

BRIDGE AESTHETICS – FUNCTIONAL AND STRUCTURAL NEEDS VERSUS ARCHITECTURAL IMAGINATION

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SUMMARY

Relations between structural form as well as service function of bridges and their aesthetics are analysed. Irrespective of their scale bridges always affect their surroundings or landscape. Therefore, they not only have an engineering and economic meaning but also a social and a cultural one. In some cases, especially older bridges have an additional symbolic or a historic meaning. Contemporary trends concerning bridge aesthetics are discussed. Commonly modern bridge structures ideas are controversial – their forms often seem to be more important than their service function and classical aesthetic principles are rather rarely observed. Presented problems are exemplified by bridge structures in Poland and in other countries. Conclusions concerning the relations between the bridge aesthetics and bridge function are formulated. Some remarks on the future trends in the bridge engineering are also presented.

Keywords: *Aesthetics, Architecture, Bridge Engineering, Culture and Social Problems, Function, Structure.*

1. INTRODUCTION

Bridge engineering history is almost as long as the history of civilization itself since the down mankind people had to move from place to place. Therefore, they had to overcome various terrain obstacles, especially the water such as deep creeks or rivers. The first bridge structures serving to cross those obstacles there were natural elements such as tree trunks or branches as well as the natural geological forms such as stone arches or platforms (Figs. 1 and 2). These forms were imitated by the first bridges constructed by the people. The service function of them was of fundamental meaning and their aesthetics were during many centuries of any or of a little importance only. However, the natural bridges were also the structural base for many modern contemporary solutions as shown in Figs. 1 and 2.



Fig.1. Arch bridges – from nature to modern structural solutions.

As human civilization grows, bridge aesthetics became increasingly important. It can be well exemplified by the arch bridges built in the ancient Rome and existing up to now (Fig. 3). During many years, especially beginning from antiquity, bridge builders have been also used as the architects, structural designers and