

Lecture 17: New Building Forms of Maillart & Isler

THEMES

Discipline (necessary) and Play (still possible)

Maillart's discipline applied to building forms
and the play it creates

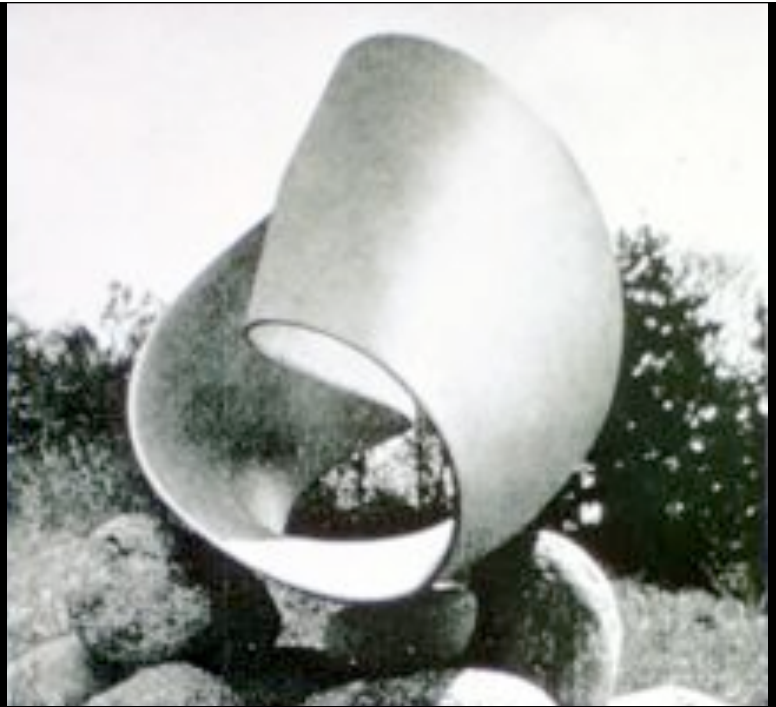
column capitals, two-way floors, unique truss systems
for roofs (Chiasso), thin shells (cement hall)

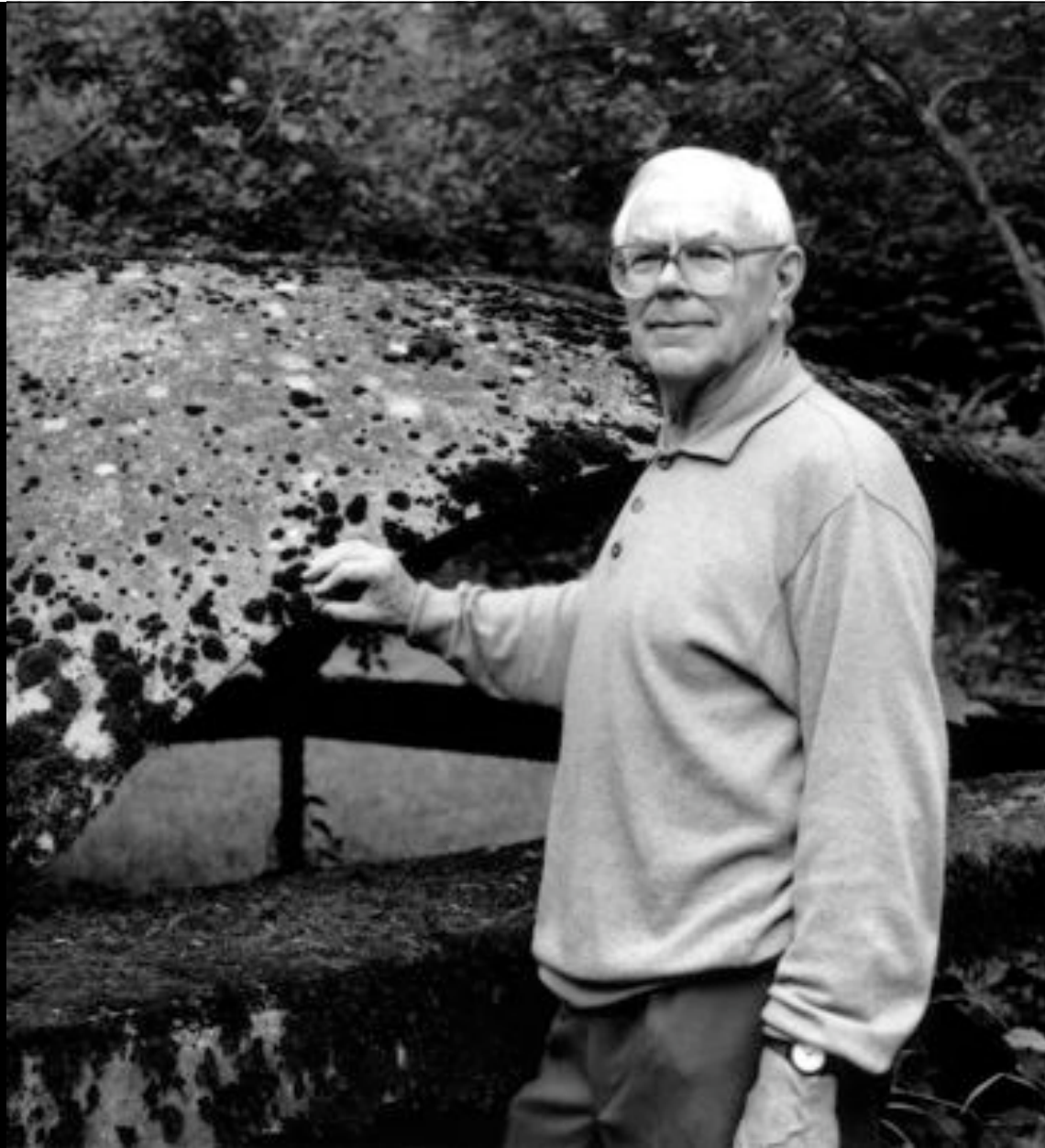
High stakes discipline and play, Isler's thin shells

Pneumatic shells, experimental discipline,

Free-form funicular shapes, ice shells







Heinz Isler (1926-2009)



