

**PONT-Y-PRIDD BRIDGE, SOUTH WALES.**

BY LLEWELYN WILLIAMS, ARCHITECT.

The ancient bridge shown in the accompanying illustration spans the river Taff at Pont-y-Pridd, about 12 miles northwest from Cardiff, S. W.

It was built in the year 1755, and was used continually for a period of about 100 years, when, from the increase in traffic, and the steep inclinations to the center, a new bridge was deemed necessary, which was built alongside the old one.

The old bridge has an interesting history, being the third one built in a period of about eight years. The first, a structure of three arches, was washed away by a great flood two years after its completion; the second was similar to the one illustrated, one arch, which, however, collapsed shortly after the false work was removed, owing to imperfect design.

Its builder, Mr. William Edwards, was not daunted by two failures, although compelled to replace each one at his own expense.

The third one, now standing, has a clear span of 140 feet, and is 75 feet high in the clear above low water, built of a hard, close-grained sandstone found abundant in the neighborhood.

For beauty of outline and general grace of design, this bridge was considered a wonder in its day. There was perhaps no other of so great a span in Great Britain, exceeding even the Rialto, at Venice, by 42 feet.

Mr. Edwards was a self-taught man, of great natural genius, never having received any education except the little gained from a country school. His technical knowledge and engineering skill was all acquired without the aid of books or teacher, in the positive school, although costly, of daily experience.

While but comparatively young, he was his own draughtsman, engineer, constructor and superintendent, and besides found time to fulfill the duties of minister to a church for a period of forty years.

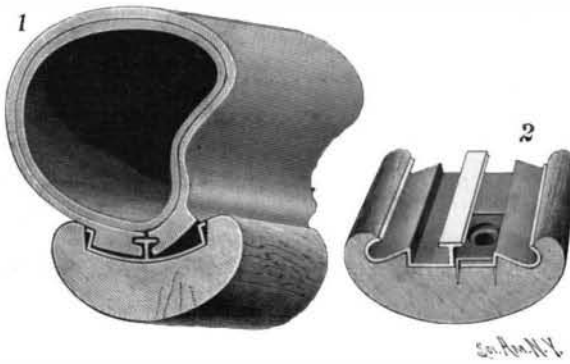
He soon discovered the cause which caused the collapse of his second bridge. It had too great a weight on the quarters near the abutments, causing the central portion of the arch to lift, thus letting down the whole structure.

To avoid this in this third bridge, he conceived the idea of perforating the solid haunches with three cylindrical arches, on each side, each being 9, 6, and 3 feet in diameter respectively, reaching clear across under the width of the roadway, thus relieving the excessive weight, fatal to his last bridge, and crowning his labors after eight years of misfortune with complete success, a monument of his indefatigable perseverance.

Mr. Edwards built many other bridges of nearly equal span in England and Wales, in all of which, when a long span was found necessary, he utilized the same principle of perforating the haunches, to lighten the load. His work still stands solid, and unsettled, by the storms and floods of about 150 years, examples of masonry worthy the emulation of our modern mechanics.

**AN IMPROVED BICYCLE RIM AND TIRE.**

The rim and tire shown in the illustration are of strong and simple construction, and designed to facilitate mechanically uniting the pneumatic tire with the rim, while the arrangement is such that the wheel may be used whether the tire is inflated or not. The improvement affords the subject of a patent granted to Mr. Lewis A. Erickson, Stromsburg, Neb., Fig. 1 illustrating the application of the invention and Fig. 2 representing a different form of wood rim with metallic band inserted and with the socket for spoke nipple, through which the air is forced into the tire. The wheel has the usual separate air tube surrounded

**ERICKSON'S BICYCLE RIM AND TIRE.**

by a strip of canvas attached to the exterior rubber tube, the ends of the canvas folding around cushioning projections on the bottom of the tire. These projections may also consist of wire springs, around which the loose ends of the canvas are folded, and they fit into recesses in a metallic band or casing in the top of the rim. This band has in its middle an annular T-shaped rib securely holding and mechanically fastening the tire to the rim, in such way that it is not liable to become detached should the tire become accidentally deflated.

**The Water Supply of Rome.**

Modern Rome is supplied by four aqueducts yielding the plentiful daily supply of 600 liters a head. A good deal of this water goes to supply fountains—the amount going to one alone, the Fontana Trevi, being sufficient to supply a respectable community. Though it is delightful and refreshing to see the numerous fountains playing, the idea strikes one that perhaps it would be better if a little less water played in the fountains and a little more were used in the households and on the persons of the people. How far behind the ancient Roman cities are in this respect our modern ones all over the world! What is Rome of to-day with its four aqueducts and occasional fountains to the Rome of the year 330, which could boast of 19 great aqueducts, 11 thermae, 856 baths, and 1,352 fountains? The thermae of Caracalla alone were capable of accommodating at one

