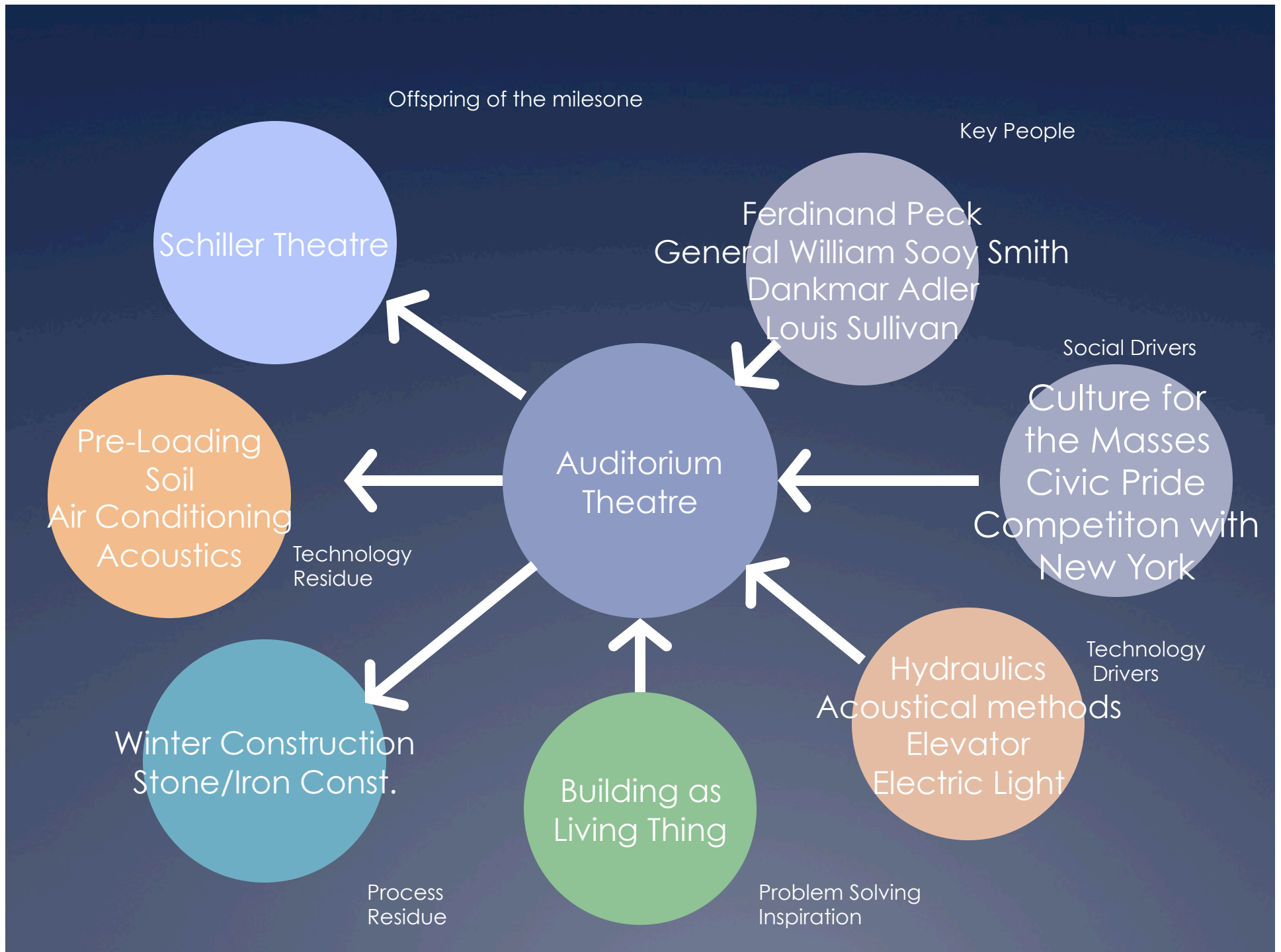


Making & Architecture

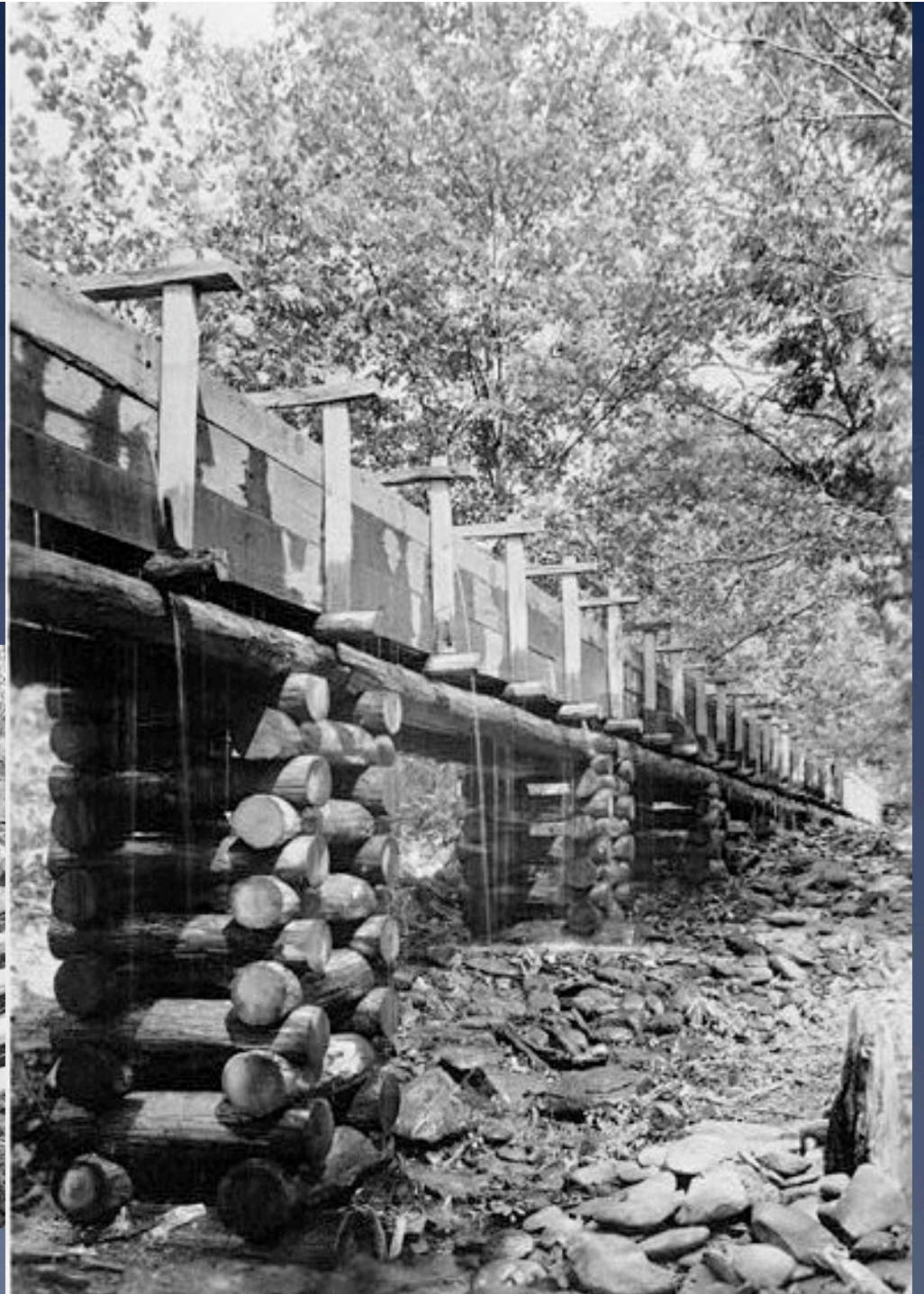
Fall 09 Michael OBrien, 326 Langford A,
mjobrien@tamu.edu, office hours by appointment



Old Simple Ways

- * Cribbing: a layered lattice of wood, concrete, steel, or stone
- * Stacking: a layered assembly of stone, wood, steel or concrete
- * Lofting: Constructing a number of longitudinal curves to blend a set of previously defined cross-sections in order to represent a surface (see blend). The term originates from the days of manual ship design: traditionally these curves were drawn full size; the drawings were too large to handle and lay out conveniently in the drawing office and were therefore stored and dealt with in large attics, called lofts.
- * The super-truss: a room-height structural member effectively becoming the enclosing walls of a space allowing for significant spans due to its extreme depth
- * What are the potentials?
- * What architects employ these?

Cribbing



Cribbed Sluice supports Cades Cove Mill, Smokey Mtns.