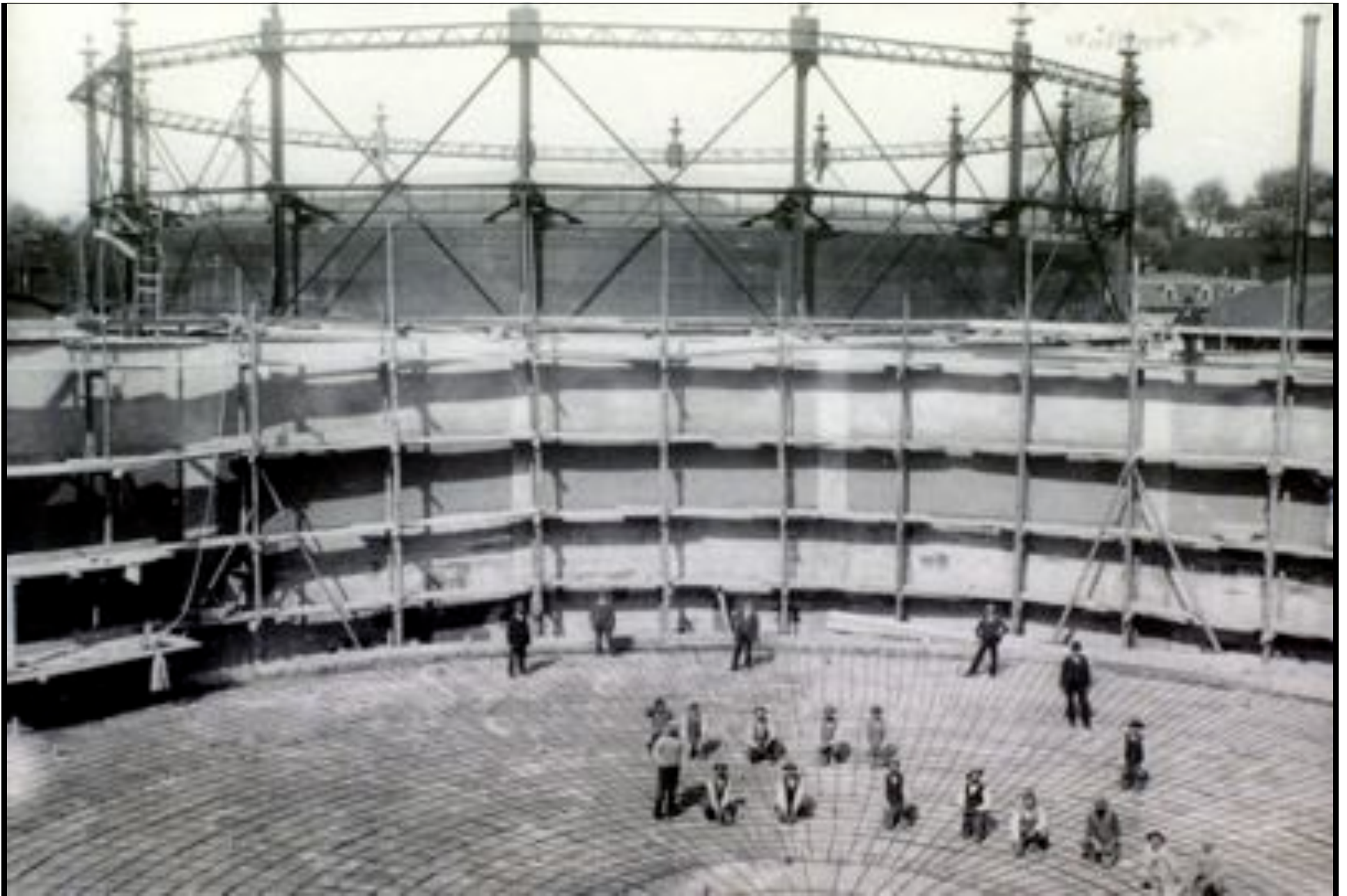




Kresge Auditorium (1955)
Eero Saarinen, architect

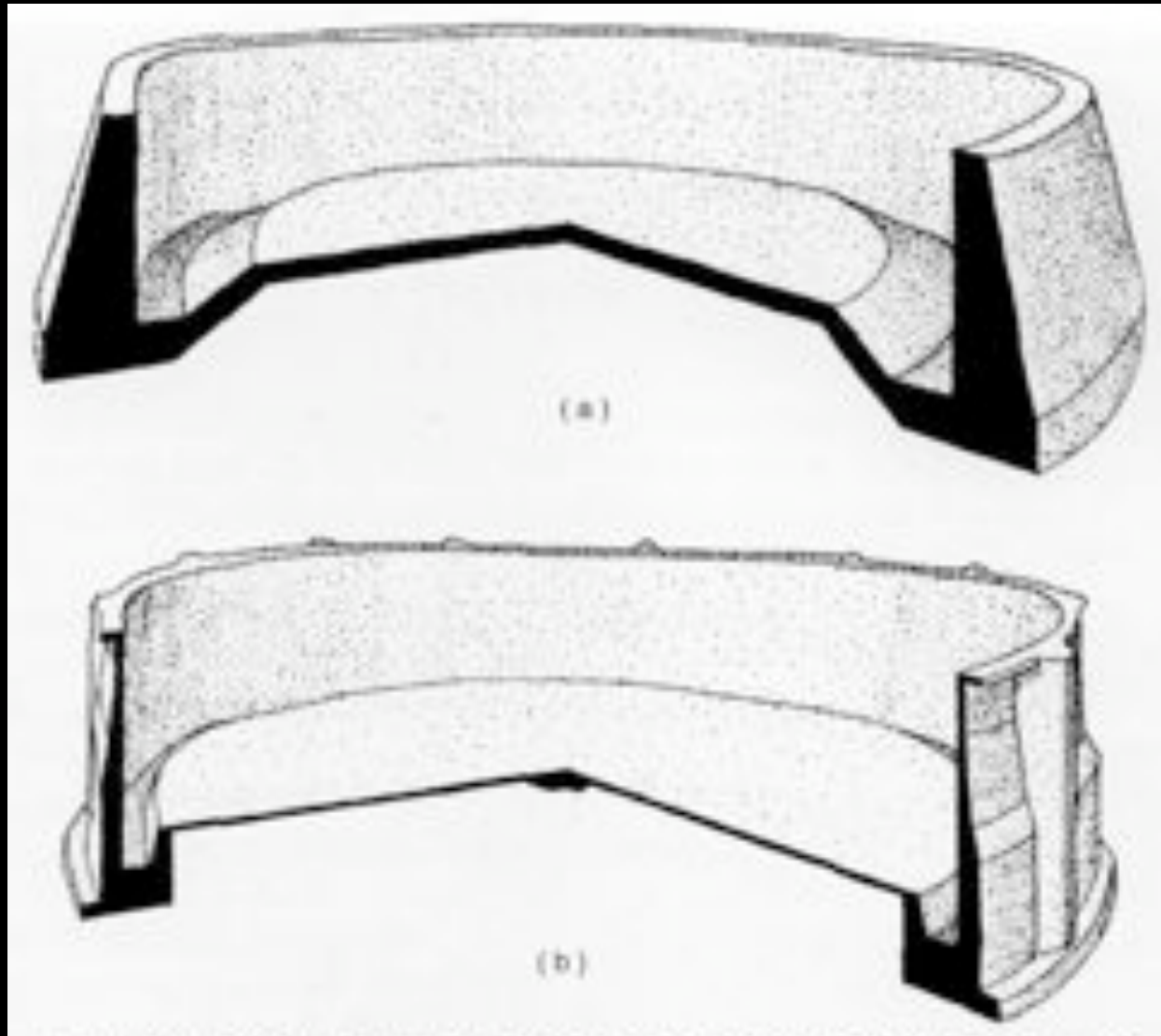
49 m span
M.I.T, Cambridge, MA





St. Gallen Gasholder (1902)
Robert Maillart

40 m diameter
Switzerland



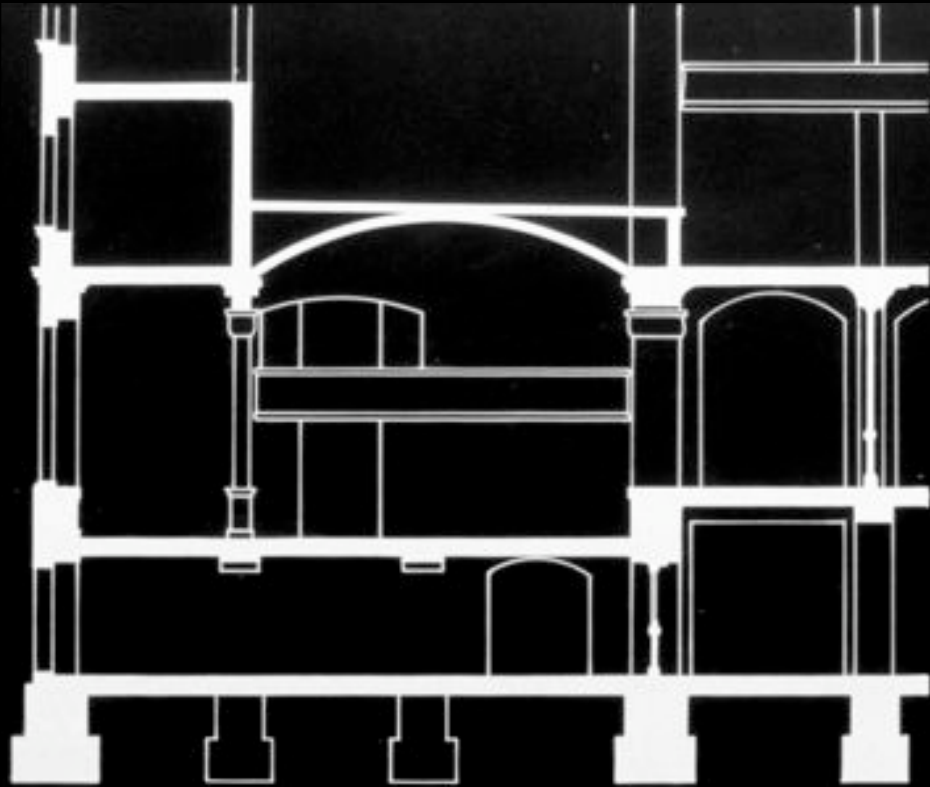
City design

Maillart design

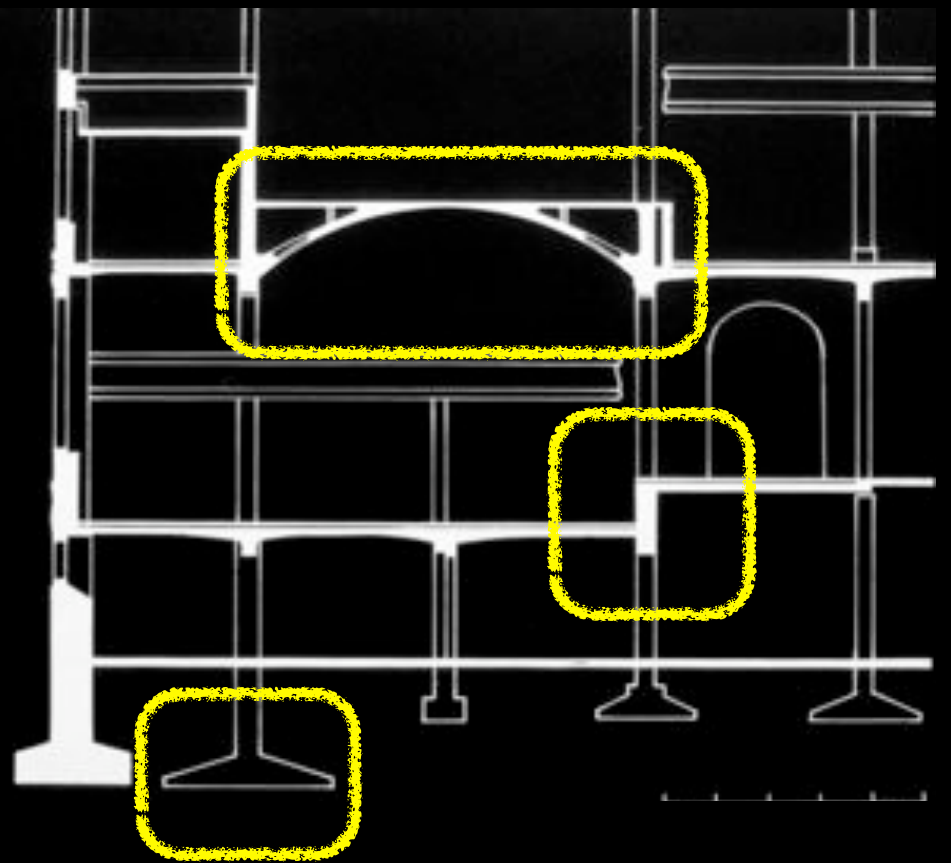


St. Gallen Concert Hall (1906)
Robert Maillart

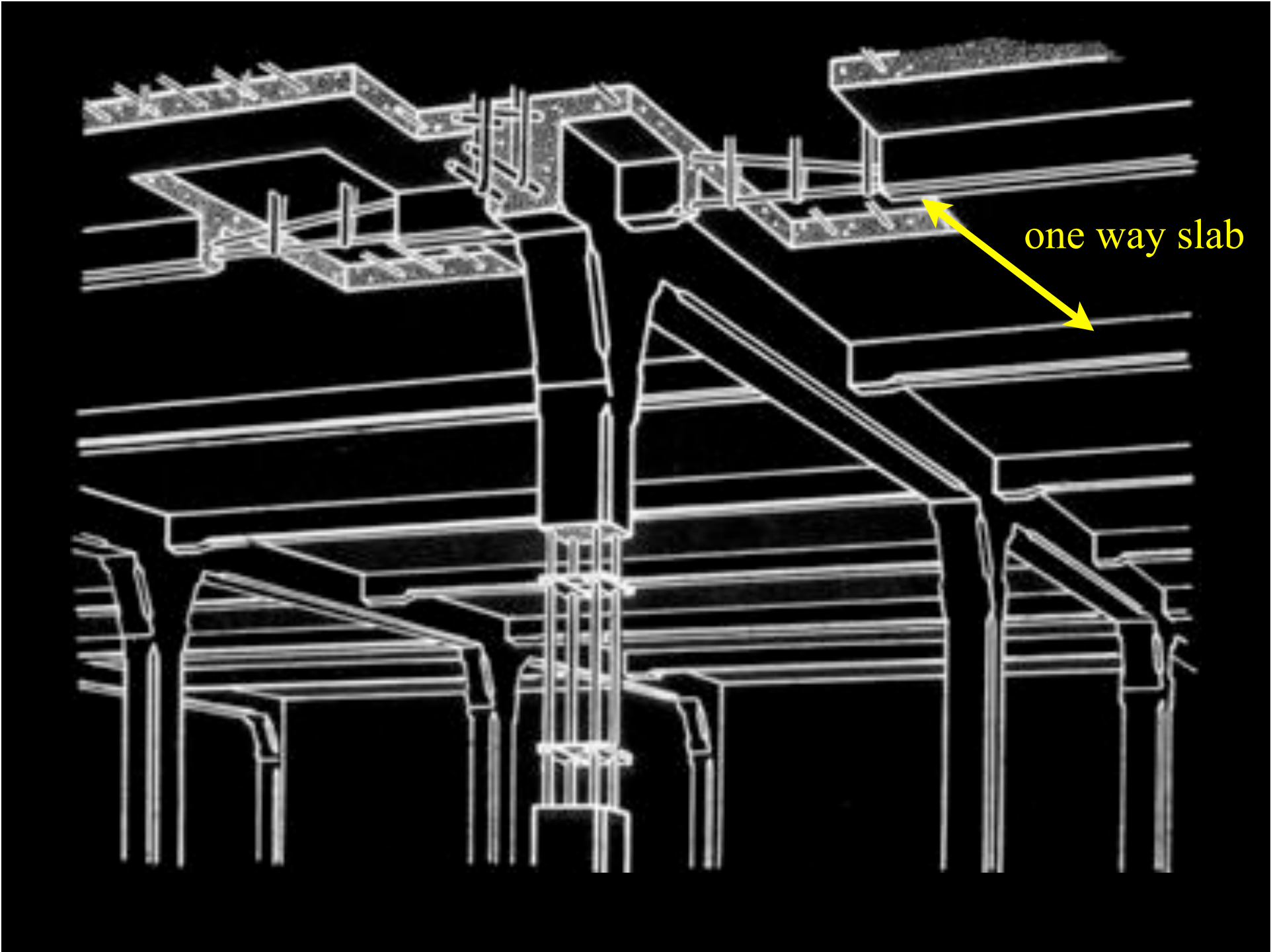
Switzerland



Original Design



Maillart Design

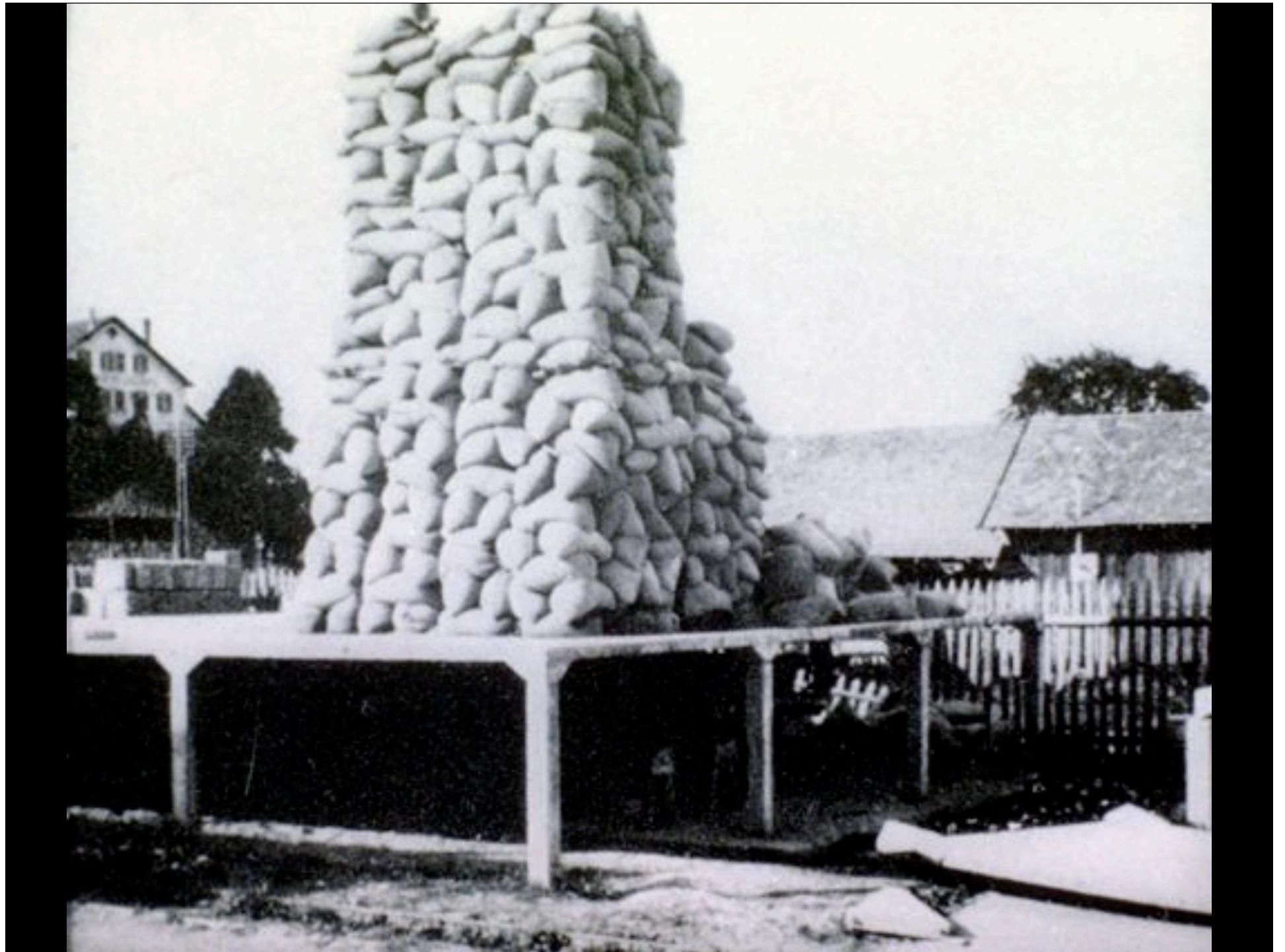




St. Gallen Warehouse (1908)
Robert Maillart

Switzerland





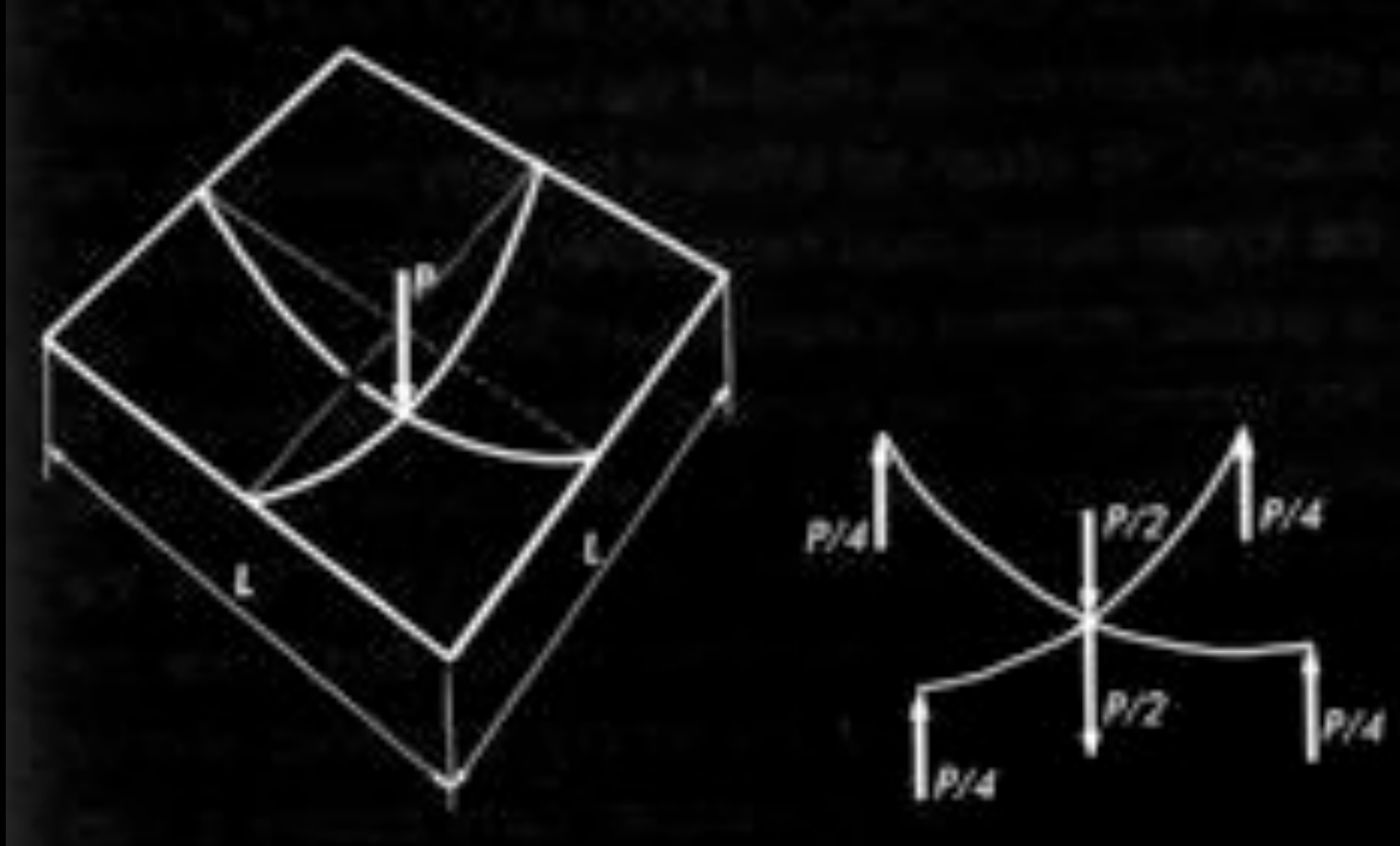


Zurich Warehouse (1910)
Robert Maillart

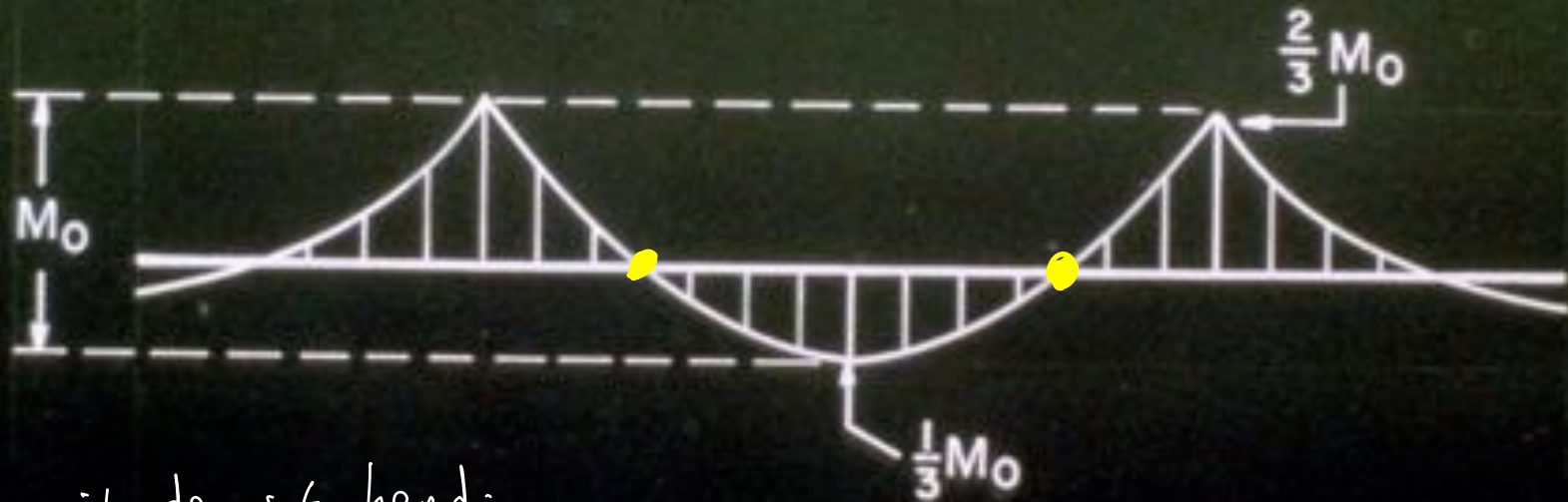
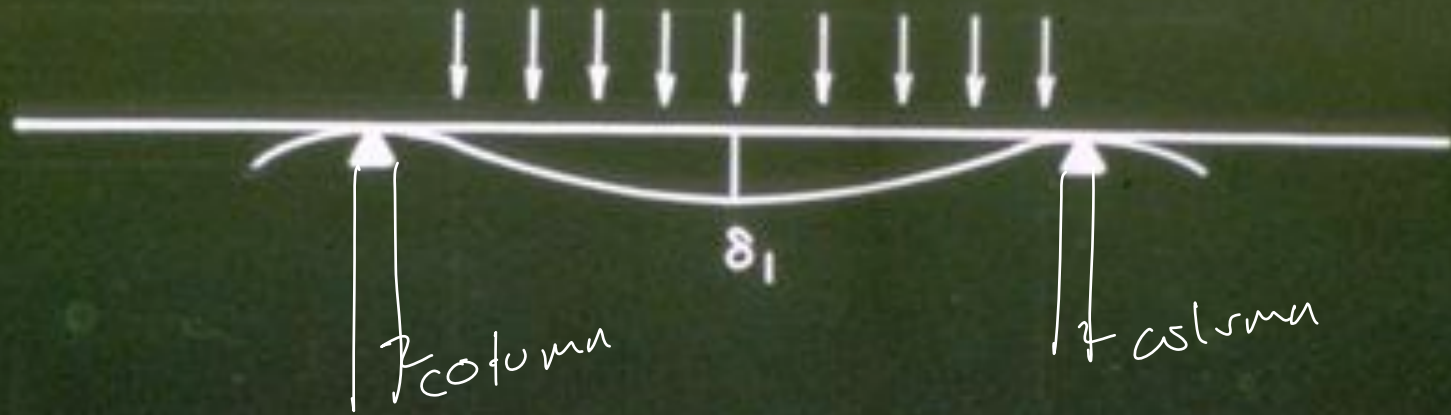


1908

Switzerland



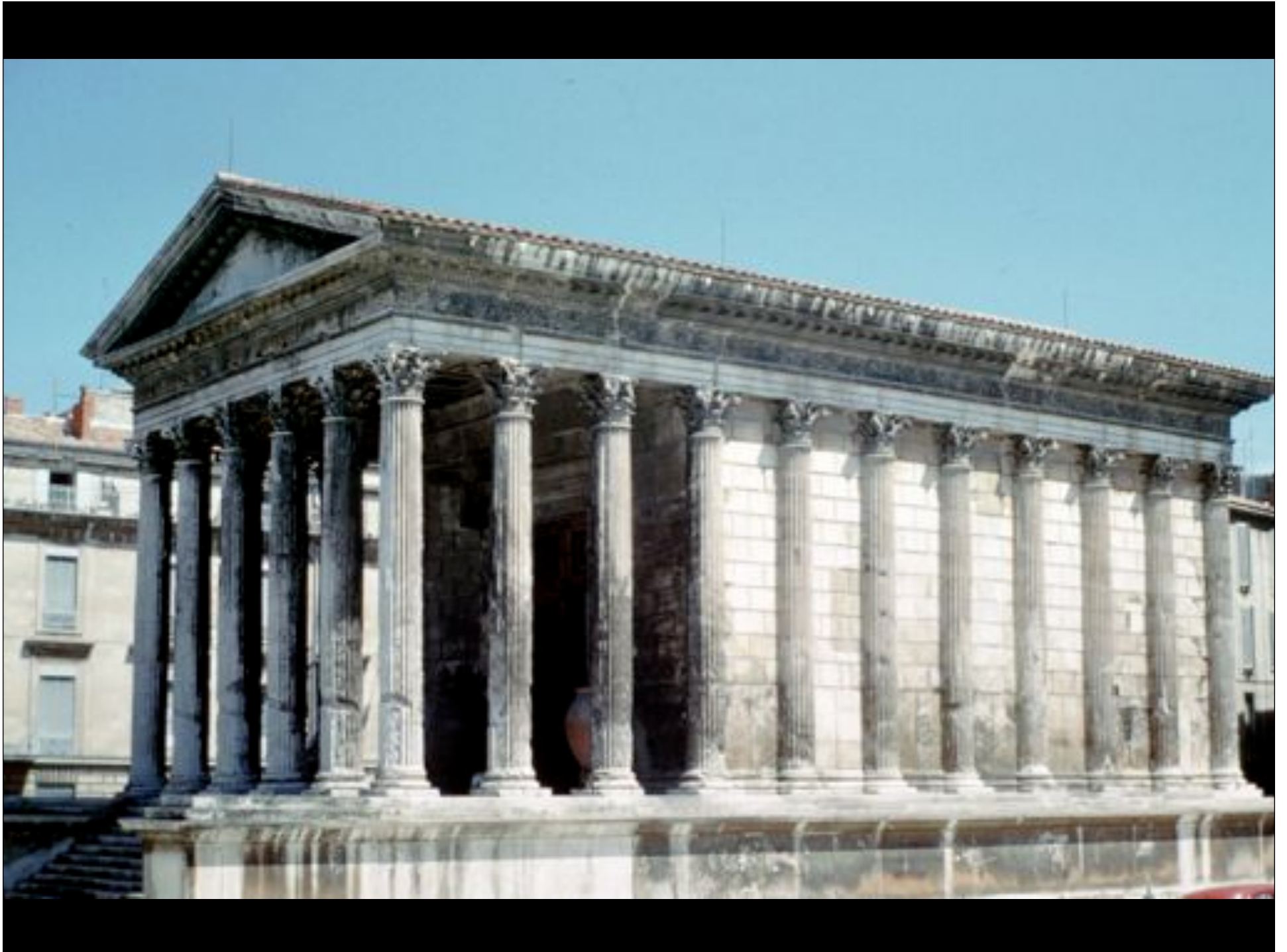
Two Way Load Distribution



magnitude of bending
 if beam (slab) is not
 continuous.











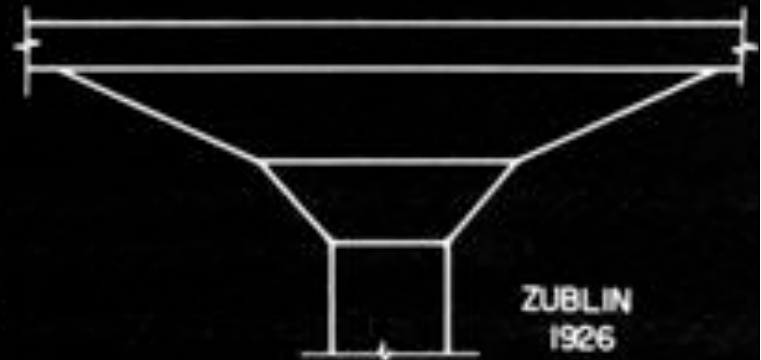
a "rational" capital.



