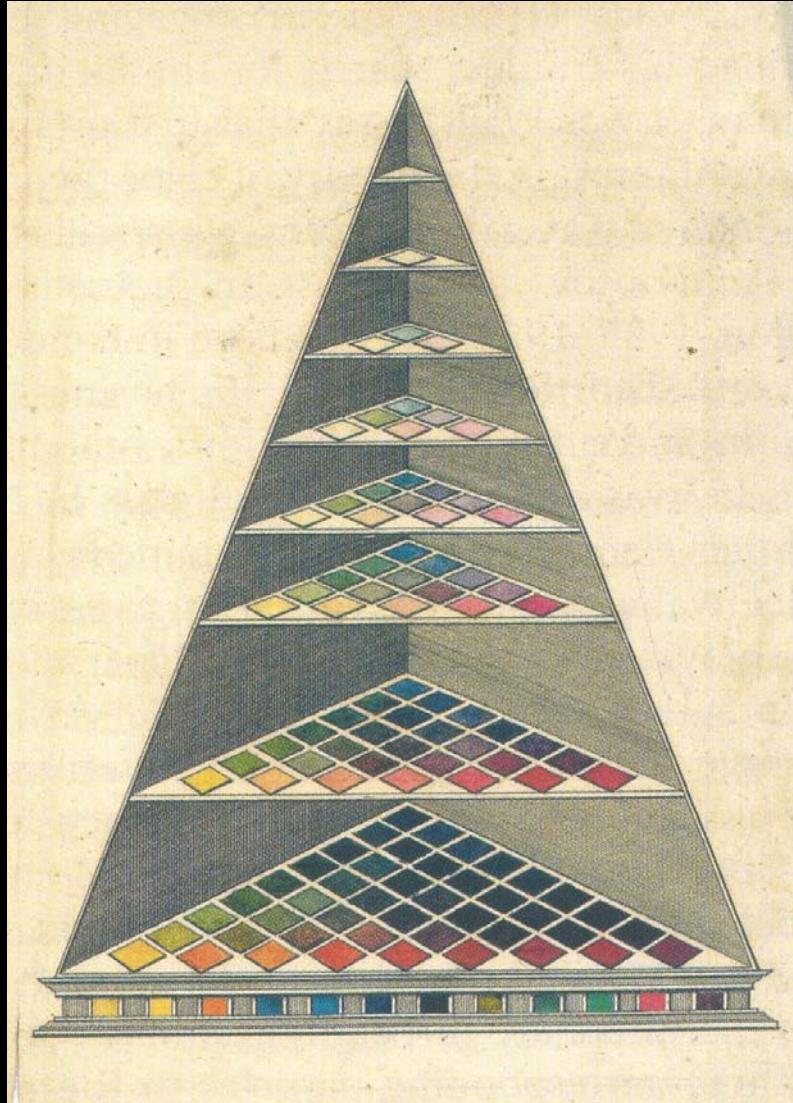


Delacroix 1830



Turner 1825

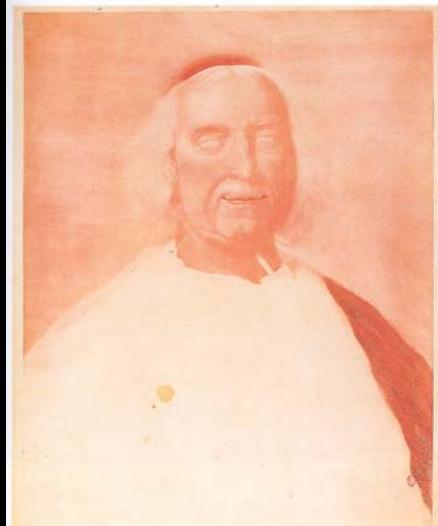
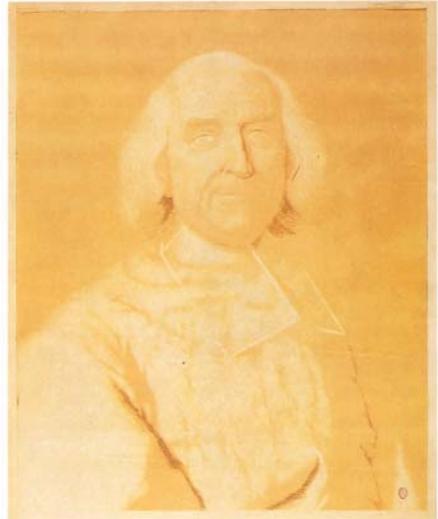
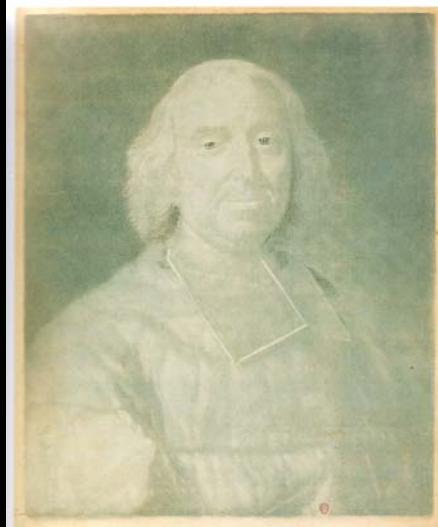
Farbtetraeder