Stacking



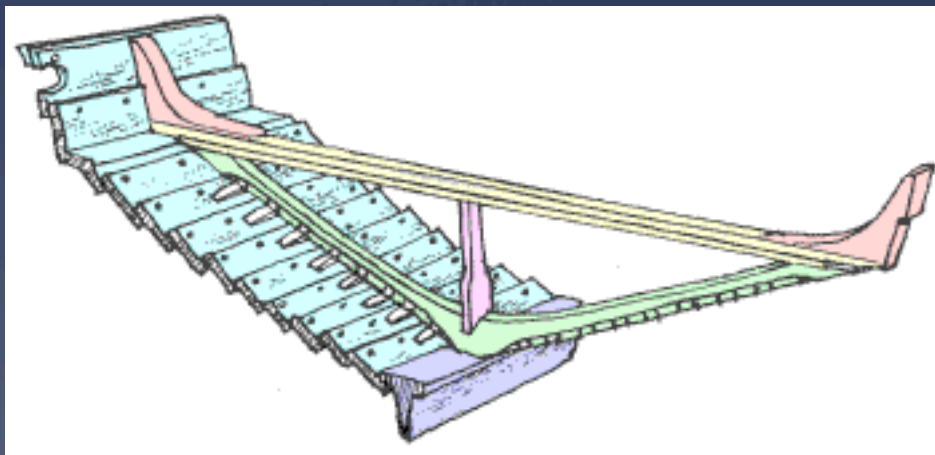
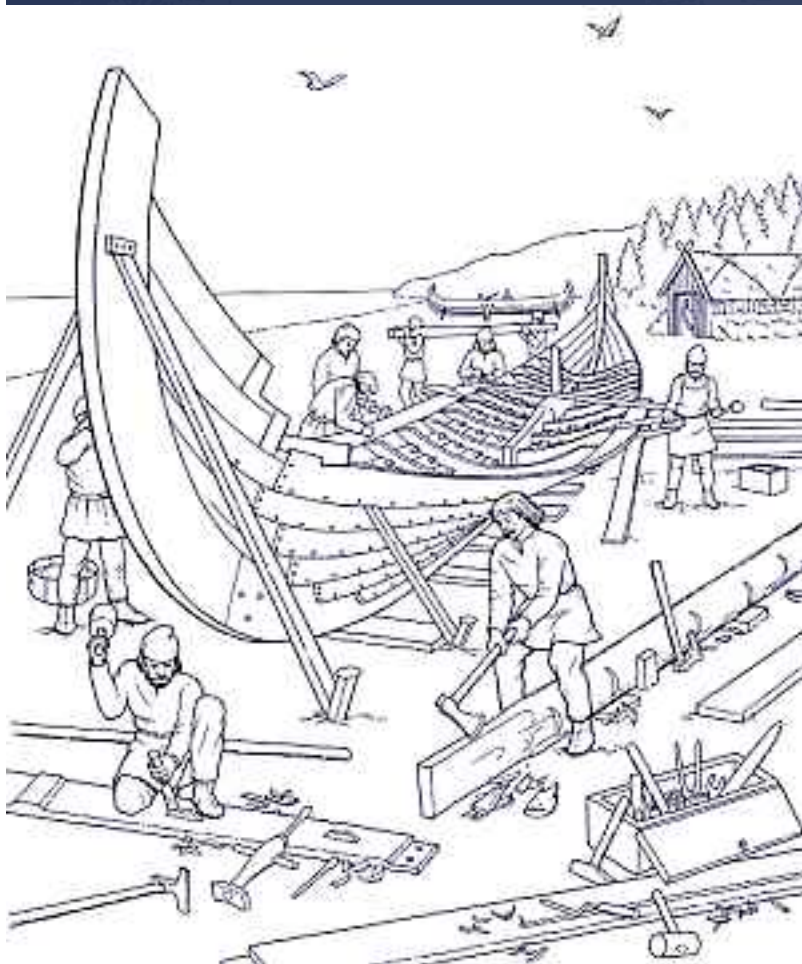


Cathedral at Beauvais

- Effectively “stacked” stone (mortar is a means of placing more than an adhesive)
- Stacked up to 153 meters at one time (500 feet!)...until it collapsed...the taller the stack the more precise it must be (now just under 100')



