

The Art and Science of Depiction
Representation Systems

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Rouen revisited

- Paul Debevec

Assignments for Monday 23.

- *Solso Cognition and the Visual Arts*
 - Chapter 7
- Essay
 - Peer review
 - Final essay
- Final project
 - subject

Limitations: contrast & palette

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Plan

- A paradigm: Cartography
- Representation systems
 - Drawing and projection
 - Denotation
 - Tone & color

Limitations: contrast & palette

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Digression: infamous “Paradigm”

- A personal pet-subject
- Paradigm:
 - An outstandingly clear or typical example or archetype
- After Thomas Kuhn,
The Structure of Scientific Revolutions
 - A philosophical and theoretical framework of a scientific school or discipline within which theories, laws, and generalizations and the experiments performed in support of them are formulated
- Vocabulary inflation (see also “framework”)

Limitations: contrast & palette

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A paradigm: Cartography

- A map is a depiction of a reality
- Can be more efficient than photo
- There is no perfect universal solution

- However, quantitative is more important than for most pictures
- The systems are usually explicit
- And same issues as studied before (Gestalt, etc.)
- Amount of detail

Limitations: contrast & palette

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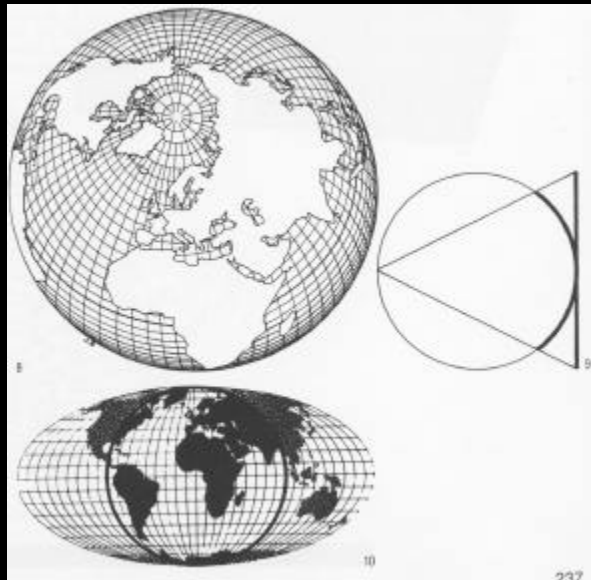
Map making

- Which information will be represented
- Projection
- Which kind of symbols will be used
- Color codes

Limitations: contrast & palette

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Projection



Limitations: contrast & palette

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Projection

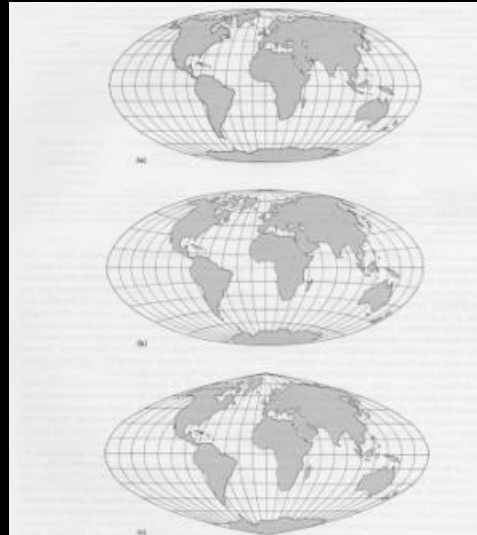
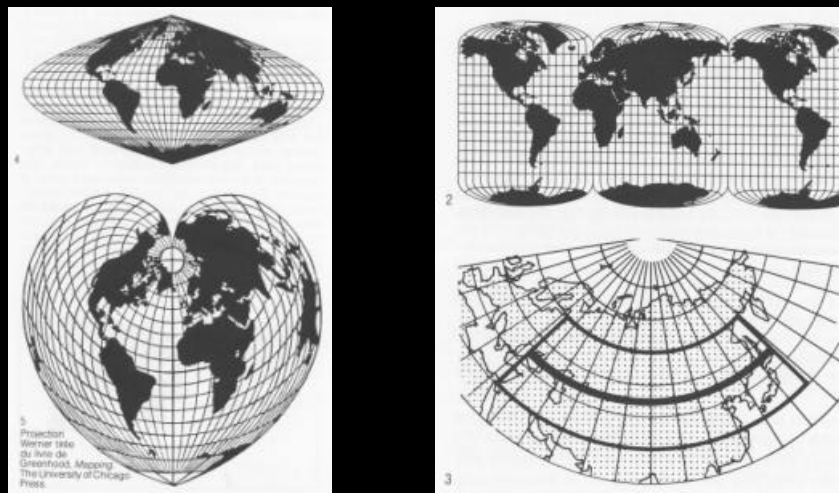


Figure 3.2. Three popular world projections on one sheet. The ones illustrated here are (a) Mollweide, (b) Hammer, and (c) Rogge's conic.

