

Discussion on the paper A. FRANCE-LANORD and the contribution by
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Following Parent's comments, Schulz asks about the progress made in the preservation of monuments. Aggressiveness on the part of the general public towards monuments is mixed with the efforts to preserve even small buildings. This area also covers the problem of new buildings and their respect for historical structures as also their evaluation in public opinion. Parent recalls the protests made by French writers precisely at the time of its construction about the height and forms of the tower. Nowadays the erstwhile highest structure in Paris has lost its monumental effect through the high-rise blocks at Montparnasse. The Eiffel Tower really is a work of architectural design and extraordinarily transparent in effect, whereas the tower blocks form a much too dark mass, unrelieved by any design elements. Schulz emphasises the fact that an absolute evaluation is not possible, only the position held by a structure in the period. Sperlich recalls the controversy at the time of the construction of the Limburg motorway bridge and more recently that at the Walhalla in Regensburg. Werner doubts whether the quantity mentioned of seven million kg are cast iron; it is, rather, wrought iron. The seven million kg are equal to seven thousand tonnes. This would produce a cube with sides measuring 10 m long for a structure of 300 m height. Mathematics also does not require a straight link between two points, but also most certainly does describe curves (e.g. arched structures). Technical theory is not defined by its mathematical substance. According to Einstein, mathematics, when exact, does not describe nature, and if it describes nature, then it is not exact. Libal makes a plea for the Eiffel Tower to be restored to its original condition. Should that not be possible for various reasons, then the 1937 condition must be respected. Parent adds that in accordance with a decision of the French Ministry of Culture, the state of 1937 would be restored. Sartory stresses the fact that Eiffel made the technical forces at play visible in his construction. Peters emphasises the lack of purely decorative elements in Eiffel's construction right from the very beginning. The large arches on the lowest level were intended to reflect the motif of the Arc de Triomphe for the centenary celebrations of the French Revolution. This was what Alfred Piccard, the director of the Universal Exposition of 1889, had stipulated for the structure. At the same time, the tower was intended as a monument to the restoration of French industry after 1873. In addition, the tower was originally intended to serve as the entrance to the exhibition and to stand at the end. It was not possible for this to be realised for static reasons. The Fountain of Progress is also important in this connection for the iconography of the exhibition as a whole. The height of 300 m comes from taking a height of 1000 English feet, a measurement to which recourse was taken here. Bornheim underlines the fact that as a result of the manifold references, the fairy tale about so-called abstract engineers' constructions had been refuted. Everything constructed by human beings becomes a form. In the evaluation of Eiffel's work, Slotta misses the effect his bridges had on German examples. Werner confirms this effect on European examples in general, in particular on English cantilever bridges and German arched bridges (e.g. bridges across the Kiel Canal and the bridge at Müngsten), which are, however, based on different static principles. Although cantilever constructions are statically simpler, there is an increasing preference for arched constructions in the new architecture. In

addition, semi-circular arches are statically wrong, and it was only the excessive use of material in the Roman constructions, which allowed them to survive. The influence of the French Ecole polytechnique and of the Ecole de pont et de chaussée, based on Eiffel's work, specially introduced the mathematical part of the technical theories. The empirical part comes from England.