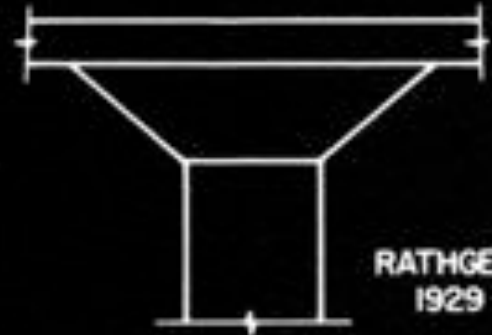
MAILLART
1925



ZUBLIN
1924/5



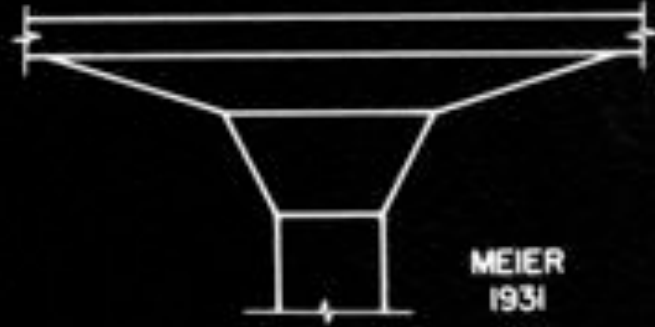
ZUBLIN
1926



RATHGEB
1929



LOCHER
1930



MEIER
1931





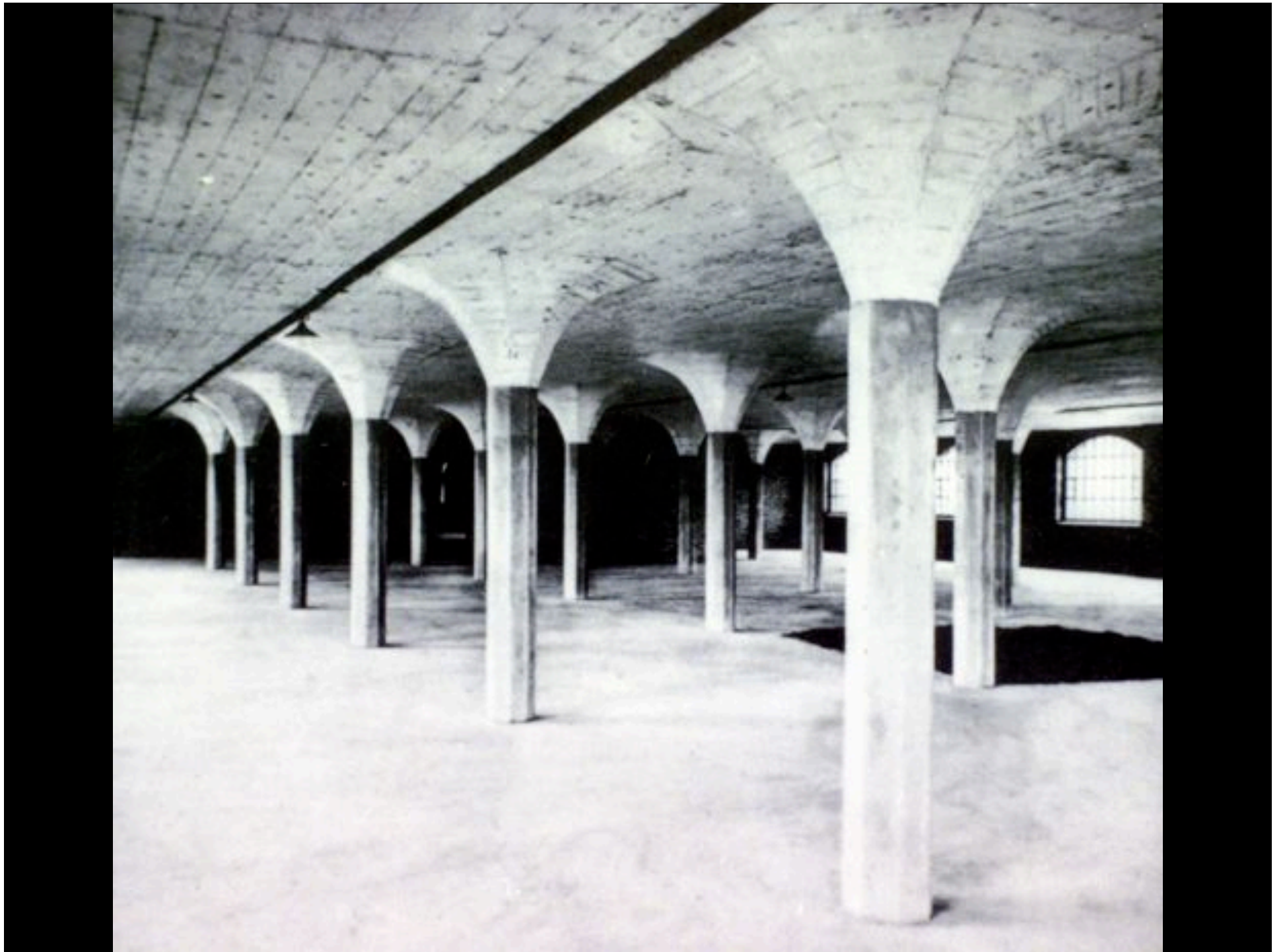




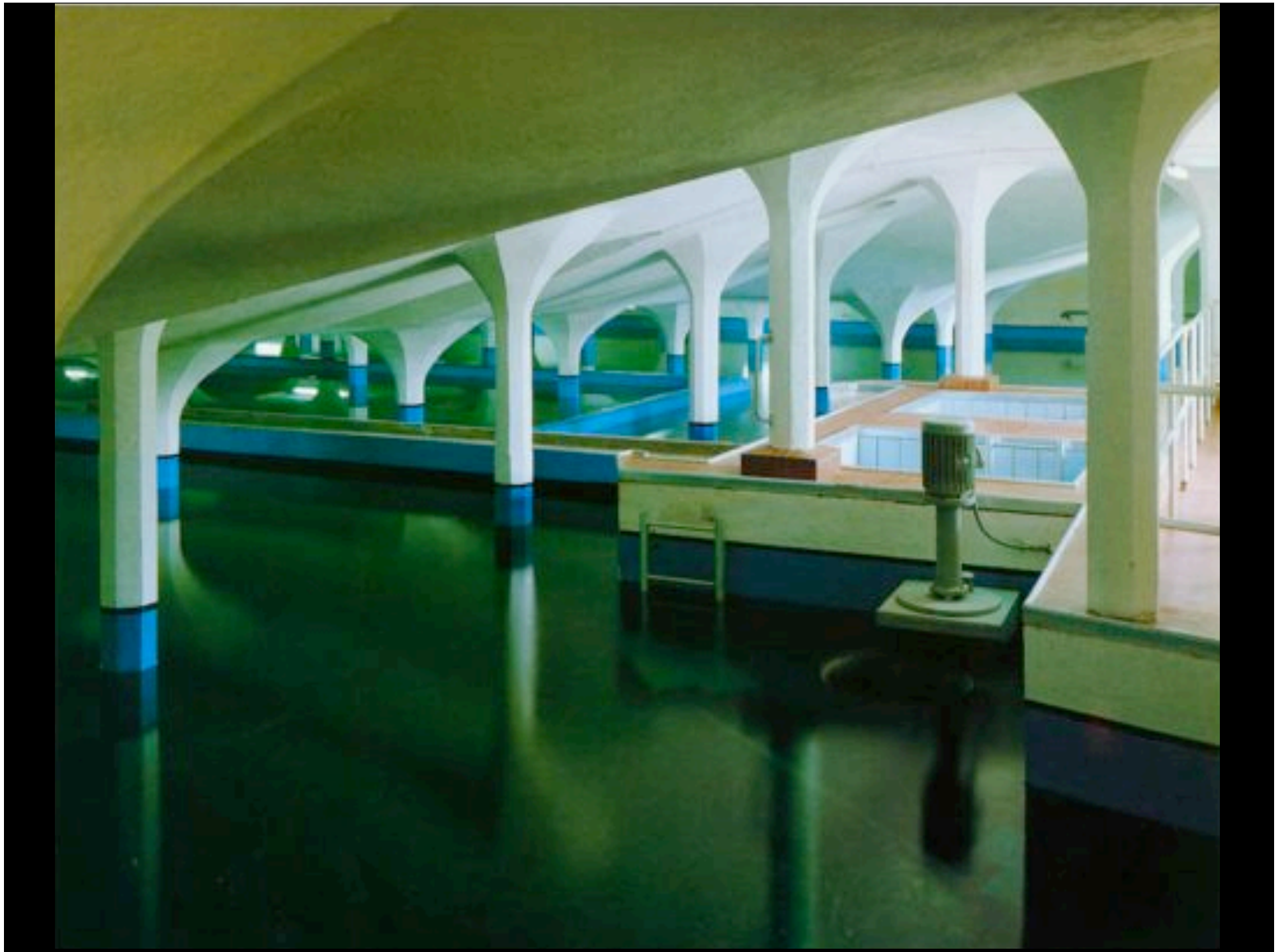
Nervi

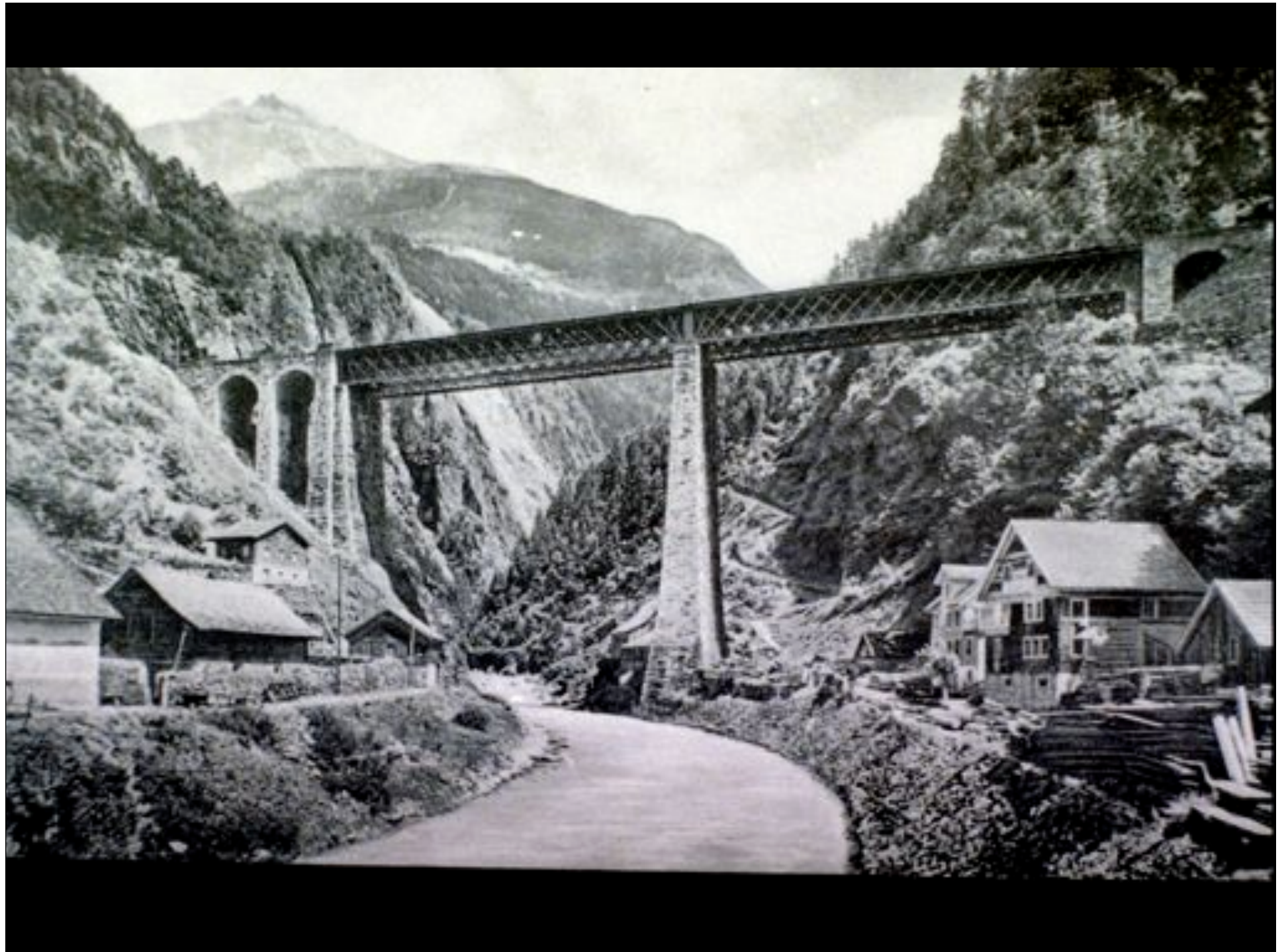


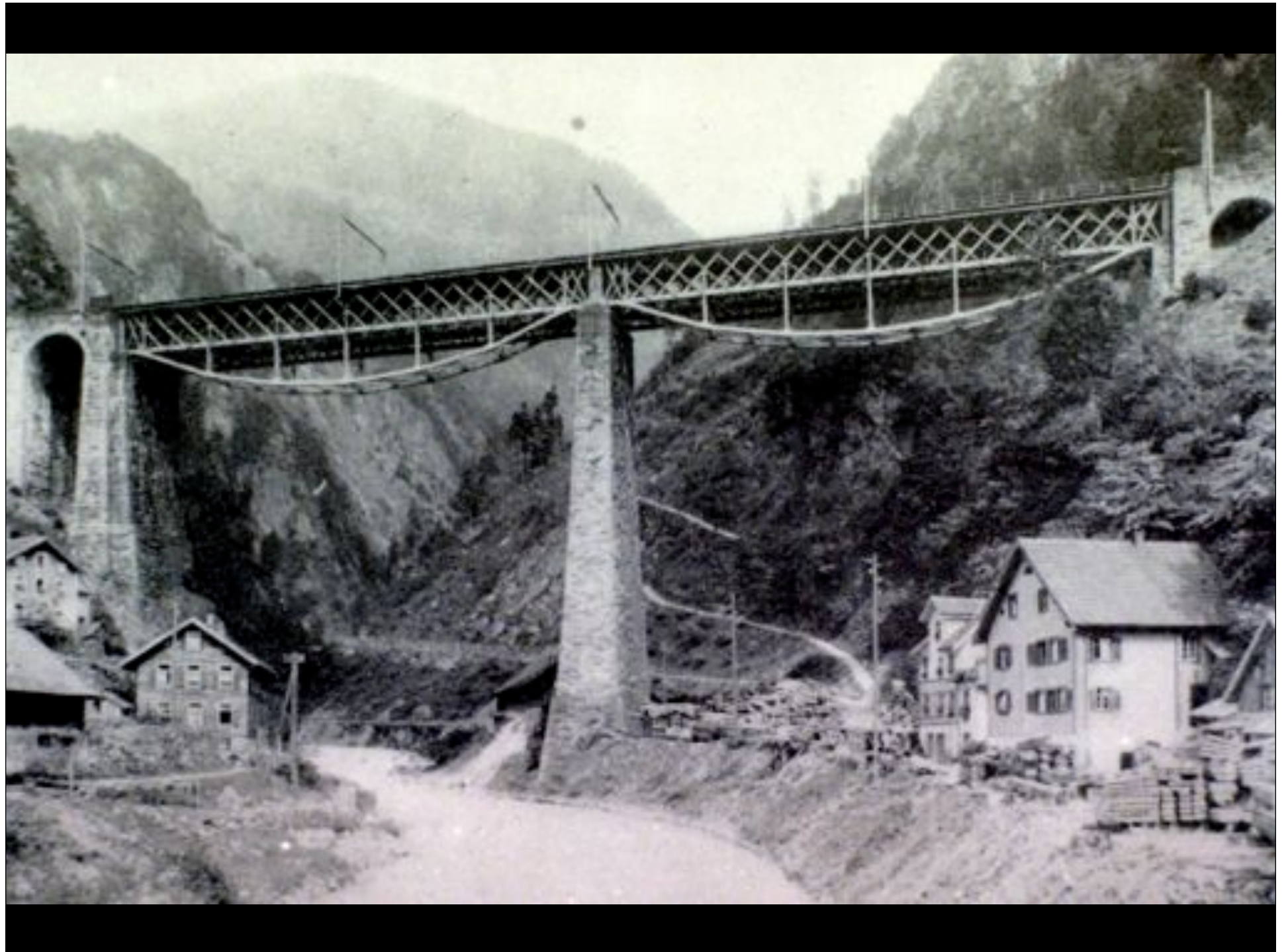
Maillart

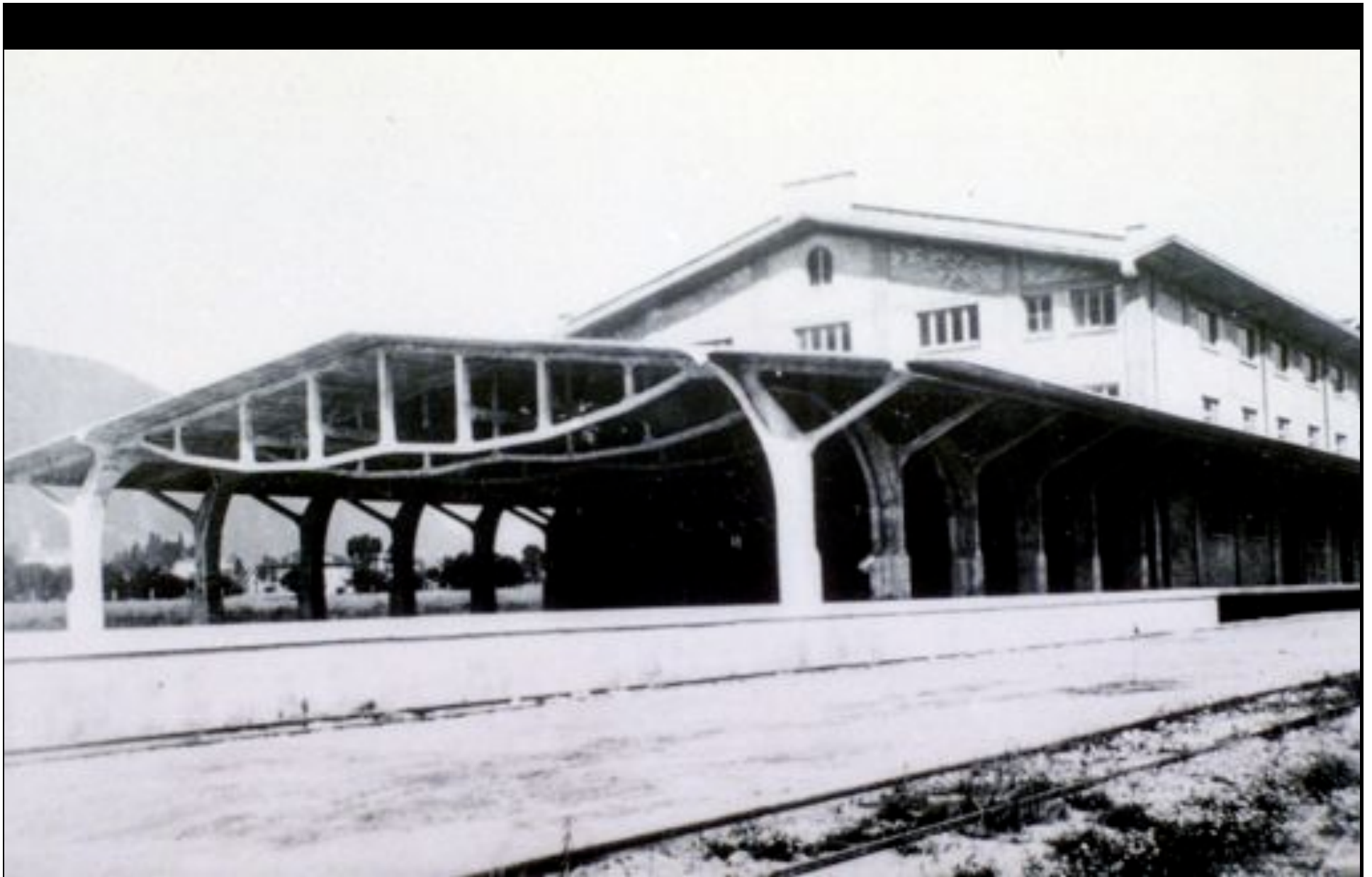






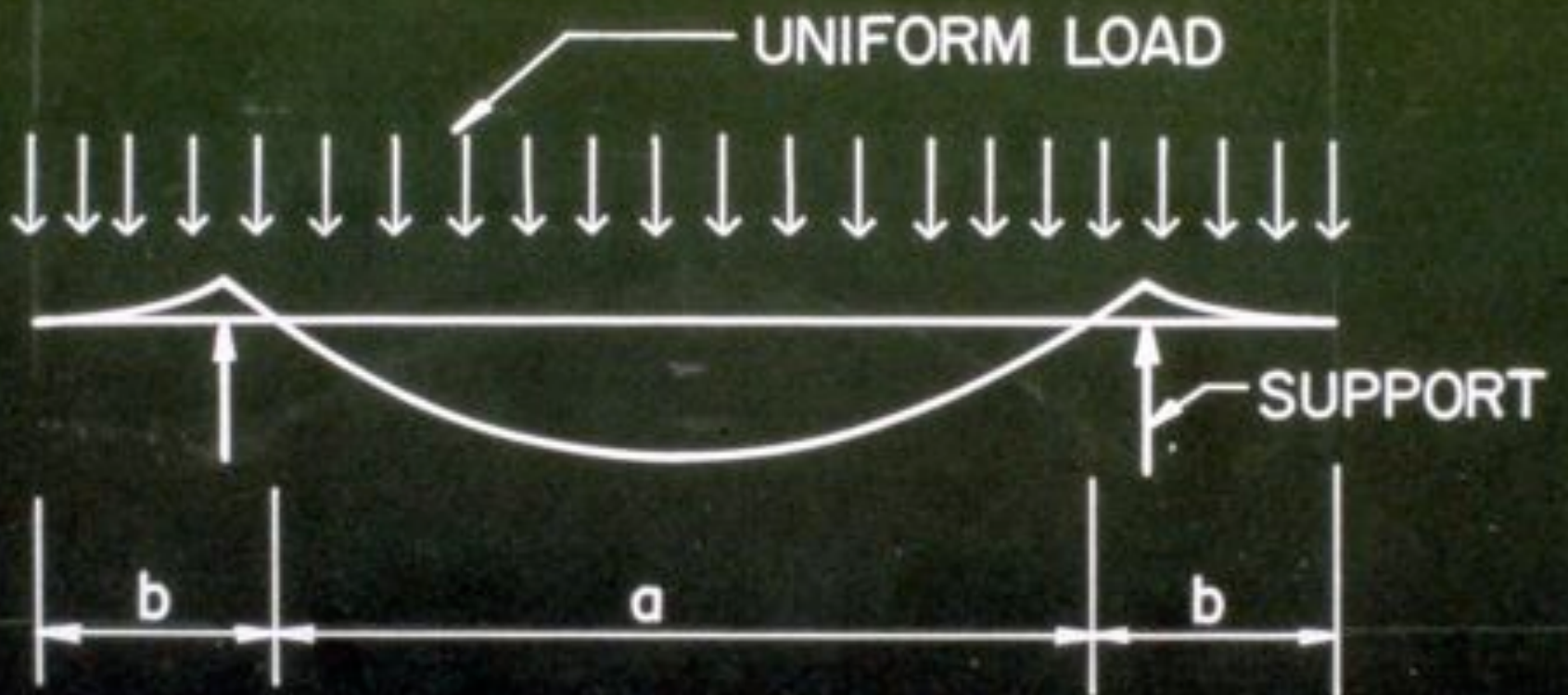




