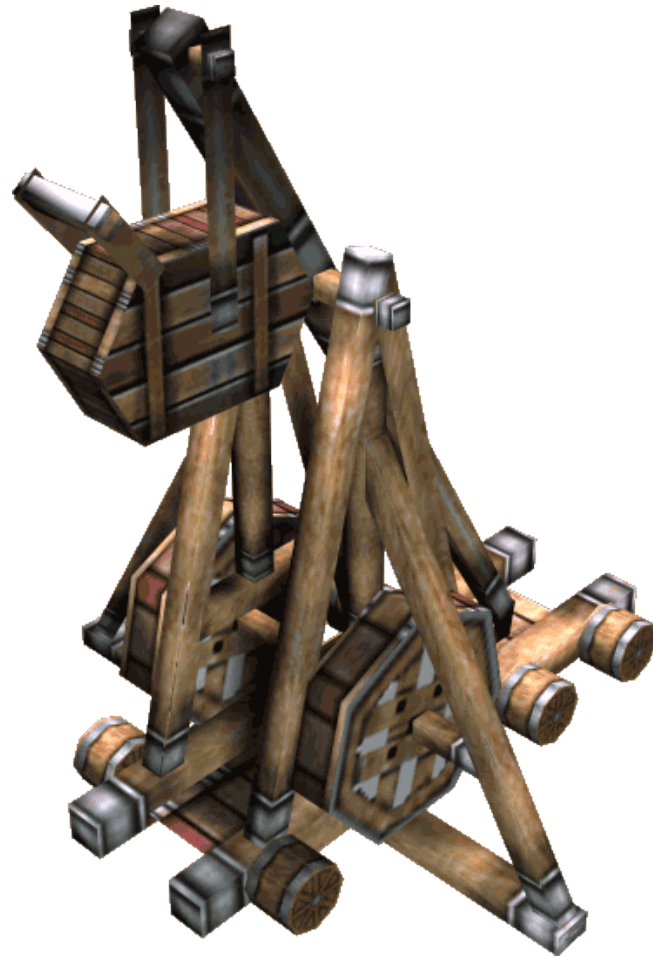


Trebuchet competition



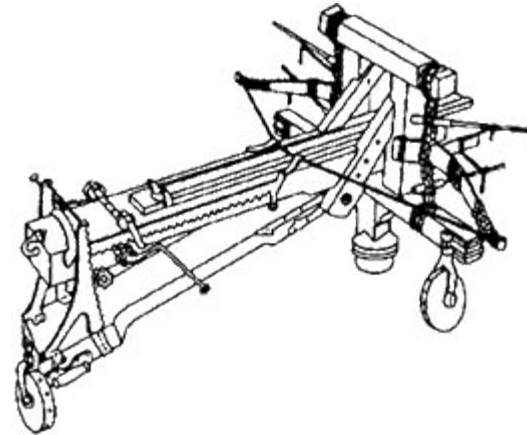
What is a trebuchet?

- a trebuchet is a medieval siege-engine
- It was used to attack castles in the middle ages
- It could hurl heavy objects a huge distance!



How to attack castles

- The Romans used siege-engines in battle -



The **ballista** was like a huge crossbow which shot large bolts at the enemy. It was good for killing people inside wooden buildings!

the catapult

This was also used by the Romans

It used tension to power the throwing arm and hurl stones, fire and even diseased bodies at the enemy!



The medieval period

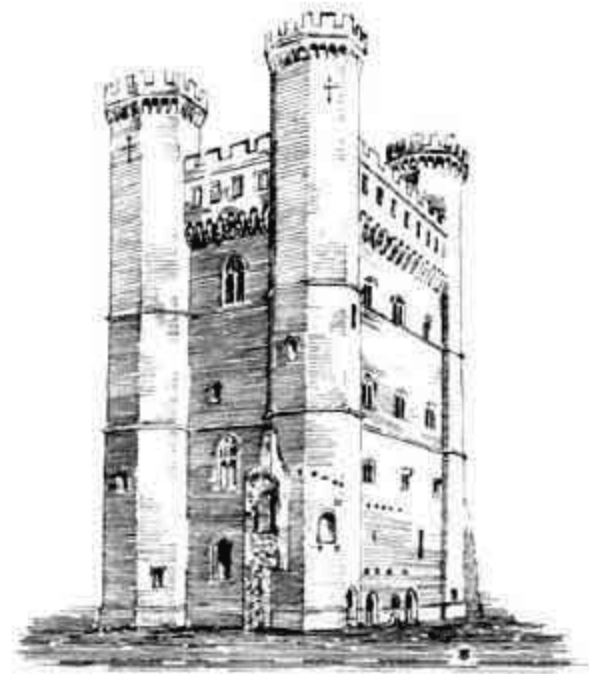
- Between 1000 ad and 1500 ad was the age of the castle
- At first, they were made of wood and earth.



