

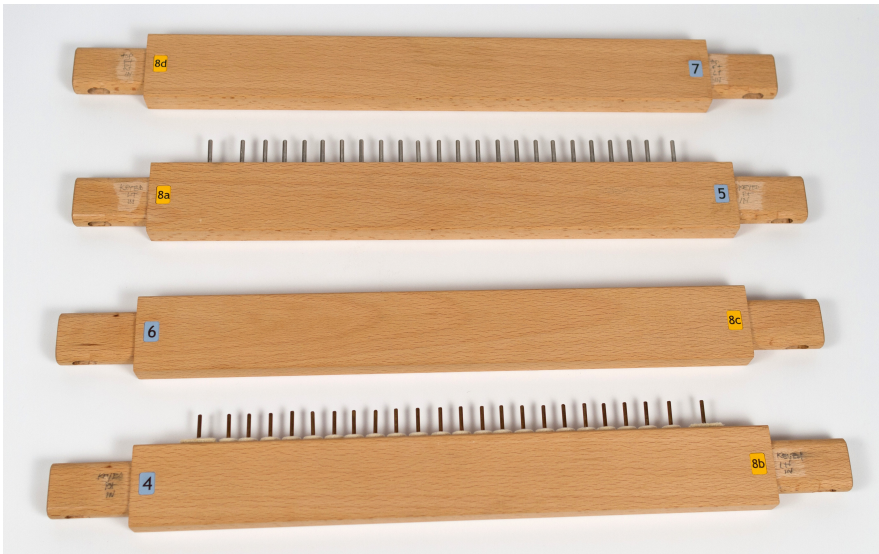
The first step in assembling the organ is constructing the **frame**.

1. What you will need:



- Left Side of Frame (**YELLOW**):
 - 2 left legs
 - 2 side rails (upper & lower)

- Right Side of Frame (**BLUE**):
 - 2 left legs
 - 2 side rails (upper & lower)



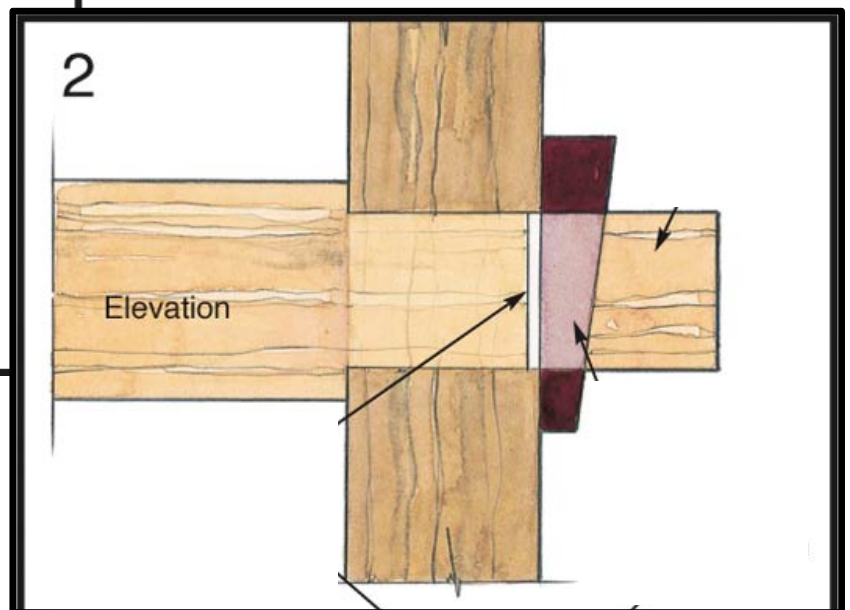
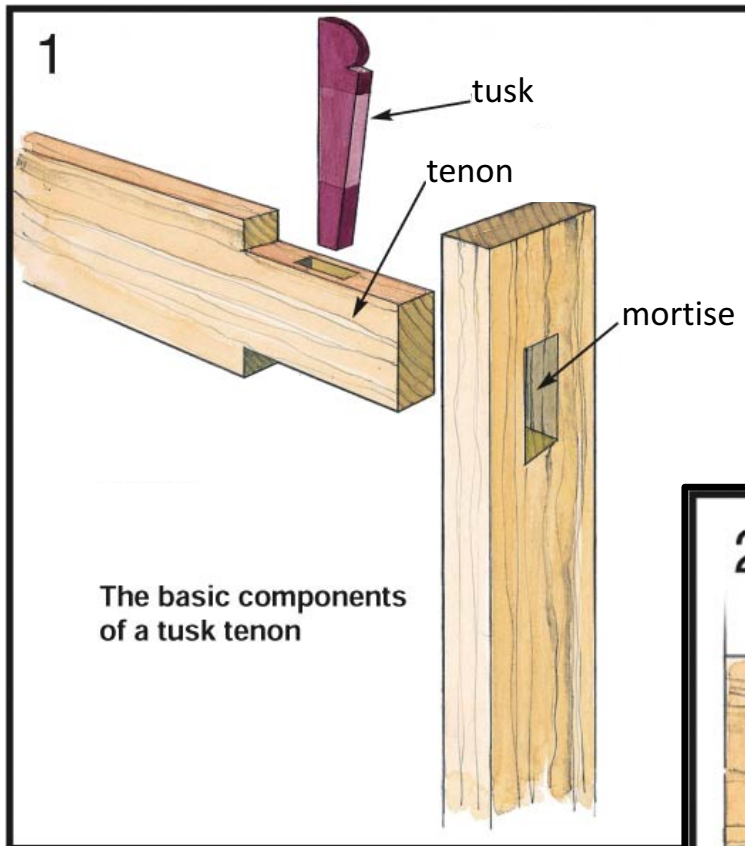
- Bag containing 18 tusks (16 tusks + 2 extra)