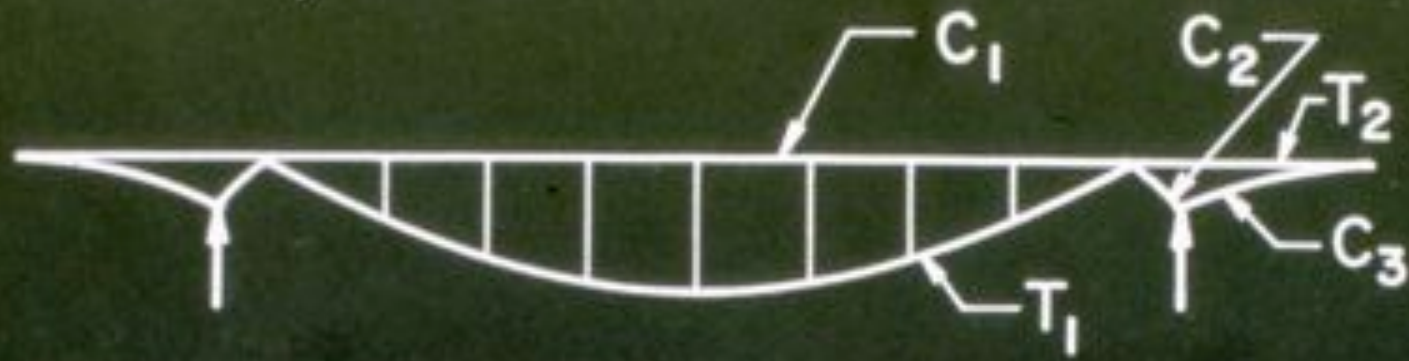


Magazzini Generali (1924)
Robert Maillart

25 m span
Chiasso, Switzerland



BENDING MOMENT DIAGRAM



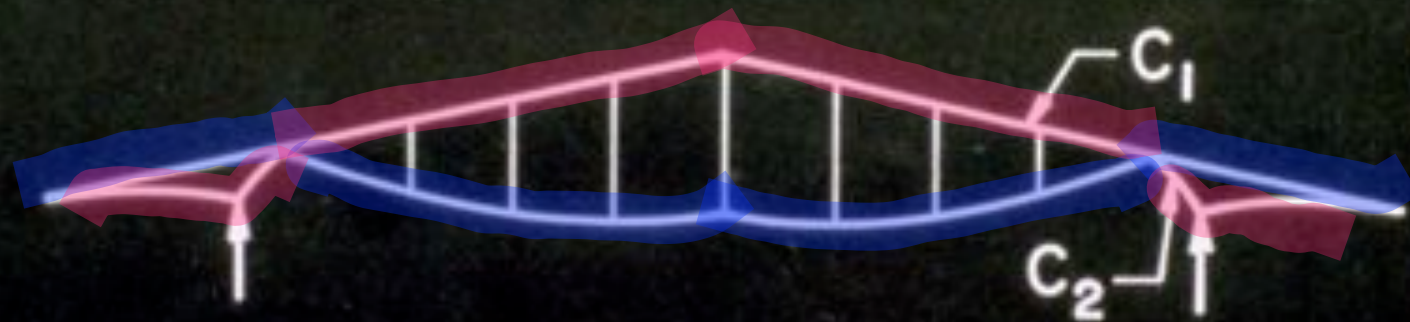
(a) CONSTANT FORCE TRUSS



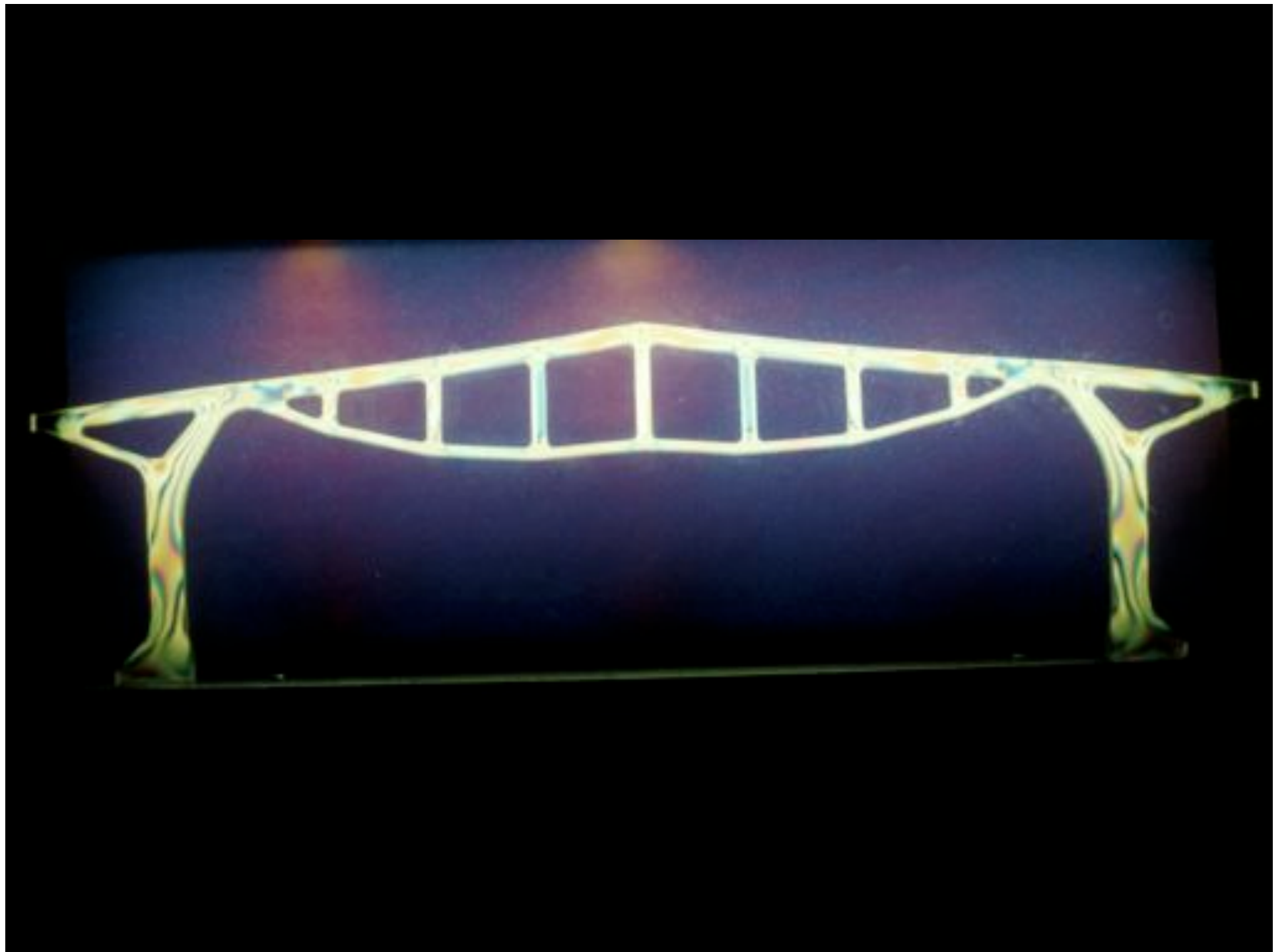
(b) GABLED CONSTANT FORCE

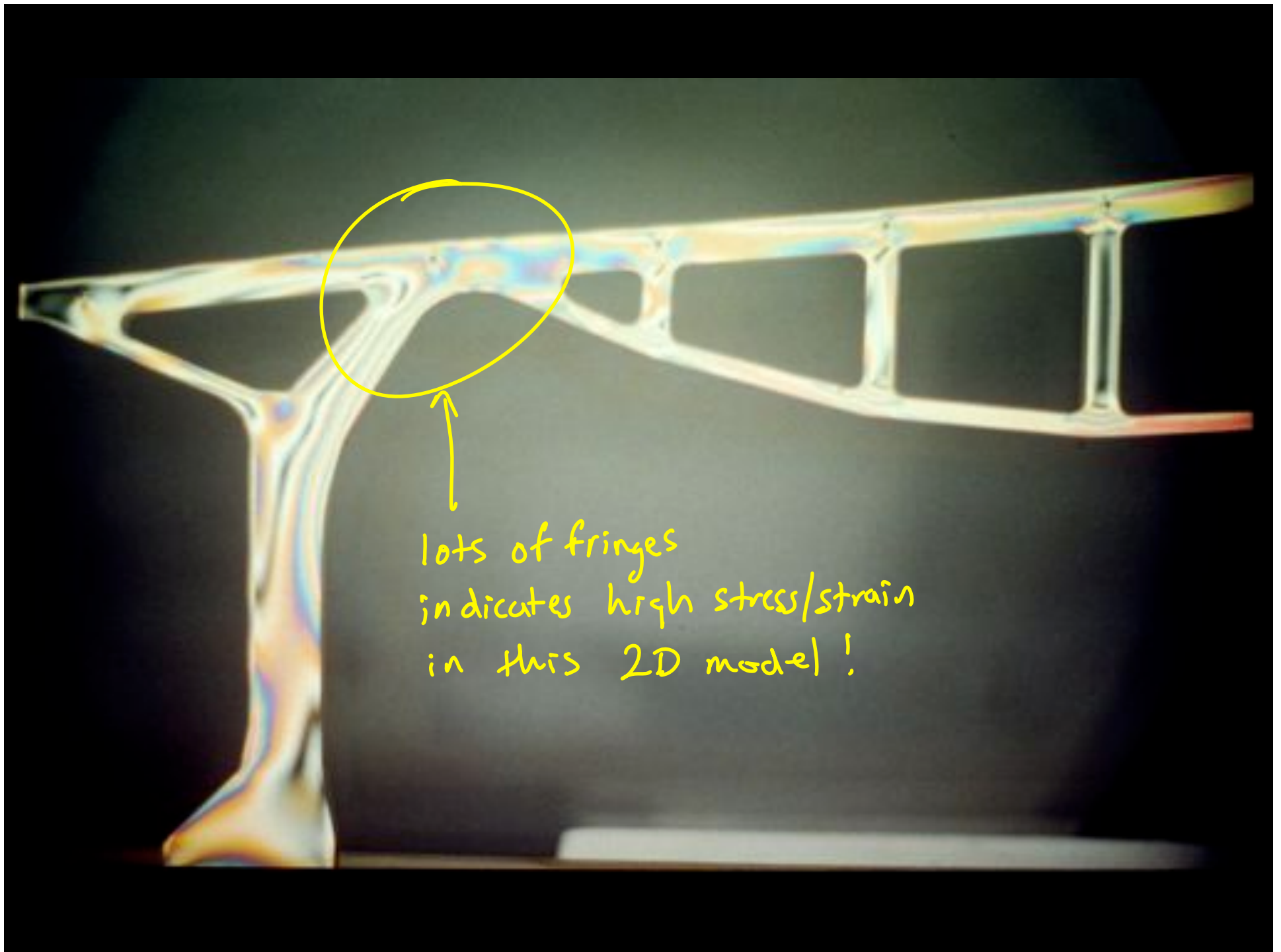


(a) CONSTANT FORCE TRUSS



(b) GABLED CONSTANT FORCE





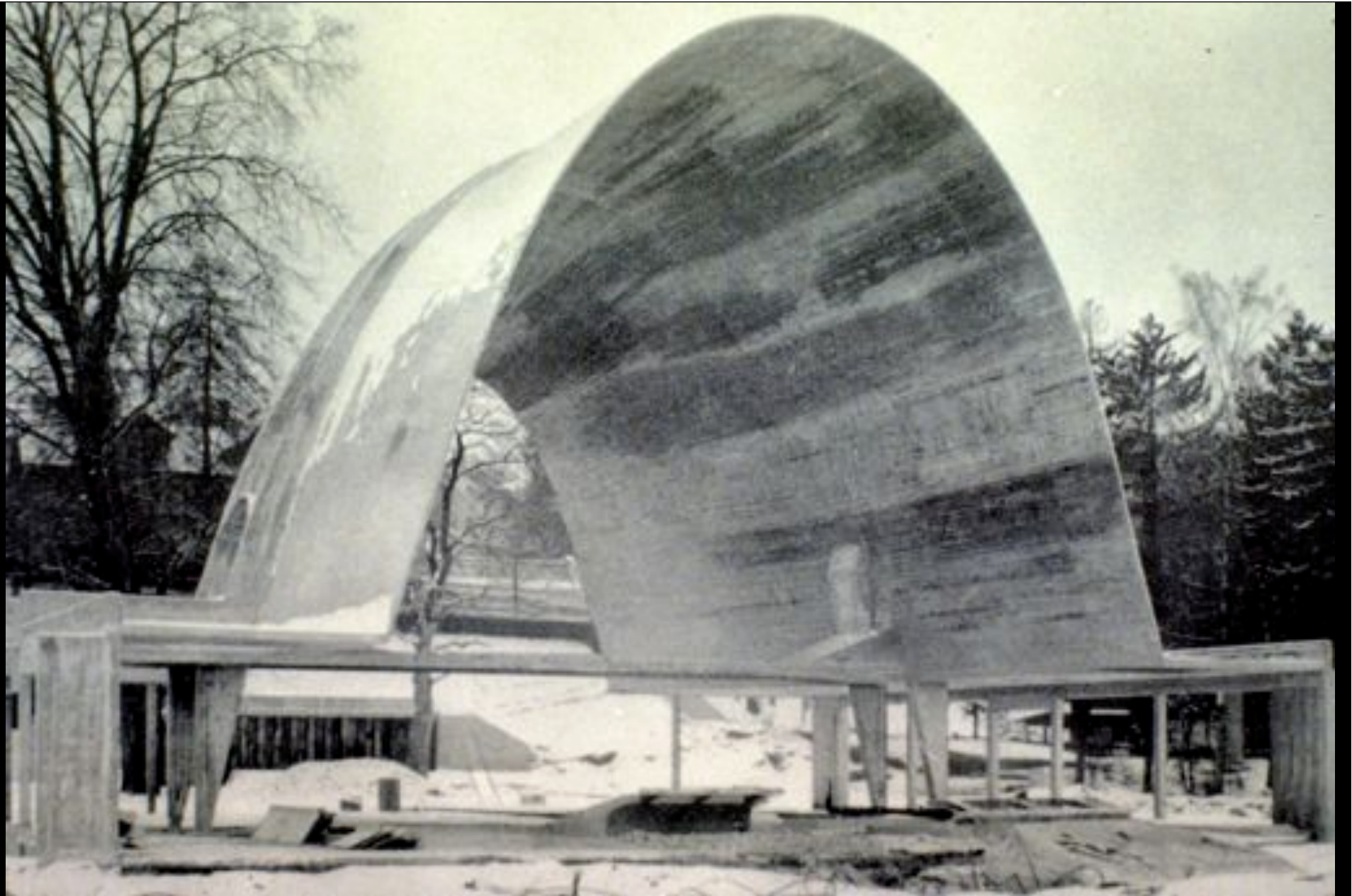




lots of thickness
to relieve high
stresses!