Lofting



George Buehler & Reg Townsend
Scale: 1/2" = 1' 4/93

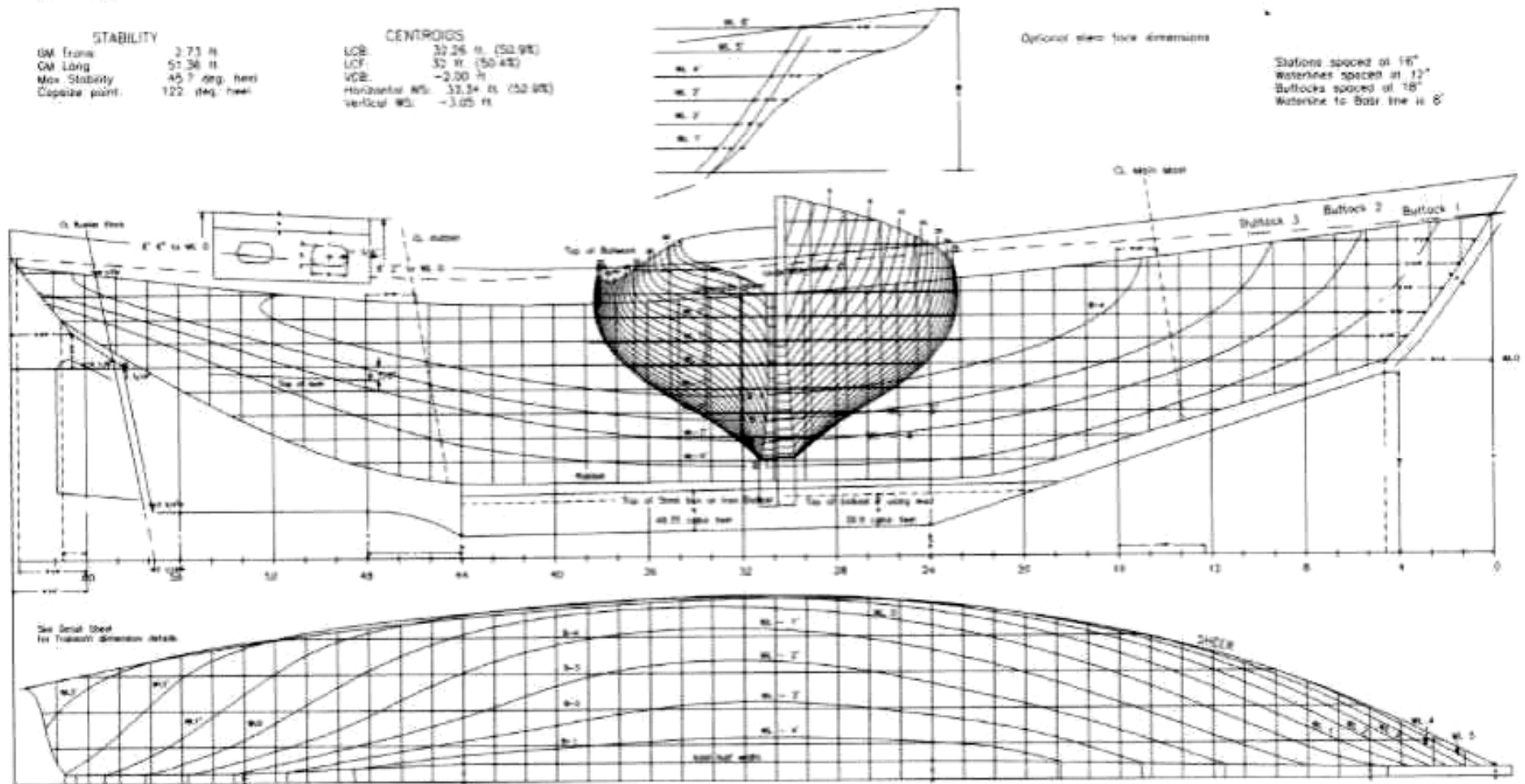
PARTICULARS	RACOS	COEFFICIENTS	WATERPLAN
LOD: 63' 10-1/8"	Length/Breadth: 3.77	Prismatic: .54	Area: 500 sq. ft.
LBP: 62' 10-9/16"	Length/Depth: 7.68	Block: .231	LCA: 31.96
LWL: 54' 4-9/16"	Breadth/Depth: 2.036	Wetted Surface: 867 sq. ft.	
Beam: 15' 5-5/16"	Gap/Length: .238		
Beam WL: 14' 4-3/4"	Lbs./inch: 2678		
Drift (loaded): 7' 0-3/4"			

STABILITY	
GM Trans:	3.71 ft.
GM Long:	51.36 ft.
Max. Stability:	45.7 deg. heel
Capsize point:	122 deg. heel

CENTROIDS	
LCB:	30.26 ft. (50.9%)
LCF:	32 ft. (50.4%)
VCB:	-3.00 ft.
Horizontal WL:	33.34 ft. (52.9%)
Vertical WL:	-3.05 ft.

