

*Fargelære & VITA-
3D Fargeskalaen*

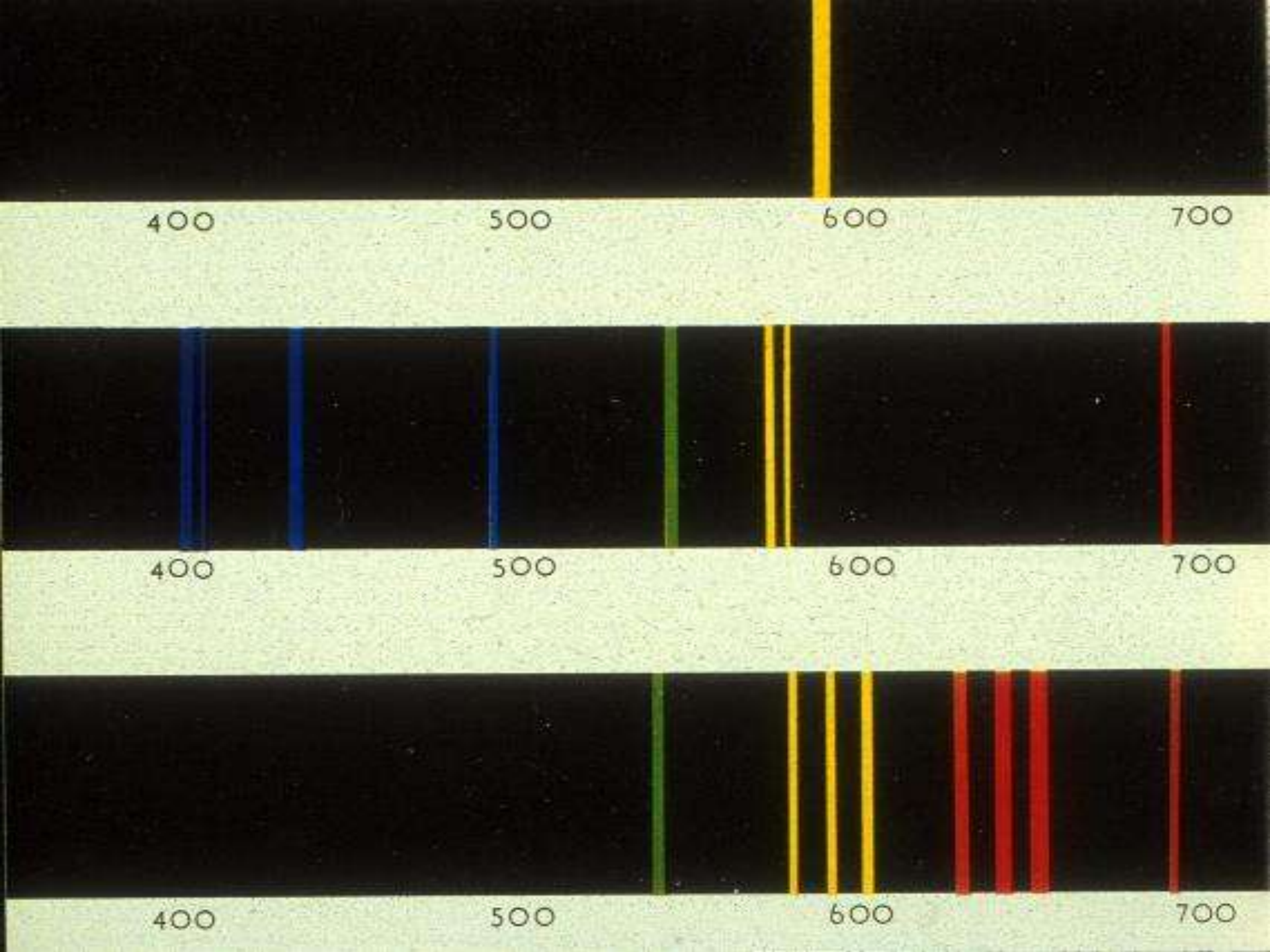
Asbjørn Jokstad

Institutt for Klinisk Odontologi

Universitetet i Oslo

Lyskilder





400

500

600

700

400

500

600

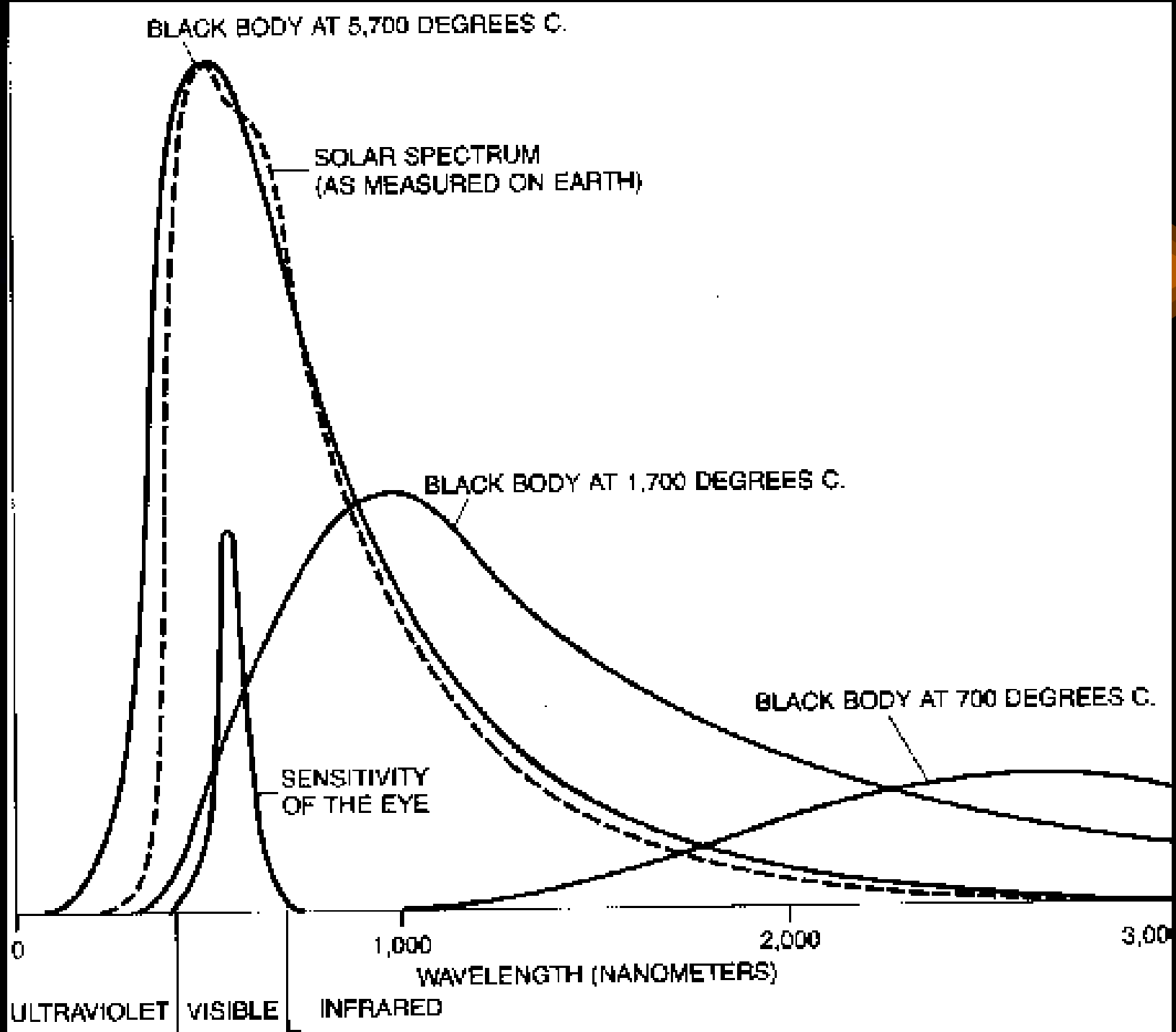
700

400

500

600

700



BLACK BODY AT 5,700 DEGREES C.

SOLAR SPECTRUM
(AS MEASURED ON EARTH)

BLACK BODY AT 1,700 DEGREES C.

BLACK BODY AT 700 DEGREES C.

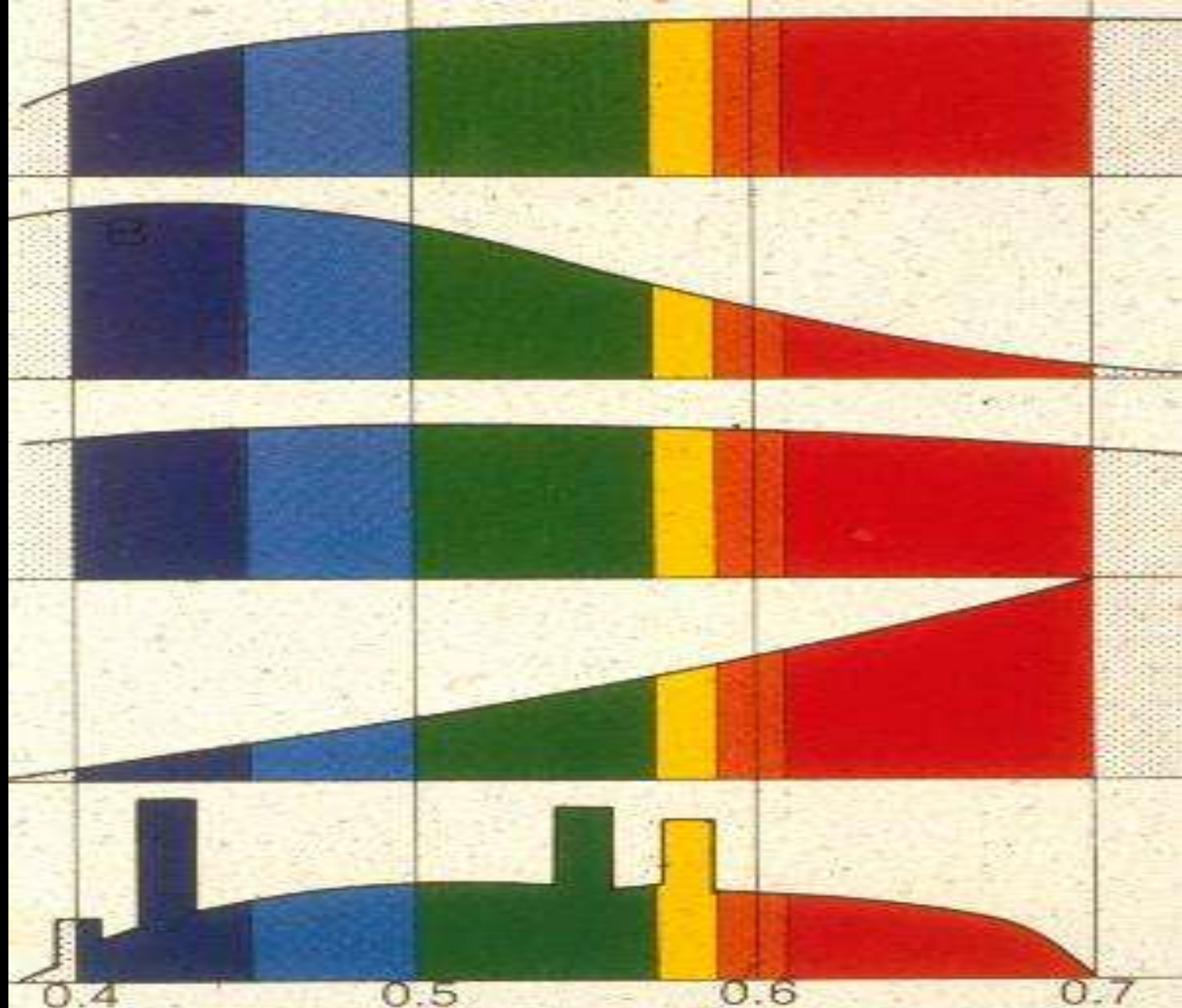
SENSITIVITY
OF THE EYE

0 1,000 2,000 3,000

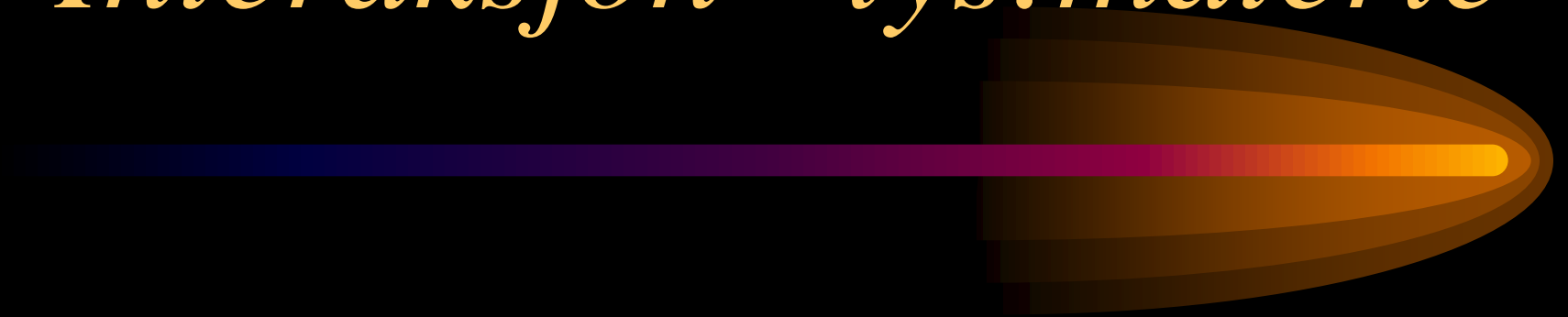
WAVELENGTH (NANOMETERS)

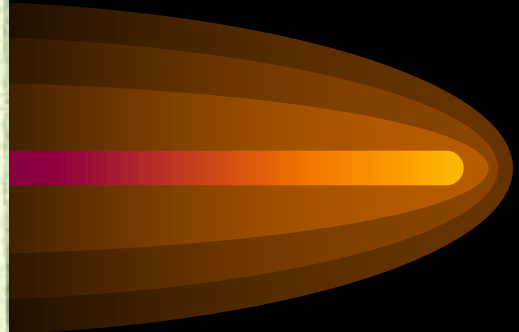
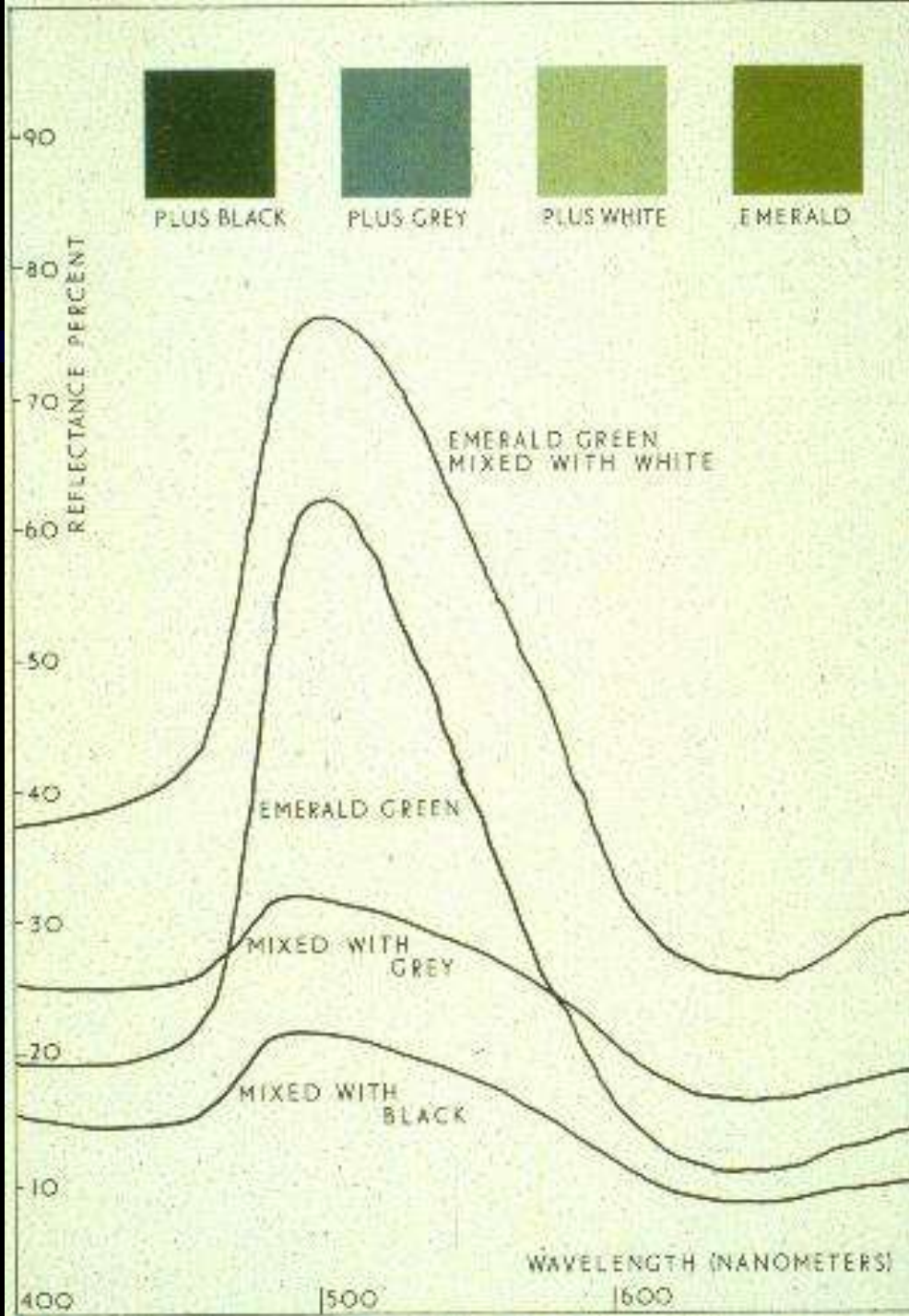
ULTRAVIOLET VISIBLE INFRARED

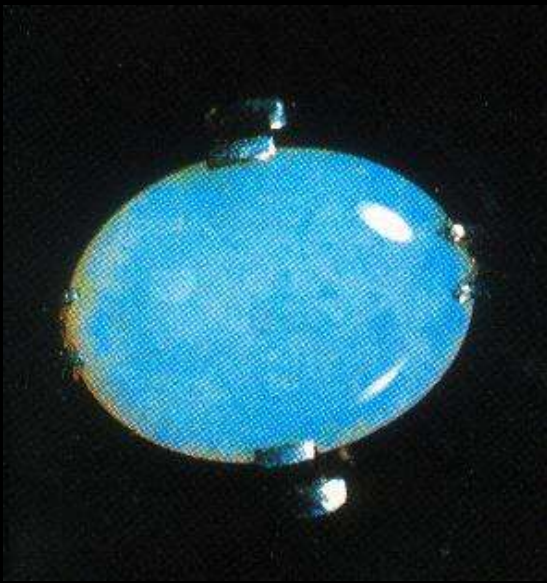
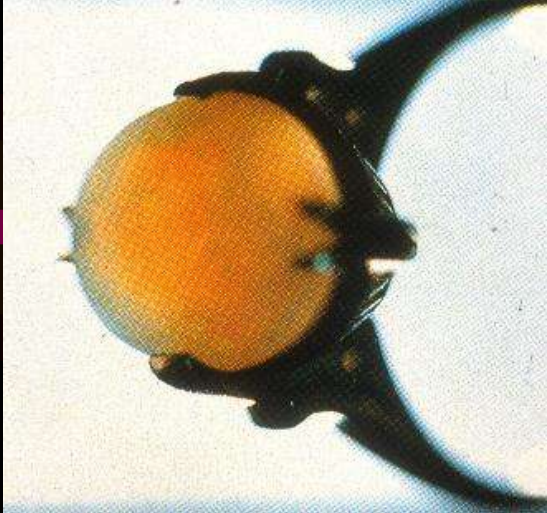