Schläpfer: Höhenkurven

Lambert 1772

Dreifarbendruck



1. Erste Farbenplatte: Gelb.



2. Zweite Farbenplatte: Rot.



3. Erste und zweite Farbenplatte zusammengedruckt.



4. Dritte Farbenplatte: Blau.

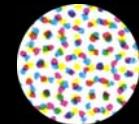
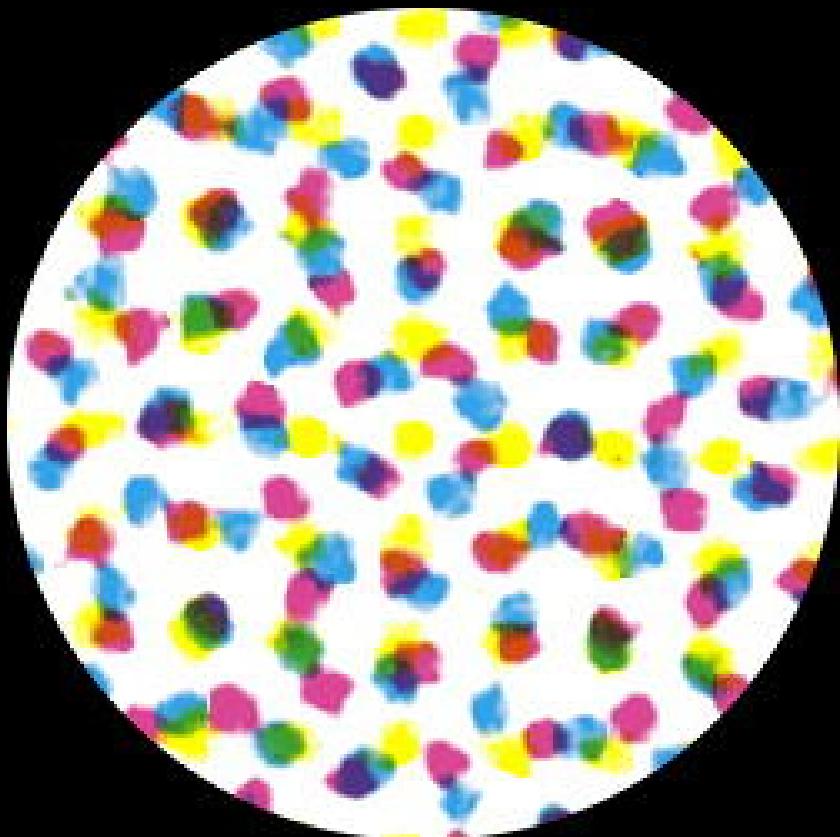