Limitations: contrast & palette

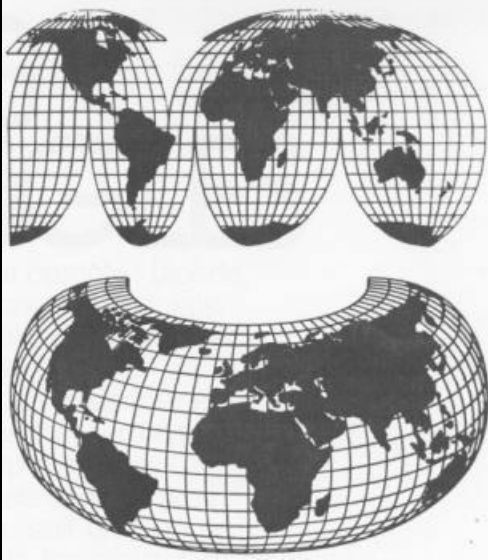
Projection



3
Projection
Werner 1984
p. 206
Greenfield, Mapping
The University of Chicago
Press

Limitations: contrast & palette

Projection



Limitations: contrast & palette

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Projection

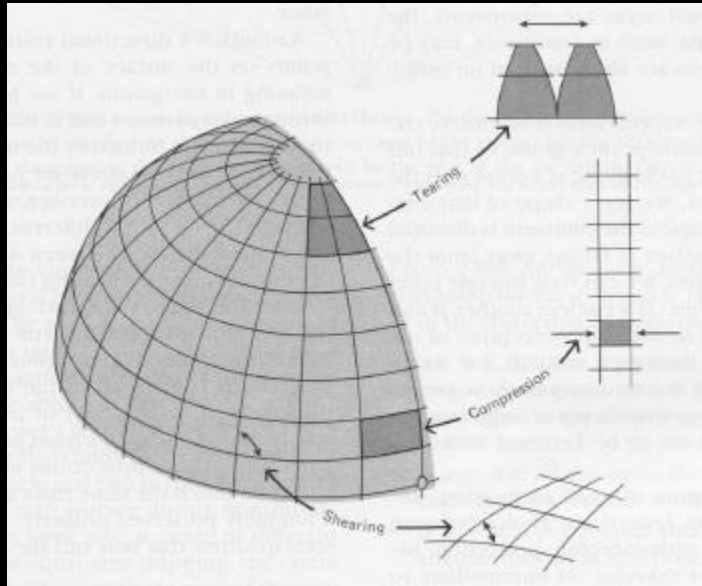
- Buckminster Fuller



Limitations: contrast & palette

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Projection & distortion



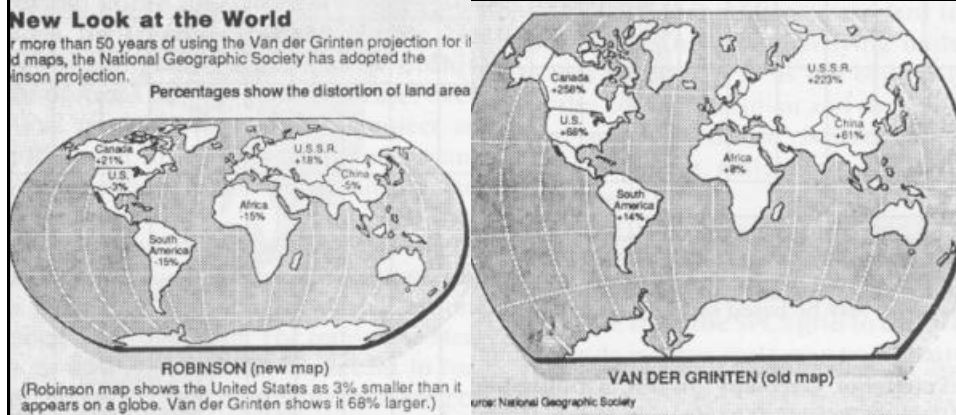
Limitations: contrast & palette

Projection & distortion

Family	Grid appearance	Single	Stack
 Spherical			
 Cylindrical			
 Conical			

Limitations: contrast & palette

Distortion and politics



Limitations: contrast & palette

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Topological map