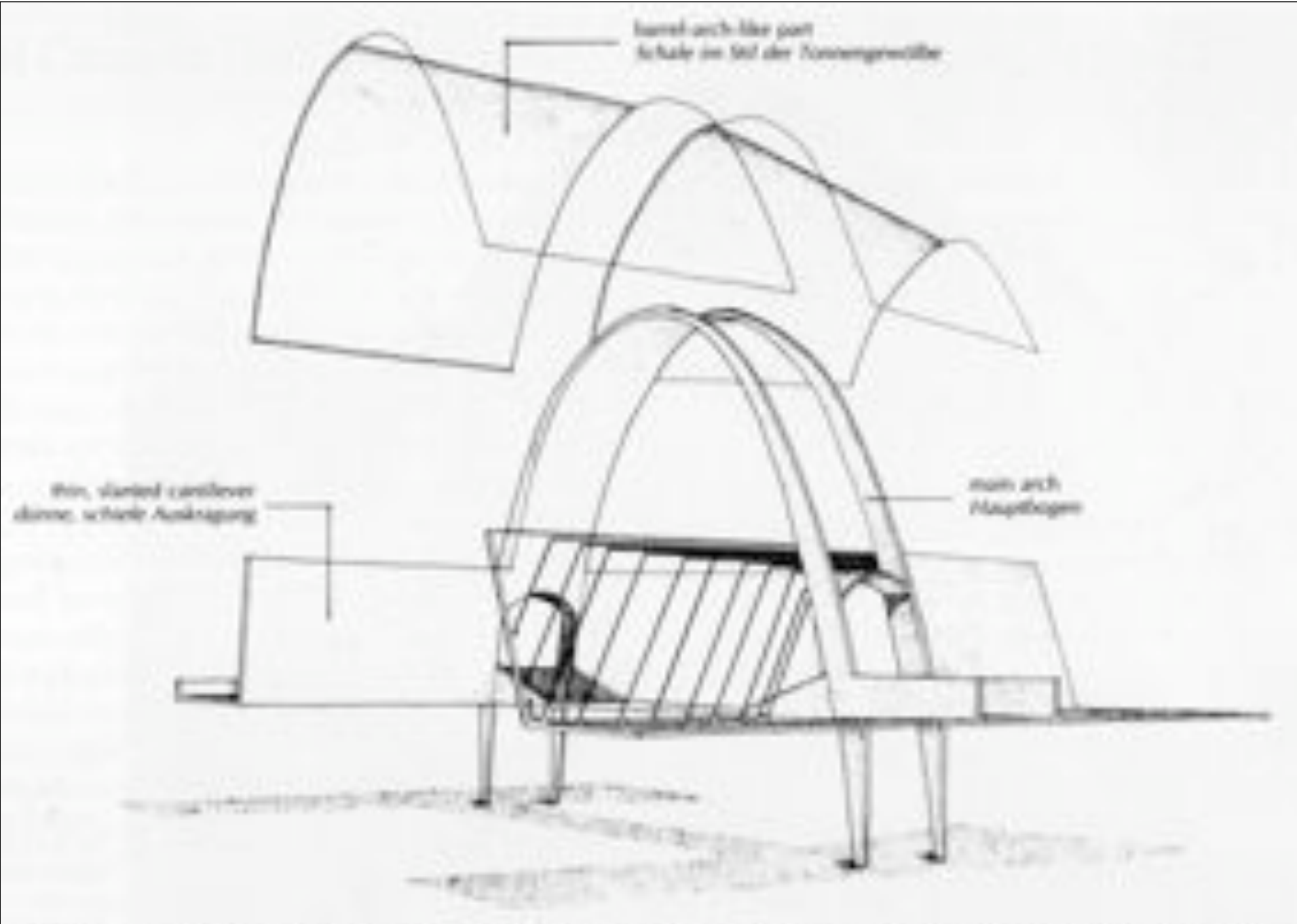


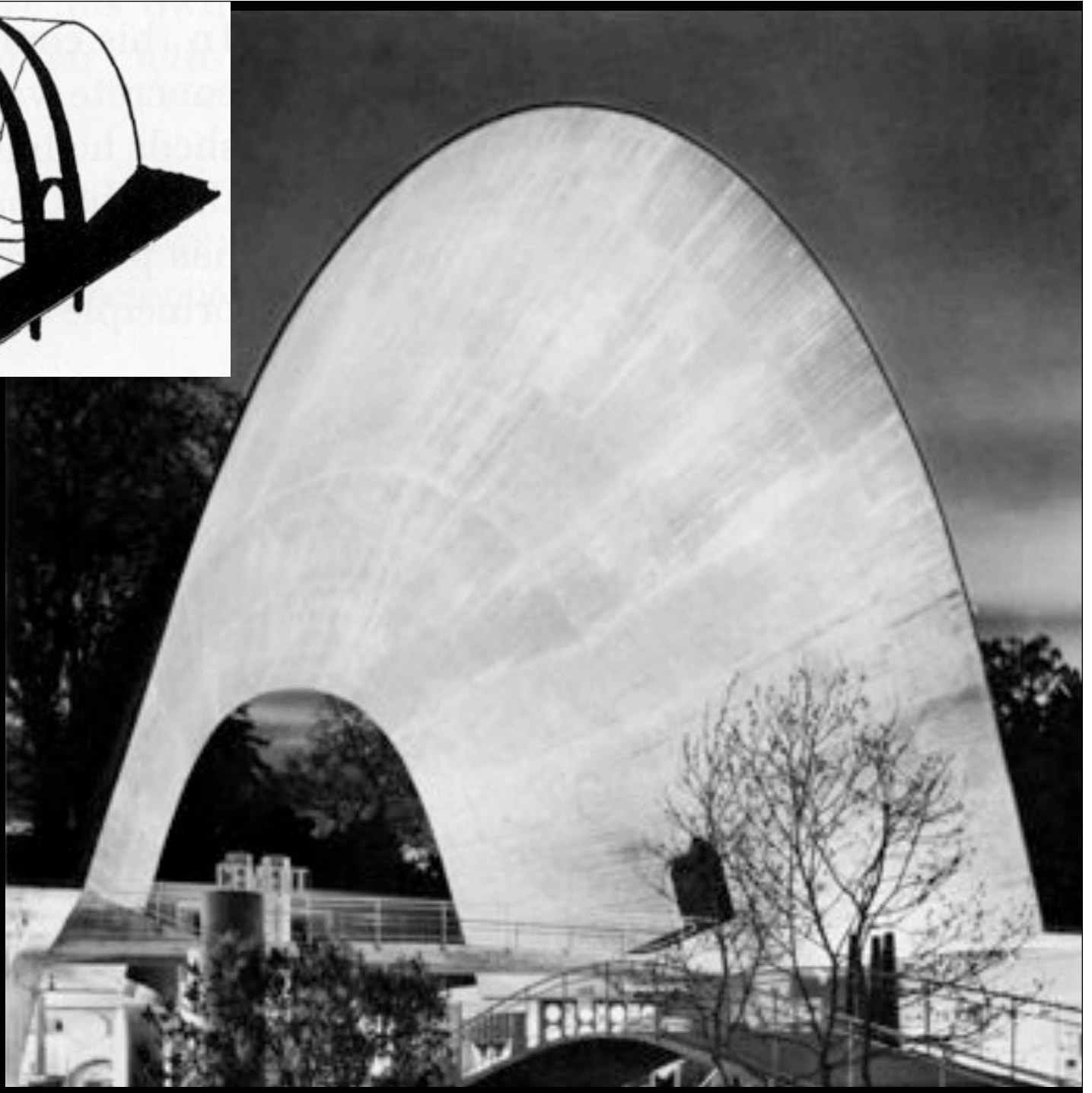
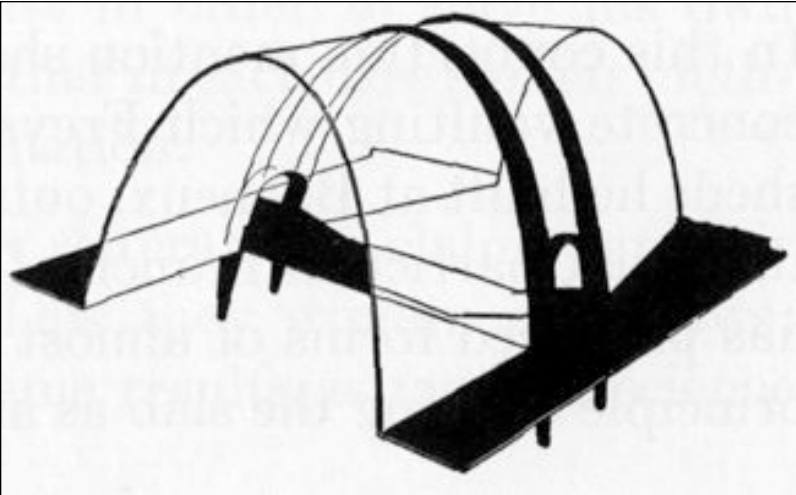




Cement Hall (1939)
Robert Maillart

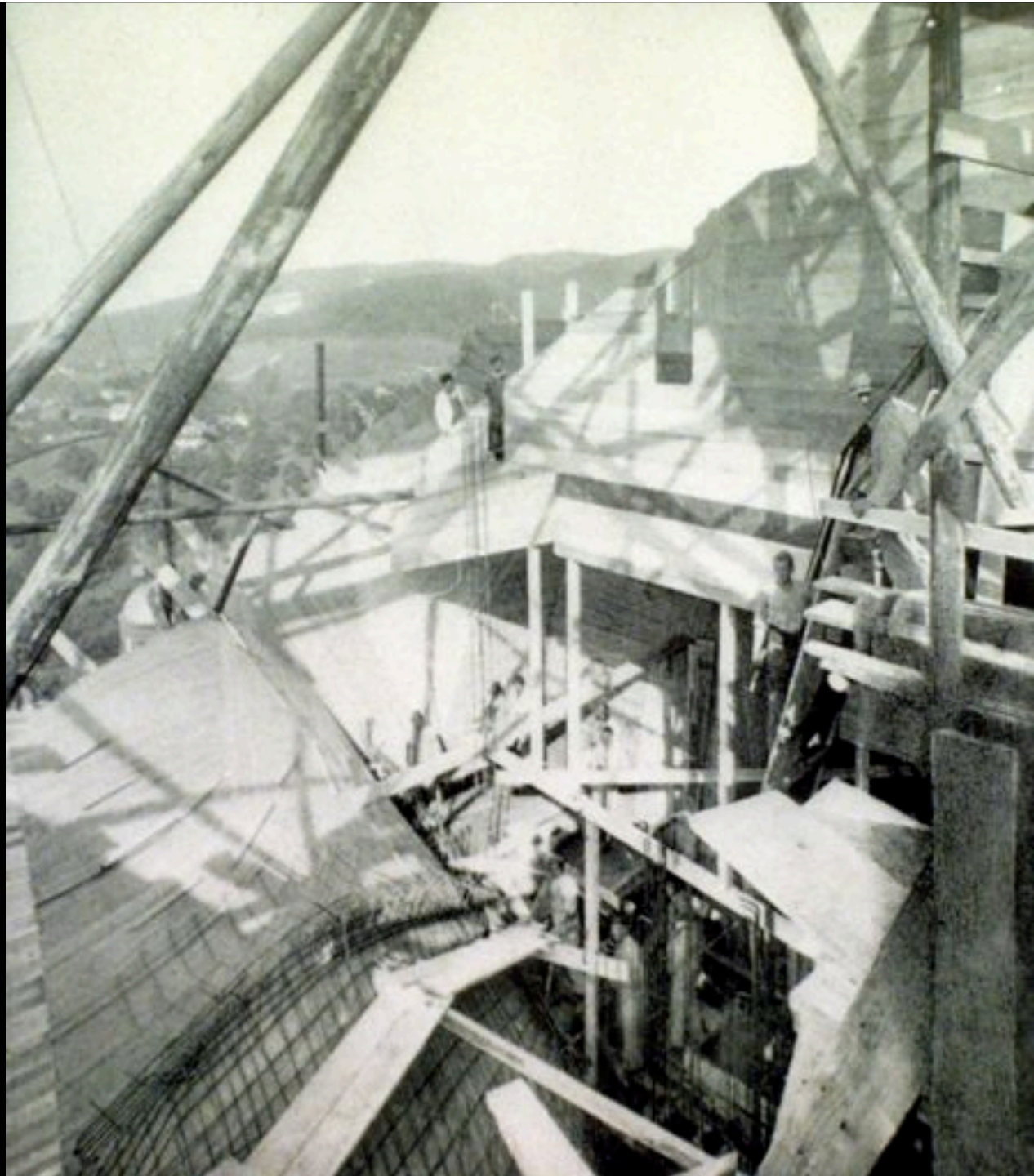
6 cm thick
Zurich, Switzerland



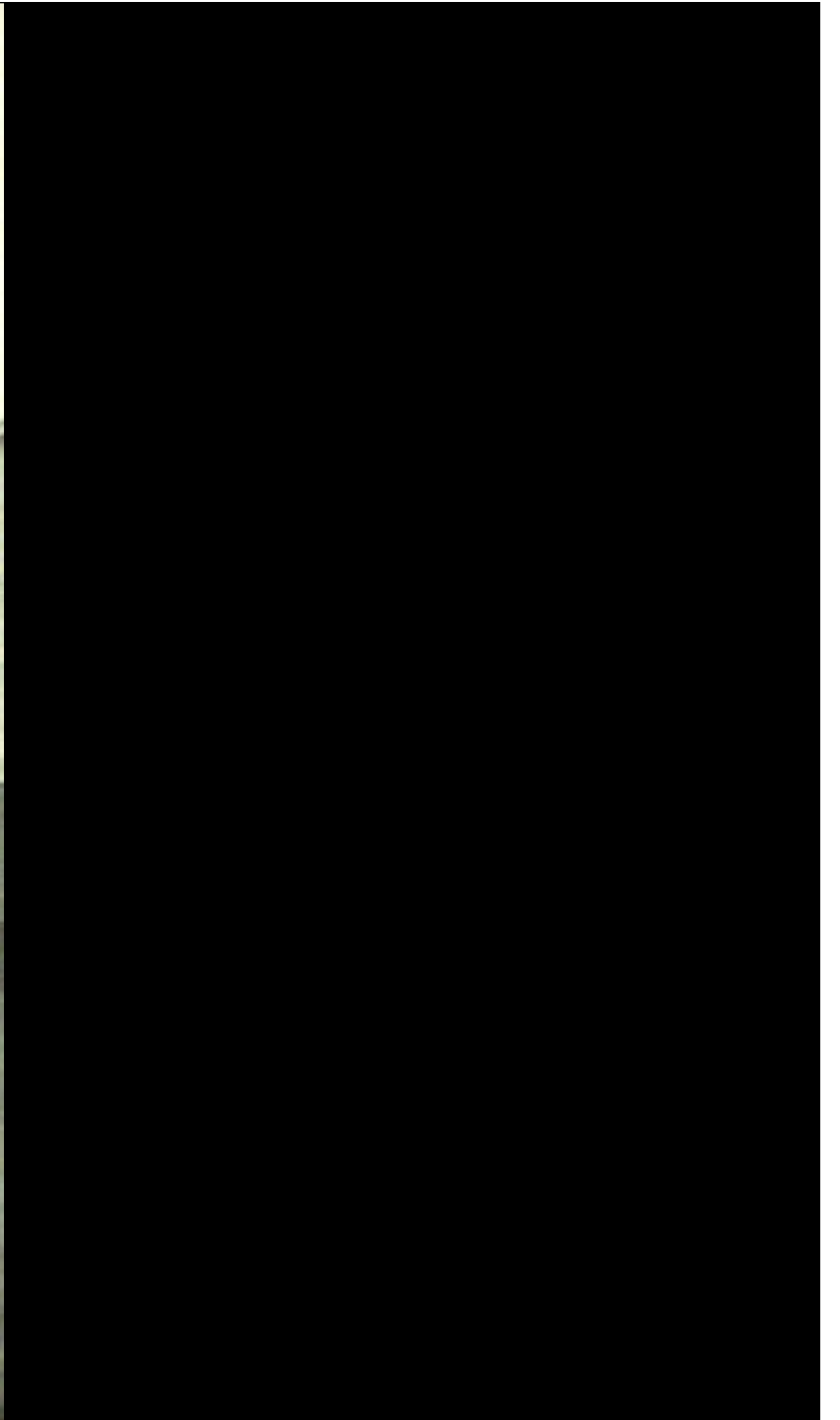
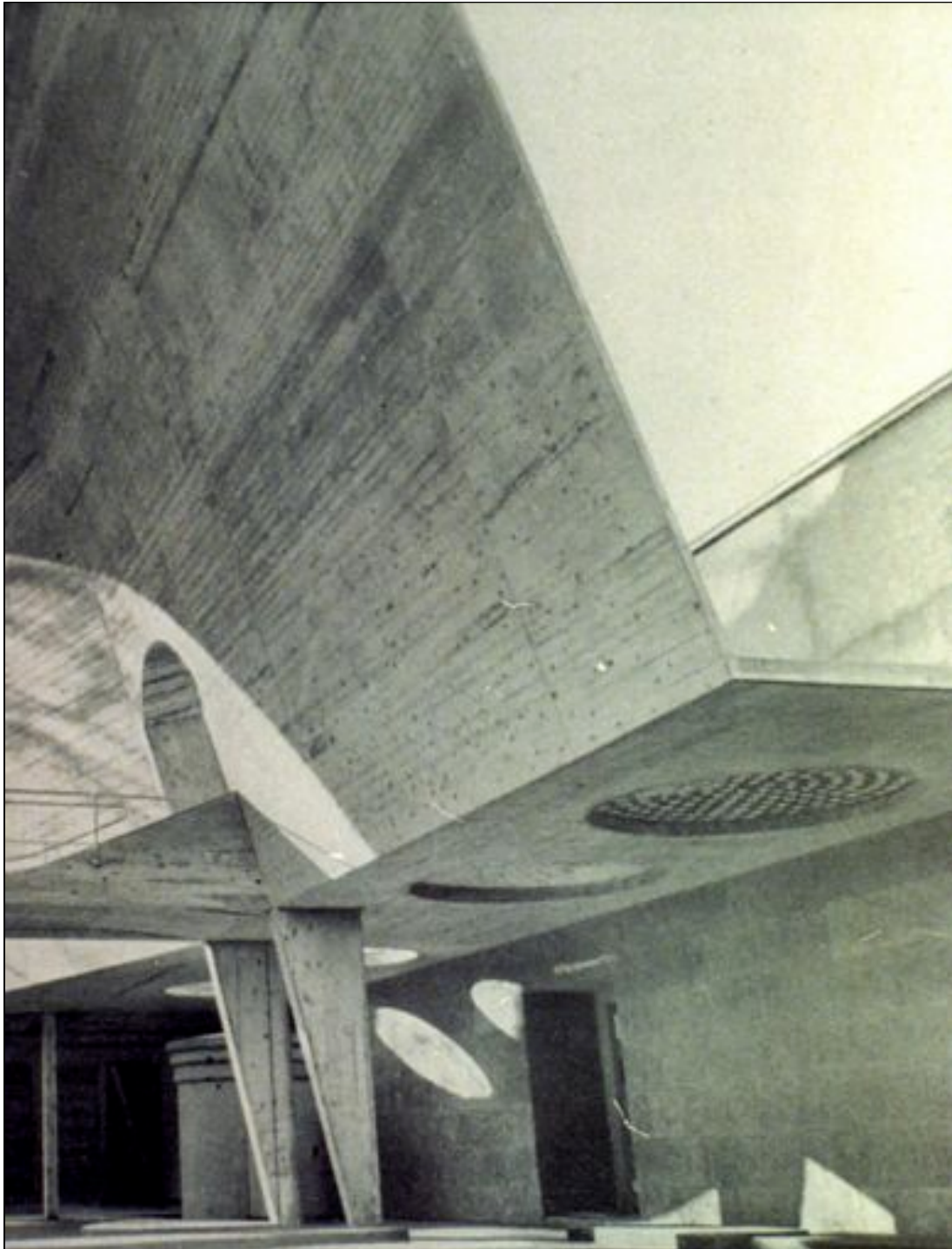