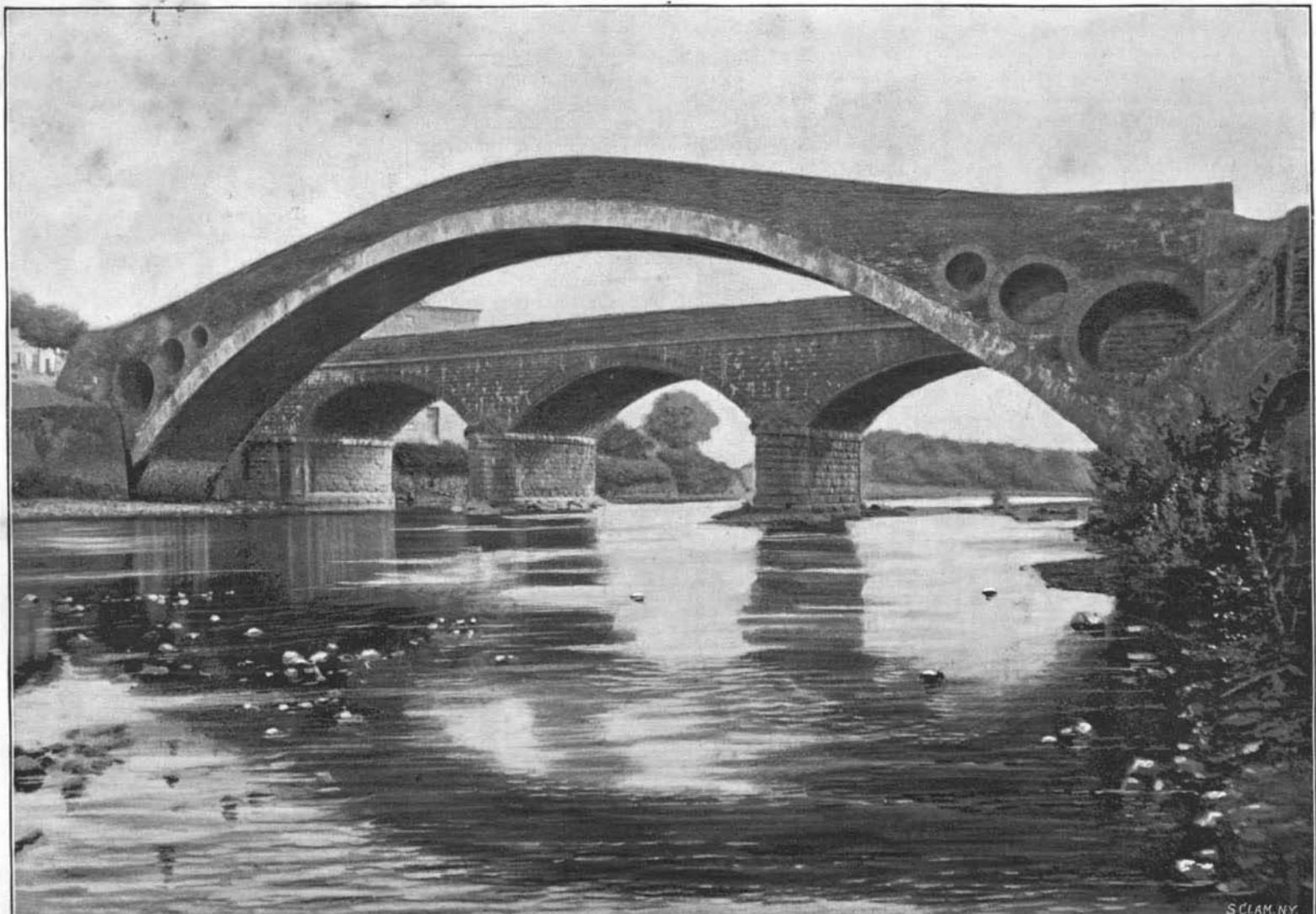
time 1,600 bathers, and we need but to see the magnificent ruins that remain of a few of these baths, or of the great aqueduct running in various directions over the broad surrounding campagna, to realize how the Romans loved pure water and plenty of it. The water supply of to-day is plentiful enough to keep the sewers well washed out. Three main sewers or collectors have been built of late years along the banks of the Tiber, two on one side and one on the other. These sewers empty into the Tiber some kilometers below the city. The banks of that stream, once in picturesque disorder, are being altered by extensive embankments, averaging 14 meters in height and built of fine large quadrangular blocks of travertine. The cost of the embankment wall is paid for at a certain rate a square meter. The sum of one hundred million francs was voted by the government to defray the expenses of the great alterations made along the course of the Tiber. The ancient Cloaca Maxima has not been condemned—it will go on as of old emptying its contents into the golden Tiber—modern experiment having proved that its relatively small contributions are rapidly rendered harmless by dilution in the stream.—Geo. H. F. Nuttall, M.D.

**A Curious Case of Combustion.**

Dr. Lindsay Johnson writes to the British Medical Journal regarding a patient for whom he ordered ordinary chlorate of potash lozenges (B. P.) which were kept loose in the waistcoat pocket for convenience. Without thinking what he was doing, he put an unopened Swedish safety box of matches into the same pocket. While bending down to pick up something on the floor the lozenges rubbed against the friction paper on the outside of the box. This set the entire box alight, and the heat kindled all the matches in the box. The lozenges added fuel to the flames. The result was that the gentleman was instantly in flames, the combustion being of explosive violence. He was severely burned. Dr. Johnson thinks that it might be well if a caution were to be printed on the bottle or box in which the lozenges are sold to the effect that they should in no case be carried loose. With this recommendation we entirely agree. This is not the first occasion we have recorded accidents like the above, and Mr. Alden's alarming story about the disappearance of two men who used chlorate of potash lozenges is enough to make all druggists regard these apparently harmless and nasty sweets with greater caution than they do.

**Postal Rates—A Correction.**

In our issue of January 26 it was stated by mistake that under the new foreign postal rates the charge for printed matter would be but 1 cent per pound. The rate for the United States, including those for Canada and Mexico, on second class matter, is 1 cent per pound; but for foreign countries, the rate on second class matter, under the new postal rates, is 1 cent per 2 ounces.

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