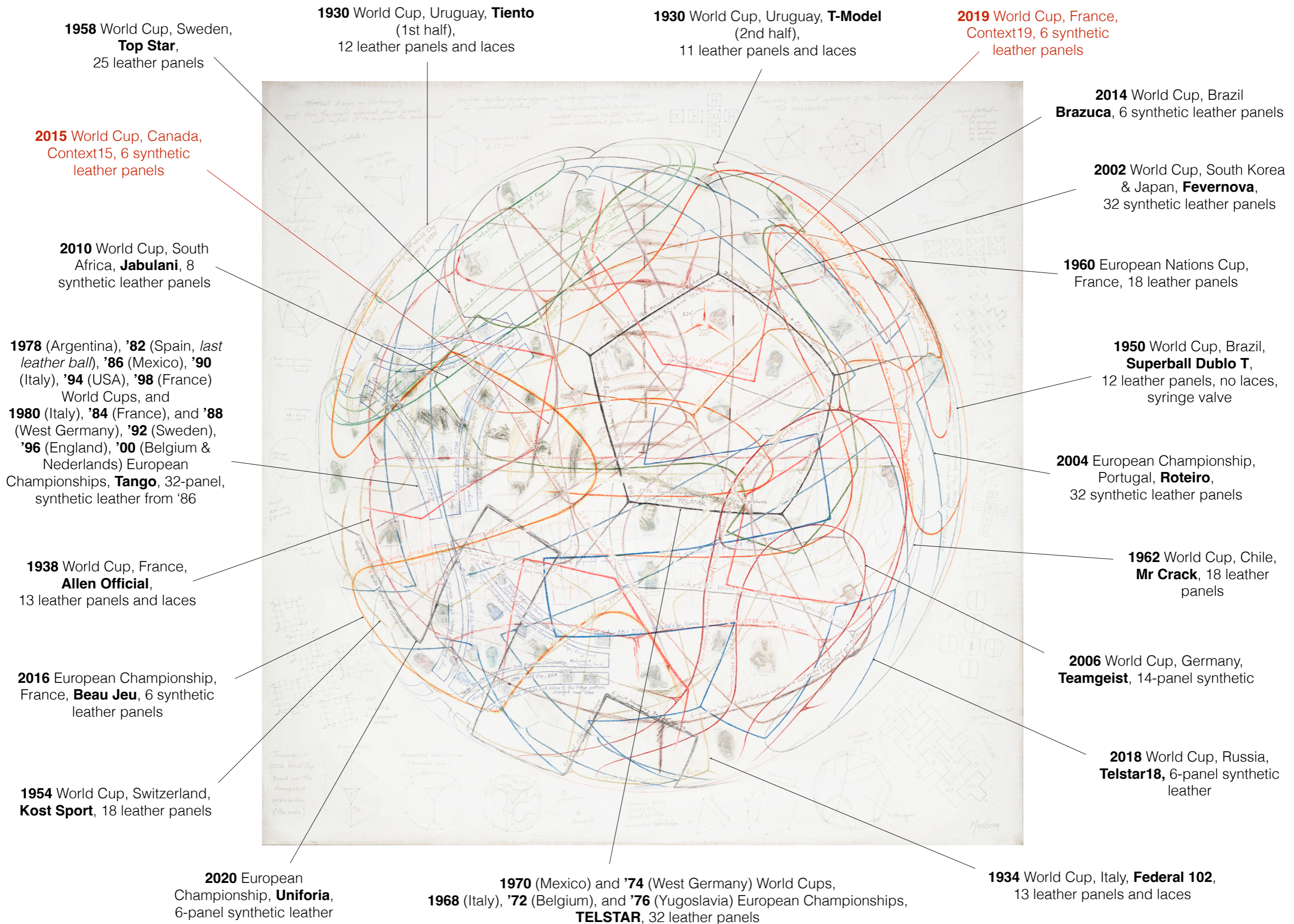


# Content guide for *The Historical Ball*



**The Historical Ball** is a sentimental tribute to the footballs that generations of girls and boys have played with, and to the greatest players who played with them. The image weaves a spherical football-like shape from contours and designs from the official match balls at the World and European Championships from 1930 to 2020. Floating in the historically composed ball are images of the tournament's best players, and around it the spatial geometries that are the basis for the development in the design and construction of these balls. The artwork is mixed-media on canvas and measures 127cm x 127cm (50" x 50").