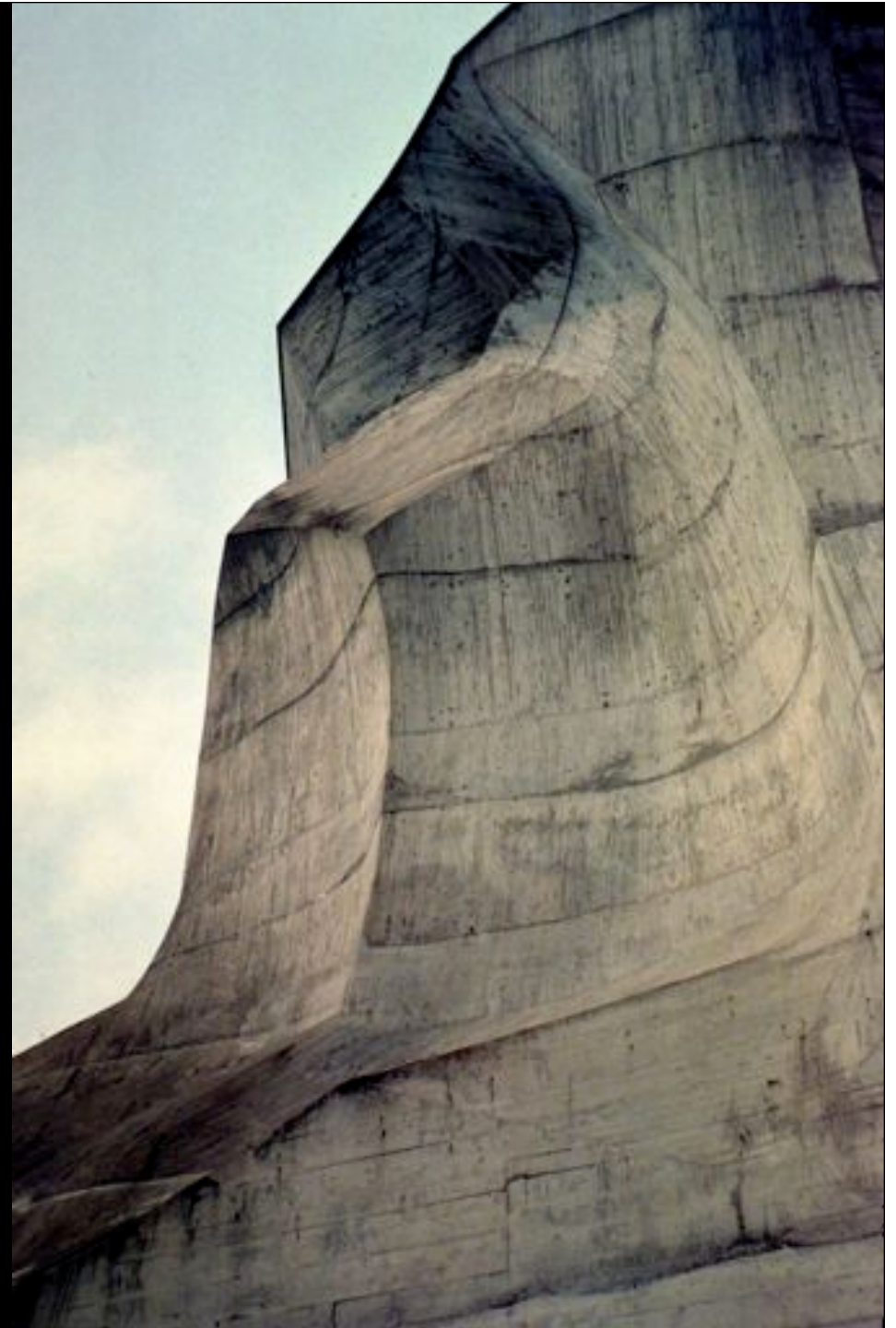
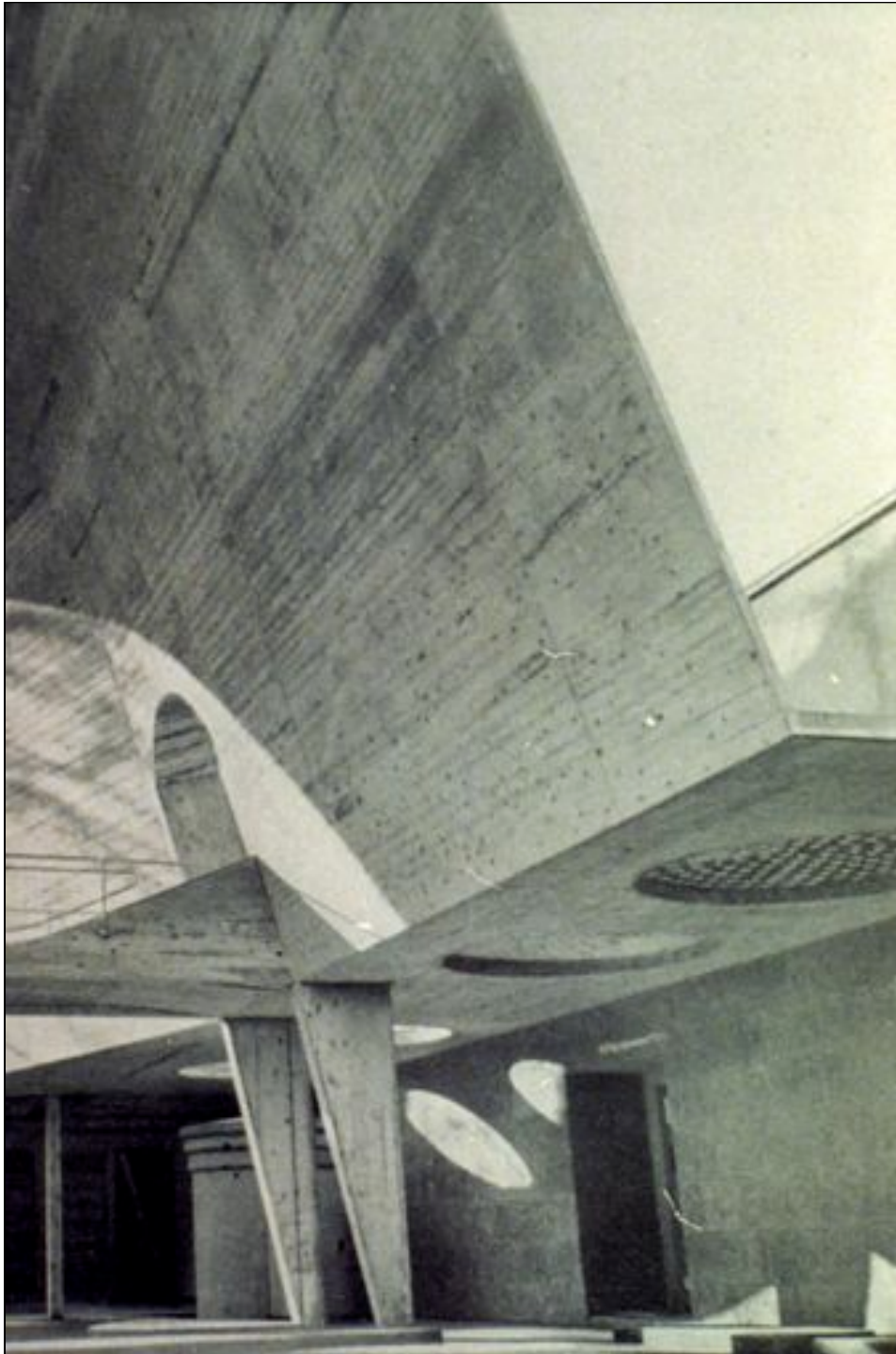


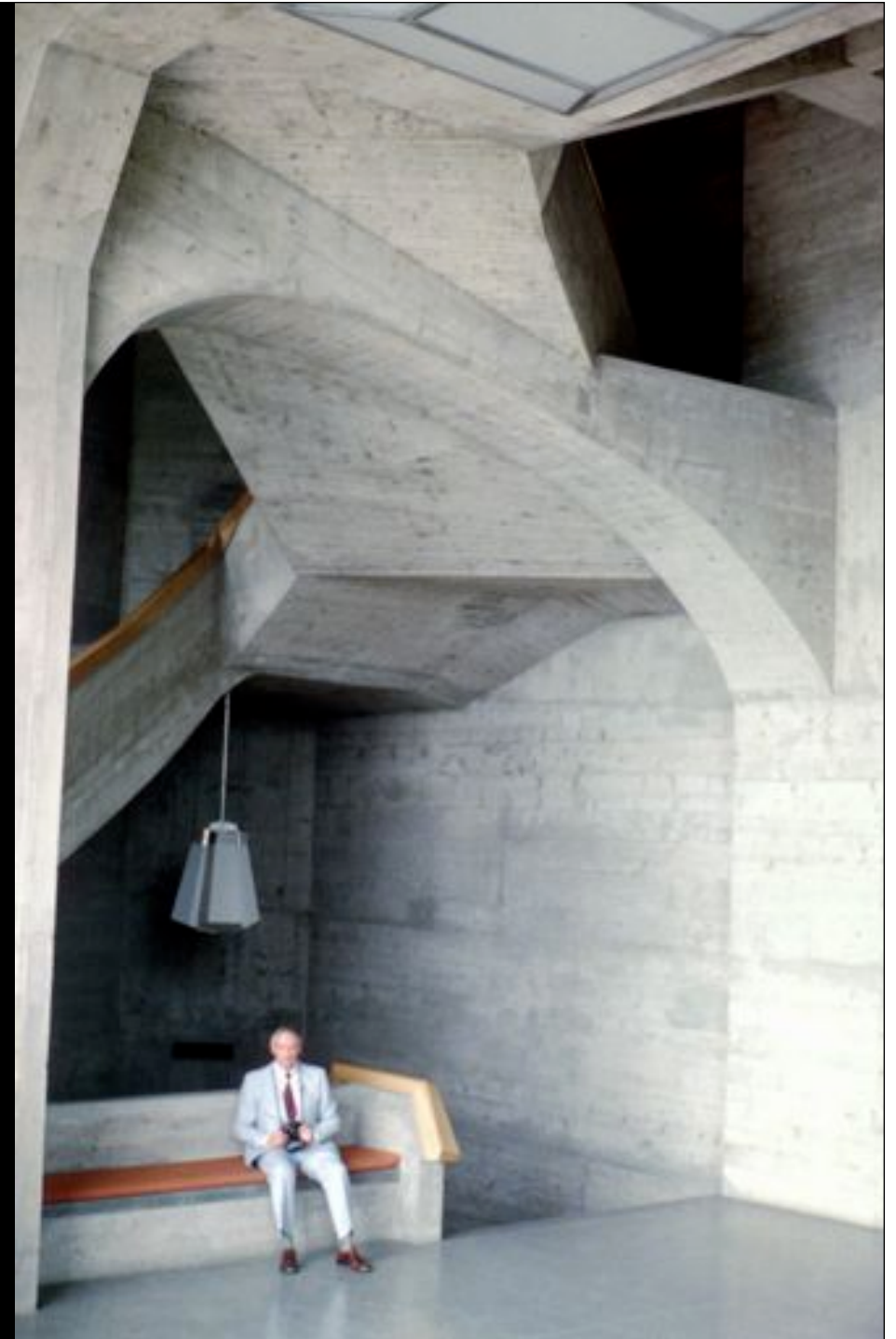
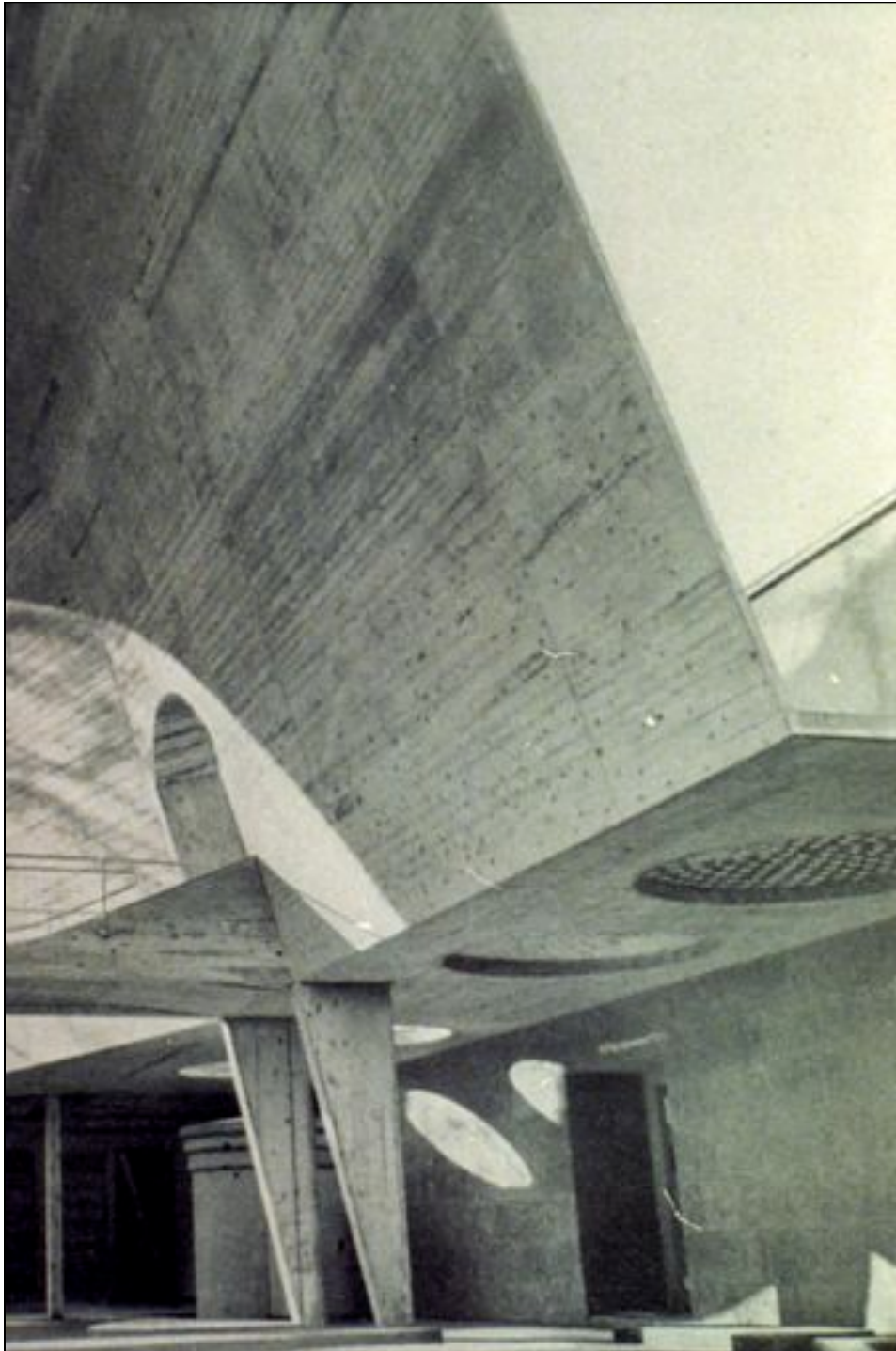


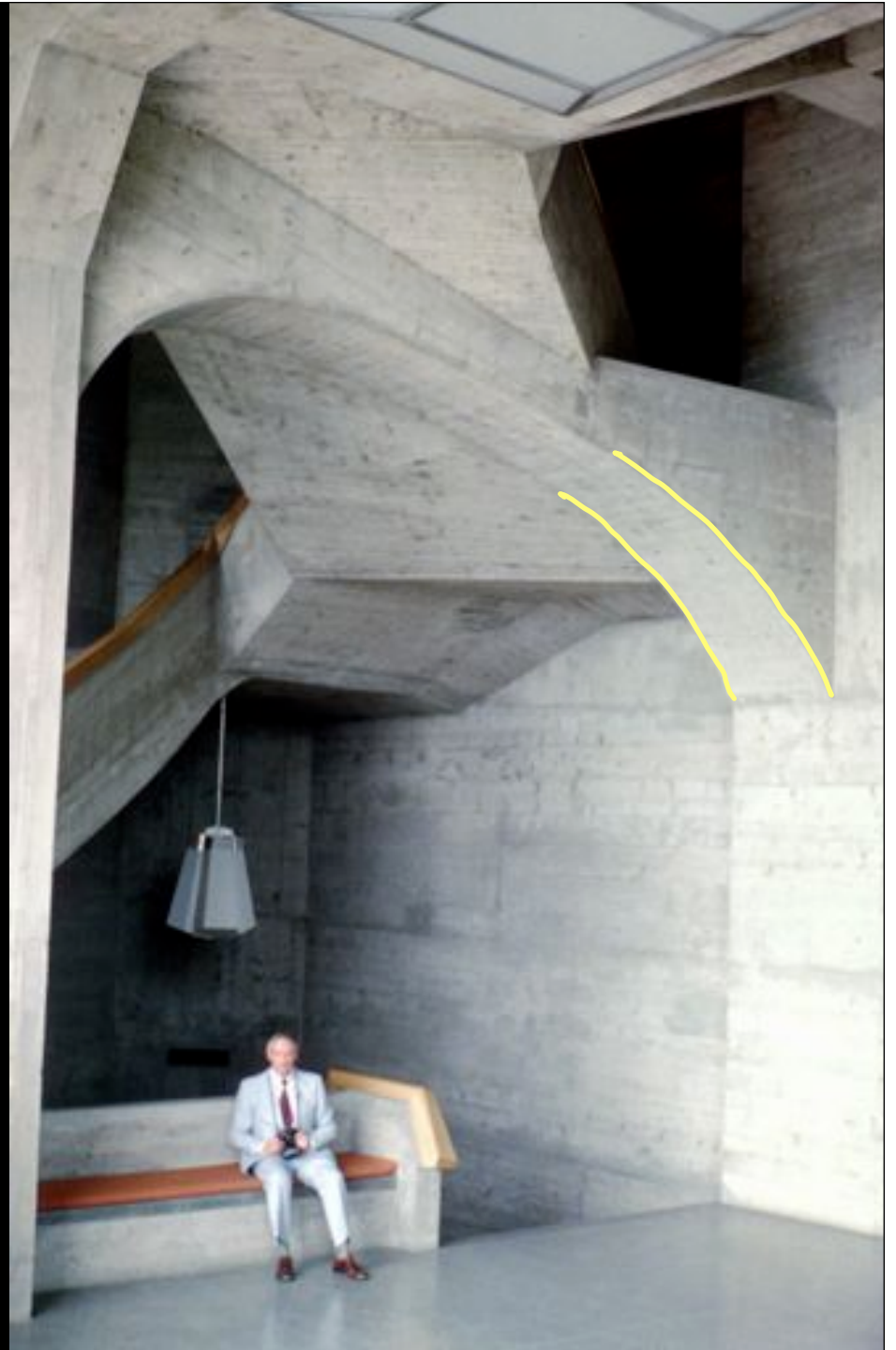
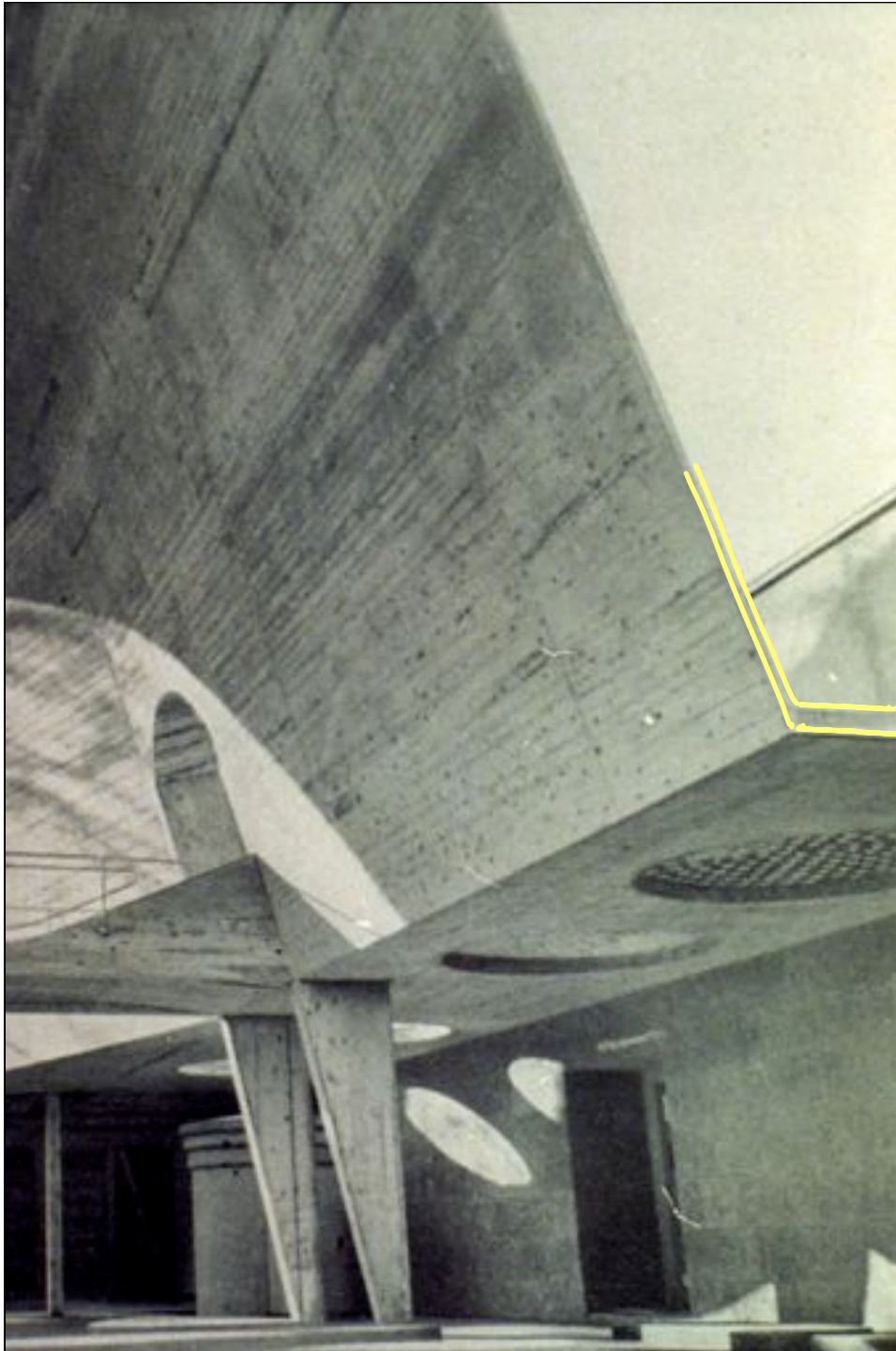






