Research and reconstruction of Wooden Ships

02.02 Lines Drawings II

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Lines drawings are a method to create a 2D representation of a 3D object.

Conventions:
1. Bow always represented to the left;
2. Plans called Sheer, Body and Half-Breath;
3. Sections named A, B, C, etc., to the bow and 1, 2, 3, etc. to the stern;
4. Midship section marked with the symbol ☢️.
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In this phase of your learning curve it is best to make the midship section the lowest and widest point of the caprail (or sheer) line.
Last slide from the previous class: we have seen in 02.01. that once we have defined the keel, posts, sheer, and sections of a vessel, the following process is to fair the lines, and that this is done by sectioning it longitudinally, in horizontal parallel planes (waterlines), and in vertical parallel planes (buttock lines).
Tracing the waterlines. For the purpose of this class we will trace two waterlines and consider the upper one the load water line, which for this exercise is parallel to the plane that contains the keel.
A good rule of thumb is to place the load waterline at about 3/5 of the height of the caprail over the upper surface of the keel (base line) and place waterline 2 halfway, so that they are equidistant. Waterlines are lines in the body and sheer plans.
The next step is to trace the waterlines on the half-breath plan and fair them through an iterative process, which entails going back and changing the section lines in order to obtain a smoother hull surface. The first step is to plot the points where the waterline starts and ends on the posts: points v and u.
The way to trace the waterlines on the half-breath plan is by measuring offsets along the waterline planes on each section. We will trace the load waterline first.
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The buttock lines appear as straight lines on the body and half-breath plans, and must be traced on the sheer plan.
The second step is to mark the points where the buttock planes hit the lower hull on the midship section:
The third step is to mark the points where the buttock planes hit the waterlines:
The forth step is to mark the points where the buttock planes hit the sections:
The fifth step is to fair the buttock lines through an iterative process, going back to the waterlines, then the sections, until the ship lines are fair.
In the next class we will look at diagonals and basic hull calculations.