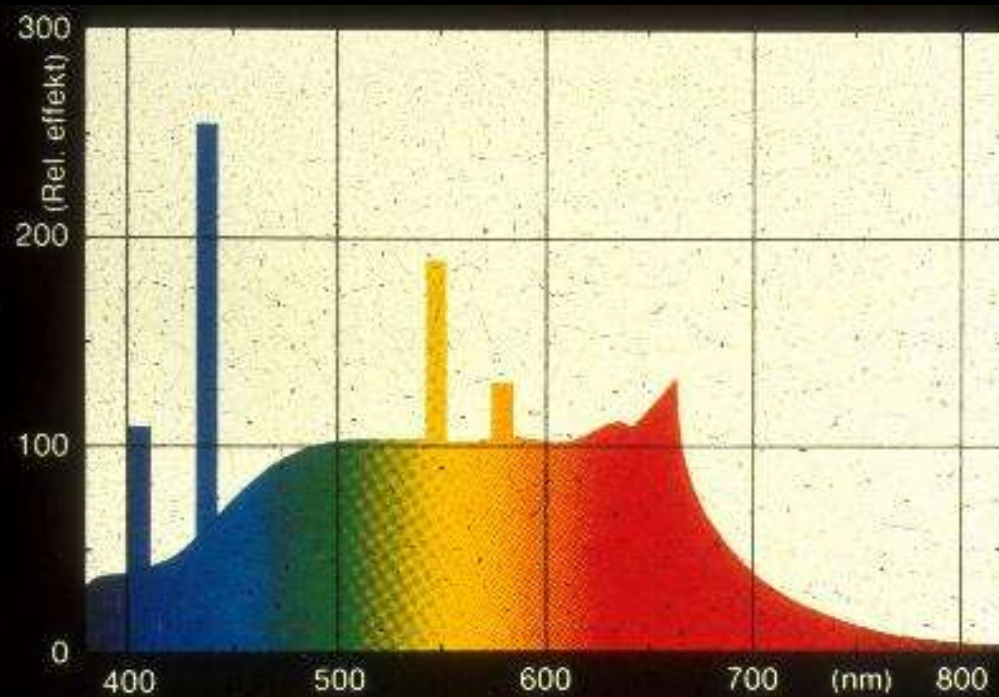


Interaksjon - lys:materie

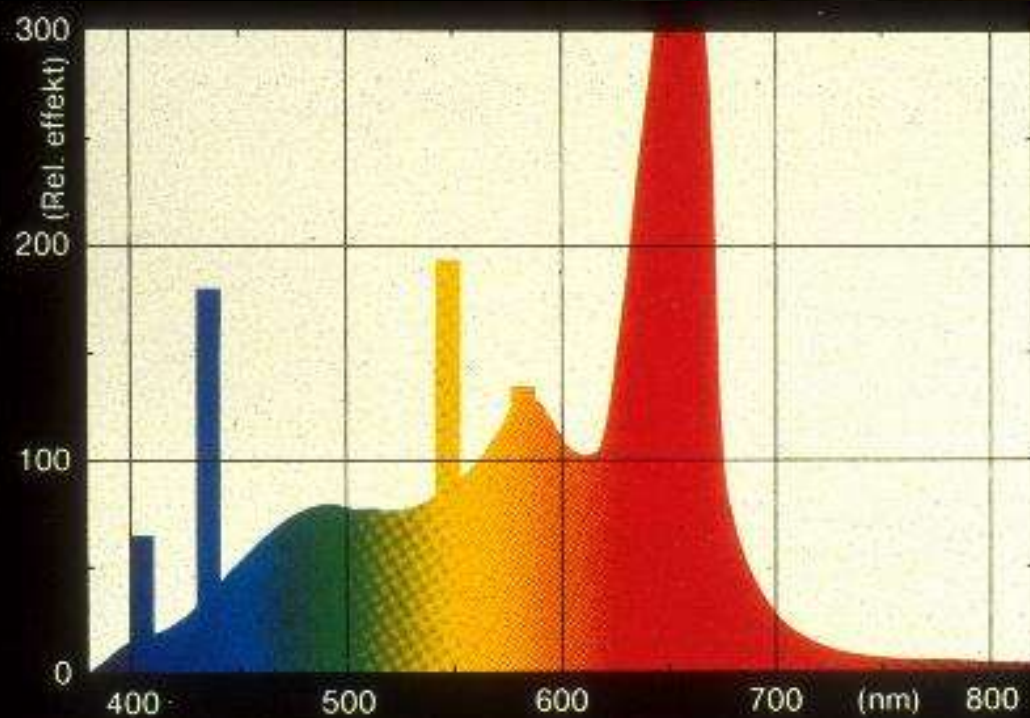








Colorette
 $T_f = 5400 \text{ K}$
 $R_a = 91$



LVS
 $T_f = 3300 \text{ K}$
 $R_a = 74$

Blått — 50 50



Cyan — — 50



Rødt 50 50 —



Gult 50 — —





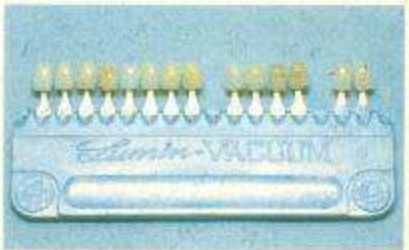
Direct sunlight



Blue sky light



Electric bulb light



Fluorescent lamp light



Dagslys



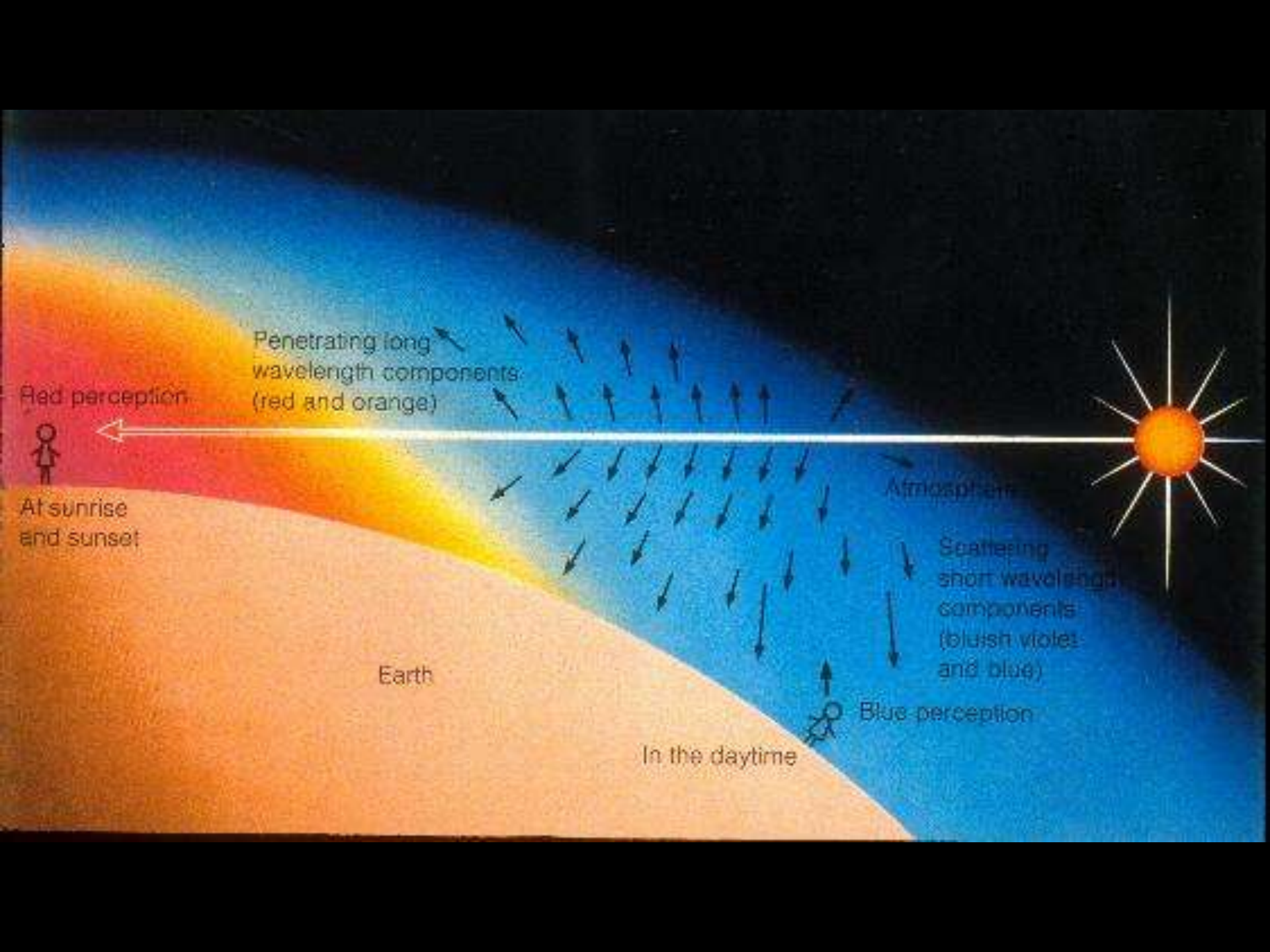
Lysrør



Direkte sollys



Glødelampe



Penetrating long wavelength components (red and orange)

Red perception

At sunrise and sunset

Earth

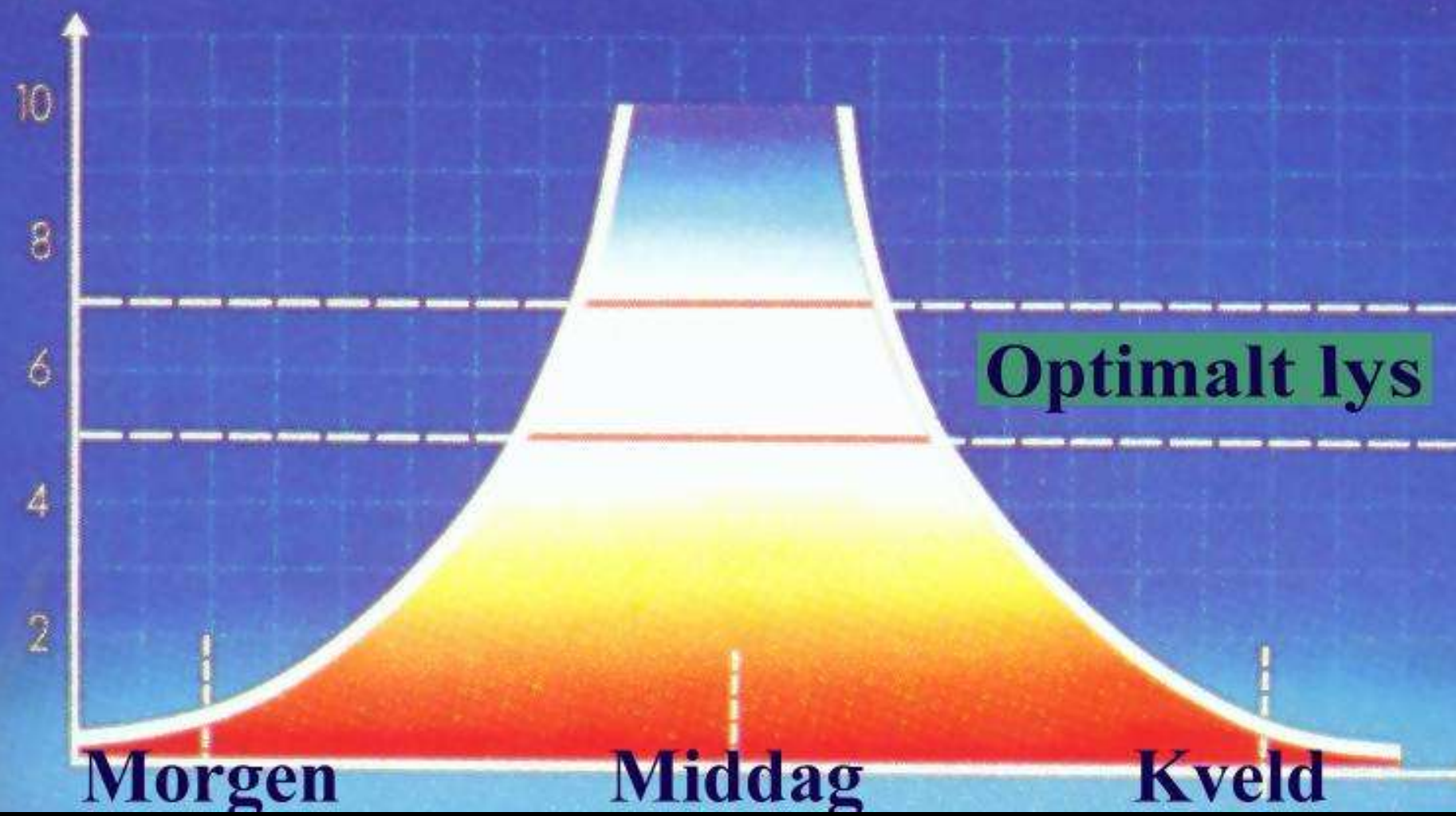
Atmosphere

Scattering short wavelength components (bluish violet and blue)

Blue perception

In the daytime

$\times 1000^\circ\text{K}$



Optimalt lys

Morgen

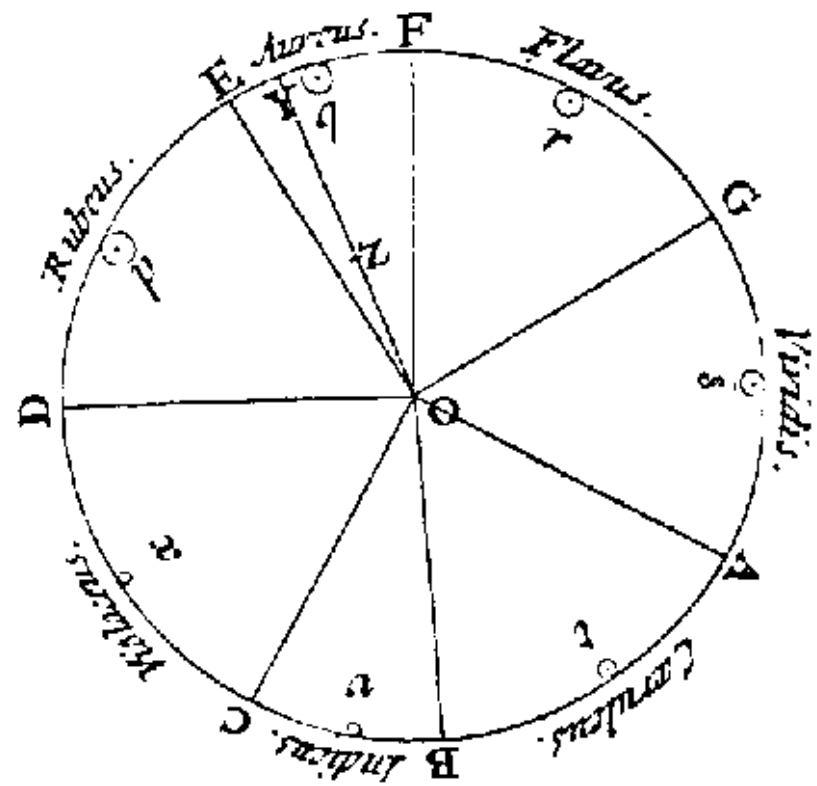
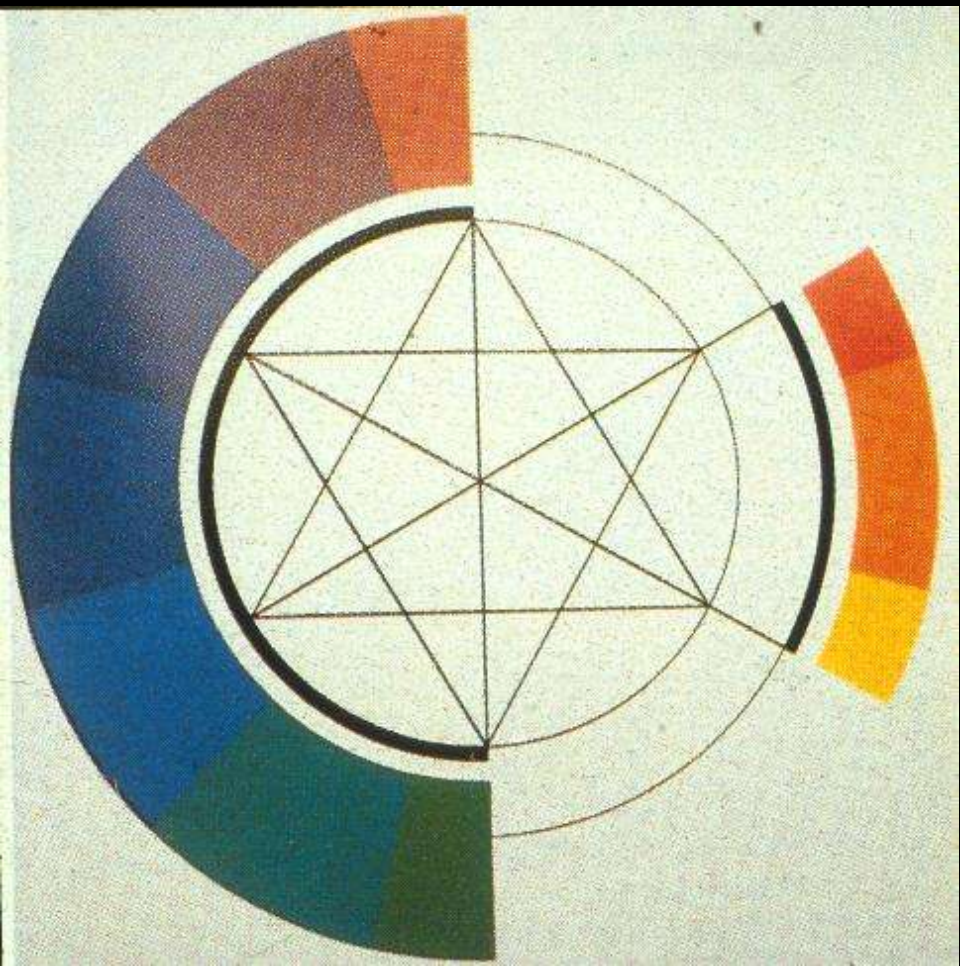
Middag

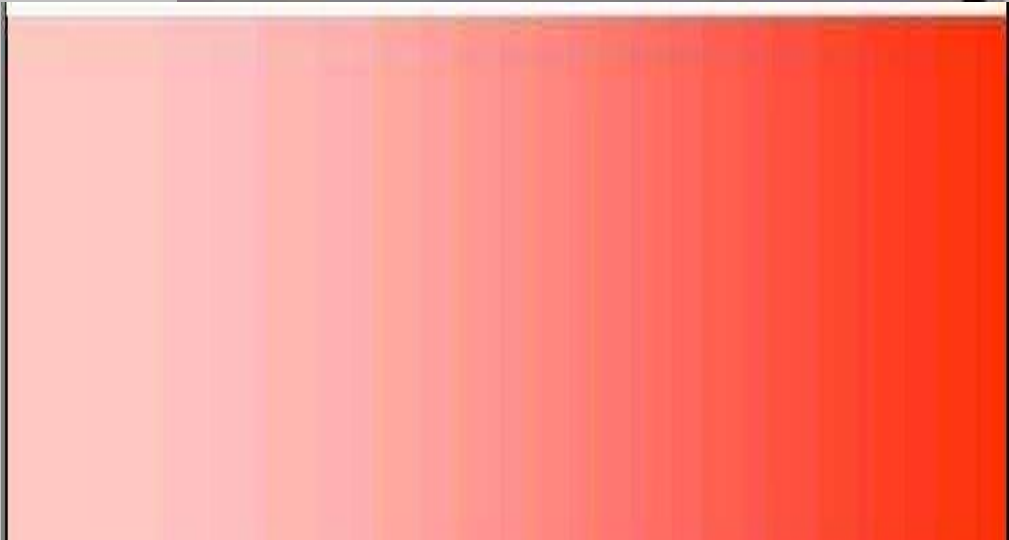
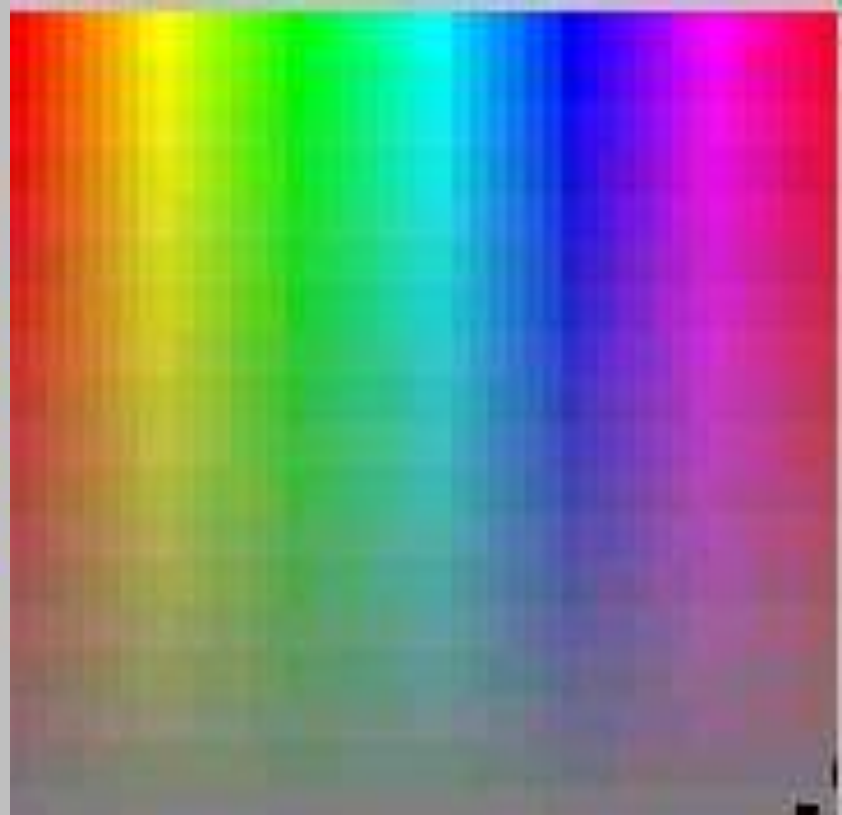
Kveld

Hvordan måles farger ?