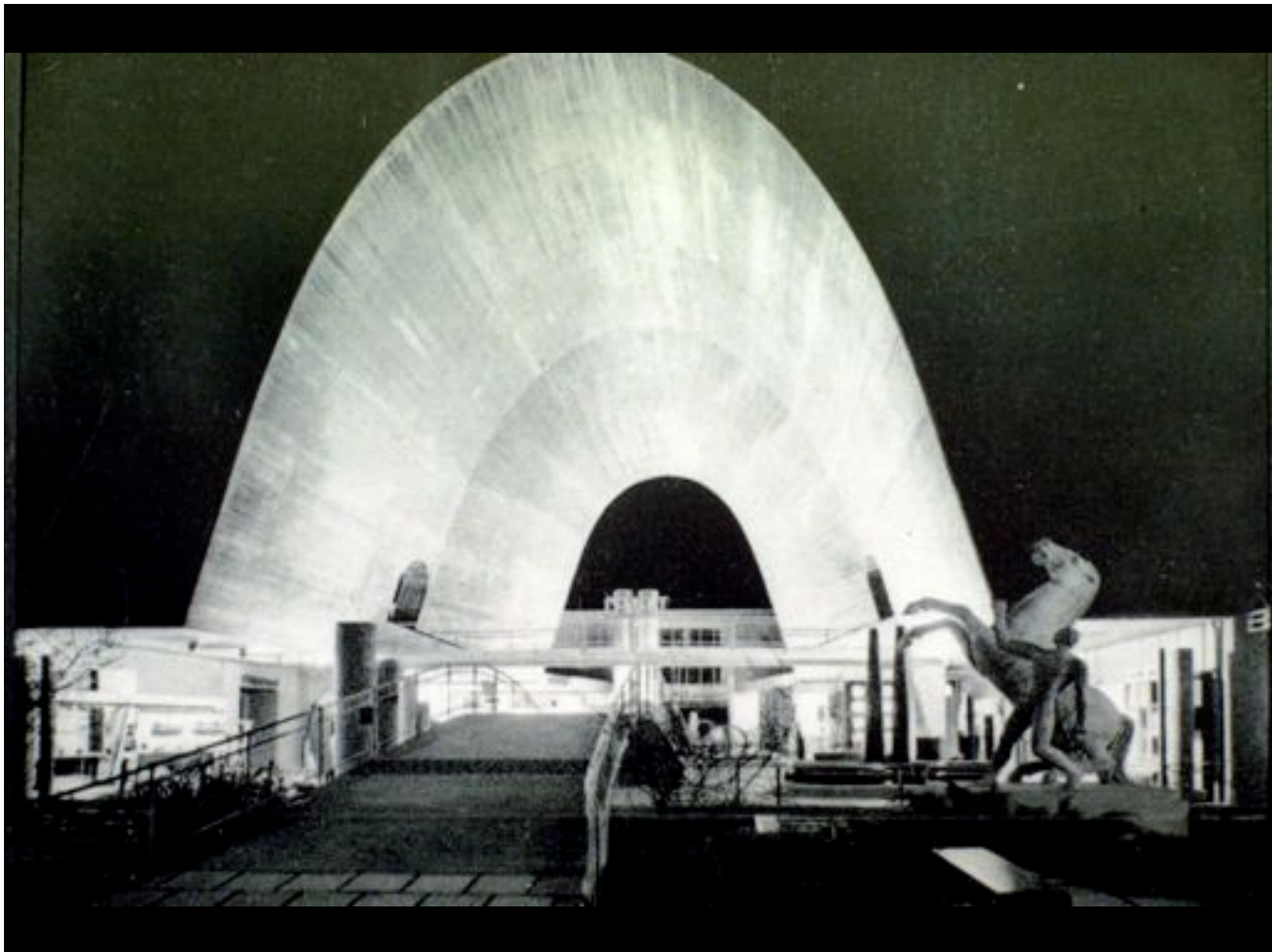










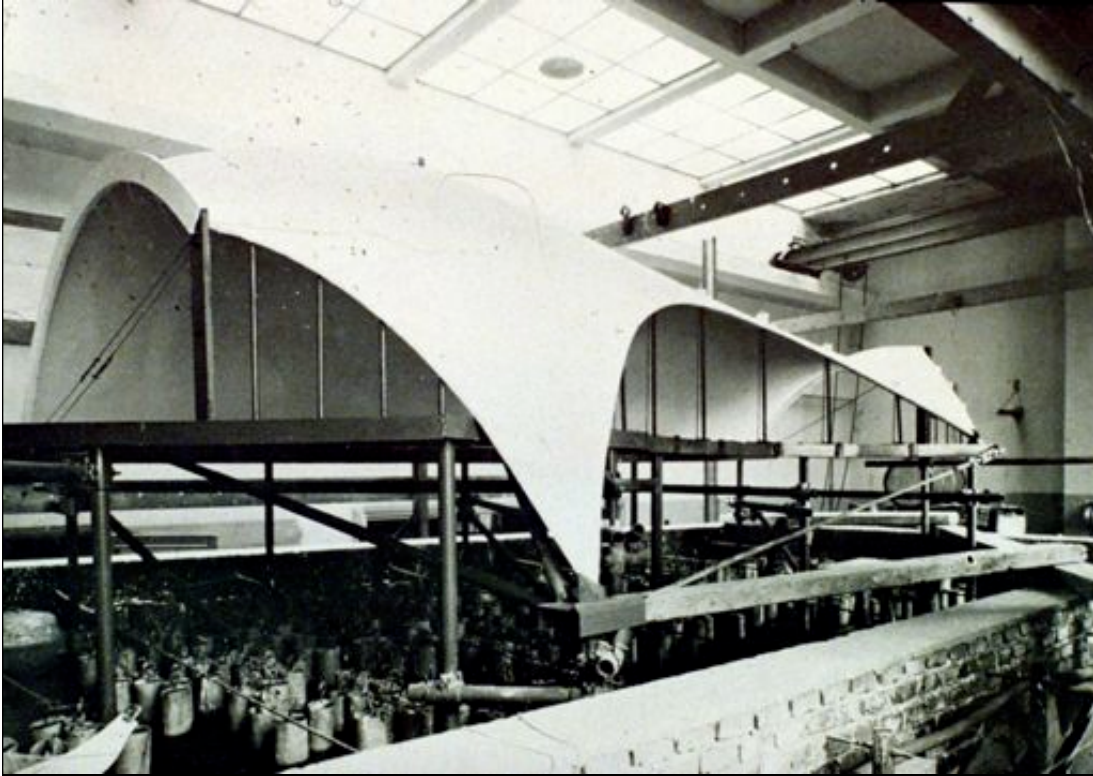




Cosmic Ray Lab (1951)
Felix Candela

Mexico City





Torroja's Lab



Pierre Lardy



Heinz Isler (1926-2009)

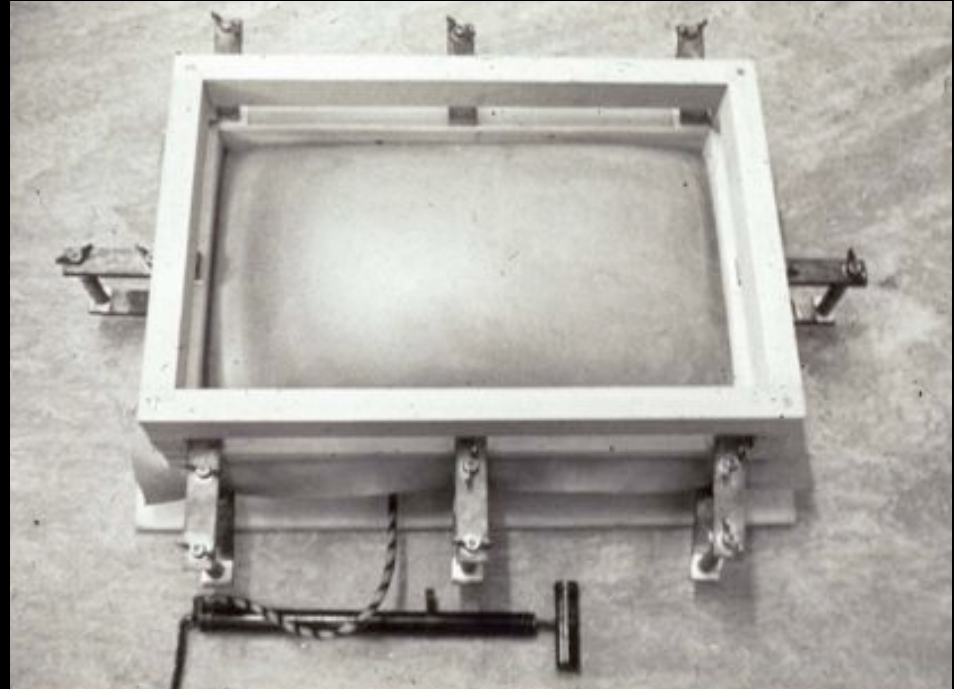
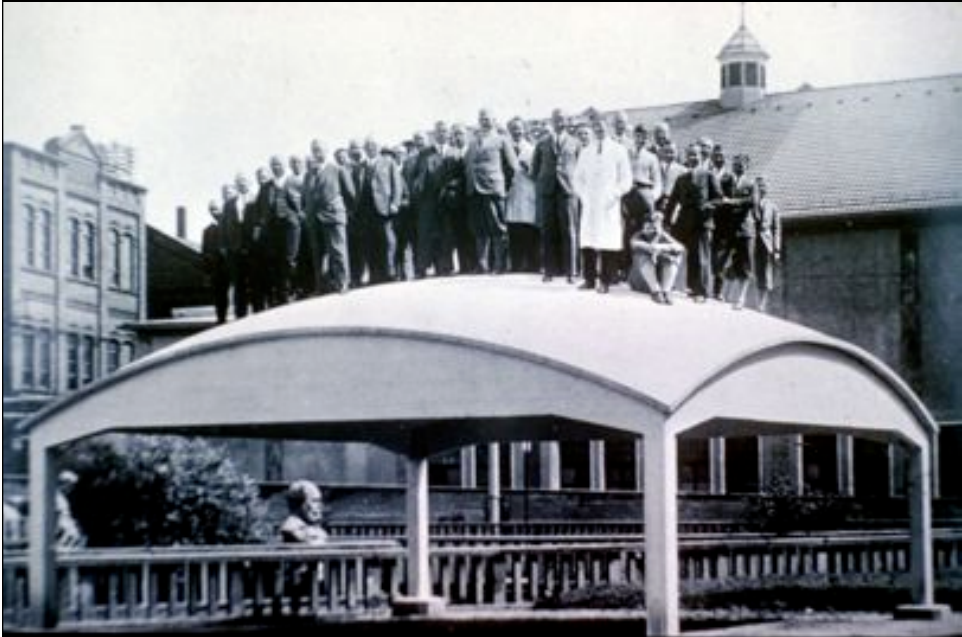


Schalenbau
System Isler Ing.
Burgdorf

Ausführung
W. Bösigler AG
Langenthal

**W.BÖSIGLER
AG**

Bauunternehmung Langenthal

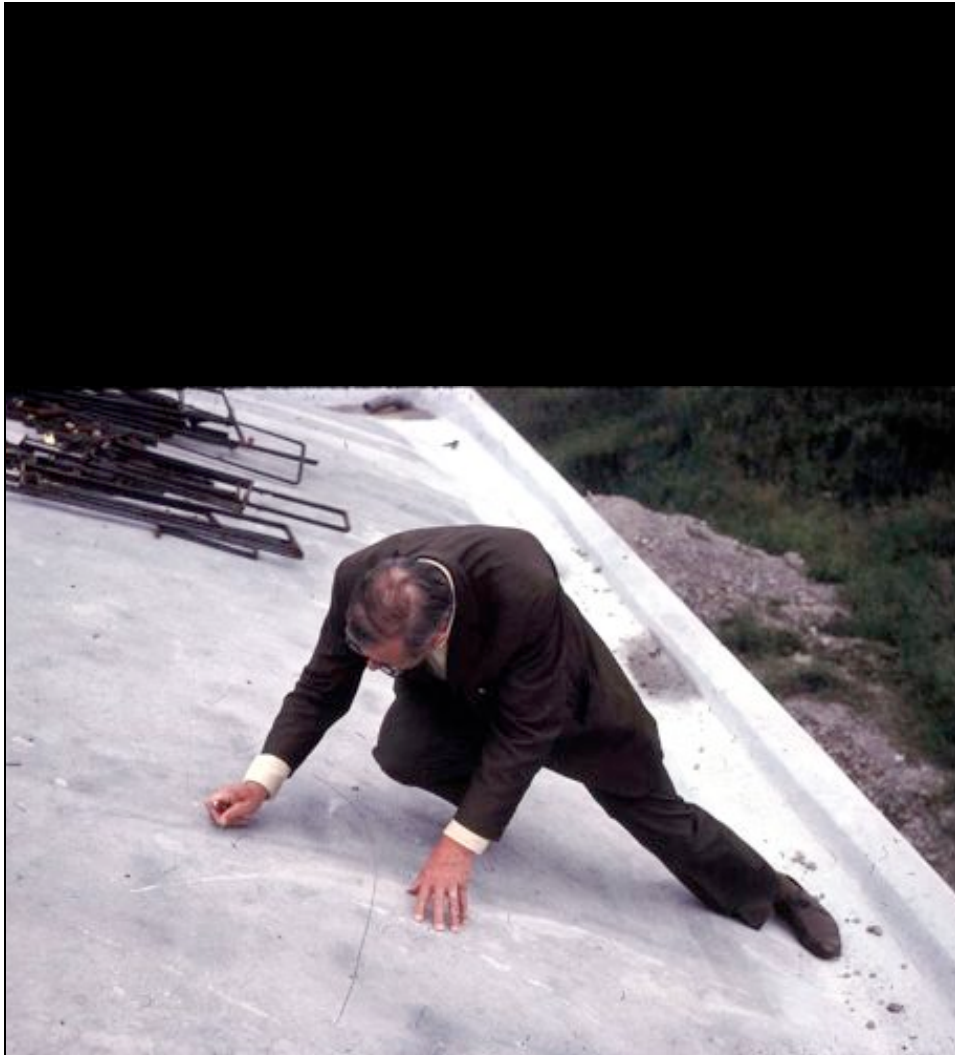






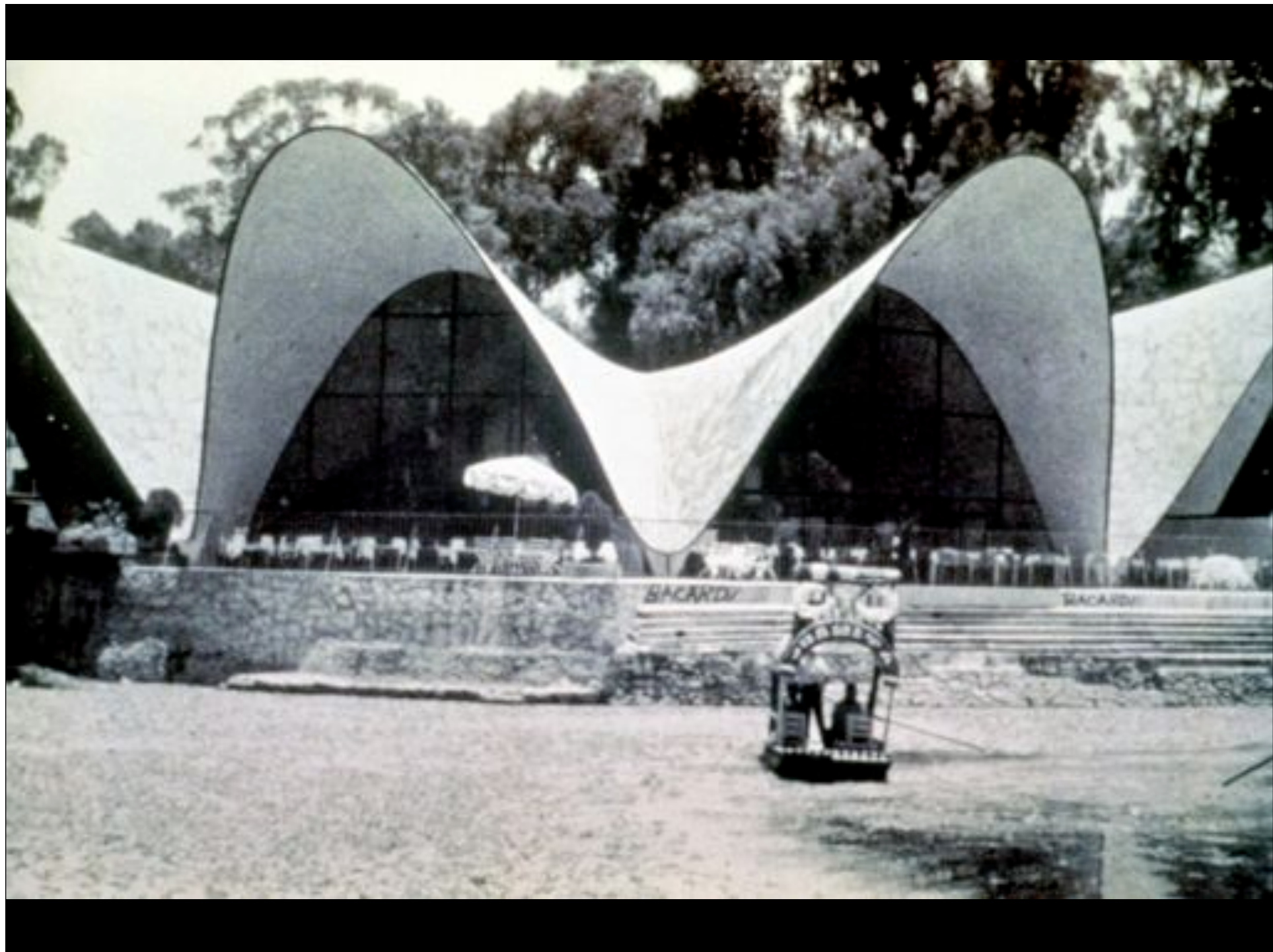
Eschmann Company Building (1958)
Heinz Isler

