Treatises and Technical Texts on Shipbuilding

02.01 Taxonomies – Part 1

Filipe Castro
Last edited: June 2020
This course is an overview of a number of western texts and treatises on shipbuilding. It stems from a elective class I originally taught in the Nautical Archaeology Program at Texas A&M University.

Some of the slides are original, some were taken from students’ case studies, and some are new.

I expect these presentations to improve and change, and I welcome any input.
This class is organized by countries and chronologically. The first presentations are an introduction to the theme.

http://blog.douglasbrooksboatbuilding.com/2018/
Introduction

Taxonomies:
Dick Steffy,
Eric Rieth,
Sean McGrail,
C. Hasslöf,
Lucien Bash,
Fred Hocker,
Basil Greenhill,
Patrice Pomey, and
Piero Dell’Amico.
A. J. Richard Steffy
Cargo carriers, warships, fishing craft, utility craft.

B. Sean McGrail
Floats, Rafts, Boats;

C. Eric Rieth
Floats, Rafts, Boats (dugouts, extended dugouts, assembled craft);

D. Hasslöf / Lucien Bash
Shell-first, skeleton-first, things in between;
Taxonomies

E. Lucien Bash / Fred Hocker
Shell-first, skeleton-first, Bottom-first;

F. Basil Greenhill
Rafts, Skin boats, Bark boats, Dugouts

G. Patrice Pomey
Conception, Structural Principle, Construction Sequence;

H. Piero Dell’Amico
Oral tradition, Partially geometric methods, Geometric methods.
Dick Steffy

1. Cargo carriers,
2. Warships,
3. Fishing craft,
4. Utility craft.

https://news.usni.org/2015/01/30/unique-ships-u-s-navy
1. Cargo carriers: boxes, the ends are the price one has to pay to sail them; size is the most important feature; there are many trade offs (Venetian great galleys).
2. Warships: gun platforms, stability, sturdiness, speed, maneuverability.
3. Fishing craft: adaptation to the fishing techniques; as many examples as fishing communities.
Irish *curach*
Log catamaran from the Solomon Islands boat:
Ambatch canoe from Kenya:
Bengal Boat:
1. Floats
2. Rafts
3. Boats

https://www.caymancompass.com/2015/01/19/surfers-tell-of-cuban-migrants-rescue/
Bouyancy applied:

Bouyancy applied:

2. Indirectly:

2.1. From individual elements: Rafts
Bouyancy applied:

2. Indirectly:

2.1. From individual elements: Rafts
Bouyancy applied:

2. Indirectly:

2.2. From whole vessel (hollow): Boats.

2.2.1. Watertight shell;

Figure 8.3  Half-section of a clinker-built boat showing how the required section is obtained by varying the angle of bevel along the upper (and sometimes lower) edge of the planking. After McKee, 1983.
Bouyancy applied:

2. Indirectly:

2.2. From whole vessel (hollow): Boats.

2.2.2. Water-proofed frame.
Planking:

Edge-joining
1. Floats,
2. Rafts,
3. Boats:
   3.1. Dugouts,
   3.2. Extended dugouts,
   3.3. Assembled craft.

1. Floats
1. Floats

Ox-Hide
Ravi River
Kashmir
1. Floats
Tandem floats, India

Inverted pots

Tin cans
2. Rafts

http://blog.douglasbrooksboatbuilding.com/2018/
3. Boats:
   3.1. Dugouts,
3. Boats:
   3.2. Extended dugouts,
3. Boats:
   3.2. Extended dugouts,
3. Boats:
   3.2. Extended dugouts,
3. Boats:
   3.2. Extended dugouts,
3. Boats:
   3.3. Assembled craft.
3. Boats:

3.3. Assembled craft.
Hasslöf / Bash:
1. Shell-first (based) vessels
2. Frame-first (based) vessels
3. Things in between...

Hasslöf’s* taxonomy (structure):
1. Shell-first (based) vessels
2. Frame-first (based) vessels
3. Bottom-first (based) vessels

* and Lucien Bash, and Fred Hocker.

1. Shell-based vessels
1. Shell-based vessels (laced or sewn).
1. Shell-based vessels (mortise and tenon joints);
1. Shell-based vessels (lapstrake)
1. Shell-based vessels (clinker)
1. Shell-based vessels (flush laid: the bottoms of bottom-based vessels are shell-based);
2. Frame-based vessels
Frames’ shapes must be determined in advance.
3. Bottom based vessels
3. Bottom based vessels

https://www.maritiem-erfgoed.nl/blog/studenten-maken-digitaal-3d-model-17e-eeuws-schip-online-toegankelijk
Ab Hoving

https://www.maritiem-erfgoed.nl/blog/studenten-maken-digitaal-3d-model-17e-eeuws-schip-online-toegankelijk

Construction sequence of a bottom-based ship.
3. Bottom based vessels
3. Bottom based vessels:

Bottoms with raised sides.
Mixed construction:
Ship of the Bourse de Marseille

J. M. Gassend proposed the following construction sequence:
On dispose les demi-coules D qui s'appuient sur les voiles précédentes.

Viroirs et membrures sont arrondies au moyen de gourmates.

1. On dispose les varengues C en s'appuyant sur les voiles précédentes.

2. On dispose le troisième voile de bordage suivantes. Les varengues C servent de galérier.

3. Toutes les chambres de bordage sont enfoncées de l'intérieur, à l'exception de celles tombant à l'aplomb des varengues C, qui sont alors enfoncées de l'extérieur.
The last three taxonomies are presented in the next powerpoint.

http://www.asergeev.com/pictures/k/Qatar_traditional_boats.htm