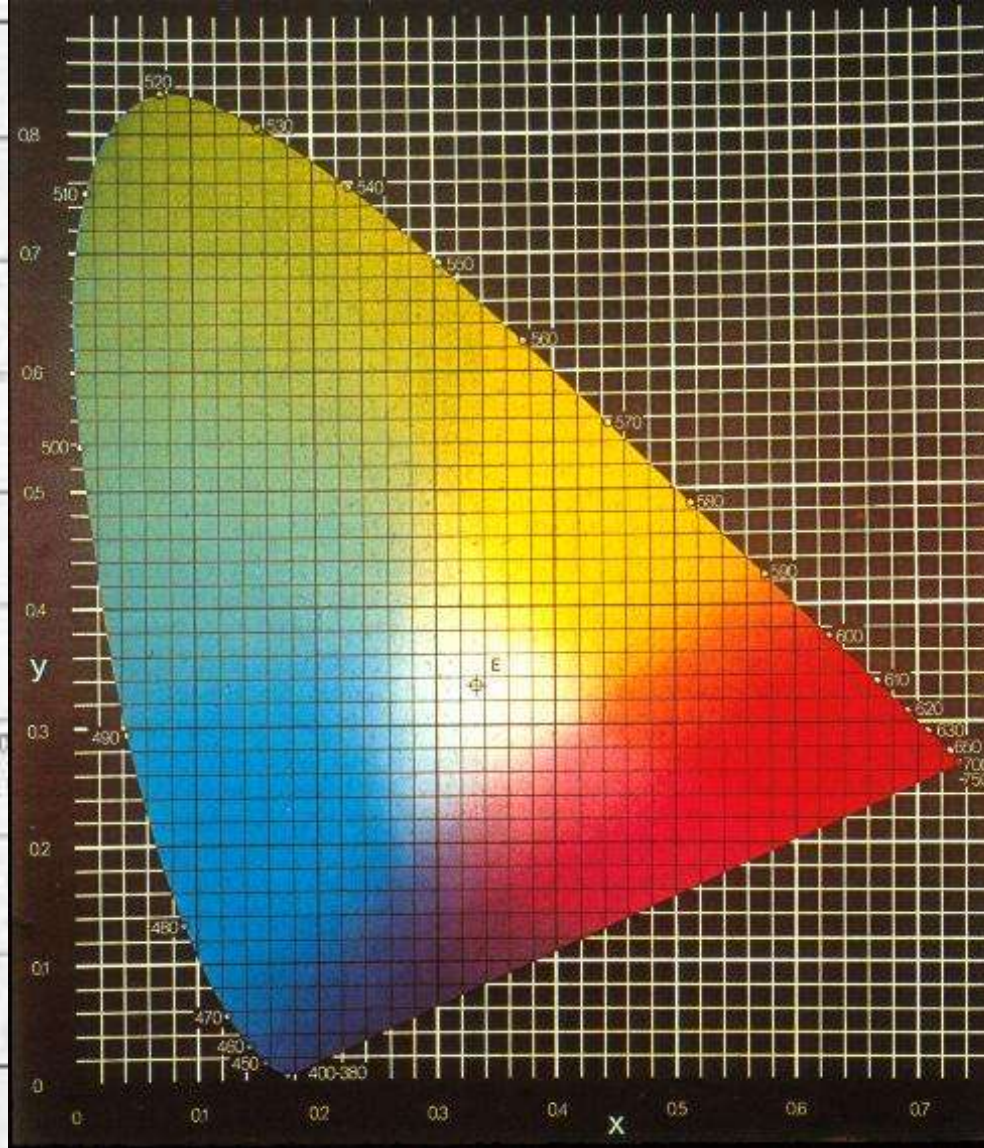
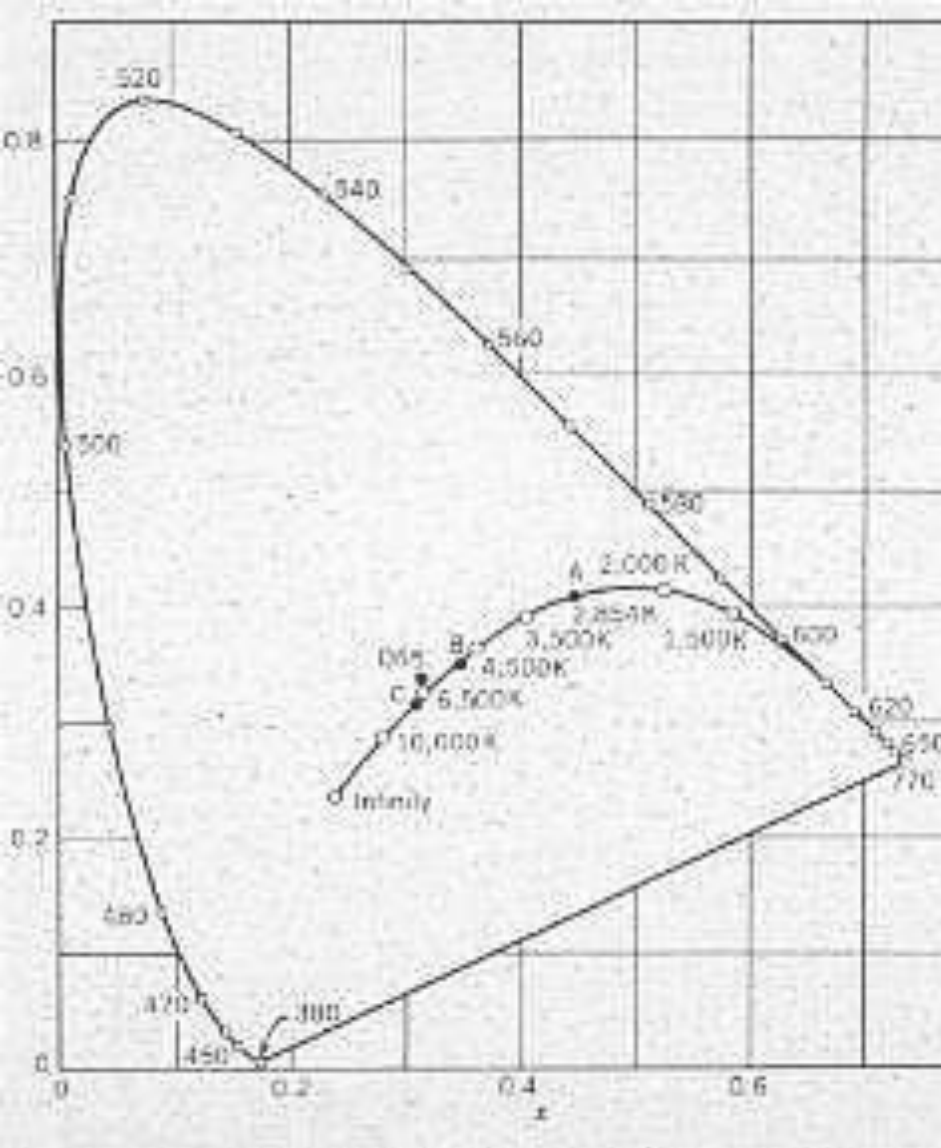
Kolorimetri



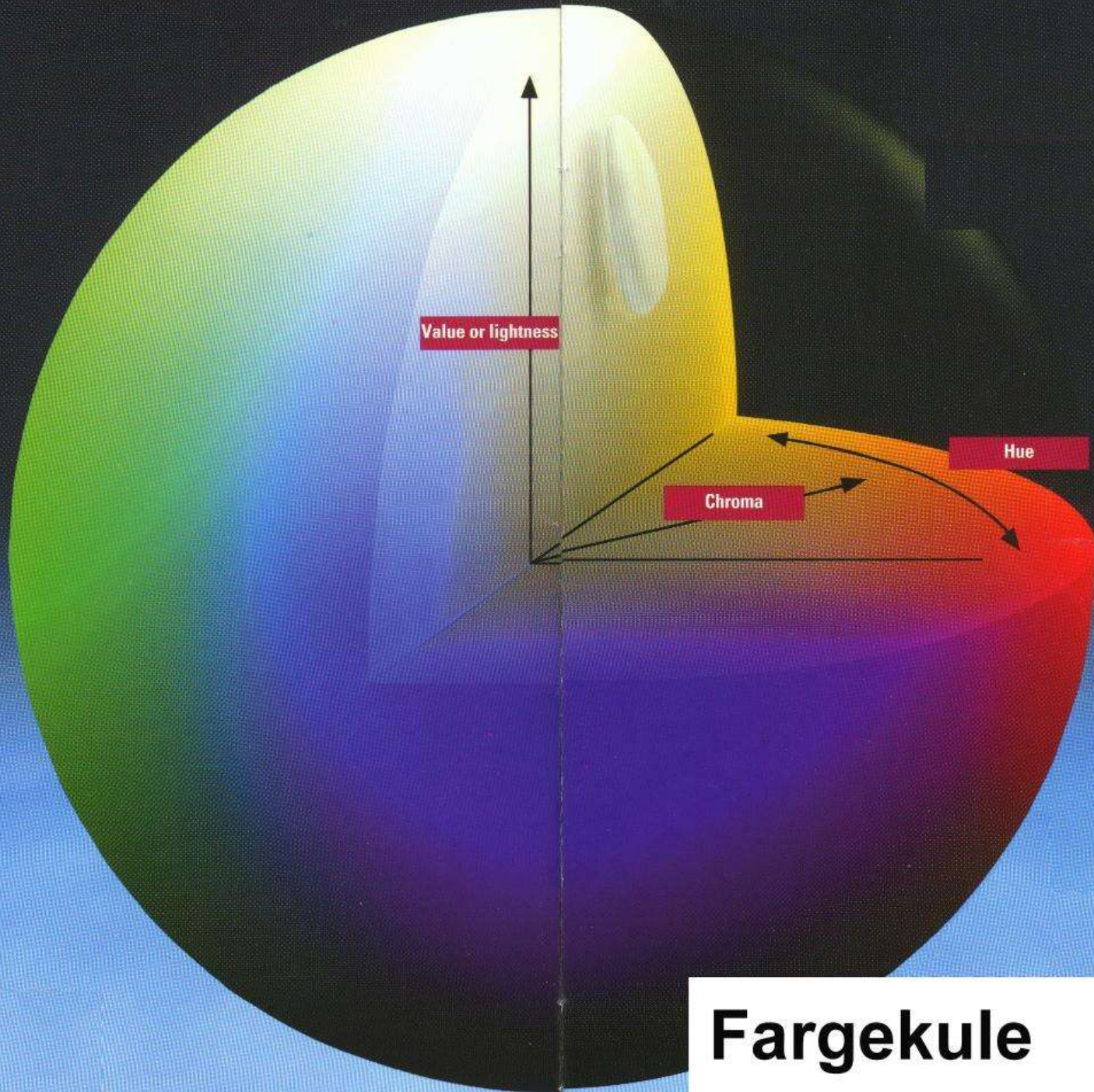




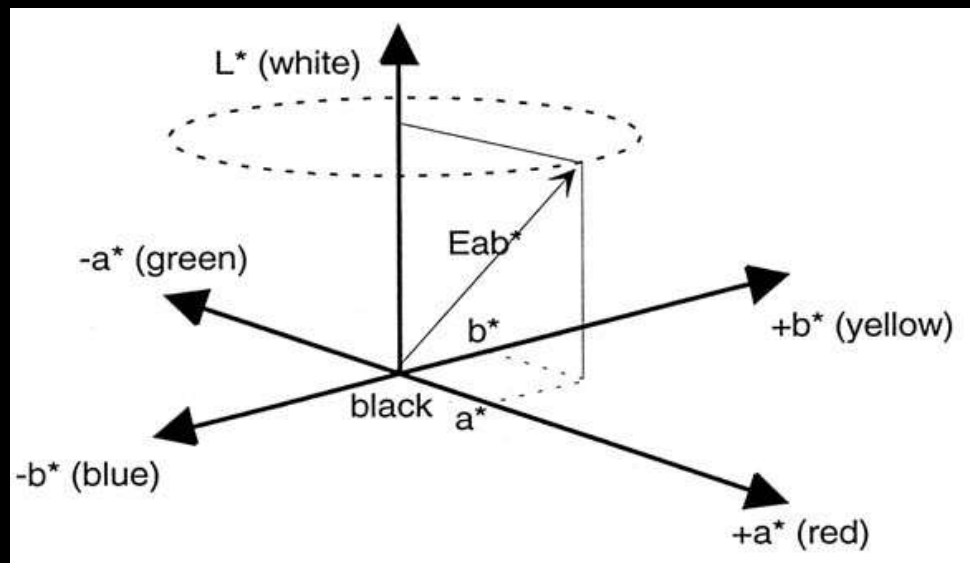
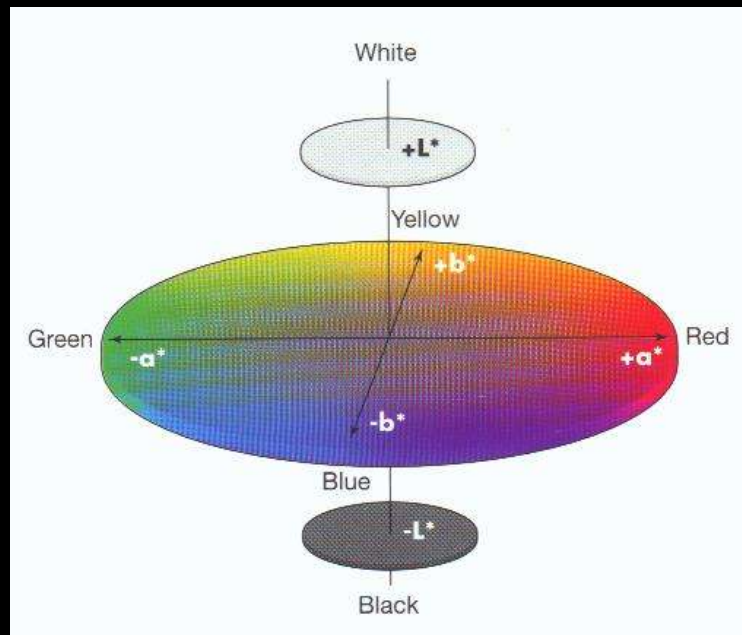
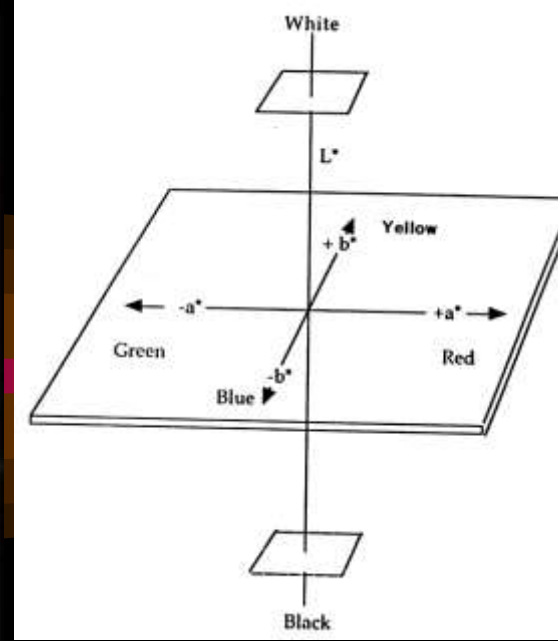
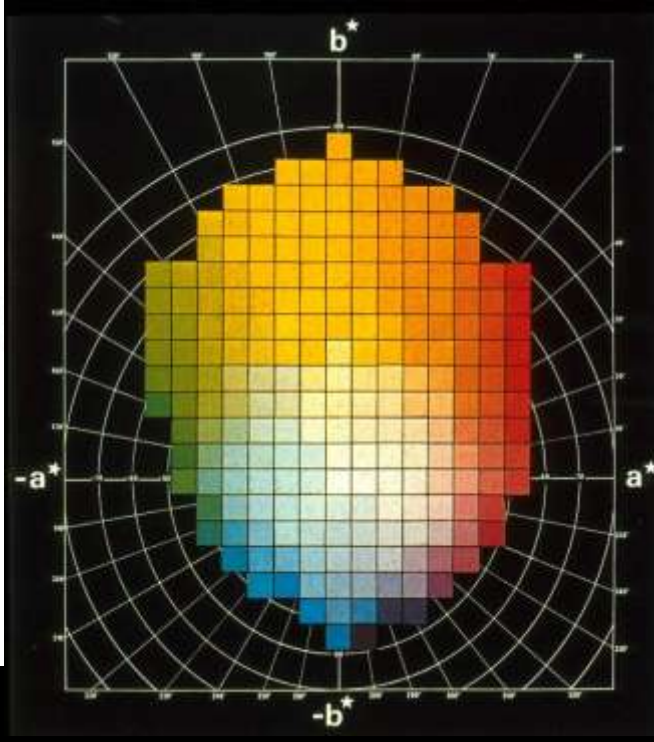
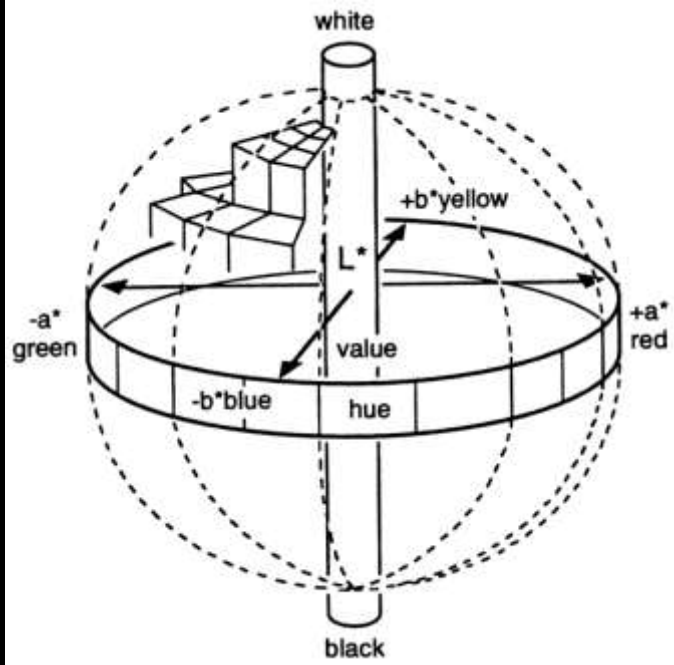
R: 38 G: 6 B: 0