- Beck's map of London underground, 1931

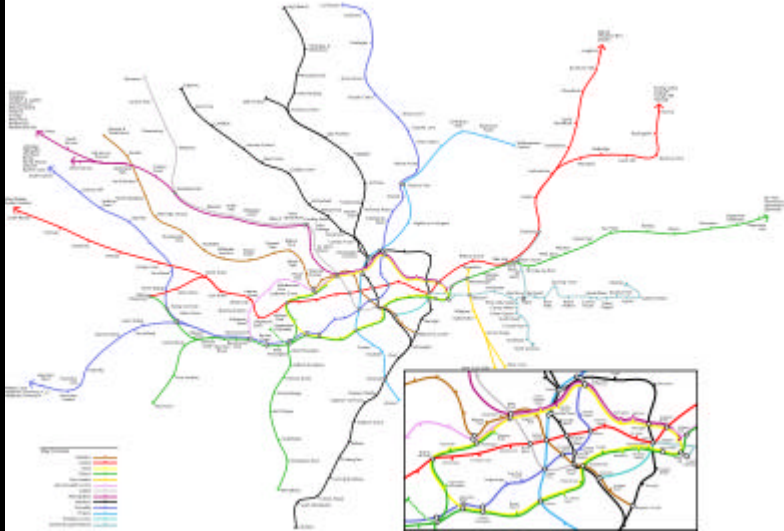


Limitations: contrast & palette

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Geographical map

- London underground

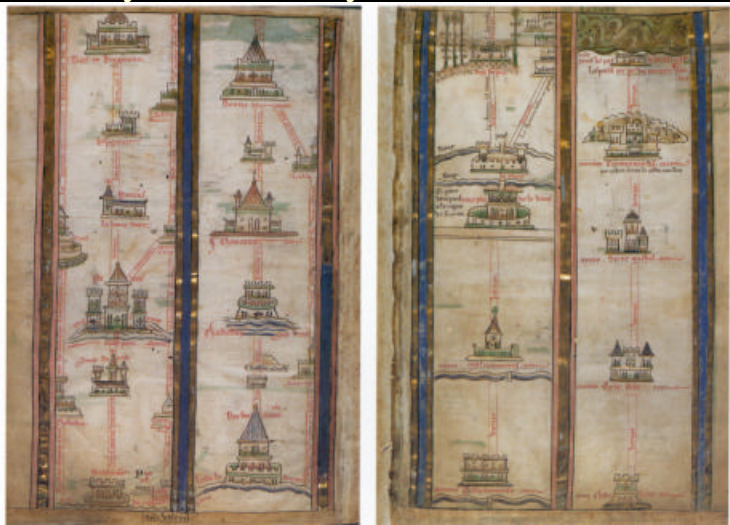


Limitations: contrast & palette

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Topological map

- Itinerary, 13th century



Limitations: contrast & palette

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Metaphoric Projection

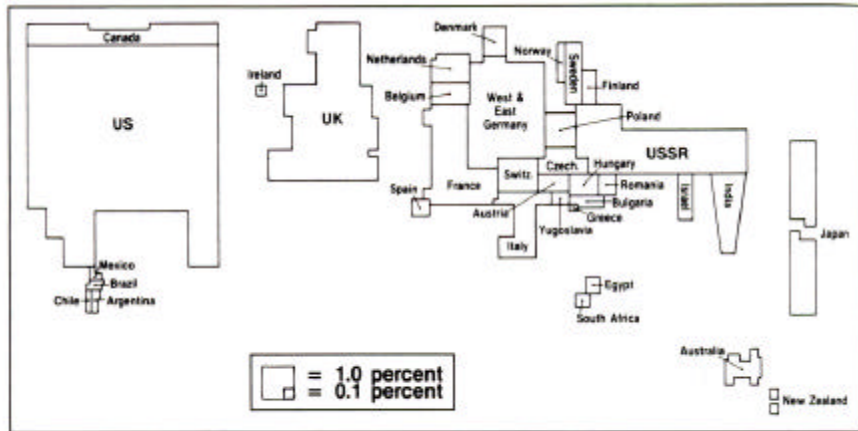


Figure 10.2. Contribution of countries to world scientific authorship. (Source: Anthony R. deSouza, "Scientific Authorship and Technological Potential" (editorial), *Journal of Geography* (July/August 1983): 138. Reprinted by permission of the National Council for Geographic Education.)

