



The Zurna : an Ottoman Oboe

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The Zurna is an Ottoman Oboe, emblematic and famous instrument from the 18 c. It was played outside and used for the announcement of Court celebrations or events. Modern avatars are still used throughout the Middle East. Some rare historical instruments are kept in national collections such as Musée de la musique (Paris), Musée d'Instruments de musique (Brussels) or Correr Collection (Venezia). The zurna has the particularity to be equipped with a removable wooden part, called the "fork", inserted into the tube to receive the reed. It offers the possibility to change the tune of the instrument by closing the first hole, the second hole becoming the first one, very useful for musician on horseback. The geometry of the fork is rather peculiar and makes the bore very unusual, with large cylindrical parts. This geometry is analysed on the acoustical point of view and some hypotheses on the functioning of the instrument are made regards to the anharmonicity of the resonance frequencies. Another specificity is that the zurna is made with light woods such as apricot which lead to porous pipes. So, the zurna has to be soaked in oil to be playable. Historical instruments have to respect strict rules for the best conservation and it can not be soaked in oil again. However, the impedance of a virtually playable historical zurna can be extrapolated from the measured input impedance "as it is", in which the quality factors of the impedance peaks are artificially enhanced. The validity of the enhancement procedure is validated on cylindrical wooden tubes.