5. Erste, zweite u. dritte Farbenplatte zusammengedruckt.

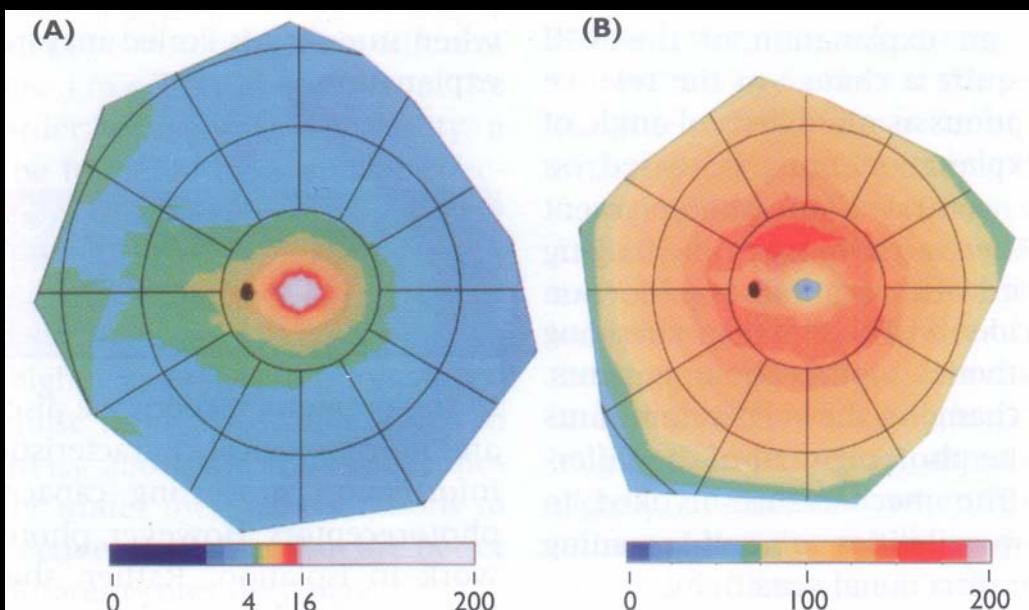
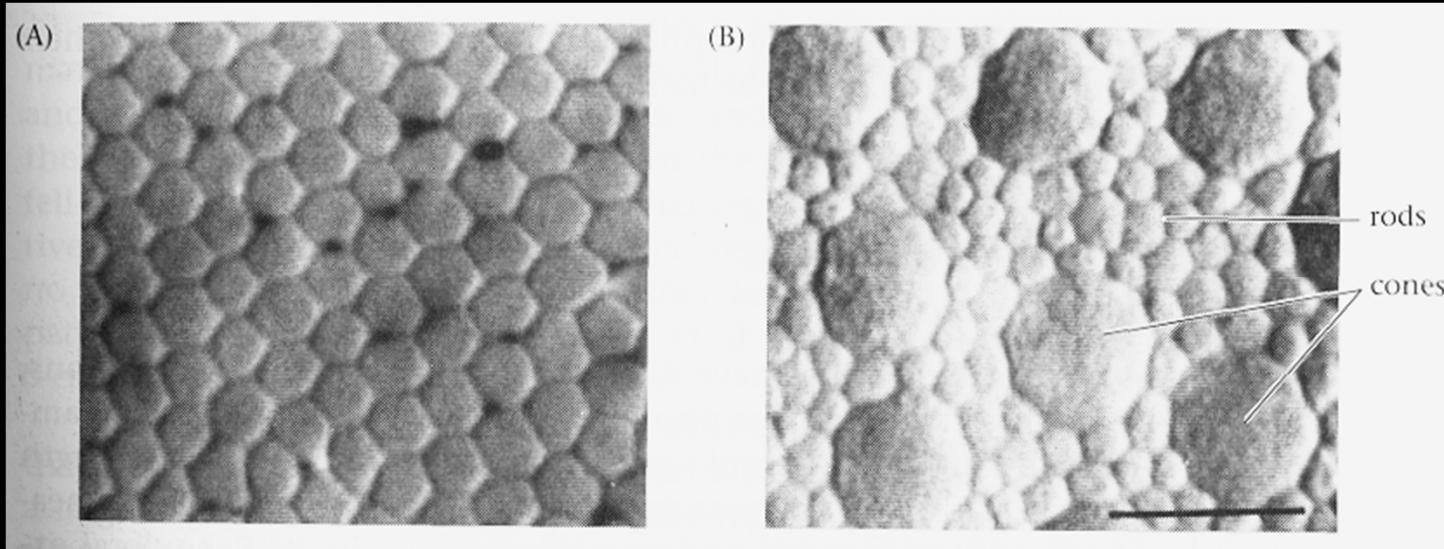
Le Blon vor 1838