**1958** World Cup, Sweden, **Top Star**, 25 leather panels

**1930** World Cup, Uruguay, **Tiento** (1st half), 12 leather panels and laces

**1930** World Cup, Uruguay, **T-Model** (2nd half), 11 leather panels and laces

**2019** World Cup, France, **Context19**, 6 synthetic leather panels

**2015** World Cup, Canada, **Context15**, 6 synthetic leather panels

**2014** World Cup, Brazil **Brazuca**, 6 synthetic leather panels

**2002** World Cup, South Korea & Japan, **Fevernova**, 32 synthetic leather panels

**2010** World Cup, South Africa, **Jabulani**, 8 synthetic leather panels

**1960** European Nations Cup, France, 18 leather panels

**1978** (Argentina), **'82** (Spain, last leather ball), **'86** (Mexico), **'90** (Italy), **'94** (USA), **'98** (France) World Cups, and **1980** (Italy), **'84** (France), and **'88** (West Germany), **'92** (Sweden), **'96** (England), **'00** (Belgium & Netherlands) European Championships, **Tango**, 32-panel, synthetic leather from '86

**1950** World Cup, Brazil, **Superball Dublo T**, 12 leather panels, no laces, syringe valve

**2004** European Championship, Portugal, **Roteiro**, 32 synthetic leather panels

**1938** World Cup, France, **Allen Official**, 13 leather panels and laces

**1962** World Cup, Chile, **Mr Crack**, 18 leather panels

**2016** European Championship, France, **Beau Jeu**, 6 synthetic leather panels

**2006** World Cup, Germany, **Teamgeist**, 14-panel synthetic

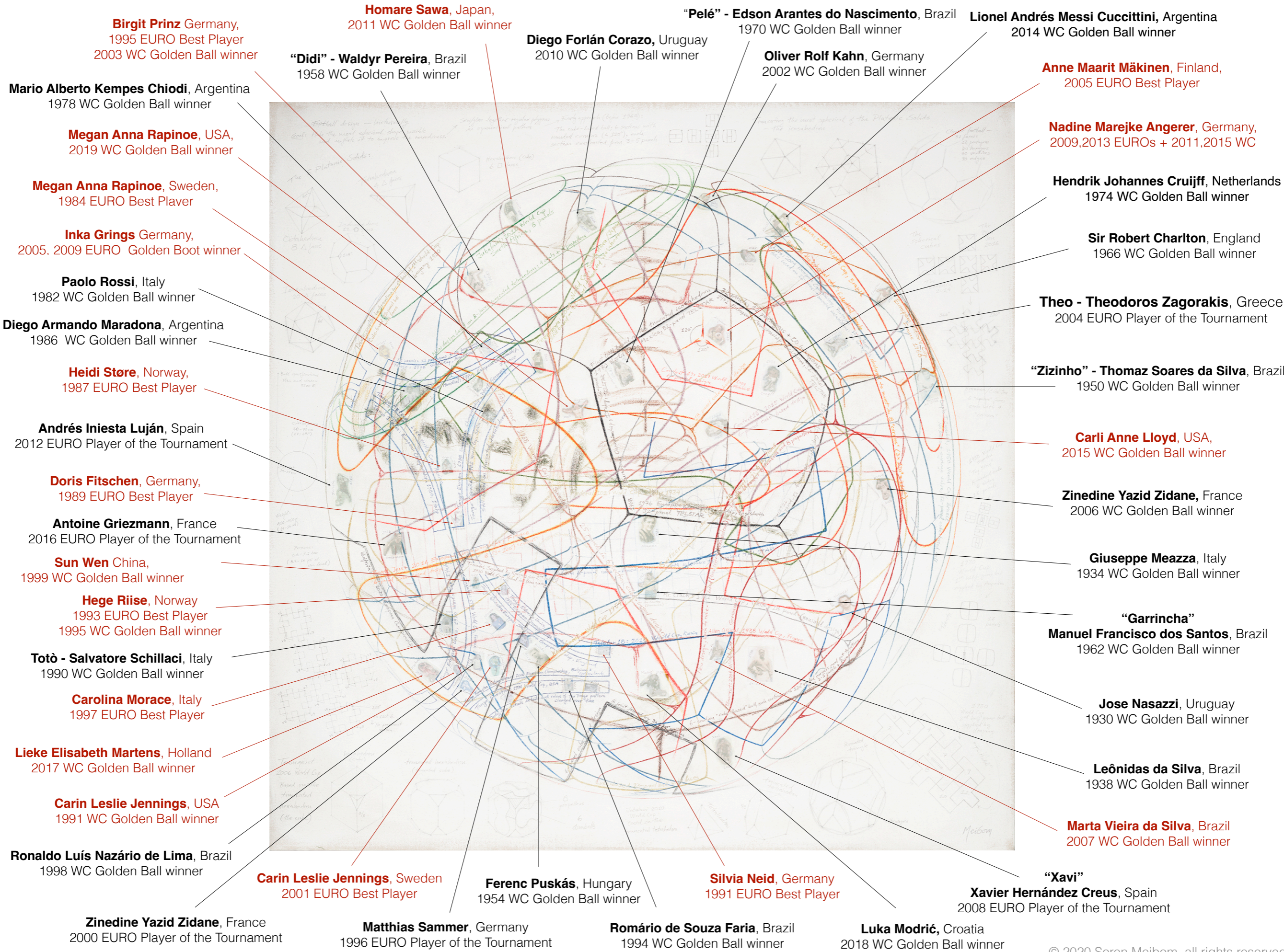
**1954** World Cup, Switzerland, **Kost Sport**, 18 leather panels