Fargetemperatur - Kelvin

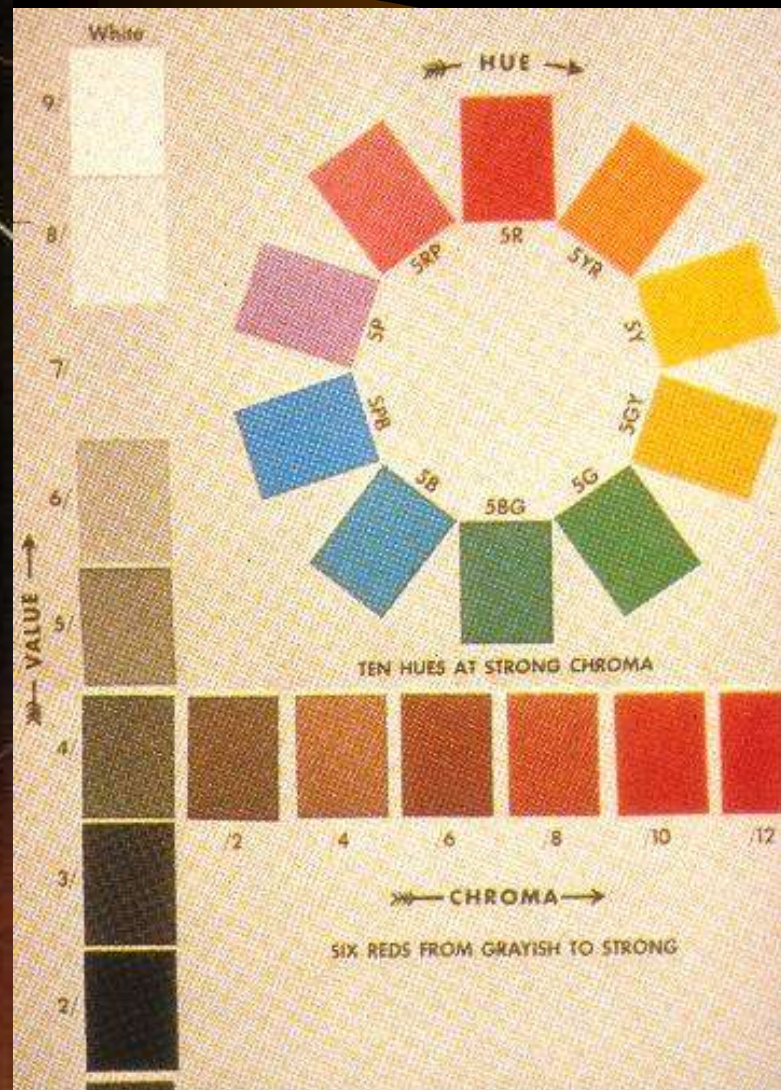
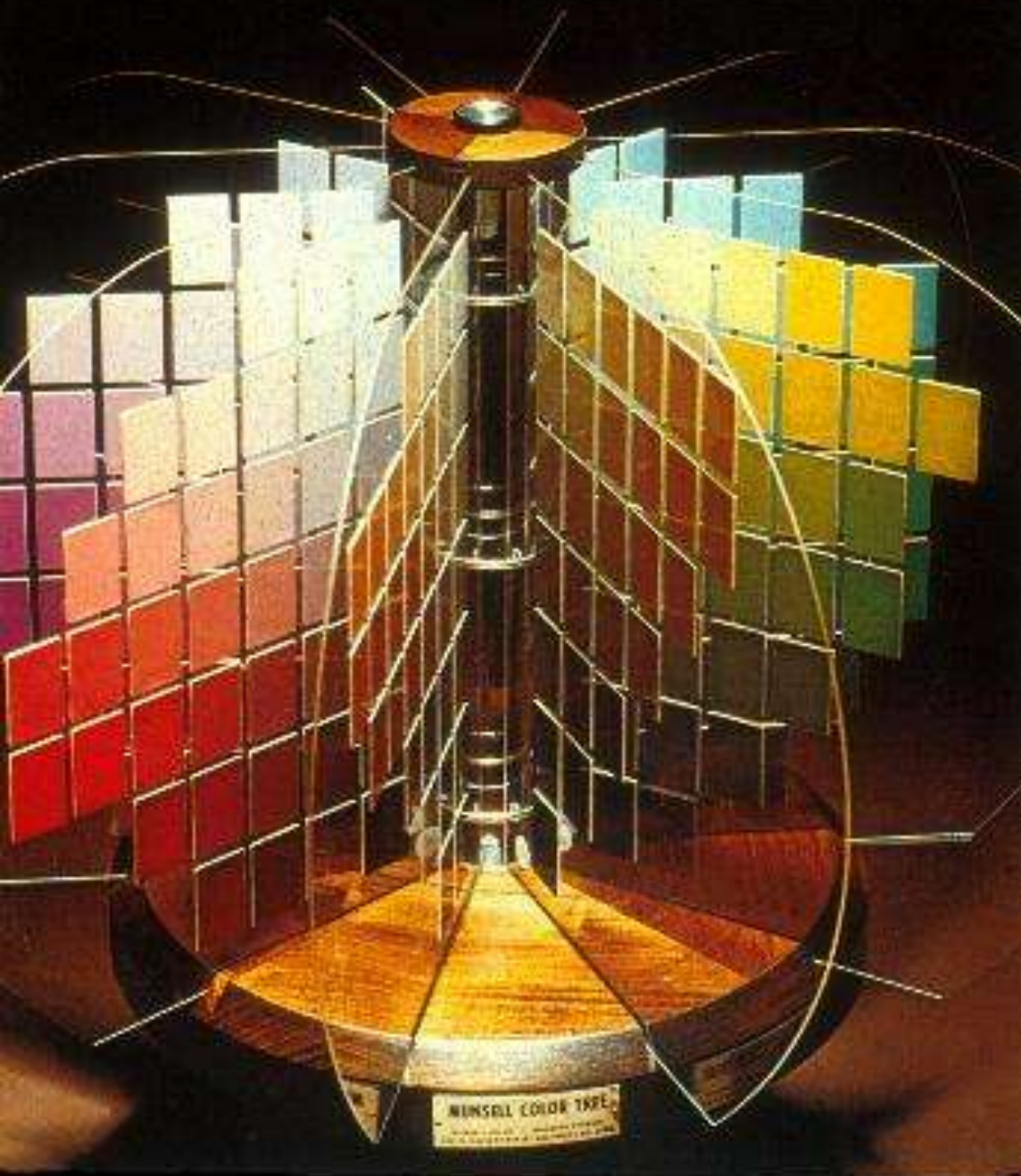


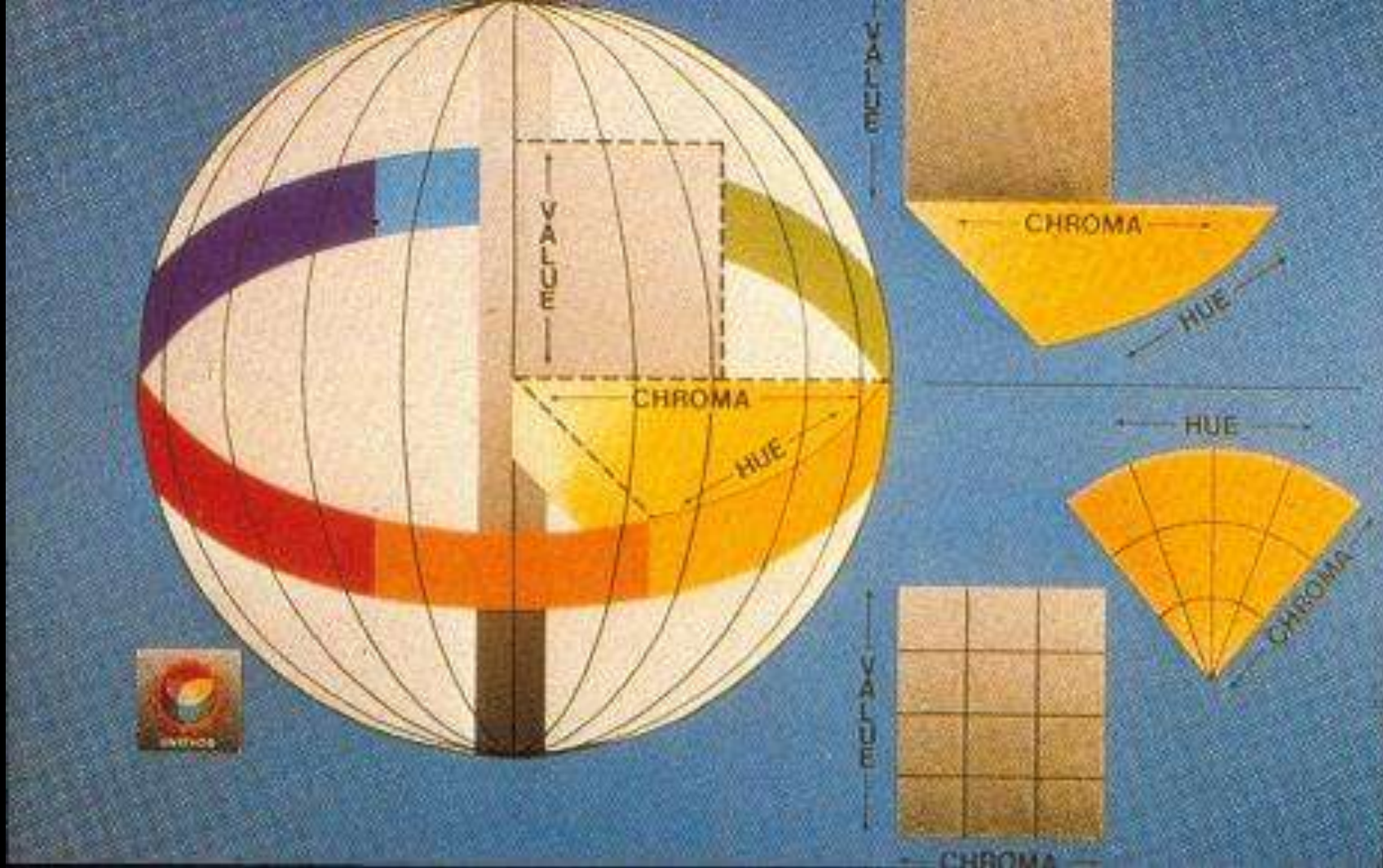
Fargekule



CIE -Lab

Munsell





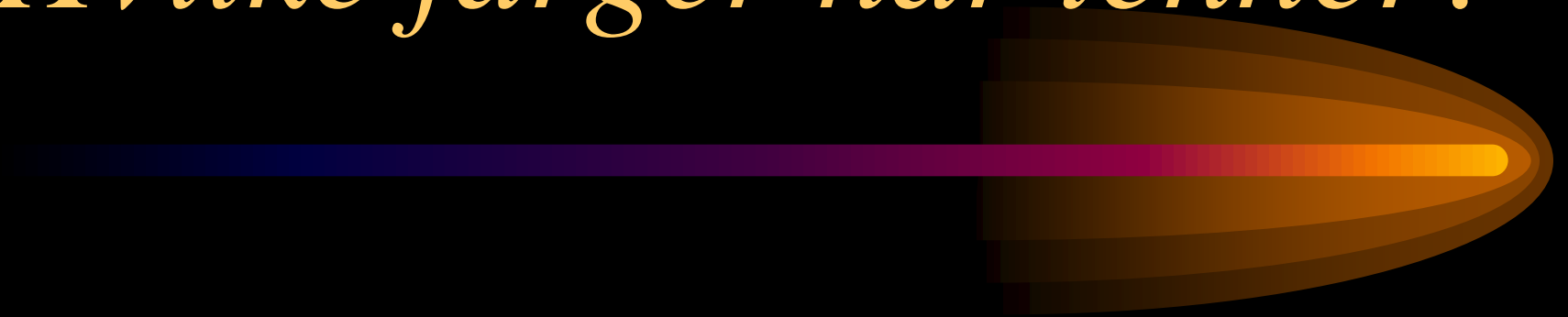
Metning

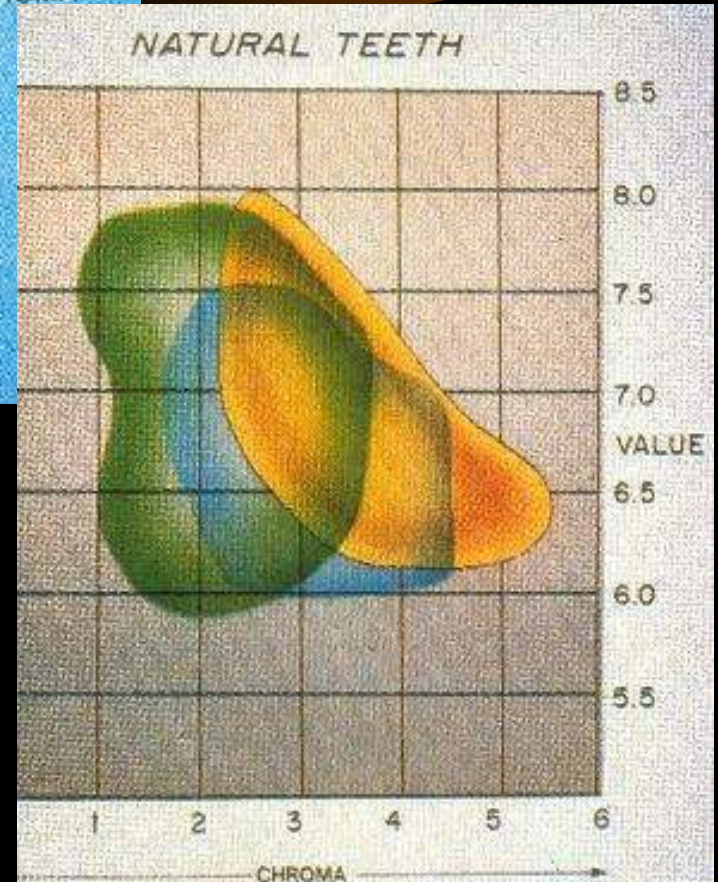
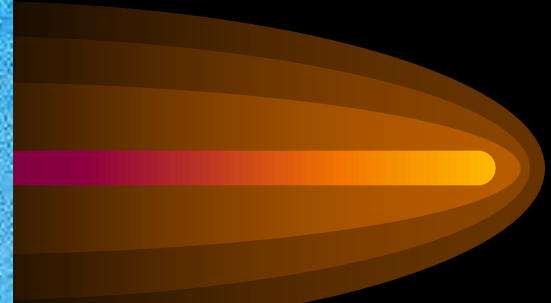
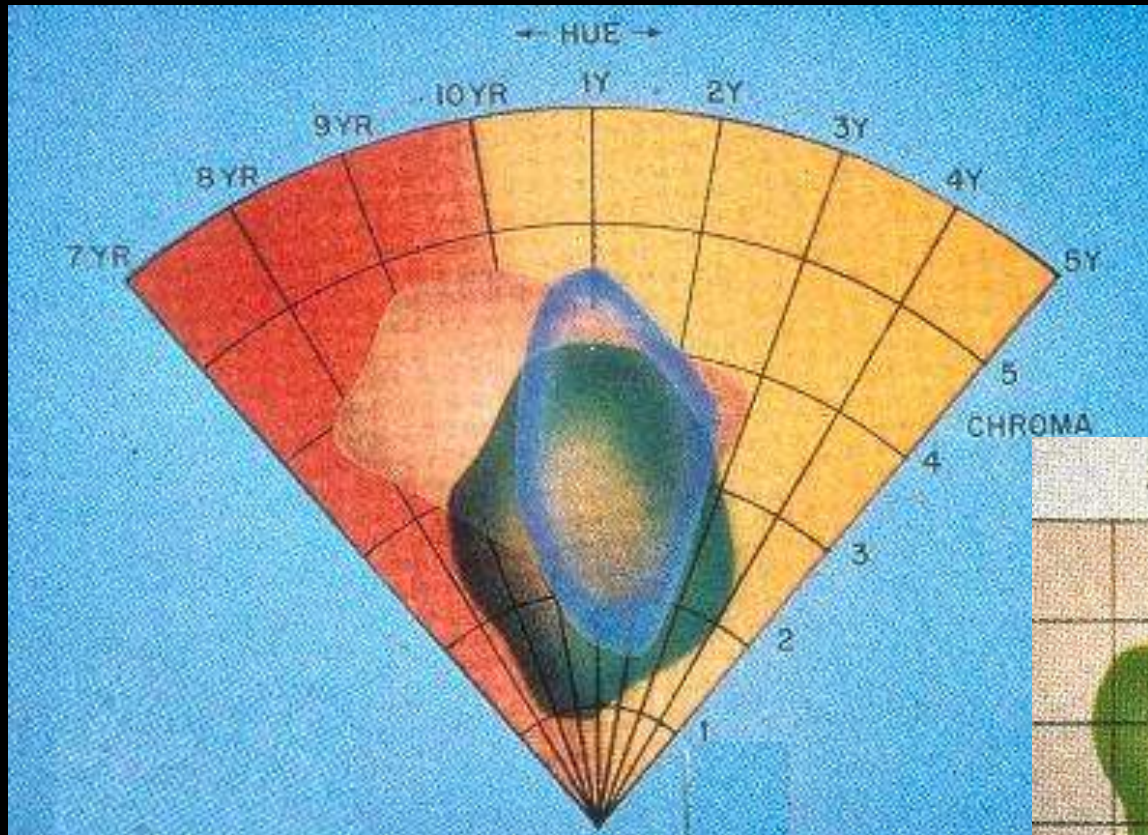
Kroma

Valør



Hvilke farger har tenner?