- Two top rails (front & back)
- Two lower rails for keyboard

2. What you will need to know:

You will be using an ancient woodworking technique to join 2 pieces of wood without nails, screws or glue: the **tusk tenon joint**.

- tenon: (ten-nun) a projecting piece of wood made to insert into a mortise
- mortise: (more-tiss) a hole or recess cut into a part, designed to receive a corresponding projection (a tenon) on another part so as to join or lock the parts together



There is archaeological evidence of people using the tusk tenon joint
7,000 years ago! That's some *ancient* engineering!

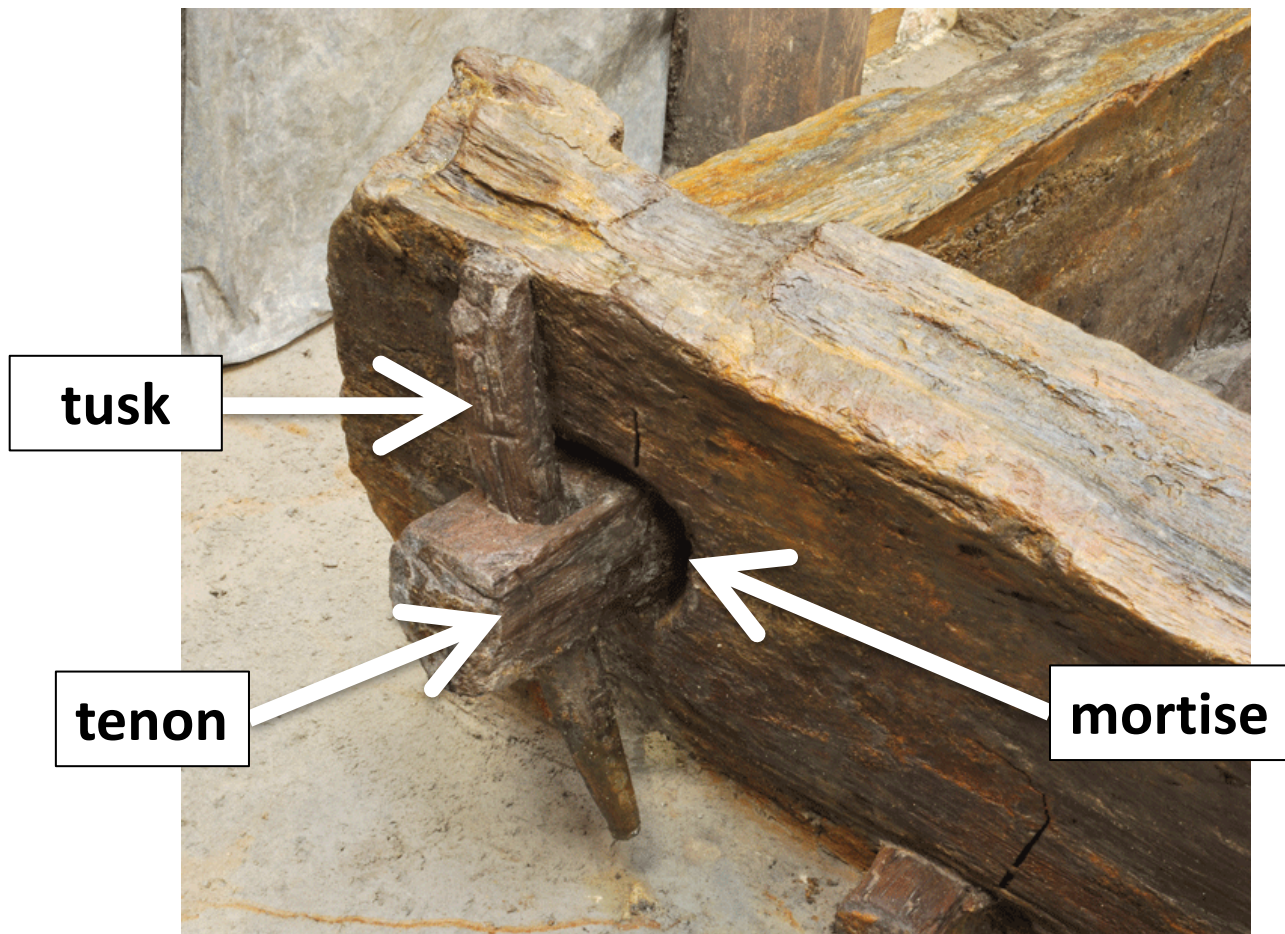
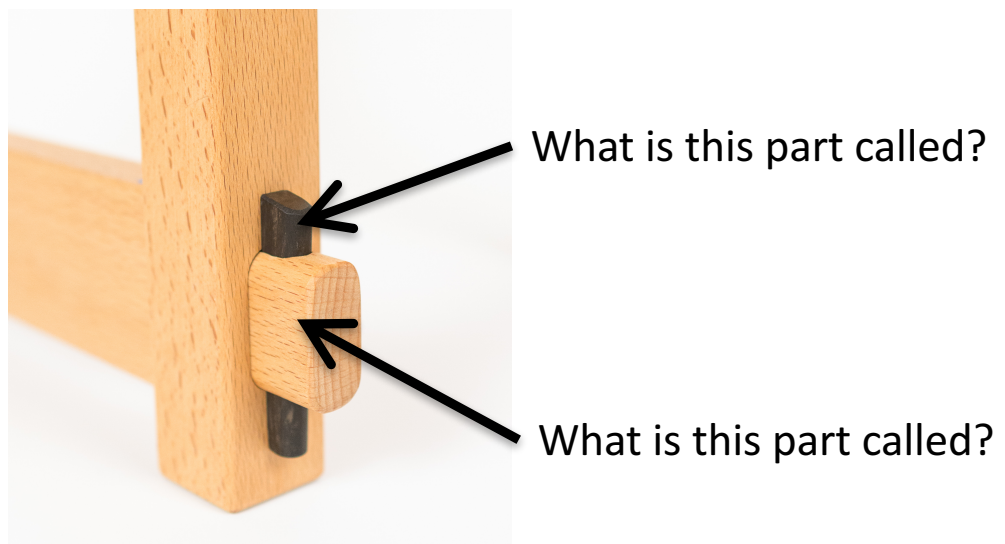
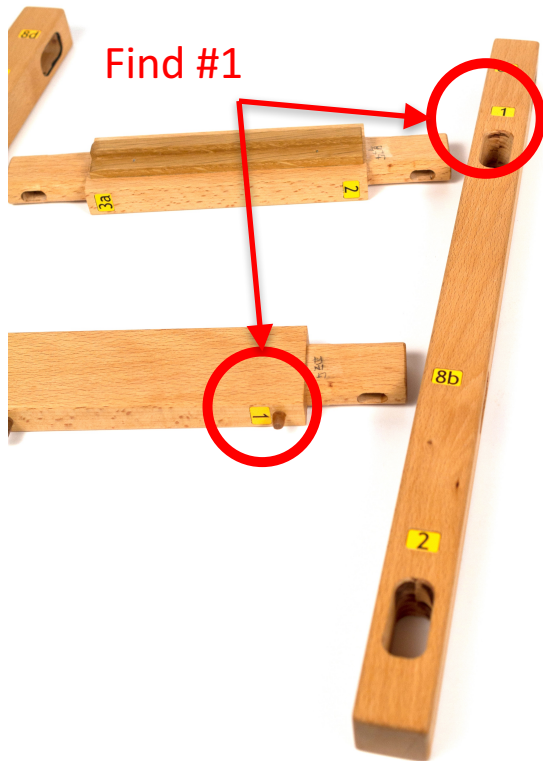