Meyers, Konversationslexikon (6¹⁹⁰⁴)

Dreifarbendruck (cmy)



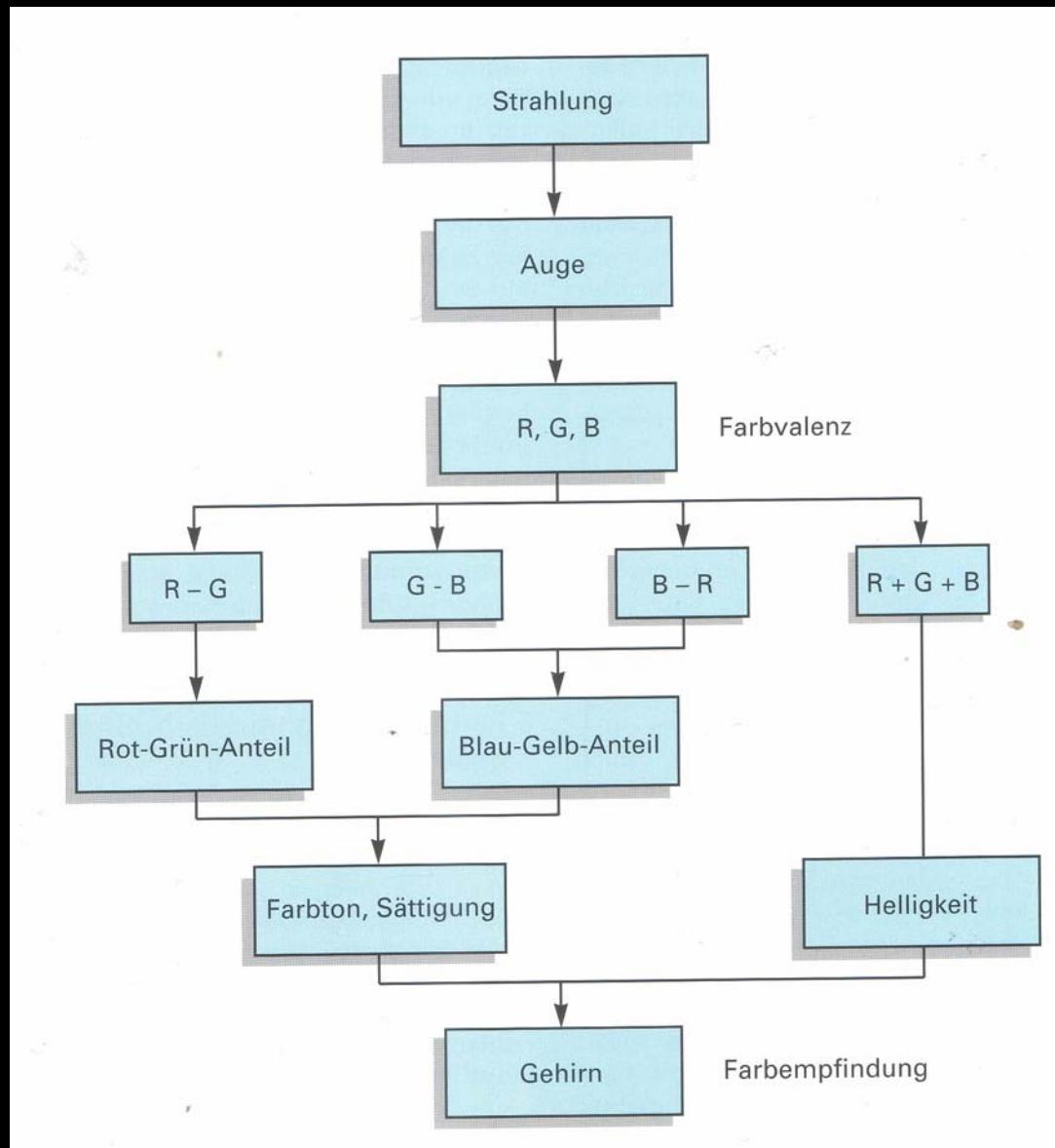
Stäbchen (rods) / Zäpfchen (cones)