A motte and bailey castle

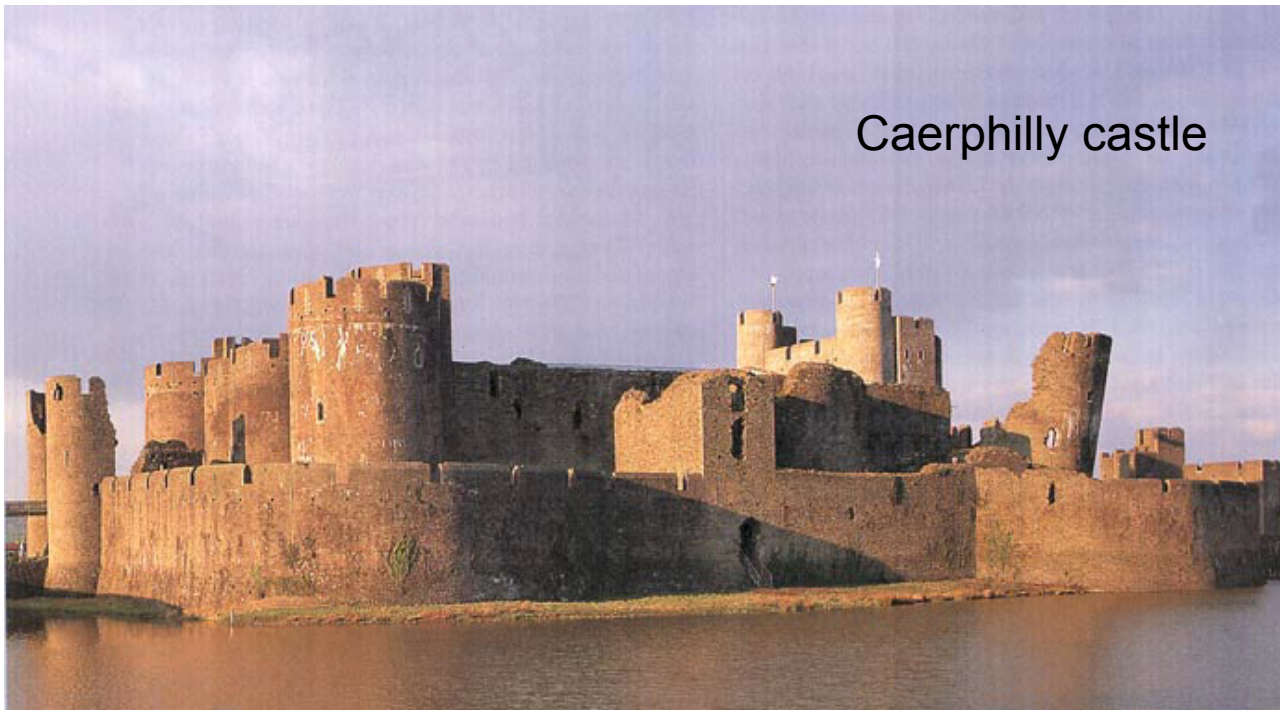
Castles get stronger

- Stone keep castles were built for better protection



Concentric castles

- These were the most difficult castles to attack
- They had several walls around them



Siege-engines

- A siege is when a castle is surrounded by an enemy
- They can wait until the defenders starve....

....or hasten the victory by attacking the castle with siege-engines....

Basic siege-engines

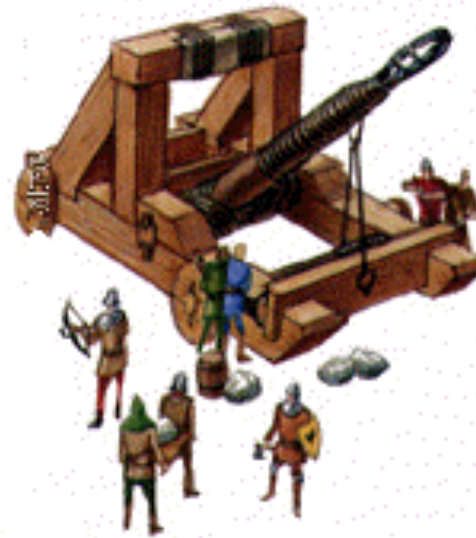
The battering-ram would try
And bash in the gate



The bolt-shooter was like
the roman ballista

Basic siege-engines 2

The onager used the tension of a twisted rope to hurl stones over the castle walls



The stone-thrower was a bigger version of the onager

Basic siege-engines 3

The tower allowed attackers to get into the castle over the walls



But in the twelfth century, the French developed a terrifying new weapon.... (which they stole designs from asia)

The trebuchet

The trebuchet could hurl stones weighing up to 200 kg

This was over six times more powerful than the best catapults

It used a weighted sling to hurl objects...



How it works

- The trebuchet is based on the sling motion
- A large weight pulls down the arm
- This levers up the long end, whipping the sling in a circular motion



Building a trebuchet

- You will build a micro-treb using the materials given...
- Micro-treb stands 4 inches tall, with a 7 inch throwing arm.