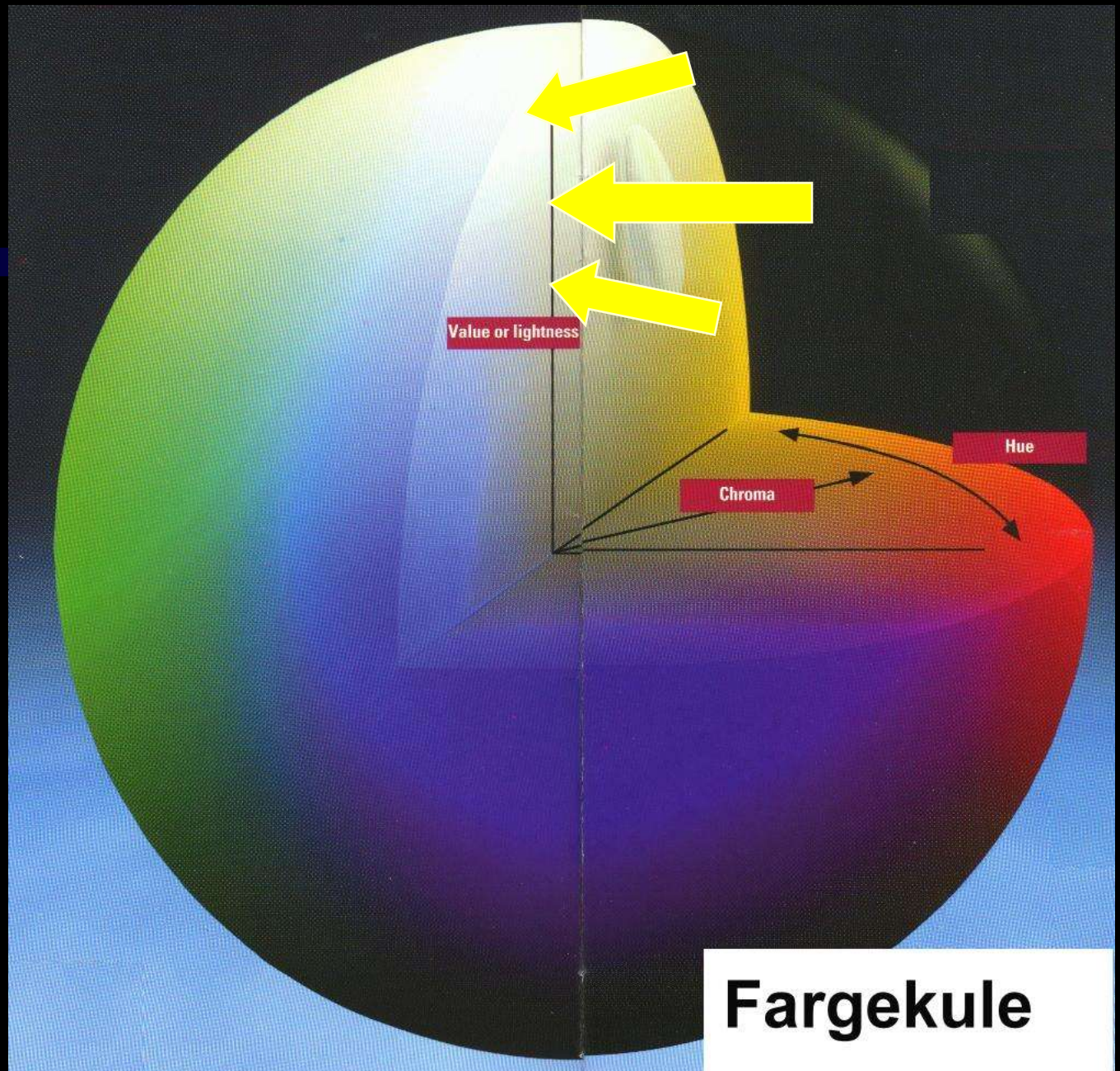




Metning

Kroma

Valør



Metning

Kroma

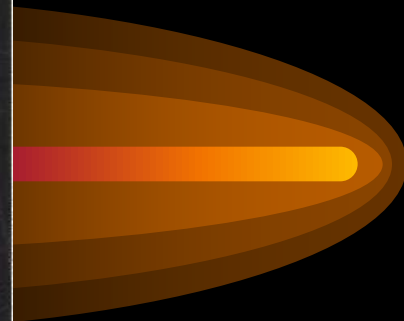
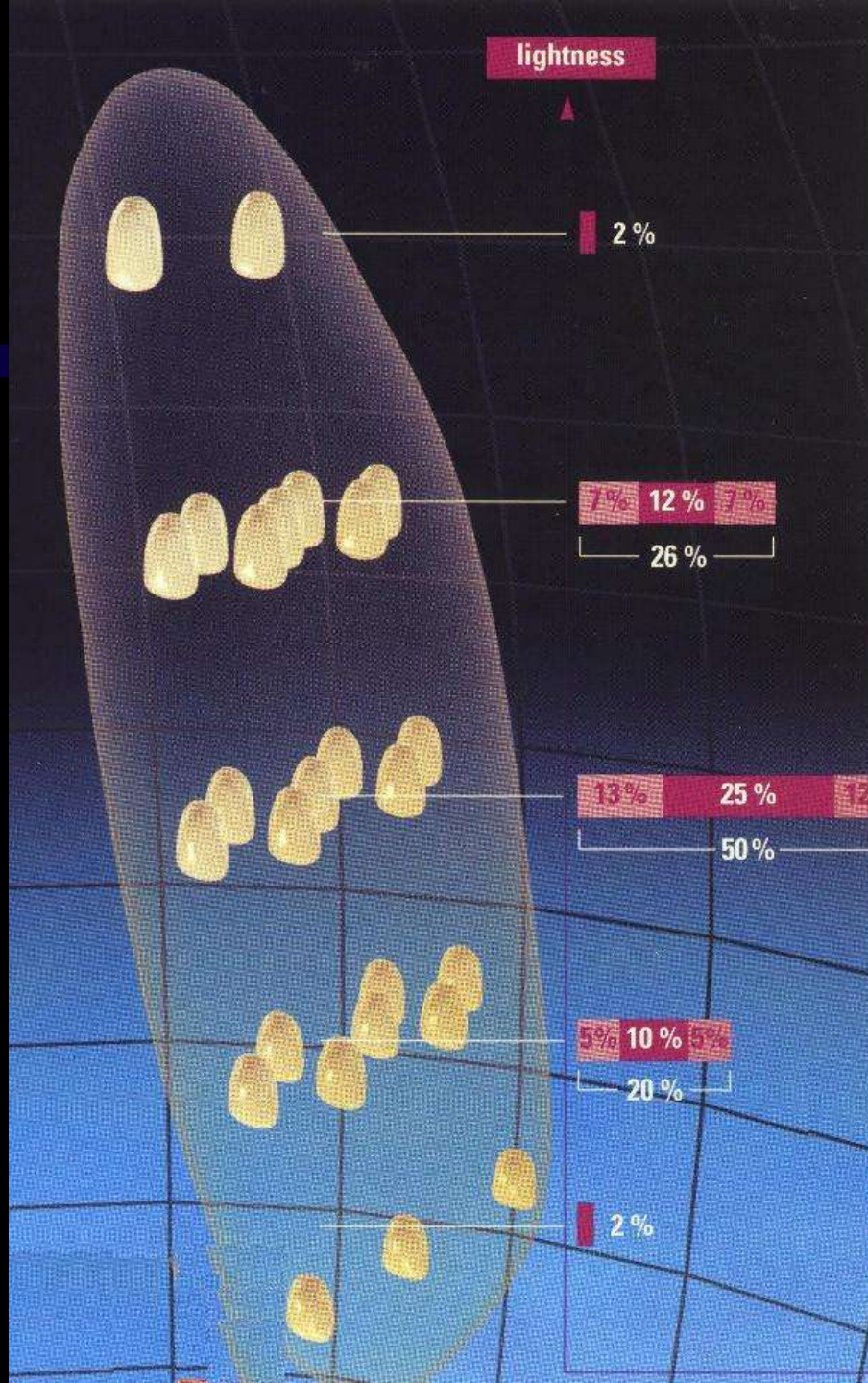
Valør

Fargekule

Metning

Kroma

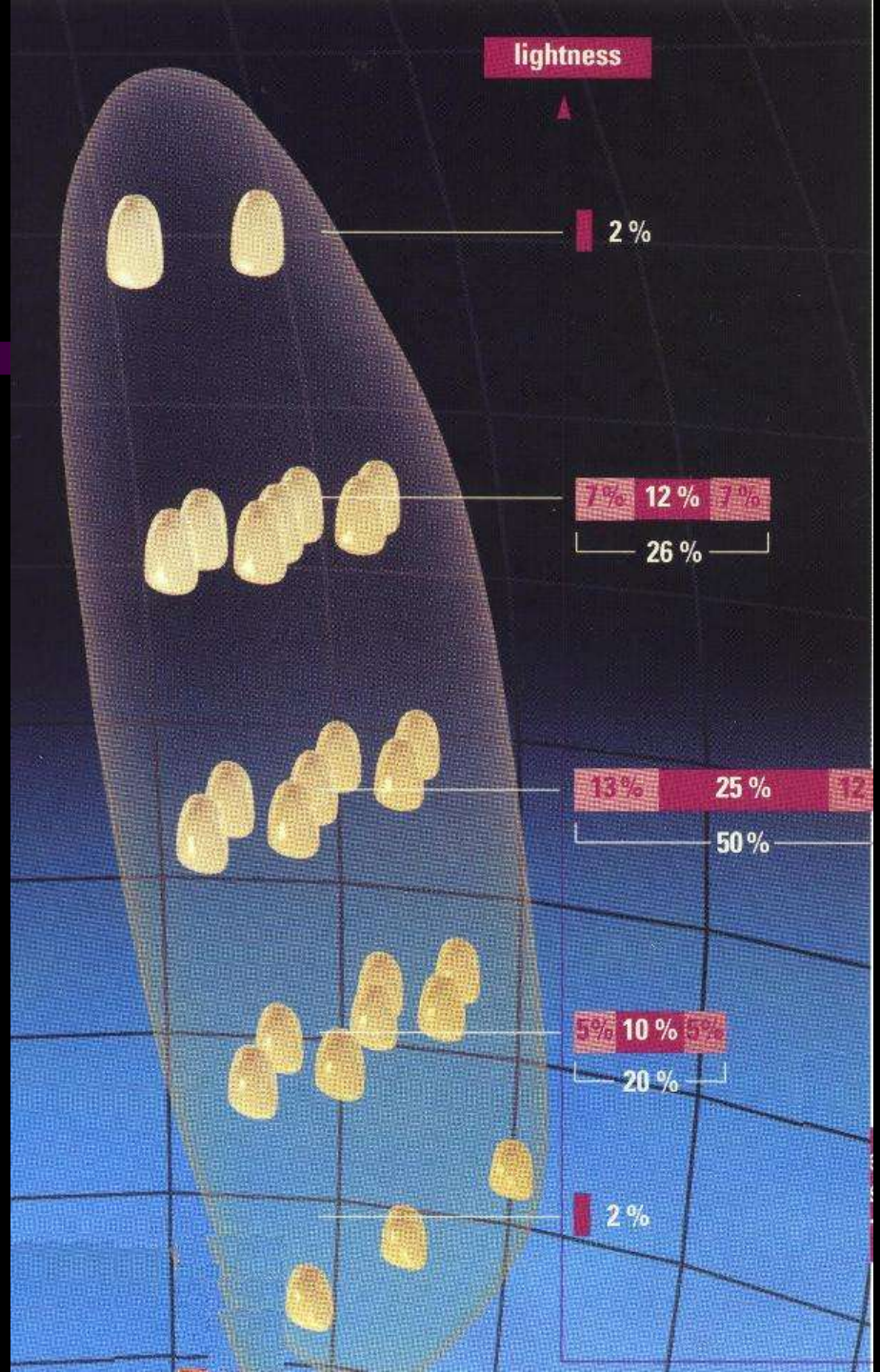
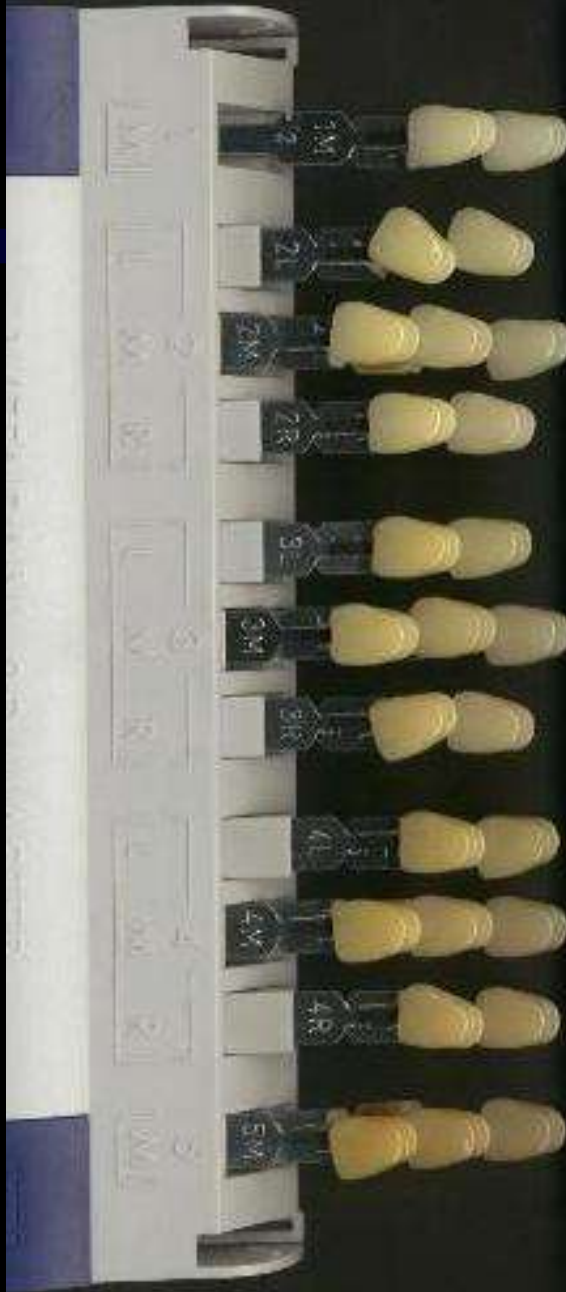
Valør



Metning

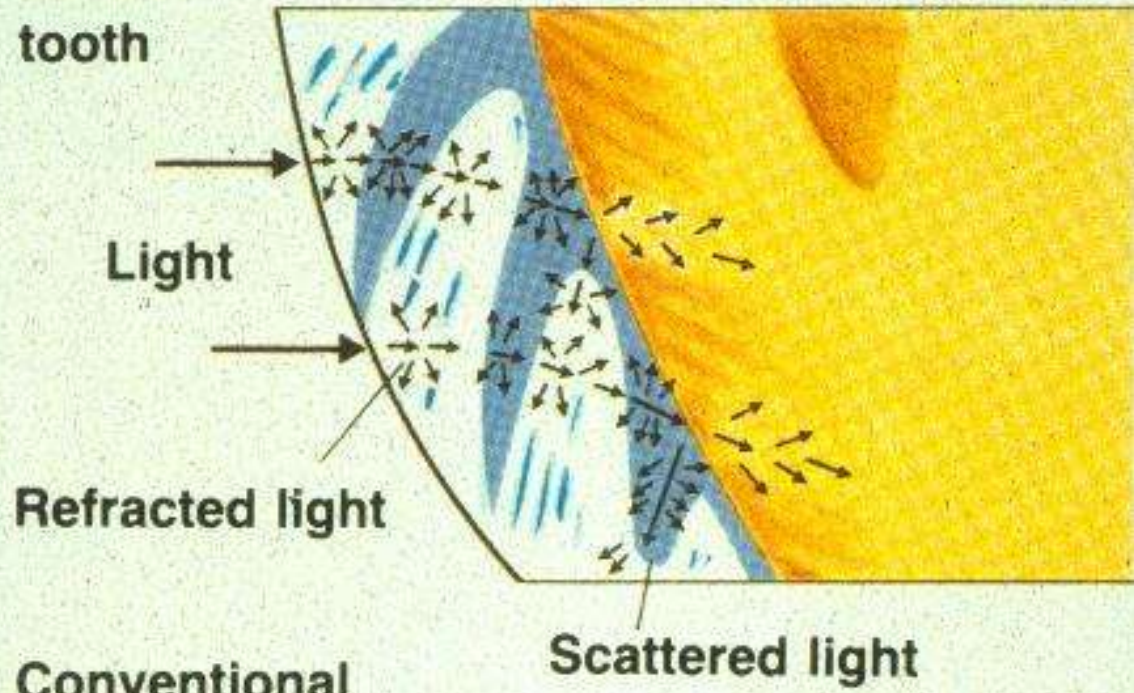
Kroma

Valør

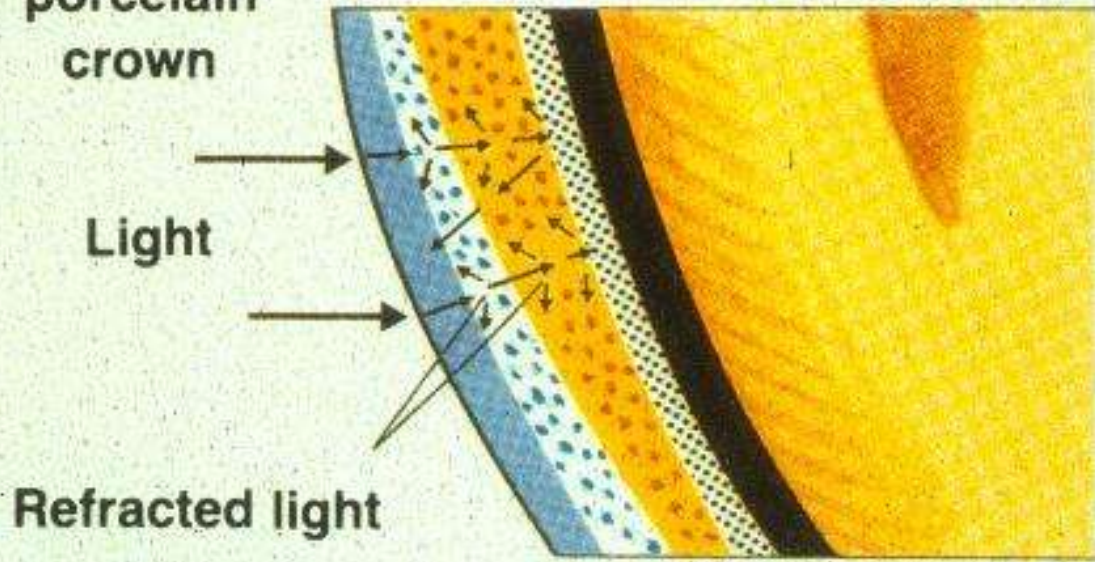


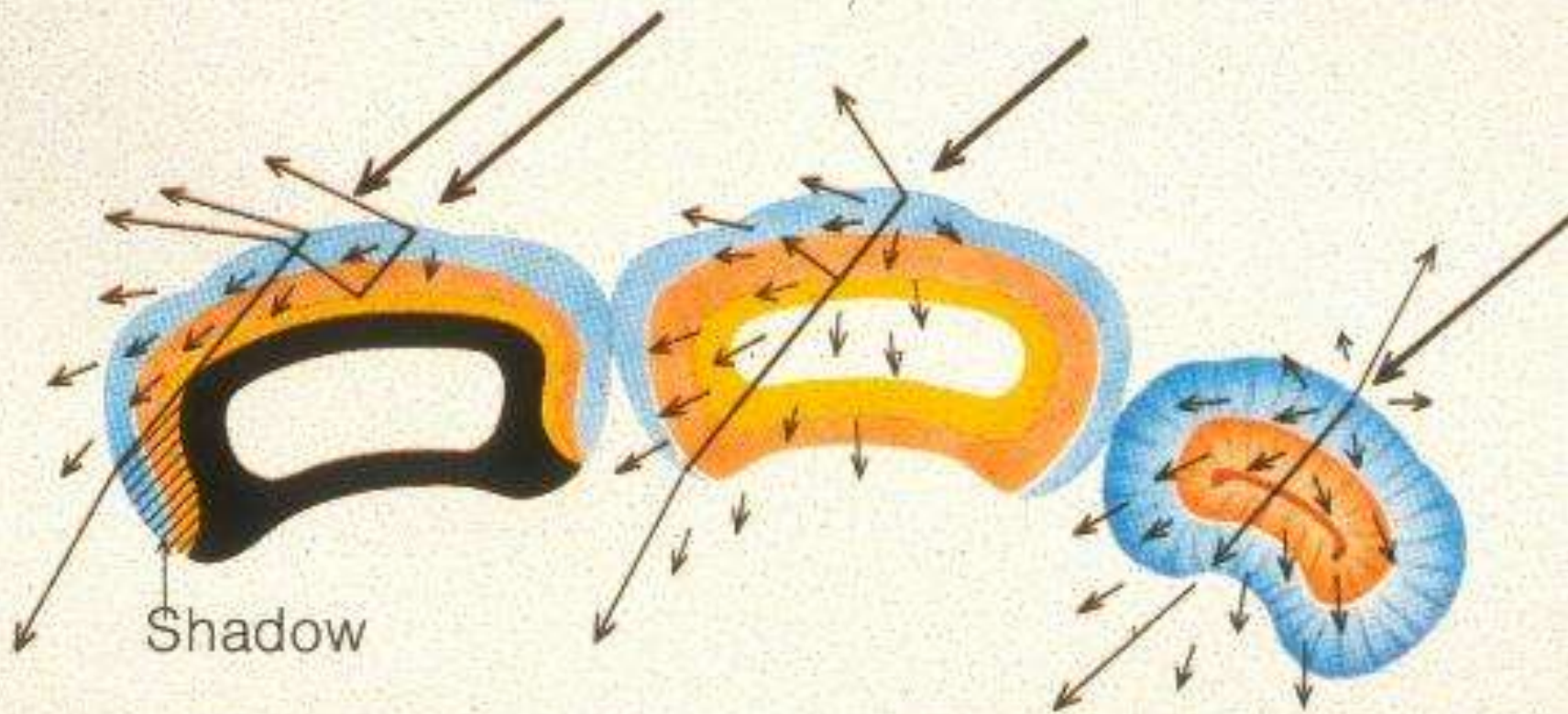
*Hvordan illuderes farge
på kunstige tenner?*