**2018** World Cup, Russia, **Telstar18**, 6-panel synthetic leather

**2020** European Championship, **Uniforia**, 6-panel synthetic leather

**1970** (Mexico) and **'74** (West Germany) World Cups, **1968** (Italy), **'72** (Belgium), and **'76** (Yugoslavia) European Championships, **TELSTAR**, 32 leather panels

**1934** World Cup, Italy, **Federal 102**, 13 leather panels and laces



**The 5 Platonic Solids** — convex (rounded) geometrical shapes constructed from flat and identical regular (all angles and all sides are equal in measure and length, respectively) polygons.

These 5 shapes were known in classical Greece (~2,000 years ago) and named after Plato who used them in his theories of the cosmos.

Plato proved that only these 5 polyhedra have perfectly symmetric faces (“sides”).

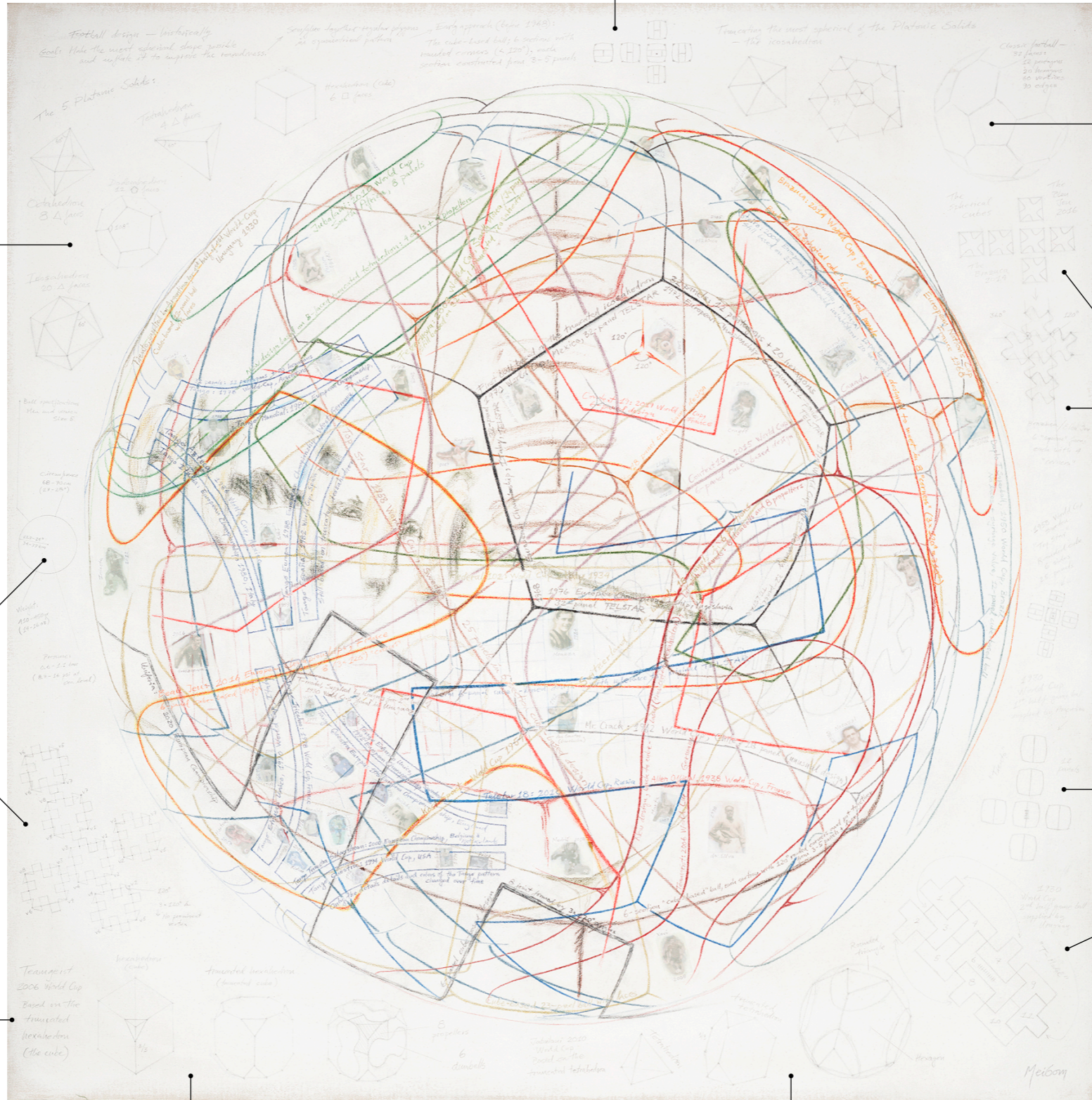
Due to this symmetry, the Platonic Solids have been the foundational geometries for the design and construction of the football, where symmetry is very desirable ;)

**Regulation size** — Diagram showing range of allowed values for size, weight, and pressure for a regulation size 5 ball

**Uniforia** — The design pattern for the 6-panel cube-based ball used for the 2020 European Championship

**Trying other Platonic Solids** — From 1970 to 2002 the WC and EURO balls were designed by truncating the icosahedron. The 2006 Teamgeist was the first modern ball to deviate from the classic truncated icosahedron design. Teamgeist is instead based on a truncated hexahedron (“cube”).

**The earliest approach** — the hexahedron (“cube”). The cube-based ball had 6 sections (faces), each sewn together from 2-5 panels and with rounded corners (~120°). When three 120° corners meet they will connect to cover 360° on the surface of the “sphere”.



