



Brass Instruments

Compensating Systems

Arnold

The instruments here are all very complicated mechanical devices to make it easier for players to play in tune.

One of the first of these was the invention of Adolphe Sax, an instrument with 6 valves so the instrument provides 7 different harmonic series and that is sufficient to in theory allow the player to play perfectly in tune. However there are problems with valve instruments where valves are used in combination. If you're pressing two valves down at the same time then the amount of tubing each valve adds is not quite enough to put the instrument in tune. When the fourth valve is pressed the wind-way runs through the valves a second time and these loops on the back are added in giving a better approximation to the correct tube length. And this is the principle of many tubas and euphoniums used in bands and orchestras today.

Trevor

Murray, I always think it's remarkable that the trombone, which had been around for the best part of 3-400 years, perfectly serviceable instrument, virtuoso instrument, and then somebody in the 19th century thought it was a good idea to put 6 valves on it. And one can't help feeling that there was an obsessive curiosity about what would happen if they tried this or that, and even though some of the inventions were actually centred on, you know real improvement of making valve instruments more in tune there was something there which was just a little bit nutty as well.

Murray

Yes, I think so, and it's the kind of following through this Victorian idea some how isn't it that anything which was made before, could probably be improved by the increasing sophistication of Victorian mechanical engineering.

Trevor

That's right you put a bit of science, a bit of technology into it and it's going to be more modern. The notion of modernity, the notion of invention for its own sake was incredibly important.

Murray

Yes and all the pistons and compensating valves and things that were added to relatively simple brass instruments, you can see they're beginning to look a little bit like steam locomotives you know, with all the kind of extra bits and pieces of technology attached to them.