Limitations: contrast & palette

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Error: Columbus's map



Limitations: contrast & palette

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Error/choice/distortion

- Descelier, 1546



Limitations: contrast & palette

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Error/choice/distortion

- Descelier, 1546
- E.g. huge elephant



Limitations: contrast & palette

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Map making

- Which information will be represented
- Projection
- Which kind of symbols will be used
- Color codes

Limitations: contrast & palette

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Denotation



Limitations: contrast & palette

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Denotation



Limitations: contrast & palette

Symbols: dimension

Symbol type	Map type	
	Qualitative	Quantitative
Point		
Line		
Area		
Volume		

Limitations: contrast & palette

Denotation: a complete example



Limitations: contrast & palette

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Denotation



Limitations: contrast & palette

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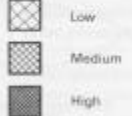
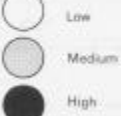


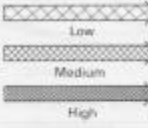



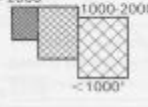
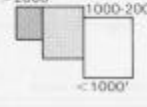

Map making

- Which information will be represented
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- Which kind of symbols will be used
- Color codes

Limitations: contrast & palette

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Symbols: dimension & tone, color

Type of symbol	Visual dimensions			
	Size	Pattern texture	Color value	Color saturation
Points	Temperature in degree days 	 Low Medium High	 Low Medium High	 Less red Medium red More red
Lines	Average stream flow 	 Low Medium High	 Low Medium High	 Less brown Medium brown More brown
Areas	Elevation above MSL 	 >2000' 1000-2000' <1000'	 >2000' 1000-2000' <1000'	 More blue Medium blue Less blue

Limitations: contrast & palette

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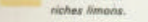
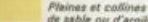


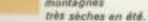
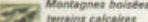
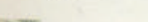
Color: elevation



Limitations: contrast & palette

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Color: geology

-  Massifs anciens; plateaux, collines.
-  Plaines et plateaux calcaires.
-  Plateaux calcaires recouverts de riches limons.
-  Plaines et collines de sable ou d'argile.
-  Plaines très sèches en été.
-  Collines et montagnes très sèches en été.
-  Montagnes boisées; terrains calcaires plissés.
-  Reliefs volcaniques.
-  Très hautes montagnes; forêts, neiges persistantes.
-  Grandes forêts en dehors des très hautes montagnes.



Limitations: contrast & palette

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Color: influence of cities



Limitations: contrast & palette

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Ambiguity: color or denotation?



Limitations: contrast & palette

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A complex example

- Population of the Bay Area



Limitations: contrast & palette

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Plan

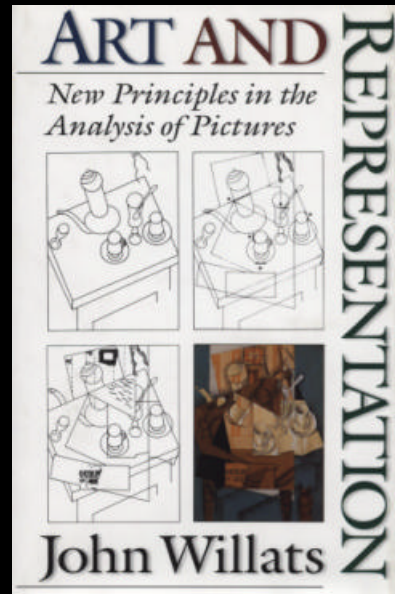
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Limitations: contrast & palette

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Representations systems

- John Willats
*Art and Representation:
New Principle in
the analysis of pictures*
1997



Limitations: contrast & palette

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Goals and context

- Coarse-grain description of style
- Independent systems, independent decisions
- Description and comparison
- Synthesis (NPR)

- This is an exploratory system!
 - In progress
 - Incomplete
 - Different categories may overlap
- More a vocabulary

Limitations: contrast & palette

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Representation systems

- Drawing and projection
- Denotation
- Tone & color

- The two first systems are classical
- Because painting was the only recognized art form

Limitations: contrast & palette

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Drawing system

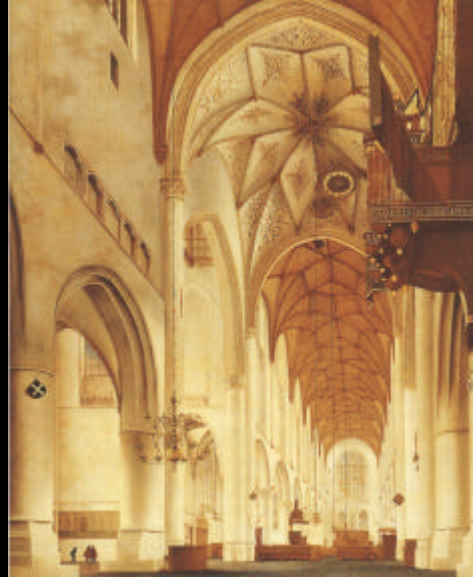
- Linear perspective
- Orthographic
- Topological
- Other