**The truncated icosahedron** — truncating the icosahedron (composed of 20 equilateral triangles); the most spherical of the Platonic Solids, results in an even more spherical shape constructed from 20 hexagons and 12 pentagons (such a combination of regular polygons is called an Archimedean Solid). A football constructed from the truncated icosahedron was first introduced by the SELECT ball company in 1962. This iconic pattern has become the universal symbol of the game of association football.

**Back to the cube** — From 2014 new technology in production and materials caused a return to the “cube-based” ball design, but with just 6 panels. The construction, with the geometry of each of the 6 sides and the pattern of the “seams” was optimized for better and more predictable flight path.

These diagrams show the patterns used for the 2014 Brazuca and 2016 Bleau Jeu balls.

**The early designs** — Diagrams showing the design and construction of the two balls used in the 1930 World Cup final between Uruguay and Argentina.

Controversy over which ball should be used for the final game led to an agreement that each nation would supply their own ball for one half of the game.

The “Tiento” was supplied by Argentina for the 1st half of the final.

The “T-Model” ball was supplied by Uruguay for the 2nd half of the final.

**Truncating the cube** — Sketches showing how truncating a cube produces 6 octagons and 8 triangles, which in the case of the Teamgeist were reshaped into 8 dumbbells and 6 propellers.

**Truncating the tetrahedron** — Sketches showing how the 2010 Jabulani is based on a truncated tetrahedron producing 4 hexagons and 4 triangles.