



## **Brass Instruments**

### *How Valves Work*

#### **Arnold**

In the 2<sup>nd</sup> decade of the 19<sup>th</sup> century the valve was invented and this had the effect of providing a mechanical means for extending the length of an instrument.

#### **Murray**

Before that the only way to change the length of instrument was to insert crooks which had to be taken out and put in relatively laboriously. The invention of the valve allowed that to be done just literally at the flick of a switch...

That revolutionised the way that brass instruments could be played.

#### **Trevor**

This is the piston part of the piston valve assembly.

Inside the piston are pathways.

One provides a direct route from one side of the valve to the other, the others provide for a diversion. The piston is inserted into the valve assembly. But when the piston is at rest the airflow goes directly across it. But when the piston is pressed down the airflow is diverted through an extra piece of tubing lengthening the instrument and so lowering the pitch.

#### **Murray**

Conventional orchestral instruments like the natural trumpet and the natural horn were revolutionised by the fact that valves were fitted to them.

#### **Arnold**

The valve was very quickly applied to existing instruments such as the French horn, to the trombone and the bugle, known in its valved form as the flugelhorn.

#### **Murray**

Then you got the tremendous explosion of invention and technological innovation in the 19<sup>th</sup> century.

#### **Arnold**

And all sorts of new instruments were developed. The most important of these was perhaps the cornet. The valve was applied to a post horn - which was not a particularly important instrument - to produce a valved instrument which was extremely important in the establishment of the brass band movement. In the 1830s the valve was used for bass instruments and the tuba was invented.

This is an instrument, which didn't have any equivalent amongst natural bass instruments, but as a bass instrument, the valve tuba was enormously important, not only orchestrally ...but in providing a complete tonal range for the brass band.