

## 4. The digestive system

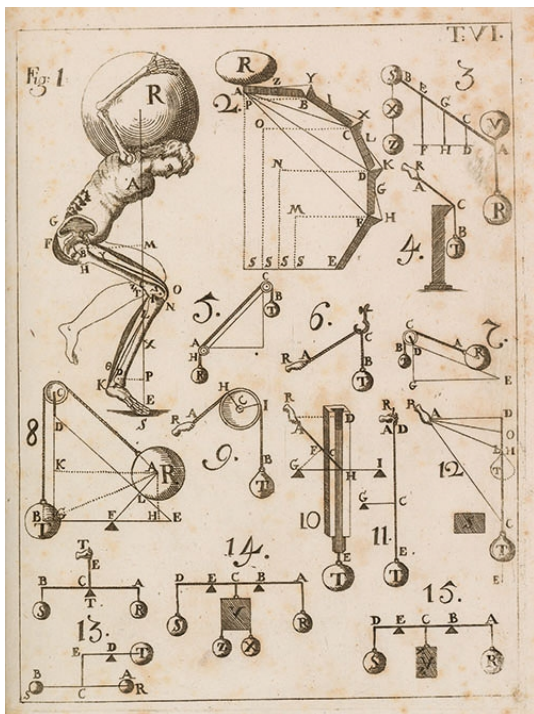
### 4.3 Historical representations of digestion

4.3.2

## In the 17<sup>th</sup> century

### MECHANICAL DIGESTION

The doctrines of Hippocrates and Galen maintained their influence for the next fourteen centuries. It was not until the 17<sup>th</sup> century that digestion was shown to be mechanical.



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Borelli founded the theory of mechanical digestion. He carried out unusual experiments on birds. He made them swallow objects and found that they were crushed, deformed and broken. From this, he concluded that they had been compressed and ground by the stomach's internal walls.

So two kinds of mechanical digestion were known in the 17<sup>th</sup> century. This was firstly that teeth grind up food, then the stomach muscles reduce them into pieces which are small enough for them to be taken up by the organism. In fact, Borelli compared jaws to pincers and the stomach to a vice.

### CHEMICAL DIGESTION

At more or less the same time, Réaumur, a scientist, was studying birds of prey.

He put a piece of meat inside an iron pipe and made a buzzard swallow it. When regurgitated by the bird, the pipe was intact, but the meat had been almost entirely dissolved. This proved that digestion happens without grinding and this was the first step to establishing chemical digestion.