Switzerland











Wyss Garden Center (1961)
Heinz Isler

Switzerland



Kilcher Co. Building (1965)
Heinz Isler

26 m span, 8-10 cm thick
Switzerland



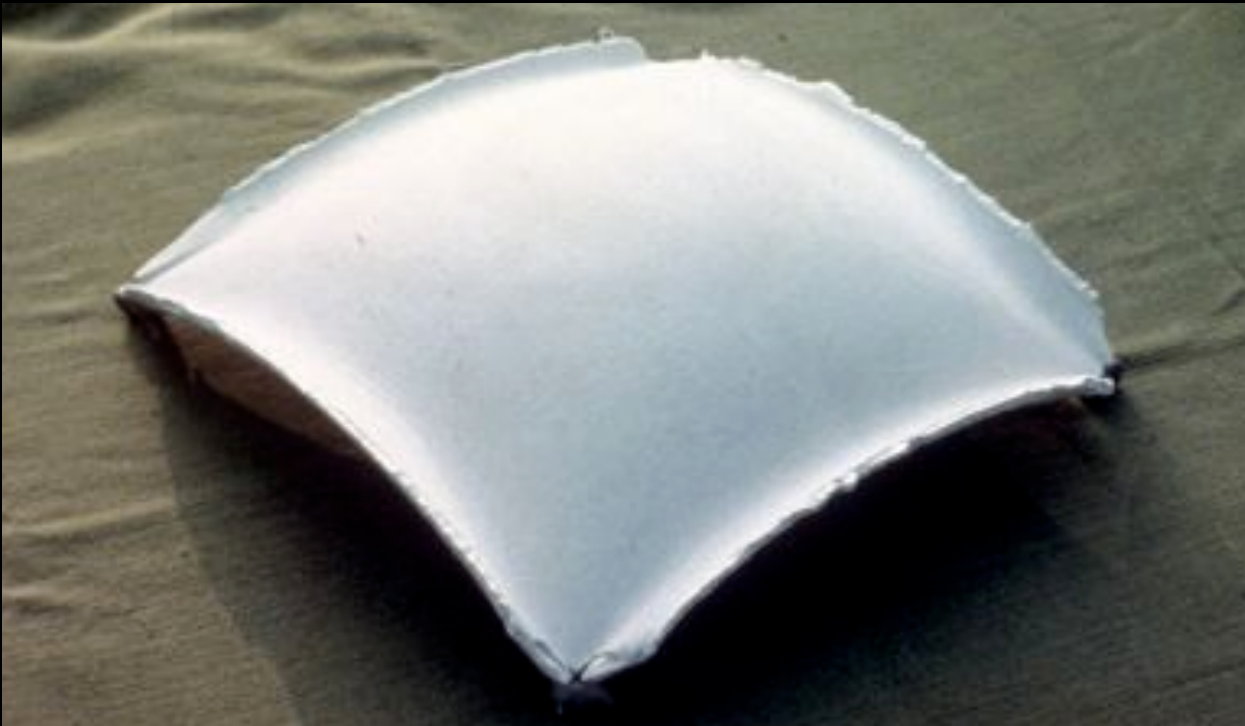








Tension



Compression







Grötzingen Theater (1977)
Heinz Isler

Switzerland



Grötzingen Theater (1977)
Heinz Isler

Switzerland





Deitingen Service Station (1968)
Heinz Isler

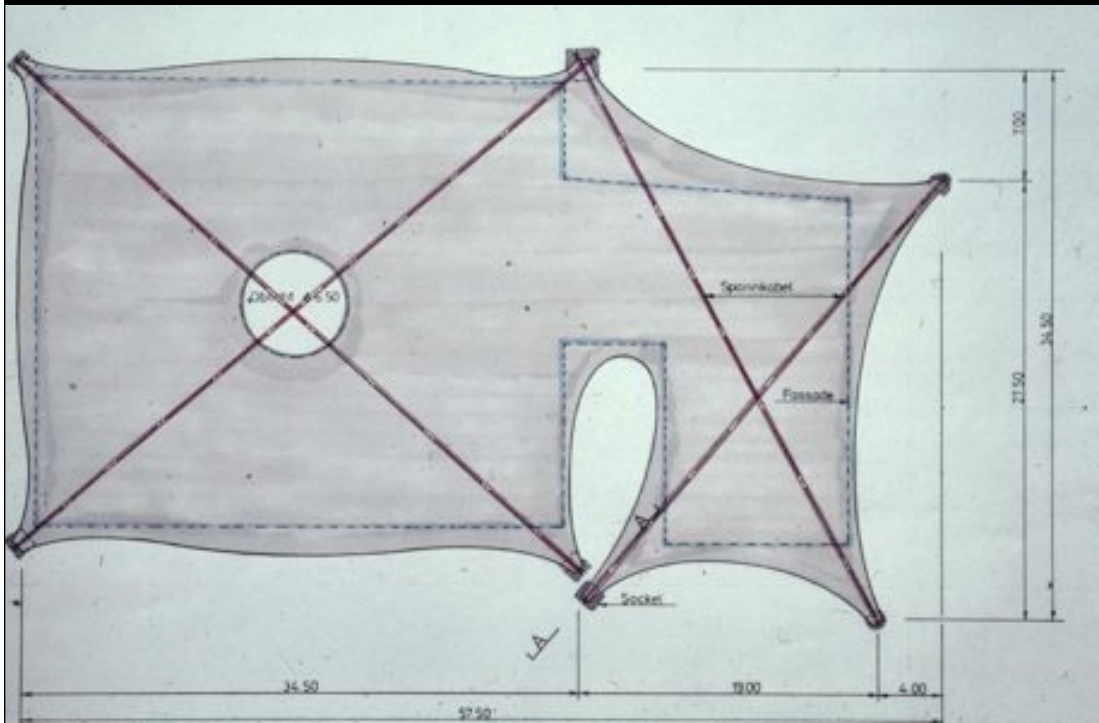
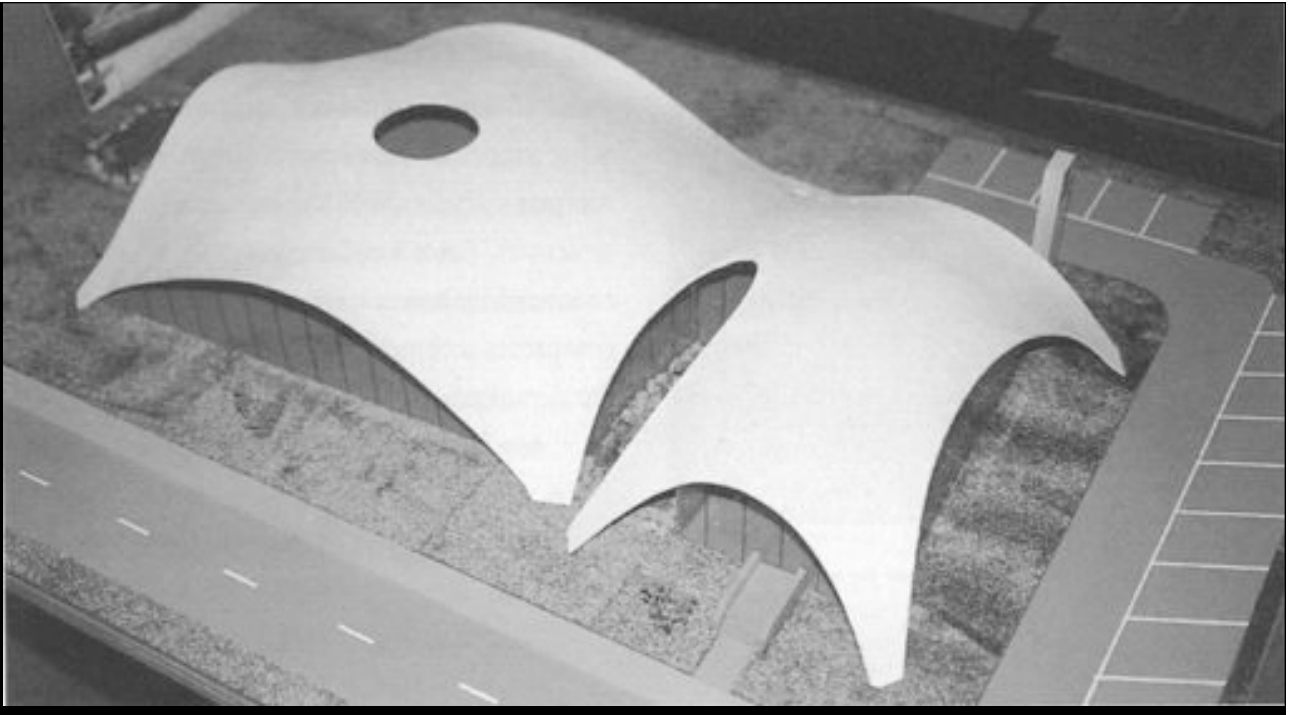
Switzerland



Sici Co. Building (1970)
Heinz Isler

Switzerland

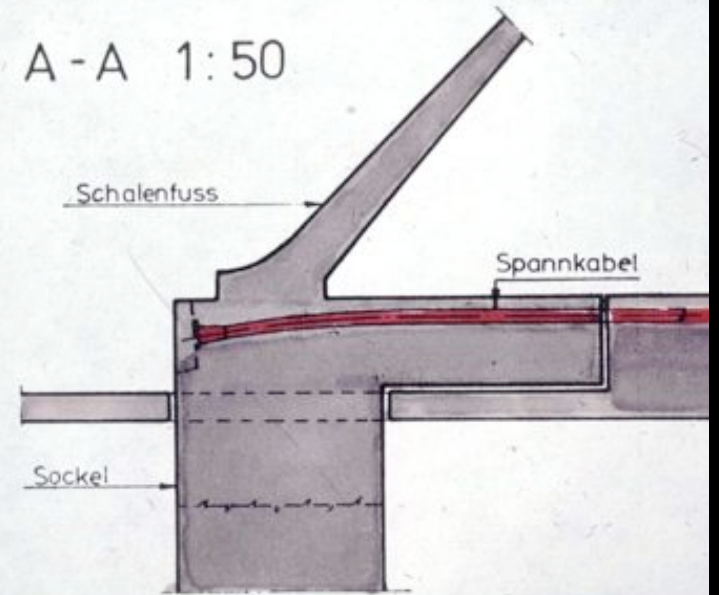








SCHNITT A - A 1:50









Heimberg Tennis Center (1973)
Heinz Isler

Switzerland



























Heinz Isler

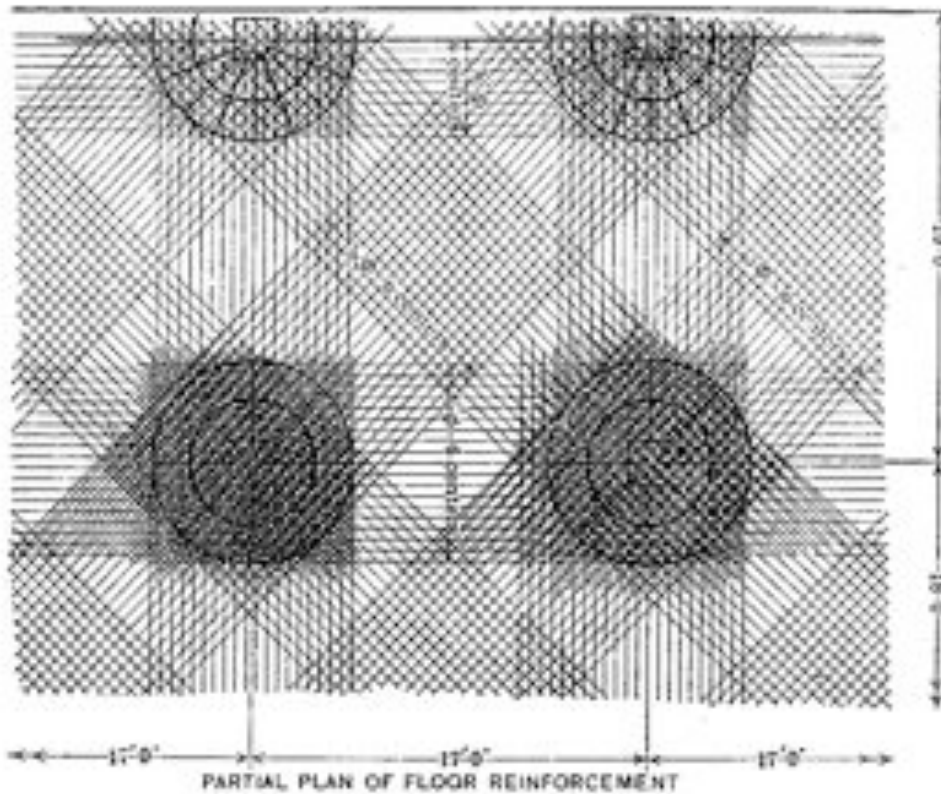
Christian Menn



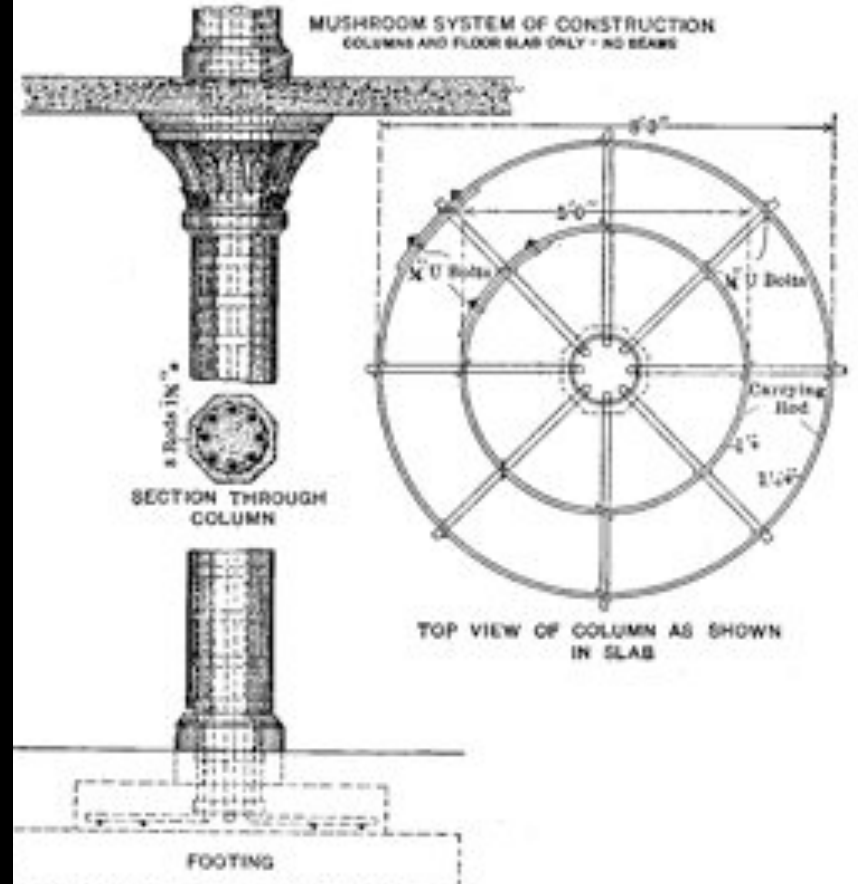




MUSHROOM SYSTEM OF CONSTRUCTION.
COLUMNS AND FLOOR SLAB ONLY - NO BEAMS.



MUSHROOM SYSTEM OF CONSTRUCTION
COLUMNS AND FLOOR SLAB ONLY - NO BEAMS



Flat Slab System of C.A.P. Turner (1905)



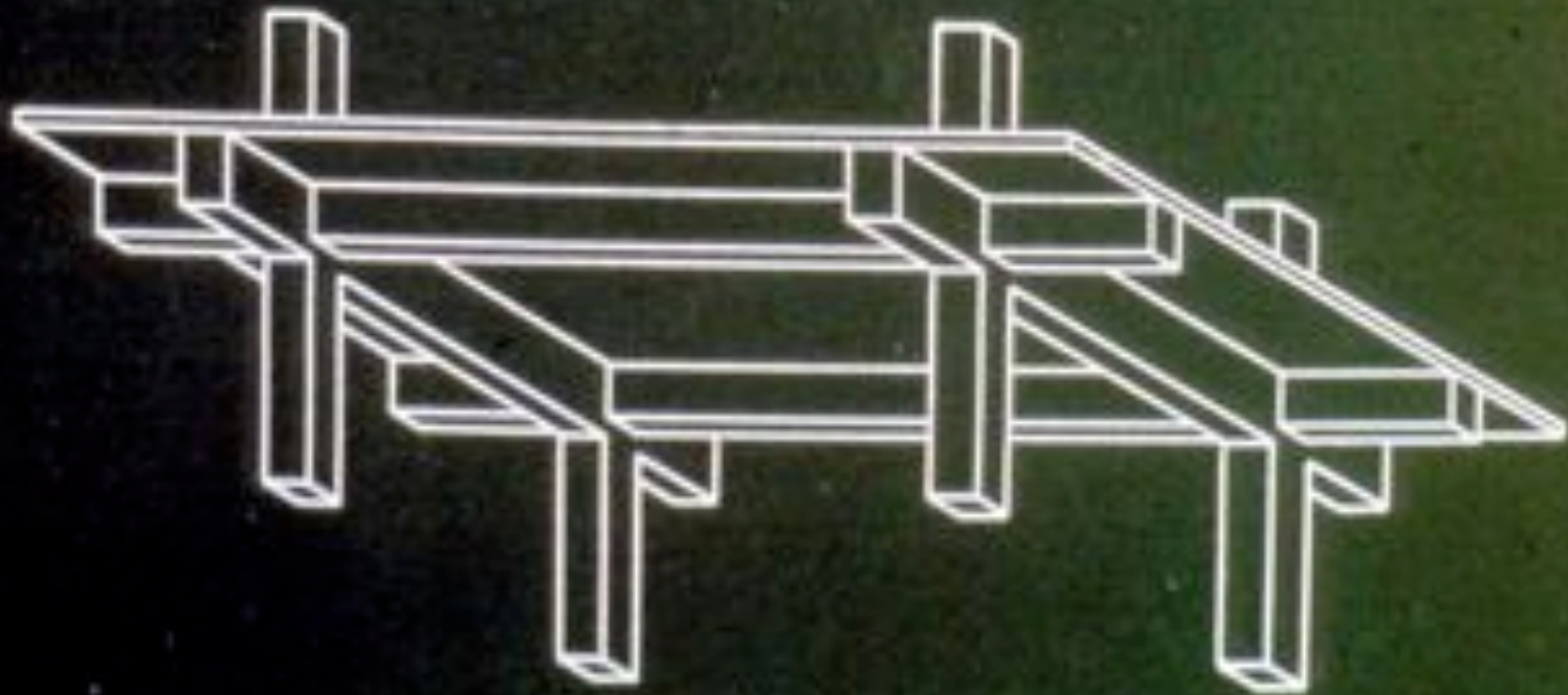


Fig. 3—The two-way slab