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EXPERIMENTS FOR THE
CHROMATISATION OF TRUMPET

Theses of DLA dissertation

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For the topic of this dissertation I have chosen such a period of the trumpet's development's history, which began with the baroque age, and lasted through 1840s from the experiment of *chromatisation* to the invention of the different *valve* types. In the development of trumpets this period can be considered as very important as well as eventful, hence from a professional perspective, it deserves considerable interest. Its particular importance comes from the fact that after having an essential in the baroque era, the trumpet then faded into the background, and became one of the 'tutti' instruments and only through chromatisation, through the invention of valve, did it manage to reach its worthy place in the family of instruments.

For the explanation of my topic I rely on two important works. One is *Die Trompete* by Edward Tarr, which gives an extensive and comprehensive picture of the trumpet. The other source is *Das Ventilblasinstrument* by Herbert Heyde, which is a detailed work, supporting greatly my research. Details about the history of instruments are based on the research results of E. Tarr, H. Heyde, John Henry van de Meer, Kurt Janetzky és Günter Dullat. For the musical usage of the trumpet in different ages I studied the thesis of instrumentation by H. Berlioz – R. Strauss, A. Casella – V. Mortari és Hans Kunitz. Apart from these I tried to access as much as possible, technical literature dealing with the topic.

Comparing the results of scientific works up to now, I was looking for new tendencies, and strove to represent the history of the trumpet's chromatisation in a complex way.

The thesis has several objects. First of all it will introduce the development of the trumpet, to the natural trumpet's formation, then the emphasis will be put on to the question of how, from such a simple instrument the baroque era's complicated, often demanding chromatic playing trumpet parts, can be voiced. The subsequent chapters are based on the development of the natural trumpet, the need of the incomplete tone's enlargement, having the final aim to realise chromatic playing. Throughout

the experiments of chromatisation, we can follow step by step the development of the musical instrument, from the point of view of what evolution the innovation achieved, and how they build on top of each other. The test of their quality is their usage in practice, so in the different ages we are looking for answers on how much the composers accept the new types and how they use them in their works. It becomes transparent how the trumpet perfected by valves, reveals itself in XIX. century music, in a way proving the success of nearly a hundred years of experimentation.

The present shape of the trumpet - double banded, stretched form, a mainly cylinder like tube ending in a cone shape - had been taking shape in the first decades of the XV. century. The prehistory didgeridoo, the roman tuba, the busine in the middle ages, and at last the "S" shaped trumpet are the main phases of the evolution.

The enlargement of the trumpet's range of notes- in order to provide the possibility of chromatic playing - started in the middle of the XV. century, with the invention of valves, or with the building of trumpets with valves and has finished in the middle of the XIX. century, so it has lasted about for hundred years. The enlargement of the range of notes has been realised through the following trumpet types: slide-trumpet (XV. century), invention trumpet, the English slide-trumpet (the end of XVIII. century), keyed trumpet, and at last the trumpets with valves.

It was not the perfecting of the instrument, but the human knowledge (professional knowledge), the advanced technique of blowing, identified a step forward in the Baroque Era, because on the simple natural trumpet, the clarino players could play then play chromatically the upper keys.

The enlargement of the trumpet's range of notes had happened parallel to the similar development of the horn. The connection of the two instruments has started during the Baroque Era. The basis of their similarity appears in their stretched and bent shape and in a simple and natural circular shape, in the similar blowing technique, similar sound, and in the limited range of notes.

The testimony of the success of chromatisation experiments resulted in the invention of the invention horn and the invention of the keyed trumpets. Thanks to the birth of the invention horn we have the works of Mozart and Beethoven on horn, the classical pieces of the horn literature. Similarly Hayd and Hummel trumpet concertos were created through the influence of the appearance of the keyed trumpets.

Since the invention horn and the stop trumpet were not suitable from every aspect, the experiments continued. The perfecting of the two instruments were still inseparable from each other, and this proves the truth of the fact that the invented valves are used in both musical instruments. The invention of the valves started in 1814 and lasted about 30 years. The first two inventors competitions - which lasted nearly four years - expresses the multitude of difficulties which were faced by those who wanted to win the right to copyright.

The suitability of the valves are determined by two factors: the safe and fast operation of the mechanism, as well as the fact that the passage of air can move around without hindrance or breakage. The first one is the basic condition of the players technique, the second, ensures the quality of sound. Two types of valves remained in usage, the piston valve and the rotary valve. There is a twin variety of the piston valve developed, which is known as "Wiener Ventil", and is used even today on the viennese horns. Everywhere else, the rotary valve horns are in use. On the trumpet both valve types are used.

The perfecting of the horn and the trumpet were a part of a general development of all the wind instruments. The wood wind instruments development happened between 1660 and 1850, so it lasted about two hundred years, among the brass instruments the new bugle's and the tuba's development has been realised during the first half of the XIX. century.

The improvement of the instrument, the invention of the new types are often the result of the conjoint work of the player and the instrument maker. This is true for both the wind and the brass wind instruments, but this statement is probably extendable to all musical instruments. On trumpet: M.

Wöggel – J. A. Stein, D. Buhl – A. Sax, id. T. Harper – Köhler, on horn: J. Hampel – J. Werner, J. Kail – J. F. Riedl, klarinét: H. Klose – L. A. Buffet.

The improvement of the musical instruments were always entwined with their musical usage as well as their use. Their interaction can be observed in all musical instruments. When a musical instrument is put to the background because of its unsuitability, it loses its role, as had happened to the trumpet at the time of the Viennese classics, and as a reaction to this, immediately began the new improvement process, to overcome the deficiency of the musical instrument. However, a new improved type's appearance can inspire the composers to a wider usage of the musical instruments, in some cases inspire them to write a solo, that is exactly what happened in the case of the keyed trumpet.

The higher tuned new trumpet types are the result of similar influence which happened during the second half of the XIX century. The composers on the basis of their positive experience on the valve trumpets have written increasingly difficult and higher pitched trumpet parts. The trumpet players for the sake of safer playing and for the sake of being able to make higher pitched notes, had demanded higher tuned musical instruments from the instrument makers. As a result of all this thankfully the family of the trumpets evolved (F, A, B, C, D, E flat, high F, piccolo A, B). Today's trumpet players regularly play on three or four different types of trumpet for this particular reason.

Again we can state that the development of the musical instrument was started by demand, this inspired the composers to the more perfected use of the musical instrument, and this in turn made the musical works more colourful.

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