Image from: Landesamt für Archäologie Sachsen

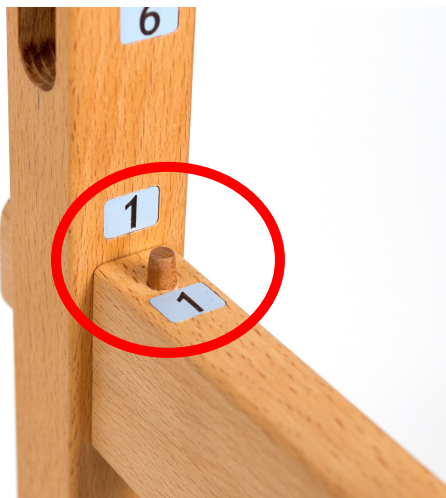
Compare that 7,000 year old joint above
to the joint you will construct today:



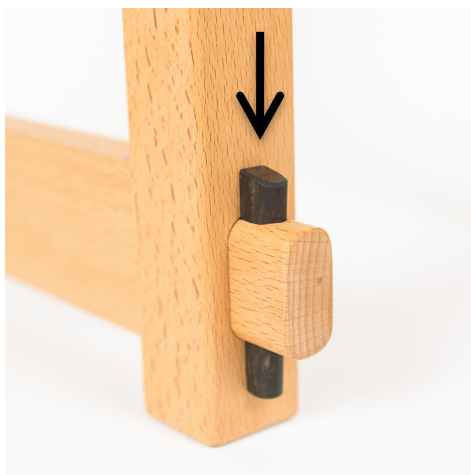
3. How to proceed:



- Assemble the SIDES of the frames first.
 - Divide into 2 groups:
 - 1 group assemble the **BLUE** side,
 - 1 group assemble the **YELLOW** side
- Find the NUMBERS near the mortises and tenons
- Insert the tenons into their corresponding mortises
 - **Start with #1** and **go in order**
 - Numbers like 3a, 3b need to be inserted at the same time



- Verify that the numbers on each part of the joint match and are **side by side**



- Insert the tusks to lock each joint in place.
- Make sure to insert the tusk **from above** when the frame is upright



- Once the **BLUE** and **YELLOW** frame sides are assembled, you are ready to join them with the 4 front and back rails.