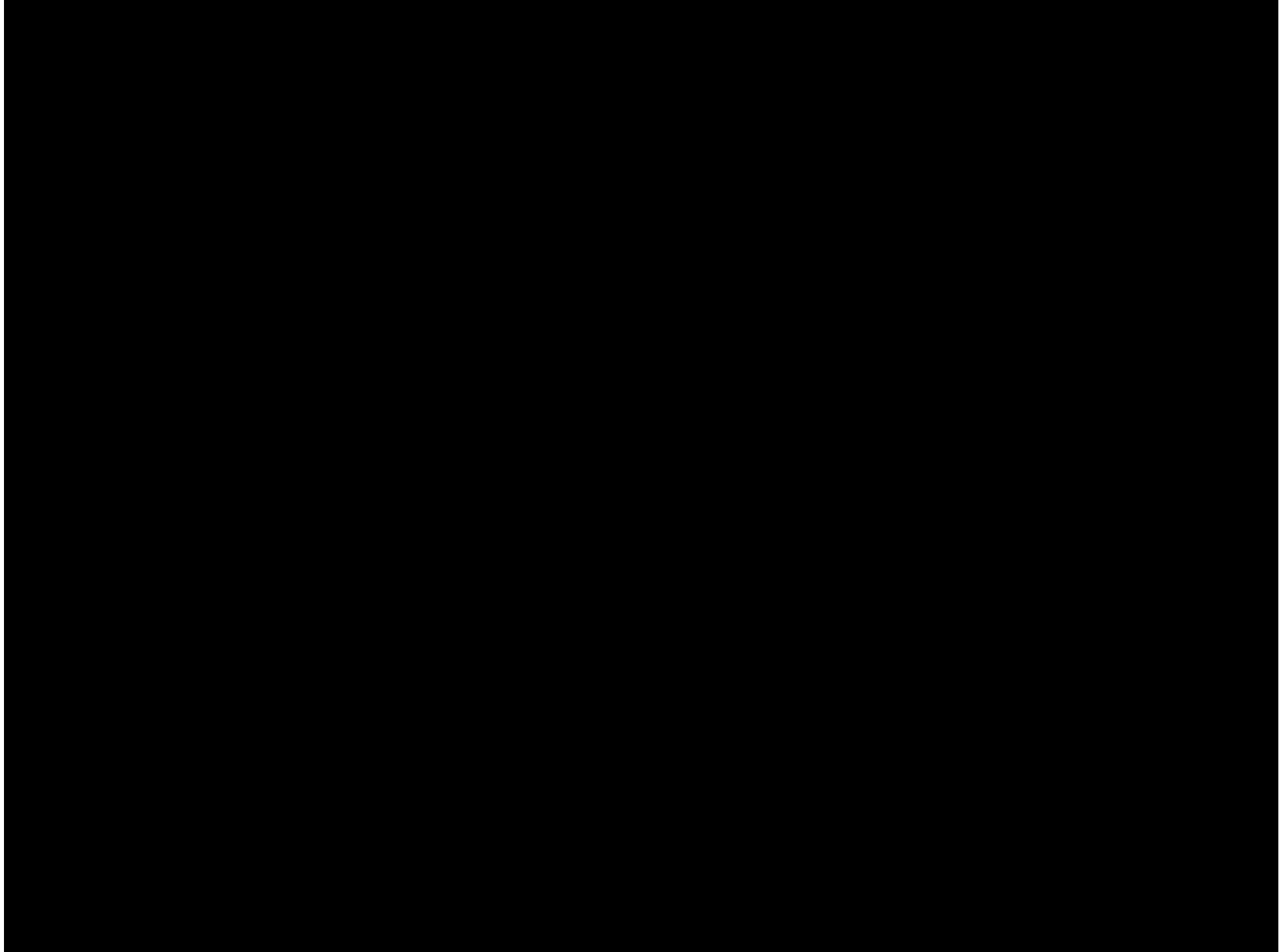
Cs559-2 (Wisconsin 2002)
(A) Peripherie der Netzhaut
(B) Fovea