The weight-bucket

- Micro-Treb's weight bucket is framed in wood with paper siding. It is then filled with tiny pebbles.



The fulcrum

- The fulcrum is what the arm swivels round on
- Use a bent-over paper clip



The base

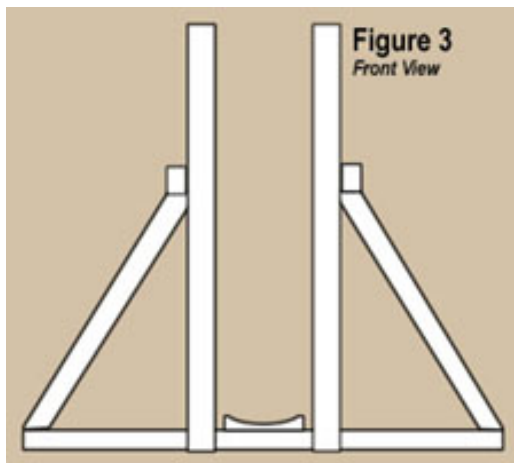
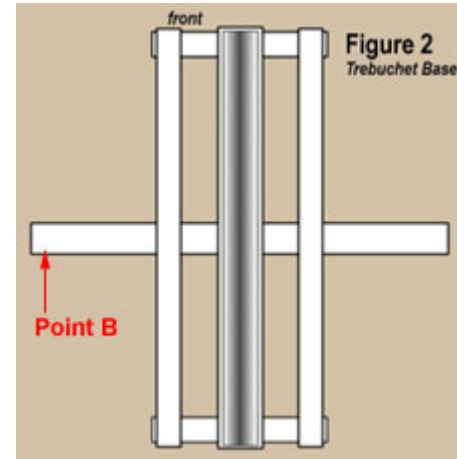
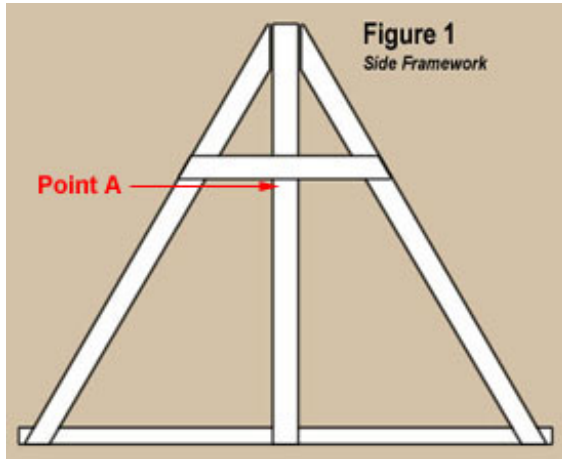
- A small bit of card-paper forms the base of the machine, providing the skit for the finishing nail to slide on. (The nail is poked through the card stock in this shot to hold position.)



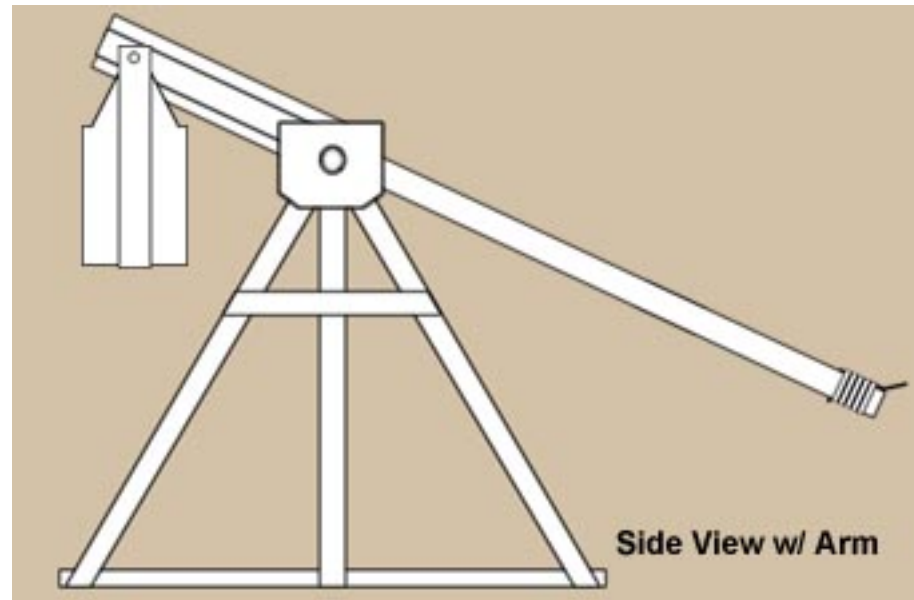
The challenge

- How will you get your micro-treb to work?
- You'll need to design it well
- Think about the length of the wood and the sling
- Make sure the construction is strong!

Basic design help



A good design



Pictures of trebuchets



Trebuchet in action

Watch this clip carefully...see how the arm turns, whipping the sling into the air