Limitations: contrast & palette

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Drawing system

- Linear perspective
 - Interior of St Bavo's church at Haarlem, Pieter Jansz Saenredam, 1648
- Orthographic
- Topological
- Other

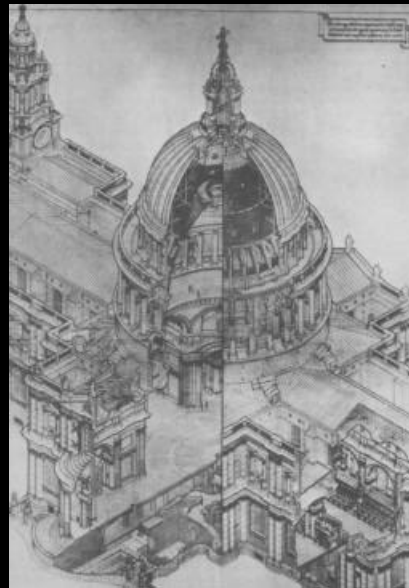


Limitations: contrast & palette

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Drawing system

- Linear perspective
- Orthographic
 - Brooks-Greaves St Paul's Cathedral 1928
- Topological
- Other



Limitations: contrast & palette

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Drawing system

- Linear perspective
- Orthographic
- Topological
 - Paul Klee
 - Another Camel*
 - 1939
- Other



Limitations: contrast & palette

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Drawing system: symbolic

- Linear perspective
- Orthographic
- Topological
- Other
 - Piero de la Francesca
 - Mercy*



Limitations: contrast & palette

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Representation systems

- Drawing and projection
- Denotation
- Tone & color

Limitations: contrast & palette

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Denotation system

- Silhouette:
 - 2D (regions)
- Line Drawing
 - 1D (lines)
- Optical
 - 0D (points)

Limitations: contrast & palette

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Denotation system

- Silhouette:
 - 2D (regions)
 - Picasso, *Rite of Spring*
- Line Drawing
 - 1D (lines)
- Optical
 - 0D (points)



Limitations: contrast & palette

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Denotation system

- Silhouette:
 - 2D (regions)
- Line Drawing
 - 1D (lines)
 - Picasso,
Portrait of Stravinsky
- Optical
 - 0D (points)



Limitations: contrast & palette

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Denotation system

- Silhouette:
 - 2D (regions)
- Line Drawing
 - 1D (lines)
- Optical
 - 0D (points)
 - Picasso, *Paul as Arlequin*



Limitations: contrast & palette

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A fourth denotation system

- Sculpture
 - 3D (volume)
 - Picasso, *Head of a Woman (Fernande)*, 1909
- Silhouette:
 - 2D (regions)
- Line Drawing
 - 1D (lines)
- Optical
 - 0D (points)



Limitations: contrast & palette

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Representation systems

- Drawing and projection
- Denotation
- Tone & color

Limitations: contrast & palette

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Tone & color system

- (Often a mix)
- Extrinsic
- Intrinsic
- Symbolic

Limitations: contrast & palette

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Extrinsic color

- Renzo Piano
Tjibaou
cultural
center
1991-98



Limitations: contrast & palette

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Extrinsic black and white

- Gordon Park,
Red Jackson
Gang Leader



Limitations: contrast & palette

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Optical intrinsic

- Boticelli *Primavera* 1482

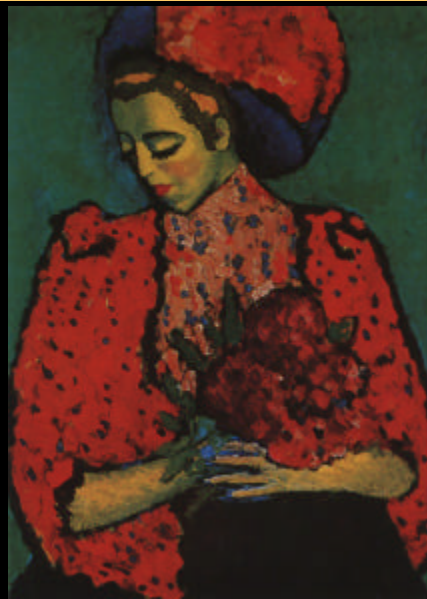


Limitations: contrast & palette

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Pure intrinsic colors

- Jawlensky
Girl with Peonies
- +symbolic+harmony



Limitations: contrast & palette

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Next sessions

- Linear perspective
- Canonical view
- Drawing systems
- Distortion and constraints