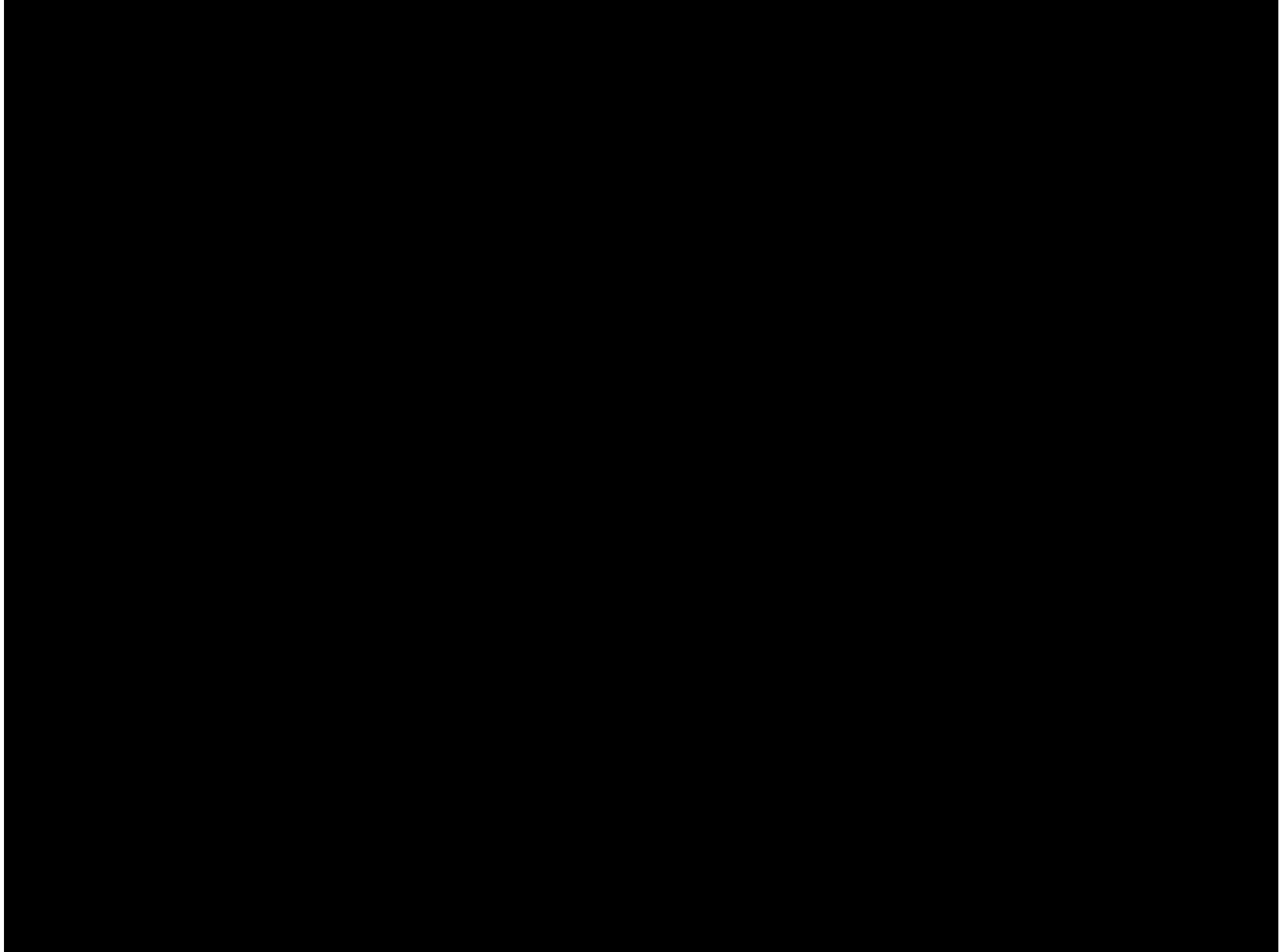
Verteilung der Photorezeptoren über die Netzhaut.
Einheit 1000 Zellen / mm²
(A) Zäpfchen (B) Stäbchen
(Curcio et al. 1990):

Farbverarbeitung (Retina – Gehirn)



Schläpfer (2003)





1-3;31-33;4-6;31-33;7-9;31-33;10-12;31-33;13-15;31-33;16-18;31-33;19-21;31-33;22-24;31-33;25-27;31-33;28-30