**Natural
tooth**



**Conventional
porcelain
crown**



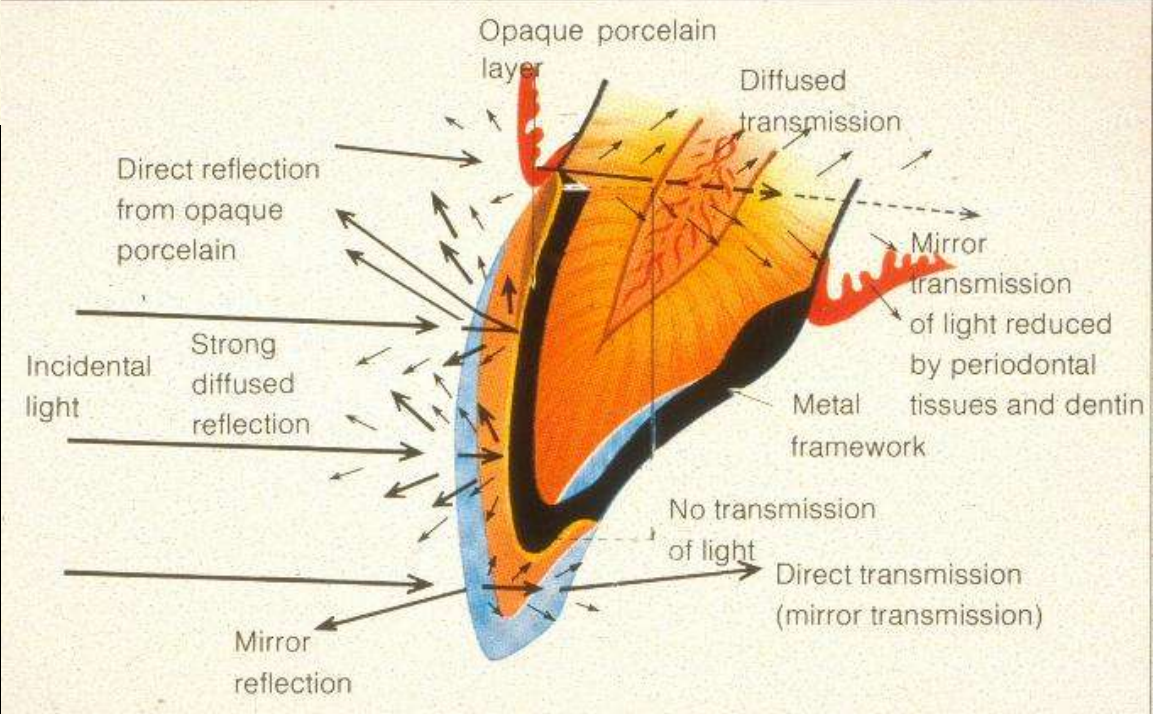
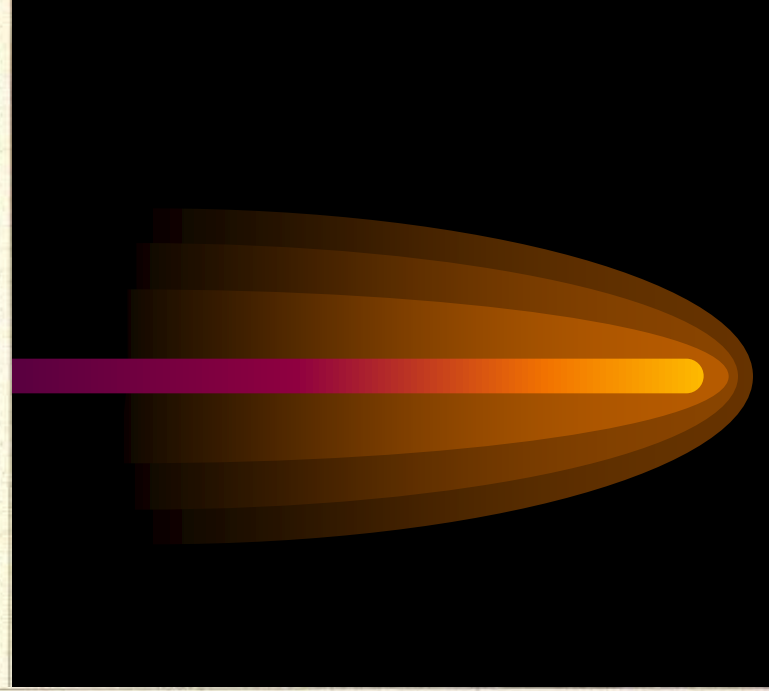
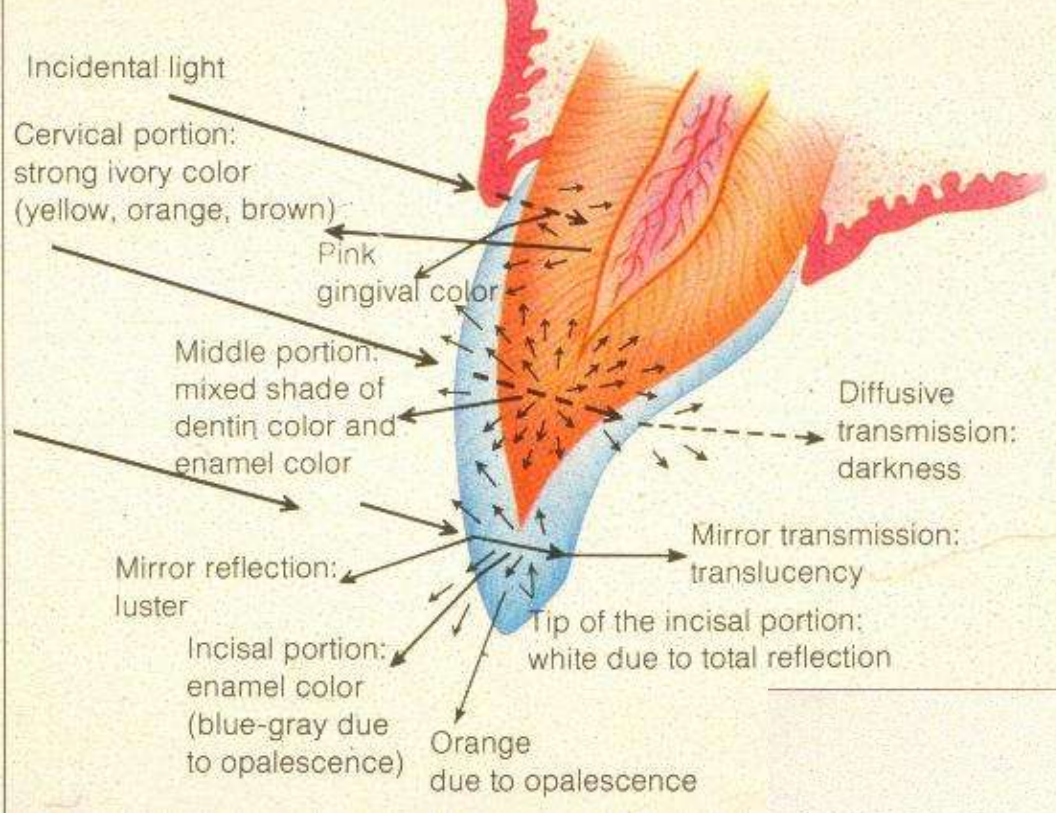


Shadow

Ceramo-metallic system

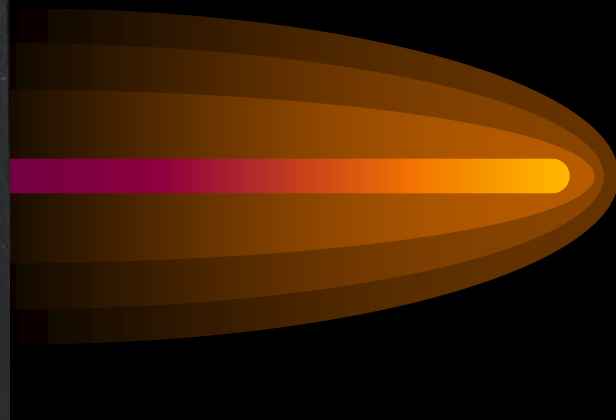
Full-porcelain crown

Natural tooth



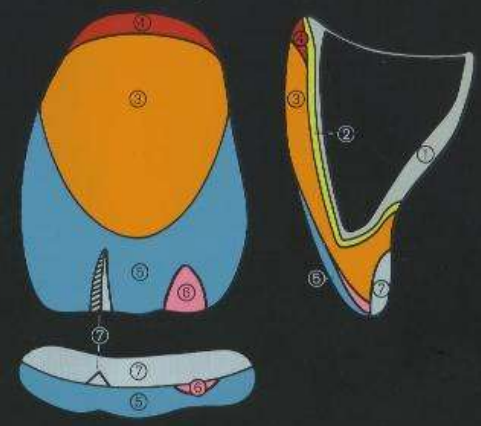
VITA

	A 1	A 2	A 3	A 3,5	A 4	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C 4	D 2	D 3	D 4
Lumin-Vacuum																
Grund Opaque Opacoe Opaco	510	511	512	513	514	515	516	514	514	517	518	518	519	520	510	521
Dentin Dentine Dentina Dentina	540	541	542	554	543	553	544	545	546	547	548	549	550	551	552	545
Schmelz Enamel Email Esmalte	558	558	559	559	560	557	559	559	559	560	559	559	560	560	559	559
Effekt Effect Efet Efectos		561	562	562	562		561	561	562		561	562	562	561	562	561
Hals Neck Collet Cuello														563	563	



Korrektur Correction Corrección	590	Zahnfleisch Gum Gencive Encias	571	572	Glasklar Transparent Transparente Transparente	53				
Color-Grund Color opaque Opacoe Color Opaco Color	670	671	672	674	675	676	677	678	Color Color Color Color Color	51

VITA
 Schichtung der VMK® 68 Massen
 Layering of the VMK® 68 powders
 Stratification des masses VMK® 68
 Laminación de los polvos de porcelana VMK® 68



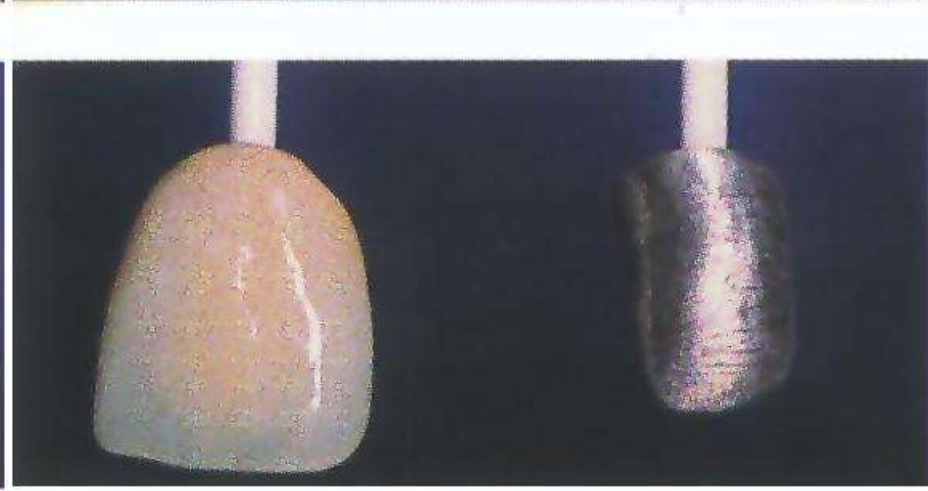
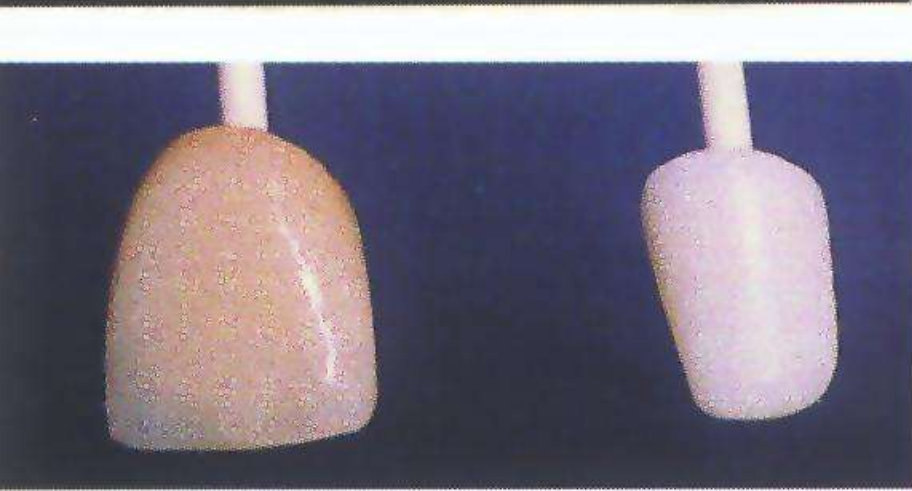
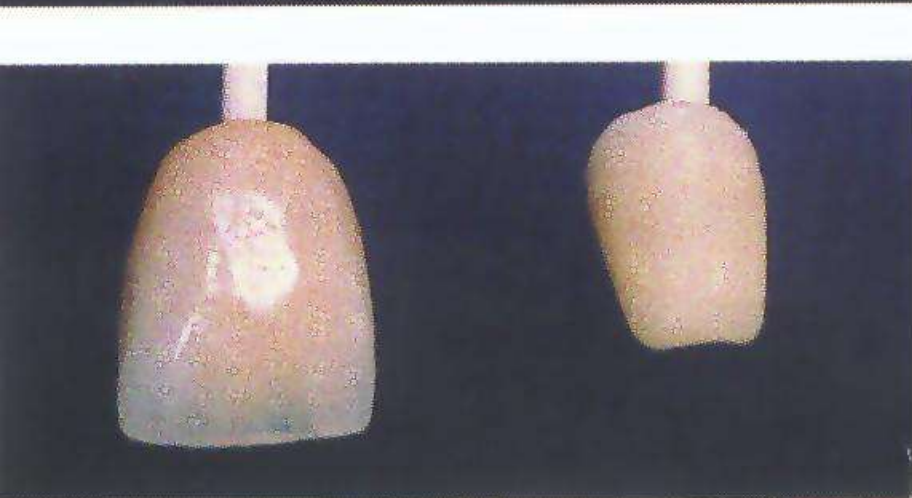
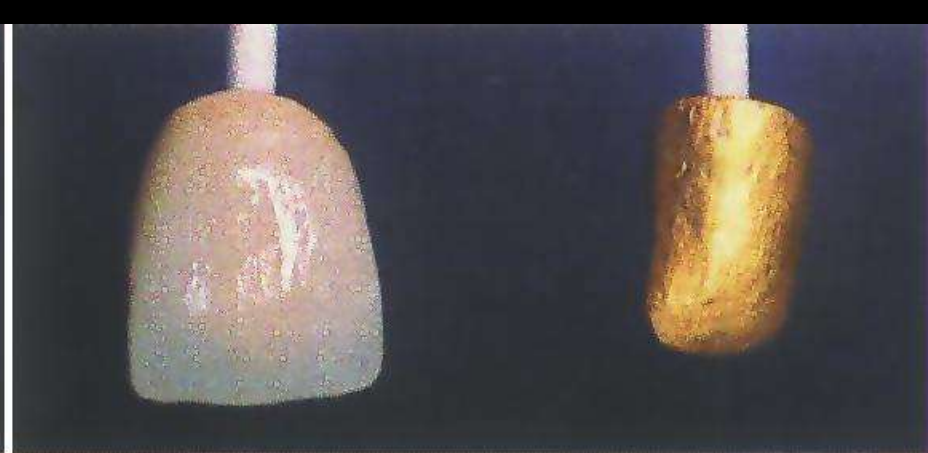
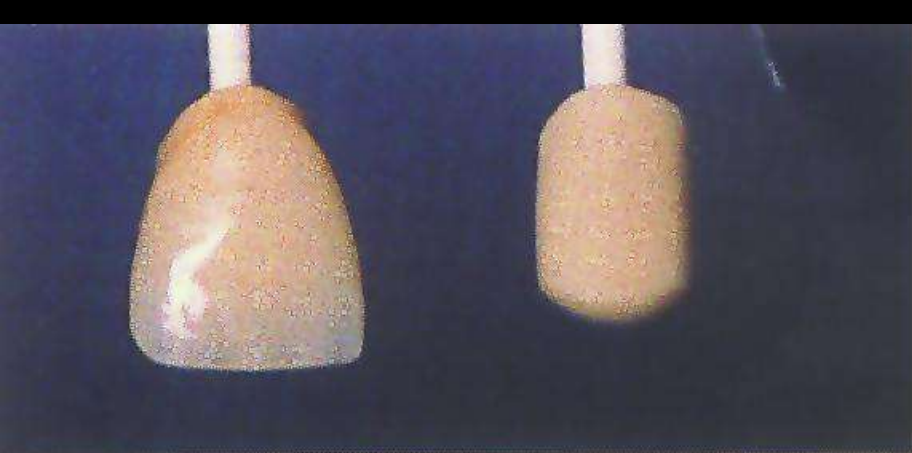
● Metall	Metal	Métal	Metal
● Grund	Opaque	Opacoe	Opaco
● Dentin	Dentine	Dentina	Dentina
● Hals	Neck	Collet	Cuello
● Schmelz	Enamel	Email	Esmalte
● Effekt	Effect	Efet	Efectos
● Glasklar	Transparent	Transparent	Transparente

Vitachrom „L“

Malfarben · Stains · Colorants · Colorantes

Sortiment Assortment Assortiment Surtido	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721
Farben Shades · Teintes Colores																					
Farben Shades · Teintes Colores																					
Lumin® Vacuum	A 1	A 2	A 3	A 3,5	A 4	B 1	B 2	B 3	B 4	C 1	C 2	C 3	C 4	D 2	D 3	D 4					
Vitachrom® „L“	716	716	716	713	717	718	716	718	718	719	719	718	719	718	718	718					

Vita Zahnfabrik · H. Rauter GmbH & Co. KG
 D-7880 Bad Säckingen · West Germany



Specular (white) and diffuse reflection (yellow-orange)