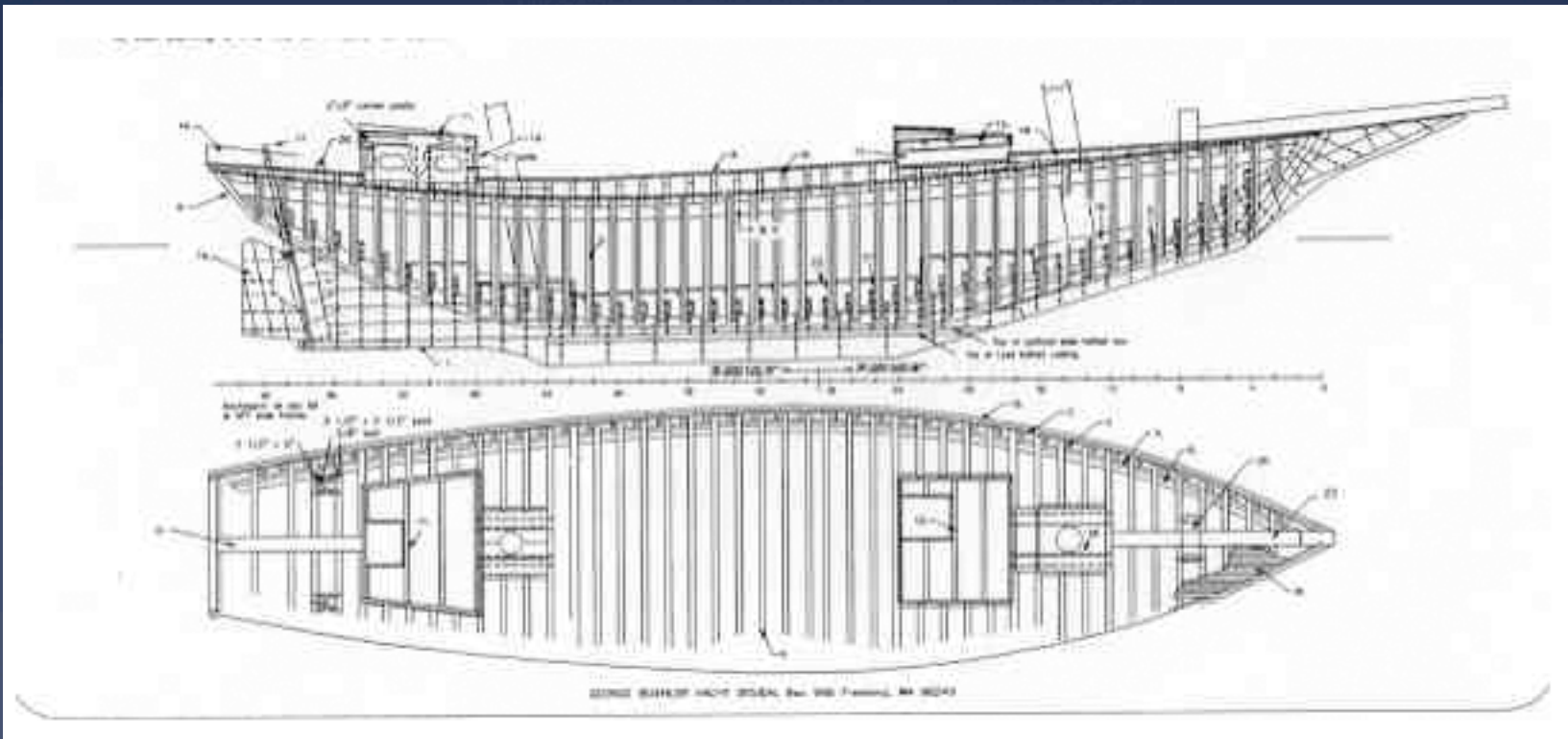
Optional stem-tack dimensions

Stations spaced at 16"
Waterlines spaced at 12"
Butlocks spaced at 18"
Waterline to Baseline is 8"

