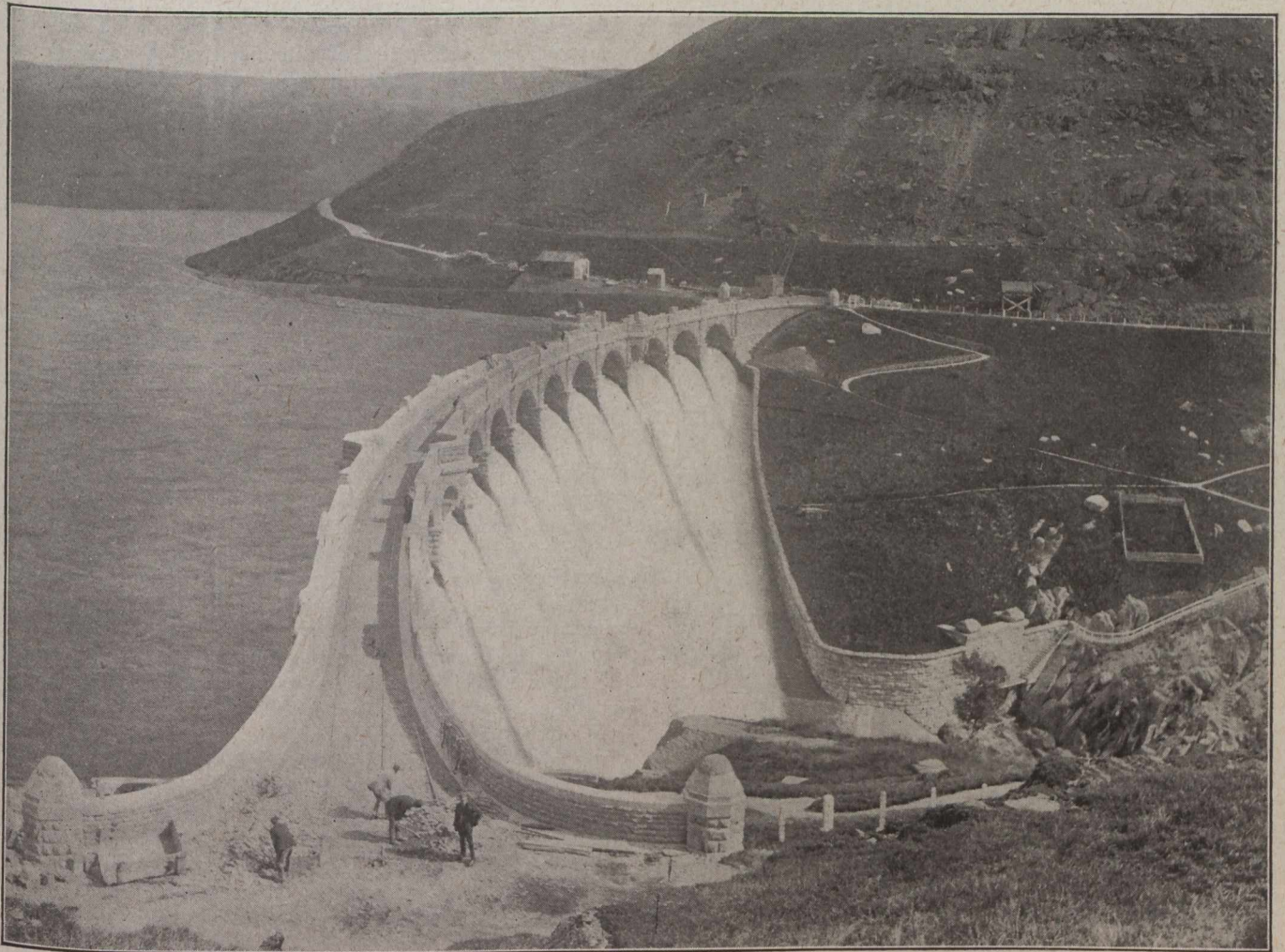


a true arc instead of polygonal in form, and his reply was that to have made it so would have materialized a falsehood. The Forth bridge was not an arch and it said so for itself. No one would admire bent columns on an architectural facade, or a beam tricked out to look like an arch, but that was really what the suggestion of his artistic friends amounted to, though they did not see it, being ignorant of the principles on which the Forth bridge was constructed. The object had been to so arrange the leading lines of the structure as to convey an idea of strength and stability. This in such a structure seemed to be at once the truest and highest art. We must admit that the engineer was right. On the other hand, the view of another artist, Alfred Waterhouse, R.A., is interesting.

nation\* of Gothic architecture with a steel structure destroys the sense of fitness and robs the bridge of true beauty by giving it an architectural character of a by-gone age when such bridges could not have been erected.

In many simple bridges constructed in Canada to-day to open highways in inaccessible places, a note of simplicity has often been successfully struck. As an example of this the suspension bridge over the Bulkley River at Hagwillgate, B.C., with the simple treatment of the suspension piers is entirely satisfactory.

An example of the most perfect collaboration of the architect and engineer appears, in the writer's opinion, in the Pont Alexandre bridge at Paris (illustrated on another page). This is a three-hinge steel arch, and the whole



**Example of a Masonry Structure where Careful Attention Has Been Given to the Architectural Details of the Design. Craig Goch Dam for Birmingham Water Supply.**

Writing to Sir John Fowler after the bridge was completed, he said: "The simple directness of purpose with which it does its work is splendid, and invests your vast monument with a kind of beauty of its own, differing though it certainly does from all other beautiful things I have seen."

In the design of the Tower bridge there is a great departure from those principles which Sir Benjamin Baker advocated when discussing the design of the Forth bridge. The site of this bridge, in close proximity to the Tower of London, influenced its design, and although the claim has been made that this bridge expresses perfectly the collaboration of the architect and engineer, one feels that the Gothic masonry is entirely out of place. The combi-

structure is one of the most beautiful that has been built at any time. It is the work of two engineers, two architects, and two sculptors, working in collaboration.

During recent years there has been a marked advance in the design of reinforced concrete structures, and the pages of the engineering press fully illustrate many notable designs that appeal to us by their simplicity. Among those that are notable is the Langwise Viaduct,\* carrying the Churrosa Railway in Switzerland; the Walnut Lane bridge, Philadelphia, and a score of others.

**Dams.**—In the construction of dams for the storage of water for city water supplies, power purposes, and irri-

\*See *The Canadian Engineer* for October 14th, 1915.