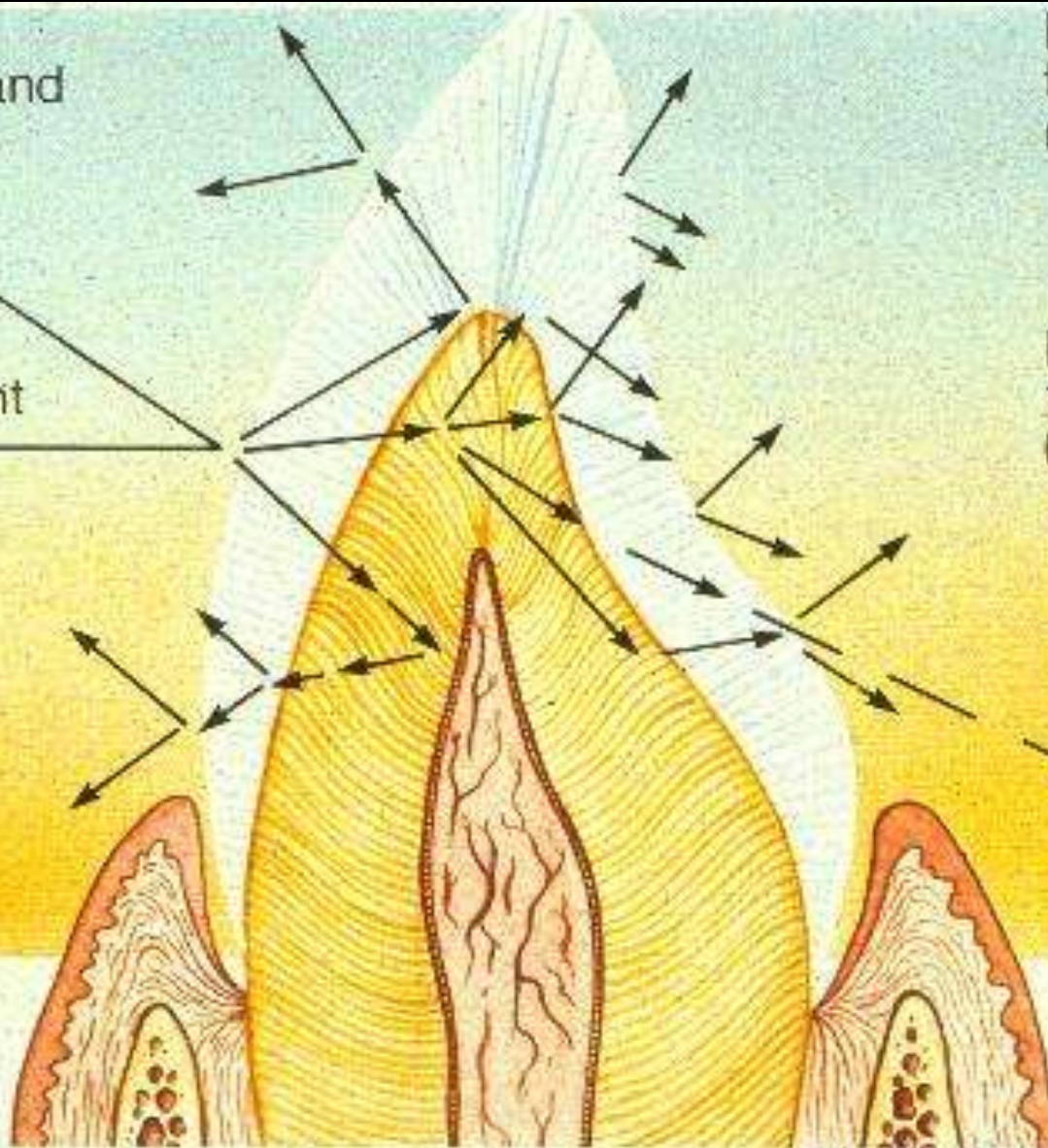
Incident white light

Pink hue from gum

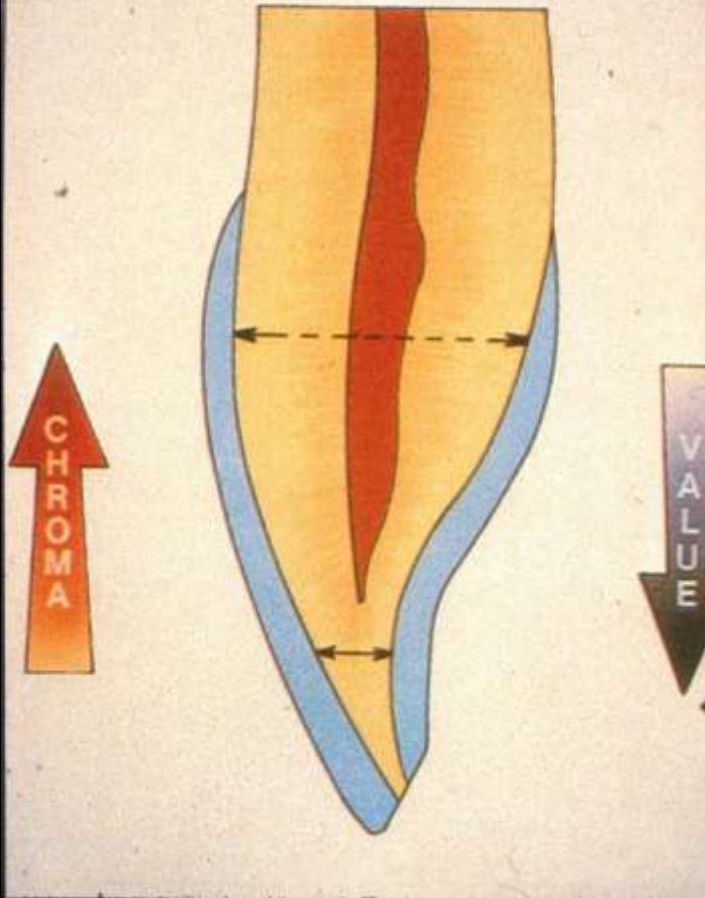
Maximum diffuse transmission (high translucency)

Reduced diffuse transmission (yellow-orange)

Direction of regular transmission if the tooth were made of transparent glass



TRANSITIONS



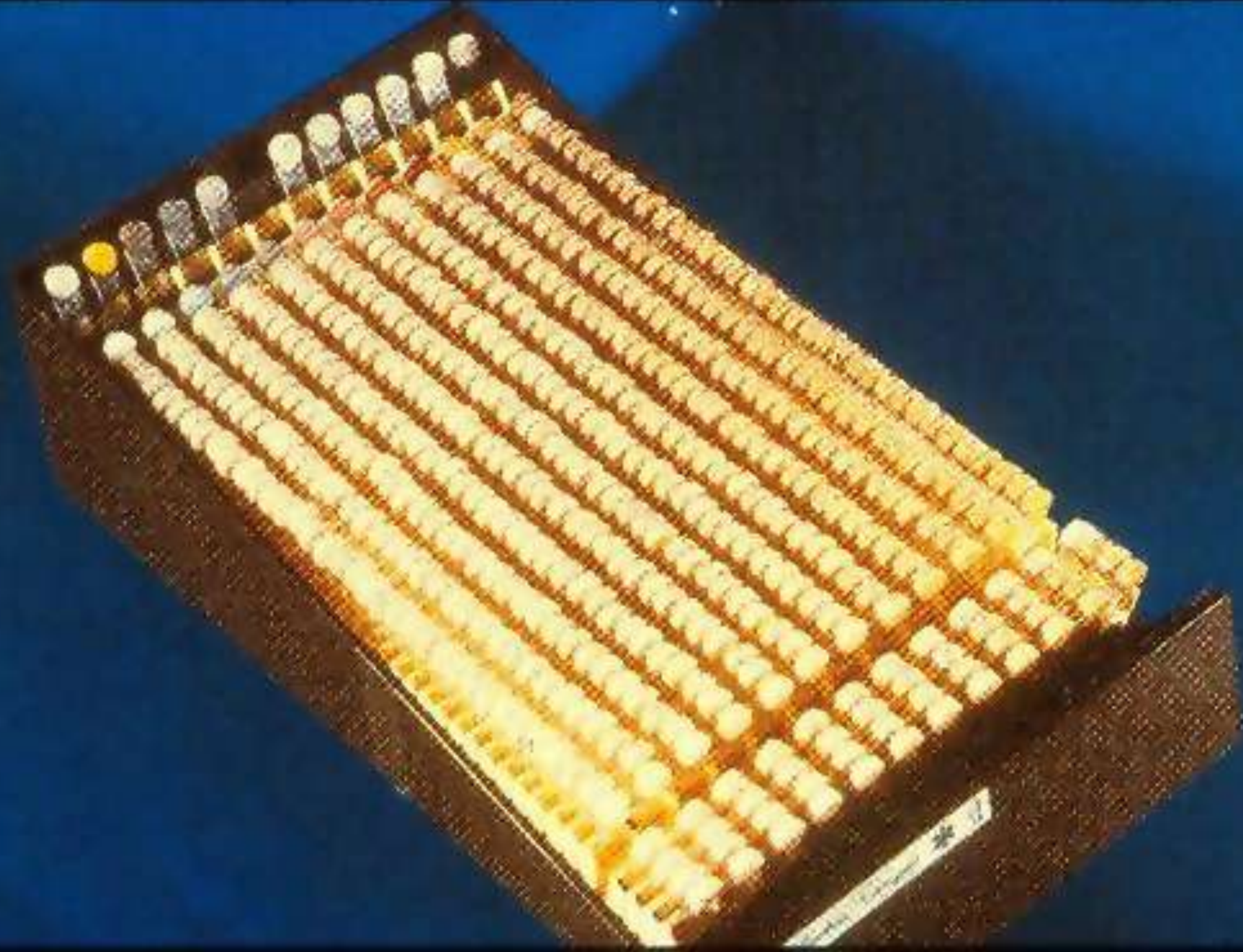
Metning

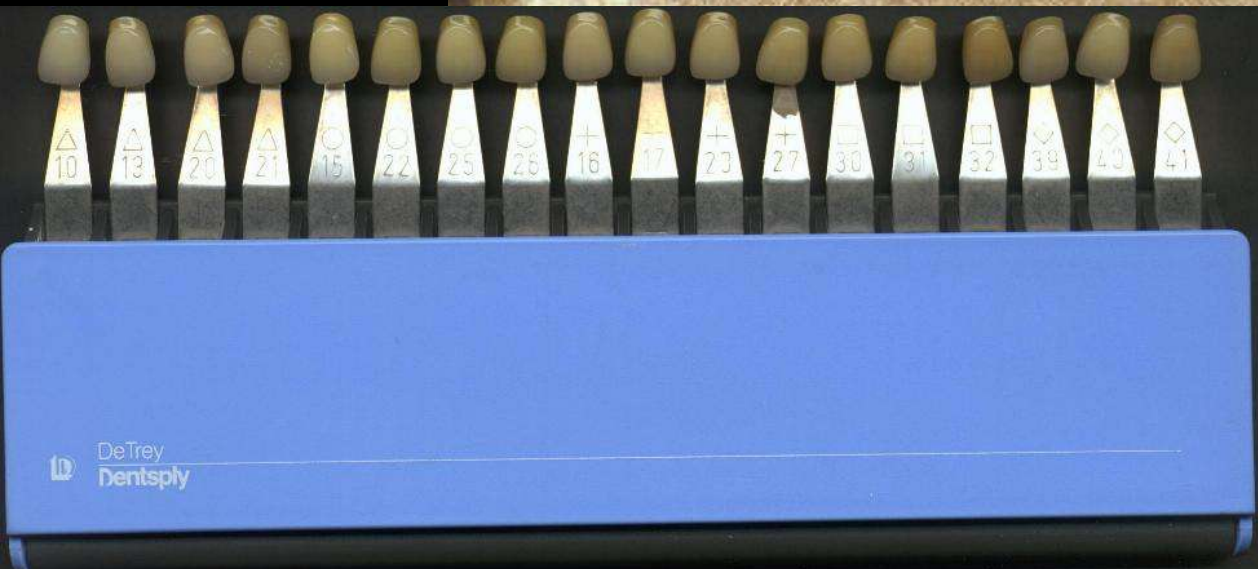
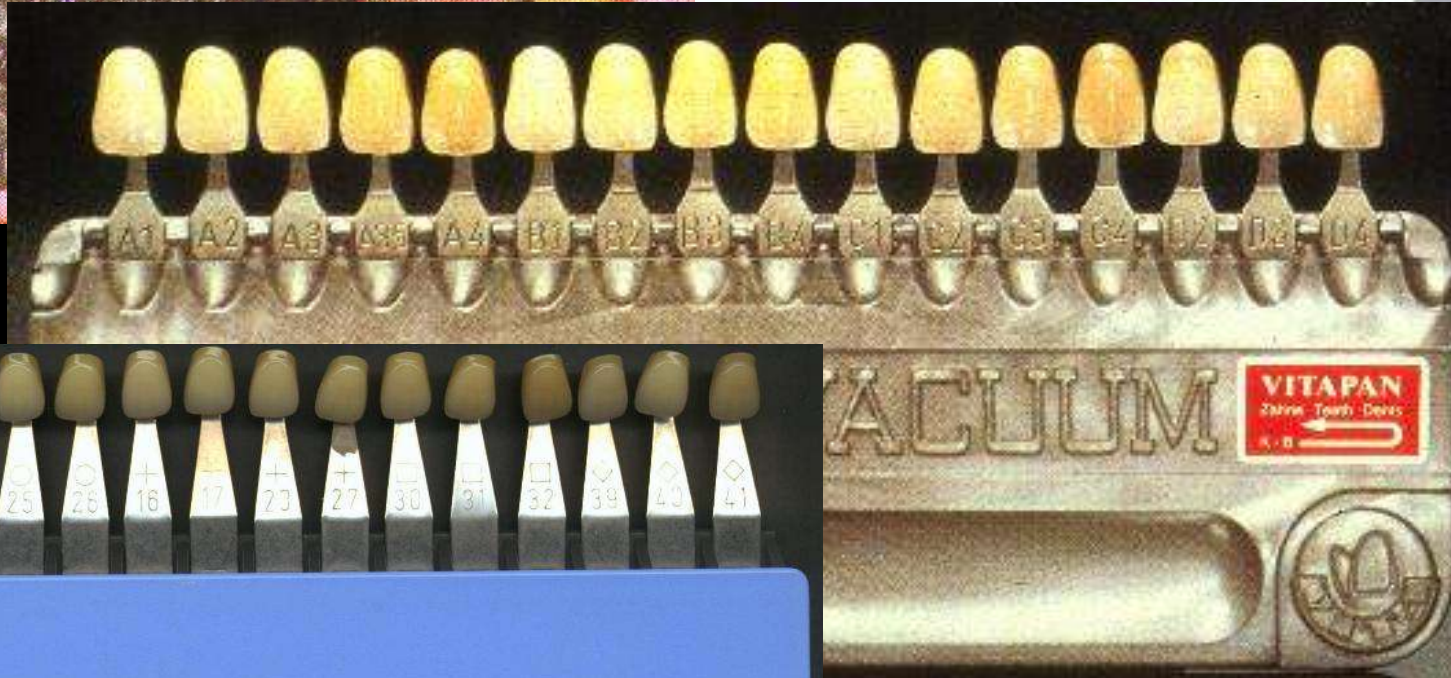
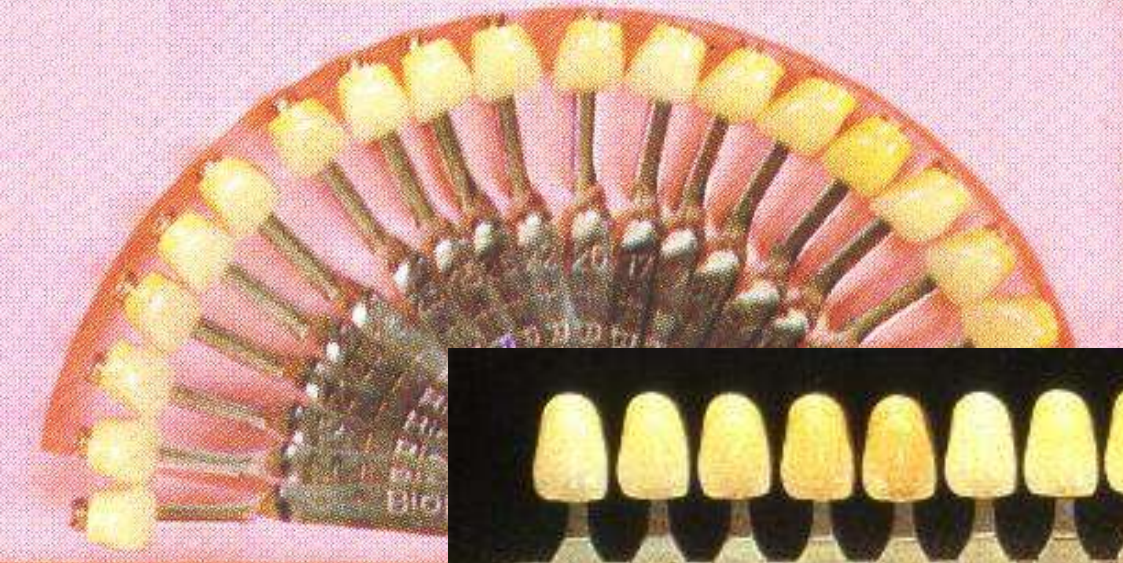
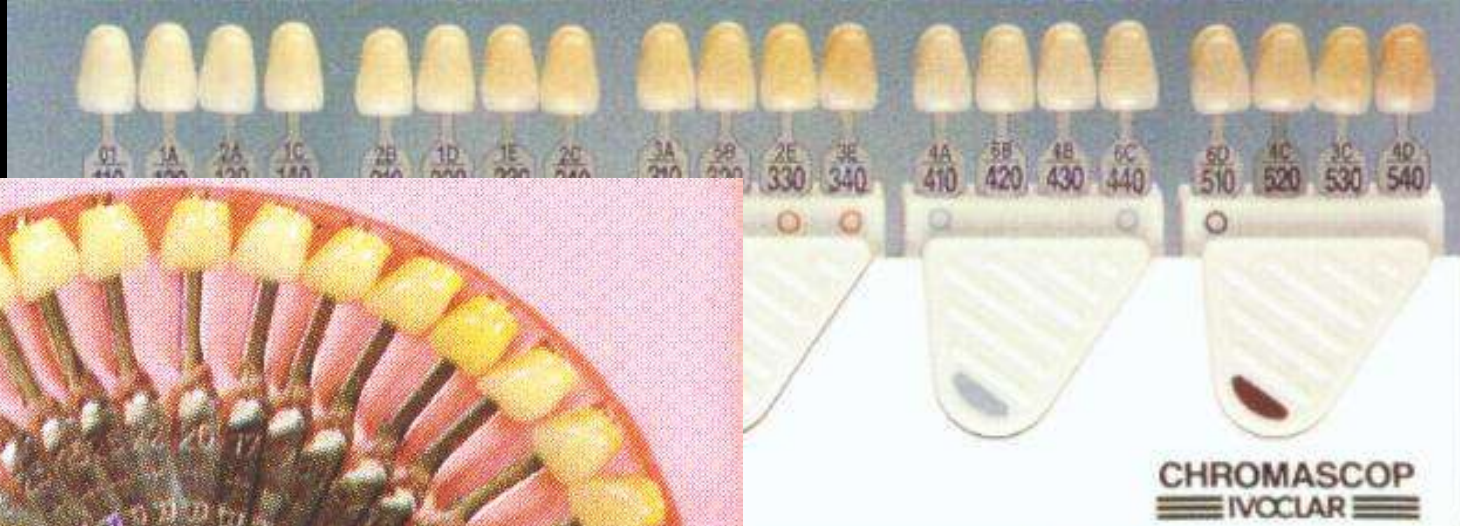
Kroma

Valør

Fargeskalaer





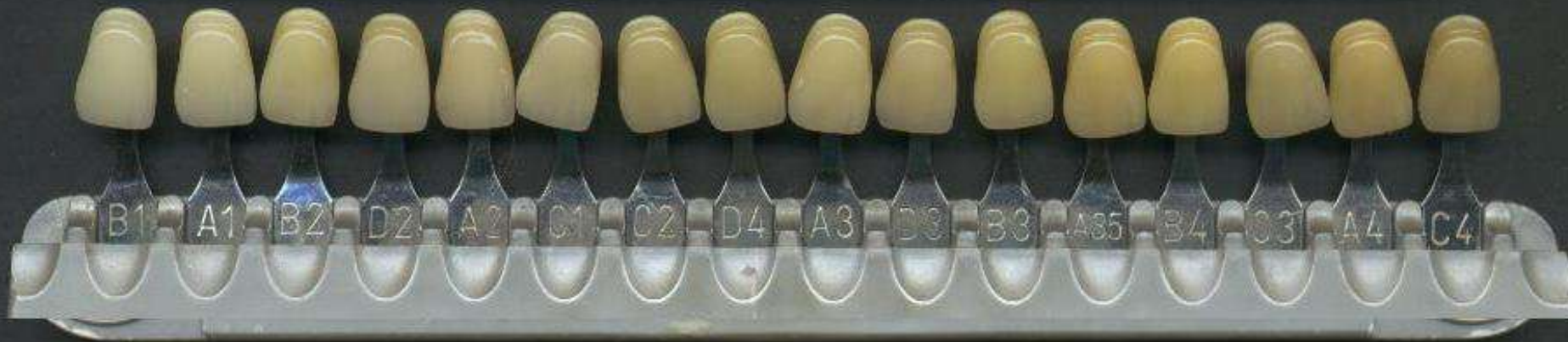
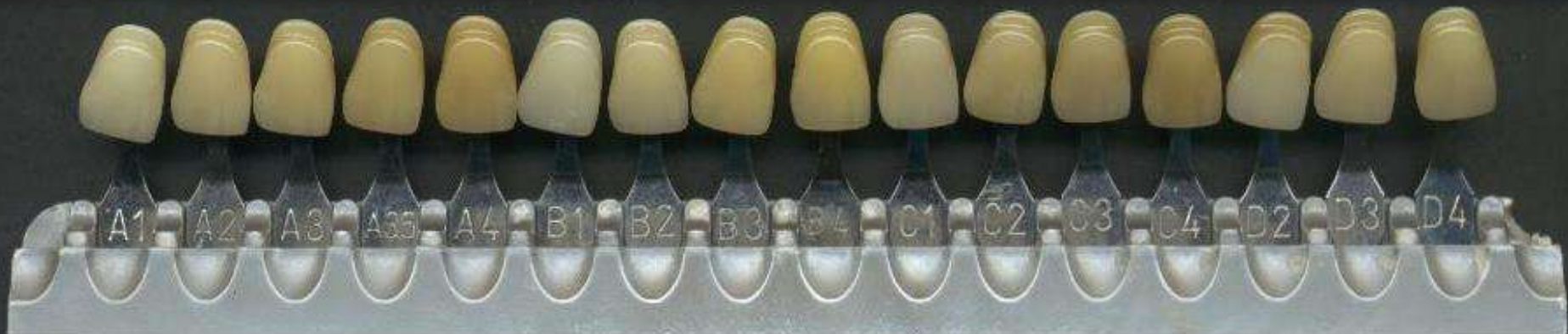