- Lay the **BLUE** side of the frame **FLAT** on the table



- Match & insert the rails with their corresponding mortises (**#s 4, 5, 6, 7**)



- Lower the **YELLOW** frame side down, *evenly*, onto the 4 rails (**#s 8a, 8b, 8c, 8d**)



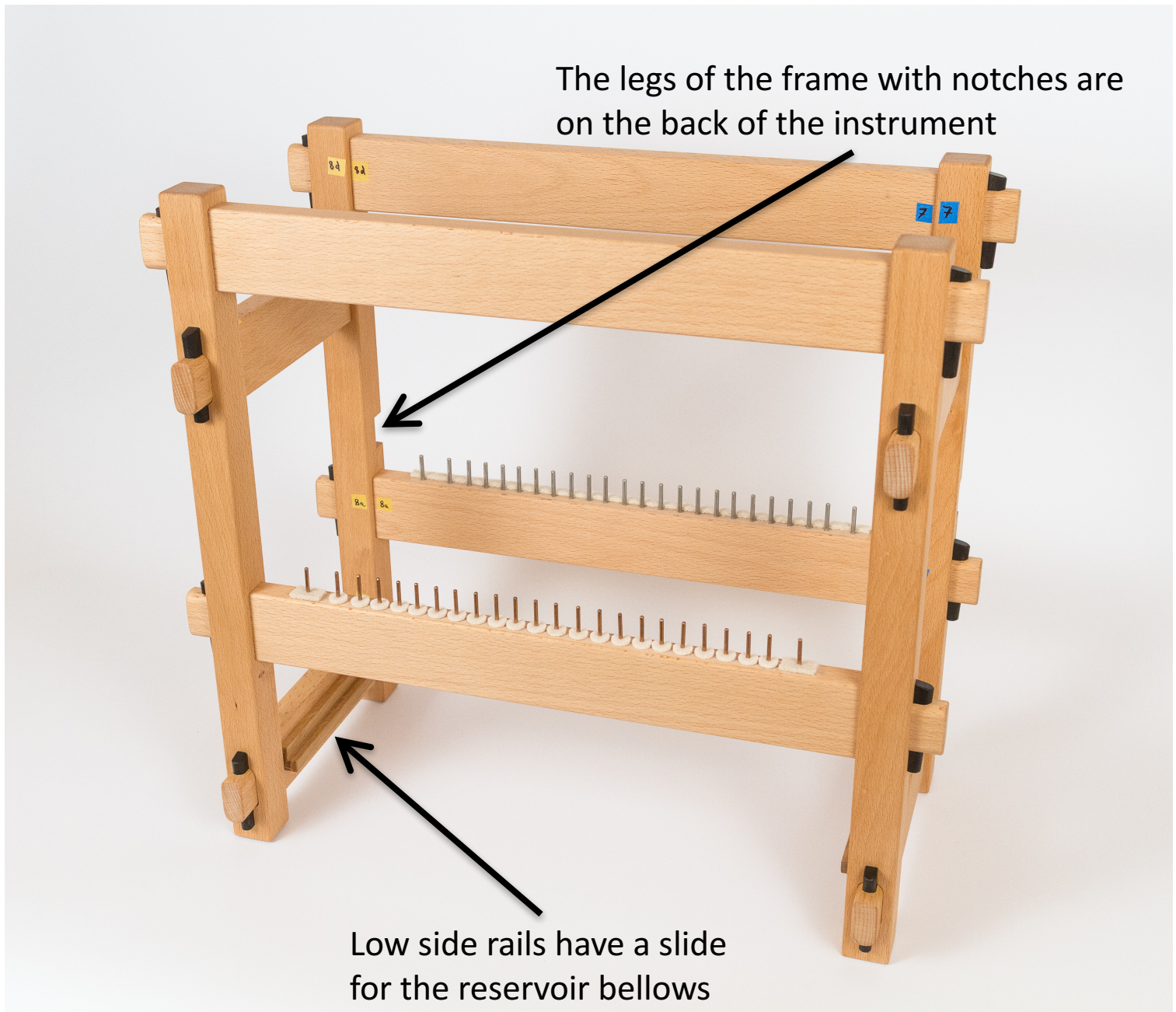
- Insert 4 tusks to lock each joint in place. Make sure to insert the tusk from **above** when the frame is upright



- Set the frame upright, holding the **BLUE** side frame in place.
- Finish pushing the **BLUE** side on to the rails.
- Secure with tusks, from above.

4. Orientation of the frame:

Now that you have built the frame of the organ, you will need to be able to orient the other teams of builders to the frame as they add on their components



YELLOW side on left

BLUE side on right