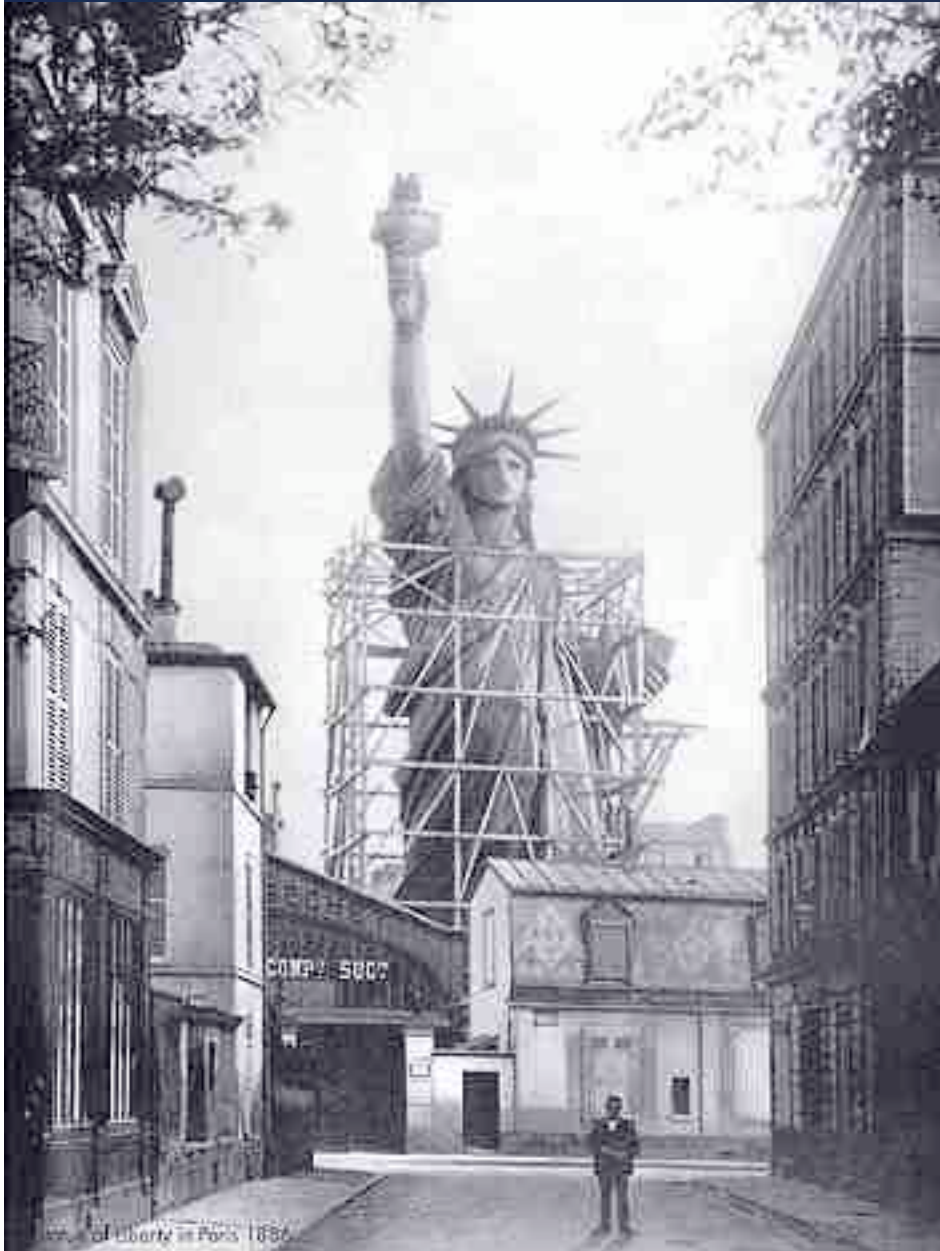


GEORGE BUEHLER YACHT DESIGN, Box 966 Freeland, WA 98249

Form of the hull translated into lines with overlaid grid and contour lines



Forms translate to lines
