

Costache argues that art, in 2012's society, is considered special and distinct from ordinary occurrences, and, as such, is displayed in museums, reproduced in books, and discussed in lectures, all the while being admired and protected.<sup>1</sup> Bridges, for the most part, are hardly distinct from ordinary occurrences, let alone are they admired in the same way a van Gogh painting is, or protected as such. Yet we find in these structures that take us from one place to the next—their route always taking us *over* that which makes their standing and purpose possible—a dynamism of visual form, an intricate and unique approach that lies behind said form, and an expression variable to each who experience it. One cannot help but at least consider each bridge as special and distinct. Notably special and distinct is Scotland's Forth Rail Bridge<sup>2</sup>, which was designed by Benjamin Baker, Allan Stewart, and John Fowler and built by Sir William Arrol & Co. between 1883 and 1890.<sup>3</sup> The first of its kind in Britain to be constructed using steel alone, Forth Bridge stands as a striking and original structure, and one that bodes the question: is this mere bridge art? While the definition of- and procedures in creating art are elusive, Forth Rail Bridge exhibits notable and relatively common traits associated with a created product that is, by and large, identified as a work of art.

It could be argued that the most common (and even stereotypical) work of art is that which audiences can see, and yet bridges are not often considered alongside paintings, sculptures, films, or, as is their interior counterpart, installations. This is a shame, as architecture is one of the most creative mediums. Costache notes that, for practical reasons, architecture favours durable materials, such as steel, which have contributed to both the

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<sup>1</sup> Irina D. Costache, *The Art of Understanding Art* (Chichester: John Wiley & Sons, Incorporated, 2012), 139.

<sup>2</sup> See Appendix 1

<sup>3</sup> Pete Silver, Will McLean, and Peter Evans, *Structural Engineering for Architects: A Handbook* (London: Laurence King Publishing, 2014).

visual aspects of structure and the system of building.<sup>4</sup> By necessity, the materials which make the art also inform the style and image. Using steel as an art material lacks the freedom that comes with using paint or clay. However, while this limitation forms a box around the proposed artwork, the great artists create the most creative artworks when they imagine outside the box they find themselves in. More creative still, perhaps, is when collaboration occurs between the varying parties required to construct such an object. As Blockley<sup>5</sup> states, “bridge building is a team effort largely carried out by engineers.” The design of Forth Bridge is busy with steel ordered horizontally, diagonally, and vertically, while practicality is assured by the implementation of a cantilever, an engineering principle. For Johnson, the criss-cross pattern of sheer steel “is extremely complicated, hugely difficult to draw, and produces effects of perspective for which there is no parallel in architecture.”<sup>6</sup> This ingenious marriage of design and engineering provides Forth Bridge with a beauty in function and a function in beauty, and Blockley argues that the beauty of a bridge is derived “from their principal duty—to be an efficient structure.” This thought raises the idea of emotions felt by a participating audience (who are, in this case, those travelling over or looking at Forth Bridge), and this will be discussed at greater lengths later in the essay.

Following on from the marriage of design and function, it is important to note that Baker’s design considered erection stresses, future maintenance costs, wind pressures, and temperature variation.<sup>7</sup> His work is detailed, as well as proactive in preparing for situations should they ever have occurred. This is important when taking into account the story behind

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<sup>4</sup> Costache, *The Art of Understanding Art*

<sup>5</sup> David Blockley, *Bridges* (Oxford: Oxford University Press, 2010).

<sup>6</sup> Paul Johnson, “The magic moment when you go under the great Forth Bridge,” *Spectator* 298 (2005): 28

<sup>7</sup> Silver, McLean, Evans, *Structural Engineering for Architects: A Handbook*

the art; that is, its context, purpose, and origins, among other notable factors that contribute to the creation of an artwork. Baker's papers and articles reached across the globe and were influential in their day.<sup>8</sup> Of course, his work and the content of such was undoubtedly required of him, but the extent of his influence and fame might suggest that he was, in some sense, to appropriate an artistic term, an auteur. Forth Bridge would suggest so, as well. He and his work companions, each arguably an auteur in their own right, collaborating together to create a work of supreme function and visual flair for purposes both artistic and that which is greater. From early sketches to assembling the steel, the entire production of creating Forth Bridge was elaborate and well-thought-out. What difference, if any, is there between the canvas of a painter and the sketches of an architect? Do they not both draw and construct on paper with ink, lead, or the like? The same can be said of the engineers and the workers, those in charge of ensuring the dream of the bridge comes to life. Are they any less artistic than a sculptor? Steel is just as creative as clay, if not even more so for the simple truth that it requires its artists to think outside the box, just as the engineers of Forth Bridge did to devise and implement a structure that would stand and support trains, as well as achieve all that Baker outlined in his plans. Both artists and artisans put their minds and hands together to create a work of art with tremendous heart that continues to thrive and inspire.

Costache considers that "architecture needs to be experienced" and that the analyses of such form within the context of sculptures and paintings positions them on an equal level with the fine arts<sup>9</sup>. Perhaps experiencing an artwork is only heightened if the artwork itself was created to say or reveal something, creating a relationship between sender and receiver,

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<sup>8</sup> Johnson, *Spectator* 298

<sup>9</sup> Costache, *The Art of Understanding Art*

artwork and audience. Buchanan<sup>10</sup> states that, recently, many architects and writers are reconsidering architecture as art: as a medium and as a means of communication which can be taken literally, metaphorically, and empathetically. Every object, in a sense, has its own message: a chair implies it will support us and give us rest, while a train implies that it will get us to where we need to be. Similarly, a bridge not only implies that which both chairs and trains imply, but something more profound and telling: that it will accessibly, quickly, and safely make possible a task relatively impossible for us. Such a message, and any related message, is informed by other factors, too, like style; not all will be moved by the criss-crossing orchestration of steel. It is between Forth Bridge's communication and our experience of it that an audience comes to feel something. Whether they feel admiration or disgust is regardless of the fact that they are feeling *something*, and this something is born of the truth of the art. In the first of his four criteria to judge whether or not a bridge is a work of art, Blockley<sup>11</sup> suggests that if one gets an emotional response from observing a bridge, then the bridge is a work of art. Johnson<sup>12</sup> repeatedly exclaims and explains his delight for bridges, at times labelling a truly great bridge as the noblest work of man. But for Scotland's arguably greatest bridge he saves a special compliment and analysis. "The Forth Rail Bridge combines utility, beauty, and nerve-tingling sublimity in equal proportions, and for my money is the finest piece of engineering in existence." Let us consider his words: *utility* is the purpose, the message that the bridge is useful for many, while *beauty* and *sublimity* are the sight, the experience, how he responds to and considers the bridge. The emotion behind the the reaction

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<sup>10</sup> Peter Buchanan, "Architecture as Art," *The Architectural Review* 169 (1981): 74-75

<sup>11</sup> Blockley, *Bridges*.

<sup>12</sup> Johnson *Spectator* 298

and response is less important than the fact that such a reaction and response has occurred in relation to an inanimate, created product.

Each bridge is unique, and all that pertains to each bridge—design, origins, history, purpose, and many other factors—are special and distinct, all the while contributing to the general knowledge and appreciation of these magnificent structures. While there is still much more to be written about Forth Bridge and bridges as works of art, and much more work needs to be done to ensure architecture and engineering are given due credit as mediums of art or, at the very least, mediums with artistic value, one can contemplate the achievement that comes with designing and constructing bridges.

Appendix 1



Forth Rail Bridge

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