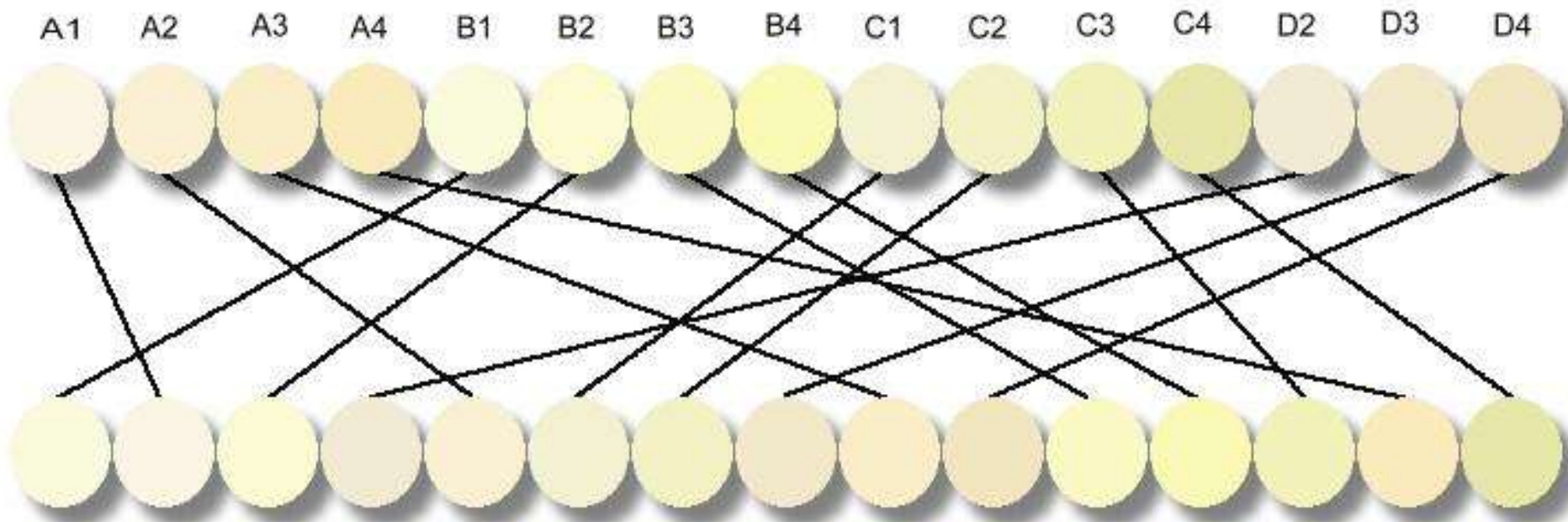
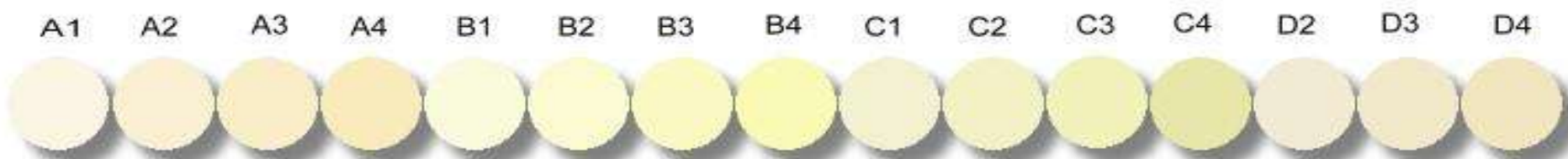


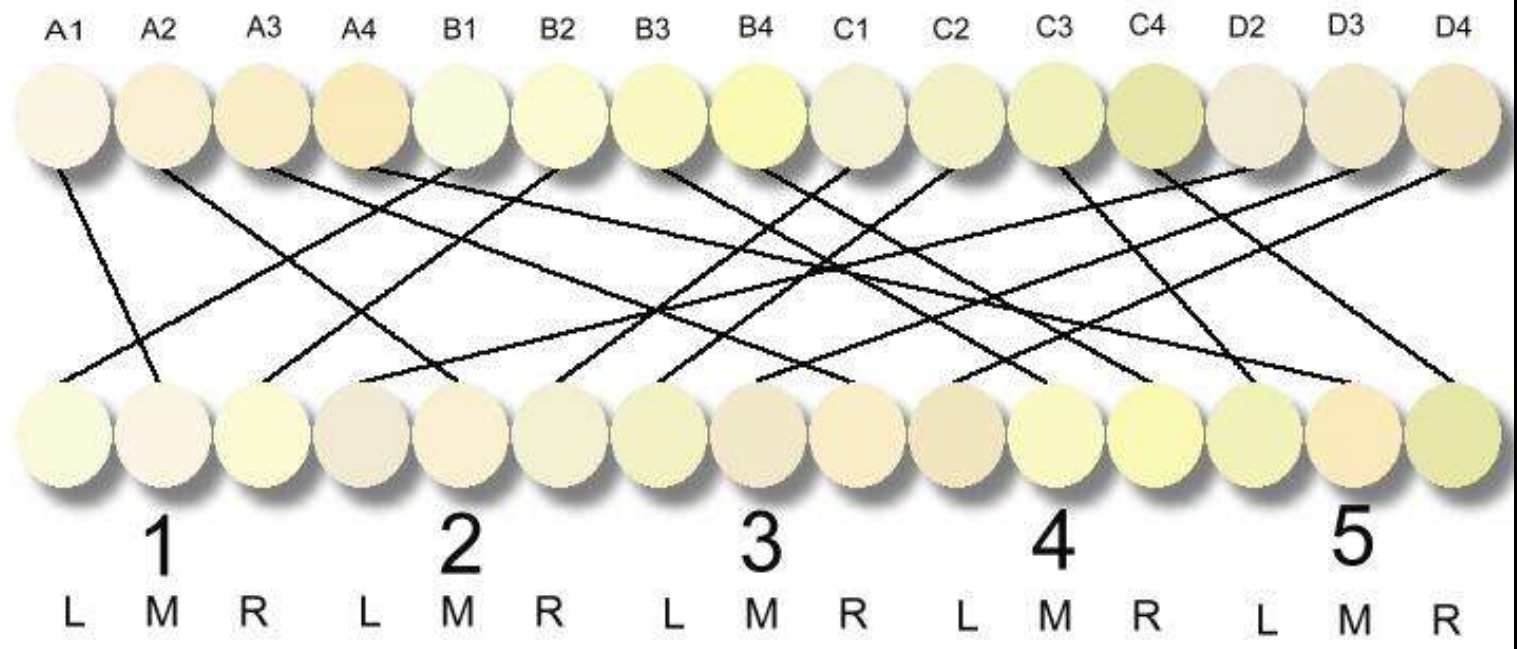
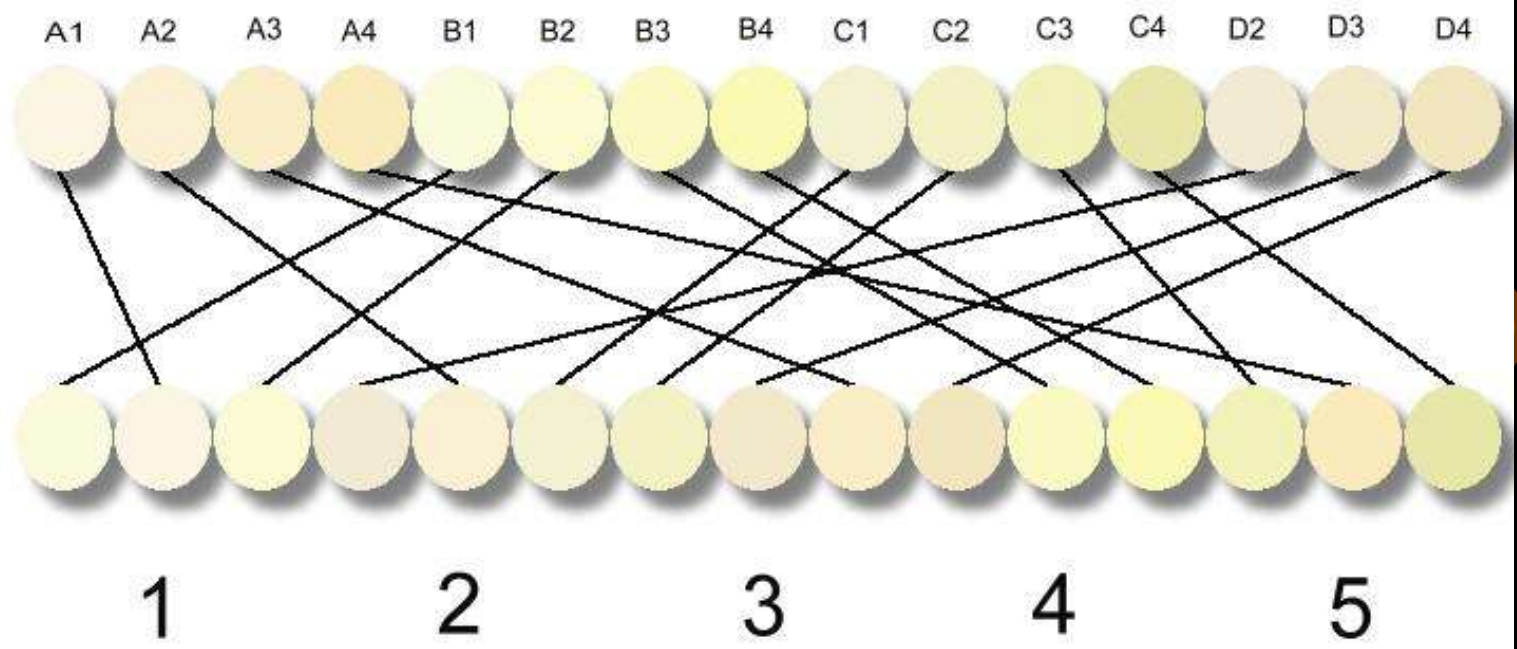
A1 A2 A3 A3.5 A4 B2 B3 C2 C4 D3



ESPE Pertac® II

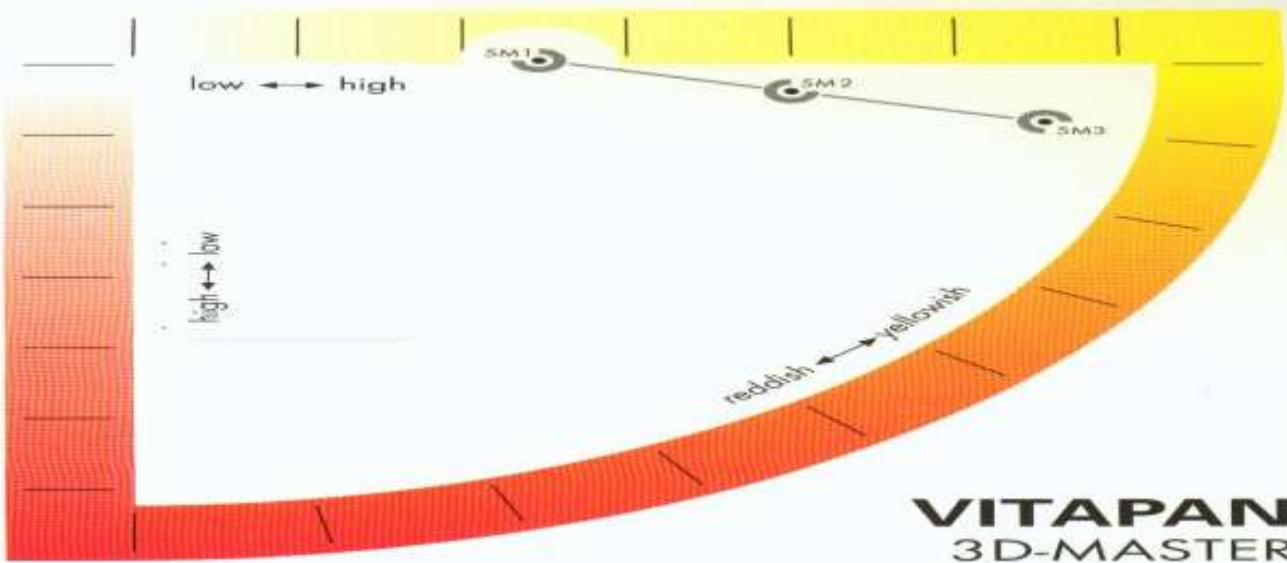
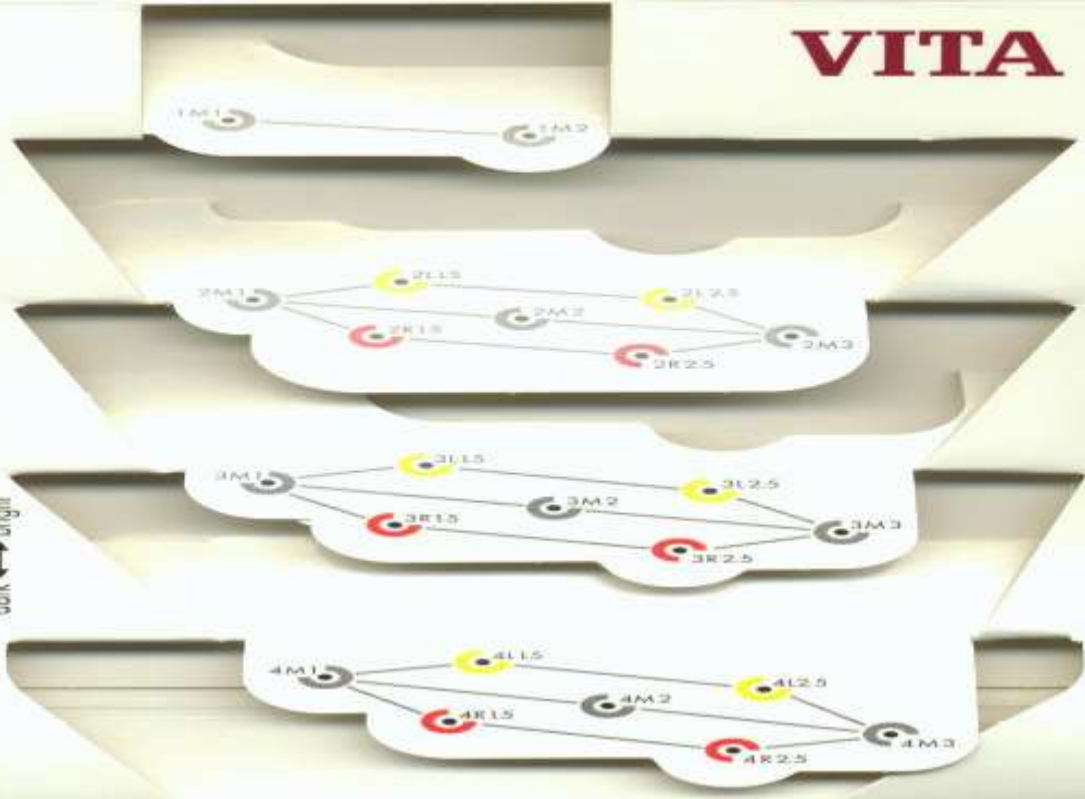
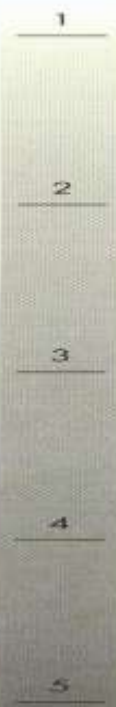




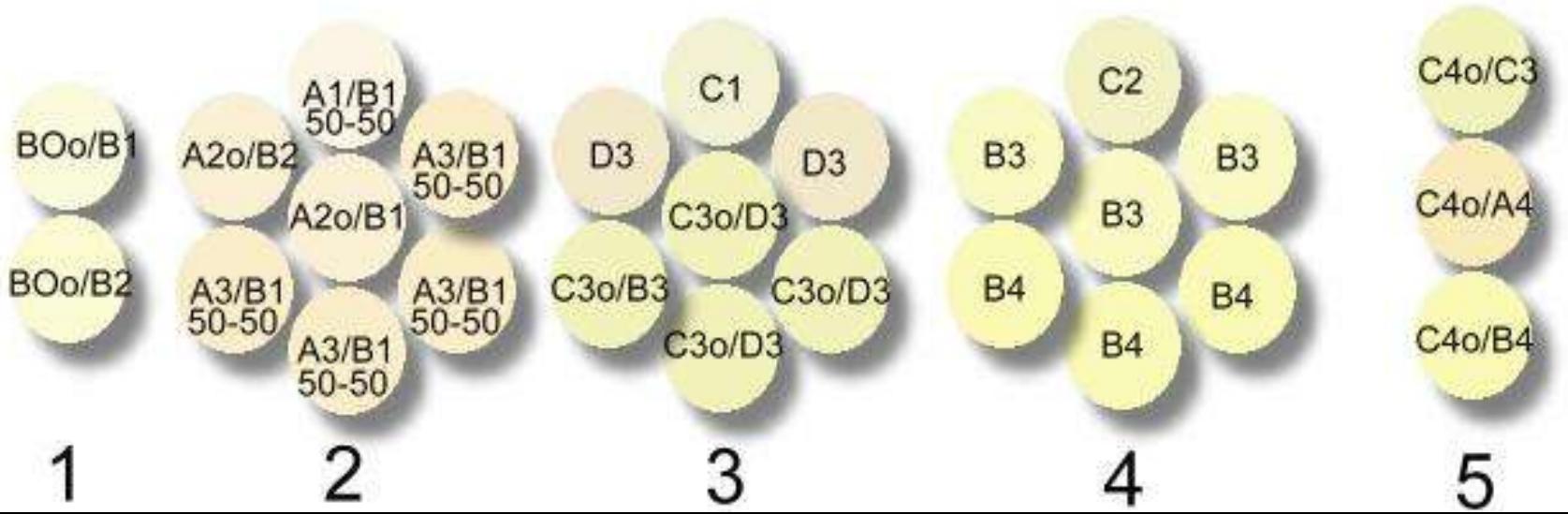




VITA



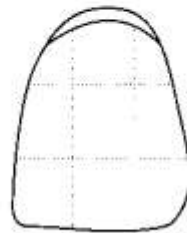
A1 A2 A3 A4 B1 B2 B3 B4 C1 C2 C3 C4 D2 D3 D4



Color Communication Form

Laboratory: _____ Dentist: _____

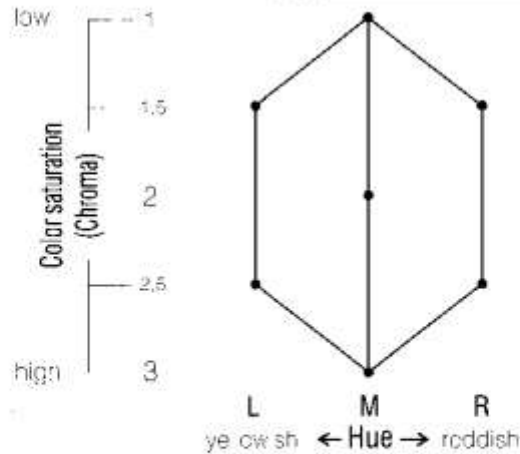
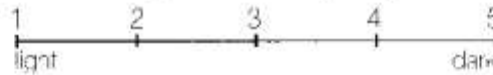
Patient: _____ age: _____ male female



Tooth: _____

Remarks: _____

Lightness Level (Value)



810E - 0198 (1000/BL)

Date: _____ Shade taken by: _____ Shade: _____