Lines translate to structural ribs
Planking skins ribs making surface



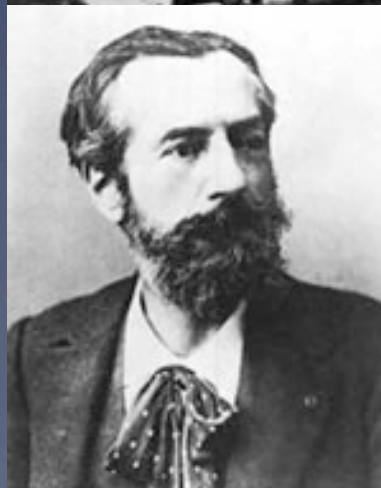
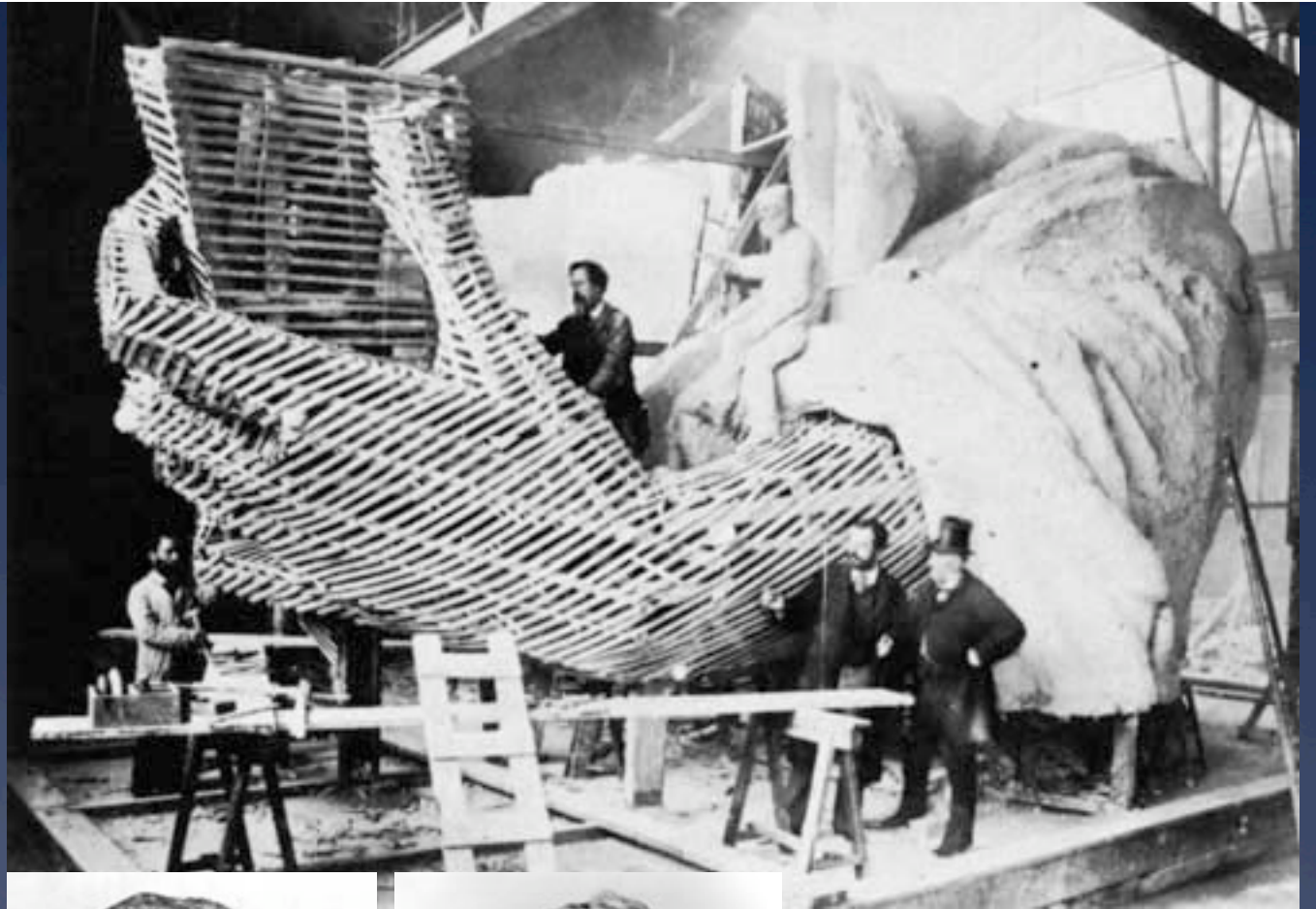
Adapting boat building for art:

