

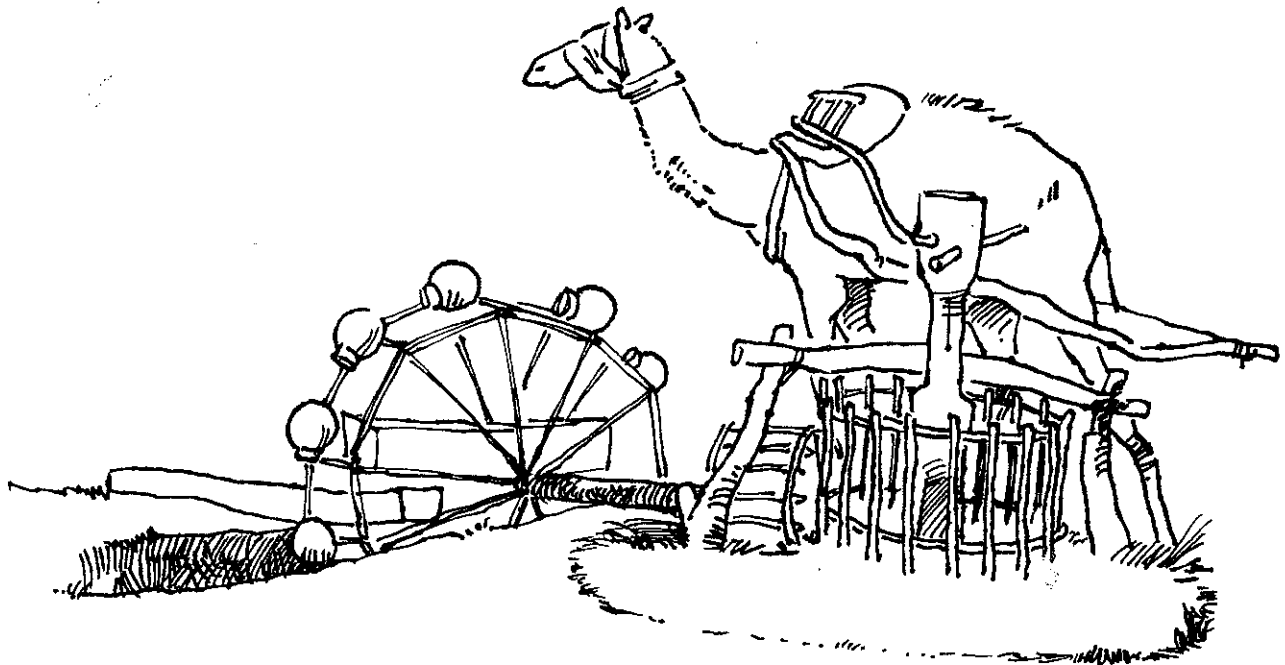
## Part B: How have mechanical devices been used to supply people's water?

As you know, water is one of our most basic needs. It is necessary for our survival. The following devices were used in the past to help communities get the water they needed.

### Persian Wheel

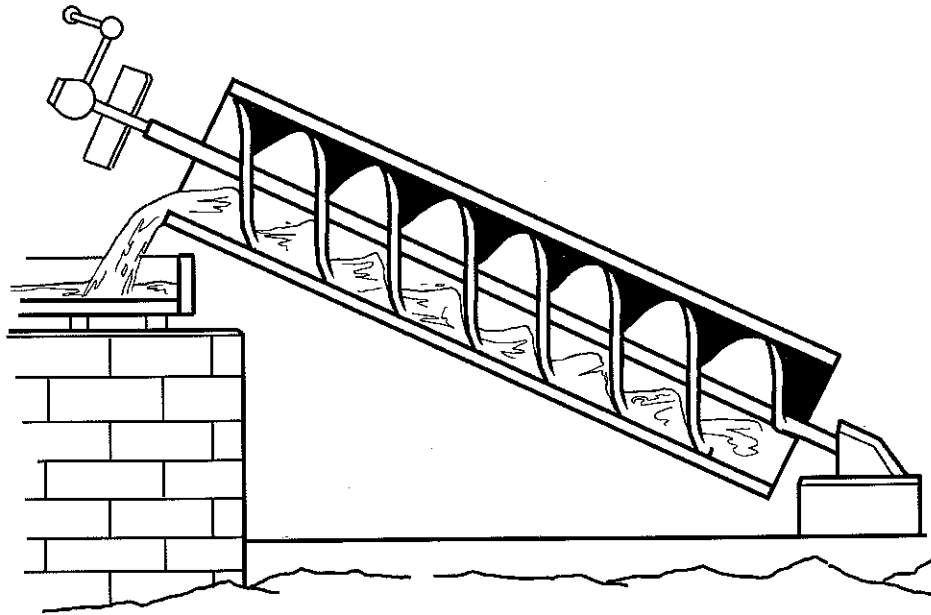
Before pumps were invented, gravity (the Earth's force that pulls everything downwards) was used to make water travel to where it was needed. The only problem was, the water had to be up high before it could flow down with the force of gravity. People created large tanks (containers) that were kept high above the community and then water would be let out of the tanks to flow down through pipes to where it was needed.

To fill the tanks, people used a mechanical device called the **Persian Wheel** (also called a *sakia*). The Persian Wheel had a long rope with buckets tied around it that would collect water from the source (well, river, etc.) and lift it up. Animals such as cows or camels were harnessed to the wheel and used to move it around and around. In this way, the large tanks were filled with the buckets of water collected by the Persian Wheel.



## Archimedes Screw

In later times, Archimedes (a Greek scientist and mathematician) invented a faster, easier and more reliable way to move water. The mechanical device he invented was made of a long tube with a large screw inside. One end of the tube would be put under the water and the other end would be placed in a container to collect the water. Since water will always flow from an area where there is a lot to where there is less, the end of the tube in the water would automatically begin to fill with water. The grooves (lines cut into the sides) of the screw would fill with water and, as the screw was turned, the water would be pushed around and around up the grooves to the top of the screw. In this way, water would be pushed through the tube and out into the storage container.



Sort and recopy the following information into the chart below to show how the Persian Wheel and the Archimedes Screw had similarities and differences.

- parts move in a circular motion

- uses buckets

- mechanical device

- is the step before gravity is used as a tool

- works against gravity to lift water up

- uses a piece of metal with grooves

- transports water for storage

- supplied people with a necessity

- moves water most efficiently

- uses a long rope

- powered by animals

- used long ago

**Features of the Persian Wheel**

**Features of both**

**Features of the Archimedes Screw**