October 6th 2020
Shapes in Action:

SYMMETRY IN PROJECTIVE GEOMETRY

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Topics (with links) discussed during Tuesdays's session:

Projective geometry
(https://en.wikipedia.org/wiki/Projective_geometry)

Pappus's' theorem
(https://en.wikipedia.org/wiki/Pappus%27s_hexagon_theorem)

    – special case when two sides are parallel

Euclid's parallel postulate
(https://en.wikipedia.org/wiki/Parallel_postulate)

Point at infinity
(https://en.wikipedia.org/wiki/Point_at_infinity)

Projective line
(https://en.wikipedia.org/wiki/Projective_line)

    – line segments in the projective line

Line at infinity
(https://en.wikipedia.org/wiki/Line_at_infinity)

Projective plane
(https://en.wikipedia.org/wiki/Projective_plane)

    – polygonal regions in the projective plane

Projective duality
(https://en.wikipedia.org/wiki/Duality_(projective_geometry))

Louis Locher-Ernts: "Space and Counterspace" (1957)
(https://archive.org/details/SpaceCounterspace)

    – What is the dual of Pappus's theorem?

Historical remarks:

Linear perspective
(https://en.wikipedia.org/wiki/Graphical_perspective)

Painting by Giotto
(https://it.wikipedia.org/wiki/Cacciata_dei_diavoli_da_Arezzo)

Painting by Piero della Francesca
(https://en.wikipedia.org/wiki/Flagellation_of_Christ_(Piero_della_Francesca))

Ptolemy's "Georaphy"
(https://en.wikipedia.org/wiki/Geography_(Ptolemy))

Painting by Paolo Uccello
(https://en.wikipedia.org/wiki/The_Miracle_of_the_Desecrated_Host)

– How to portray a floor tiled with rectangles?

Vanishing point
(https://en.wikipedia.org/wiki/Vanishing_point)

Harmonic conjugate
(https://en.wikipedia.org/wiki/Projective_harmonic_conjugate)