Sculptor uses grid to scale up from model to monument

- 4 foot model
- 9.3 foot model
- 36 foot model (cut into parts to scale up 4 times) 151 feet tall

Formwork in process

Building a wood
armature to carry a
plaster model (full-
size) to form copper
over



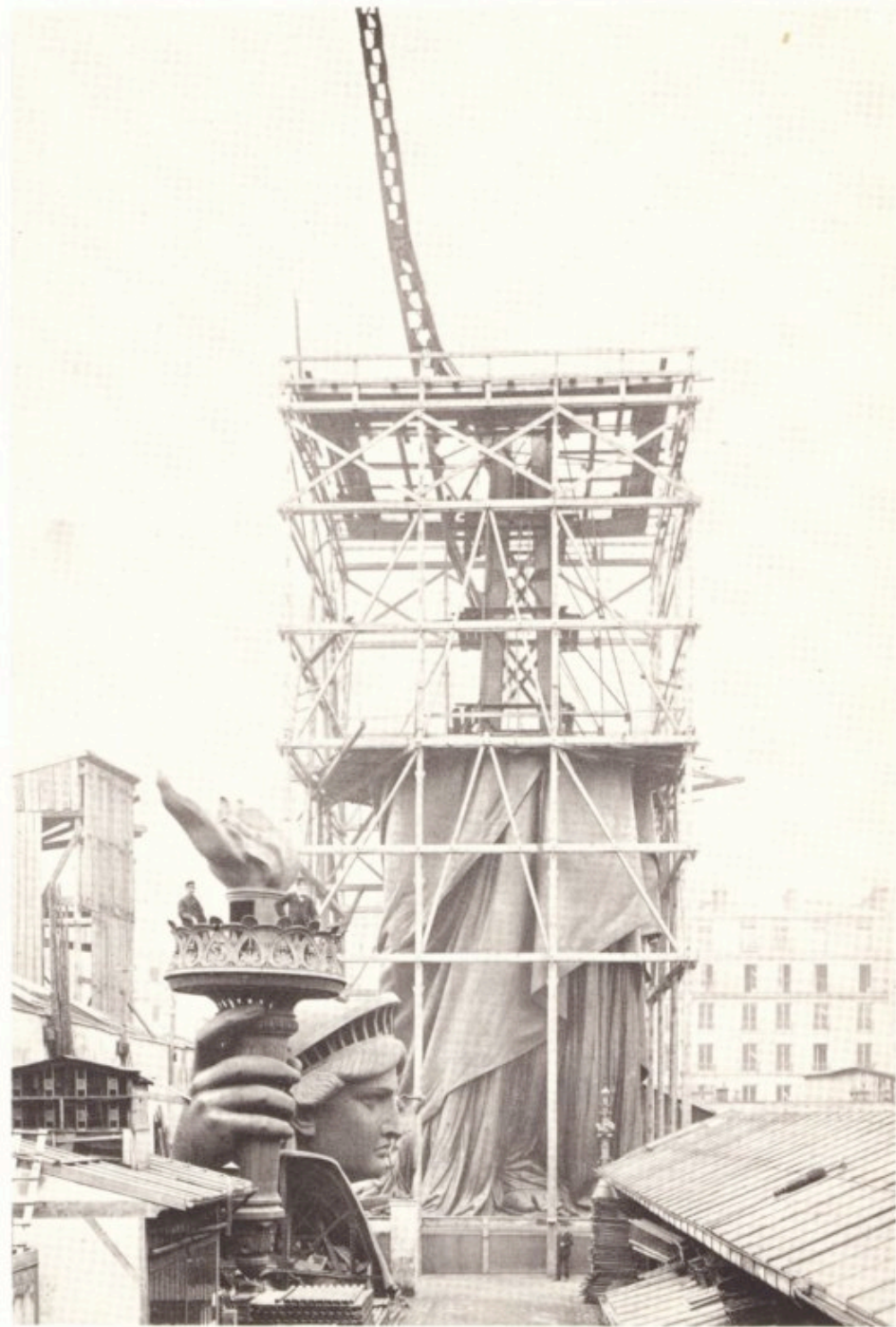
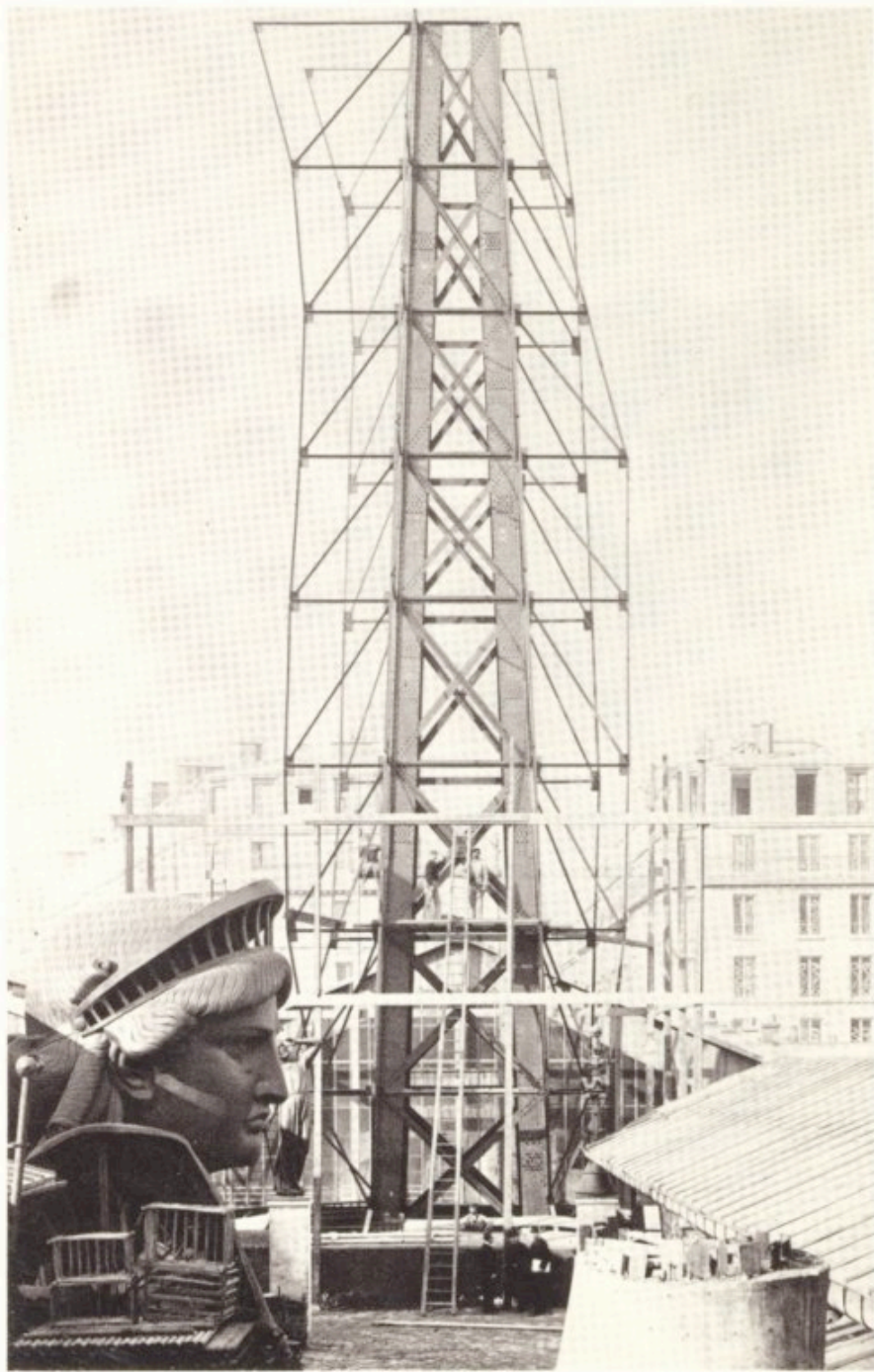
Frédéric Bartholdi



Gustave Eiffel

Bartholdi & Eiffel,
partners in the art
and science of
Liberty







Between the expressive skin and
rational structure...a space of
adjustment





Room as structure: The Burr Arch



Ithiel Towne's Lattice Truss

