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THE MEXICAN RAILWAY.

In the construction of the Mexican Railway, the configuration of the country has been found to present many difficulties, and the skill of the engineers has been severely taxed, especially on that portion of the line known as the Infernillo; and on the spot depicted in our engraving (selected from *Engineering*), a bridge over a deep gorge, with a sharp curve on a steep gradient, has been successfully constructed by the Crumlin Iron Works Company, of Monmouthshire, England. In building this viaduct, a temporary structure, with even sharper curves and steeper inclines, was used; and the value of the Fairlie engines in mountain railroading was fully proved. The stream which rushes down the narrow gorge passes 100 feet below the viaduct, at the foot of the deep slope of broken rock, fallen from the hills above, on which the stone work for the piers and abutments had to be erected. The rocks above overhang the work, projecting in many places beyond the center line of the railway; and the workmen employed to remove these rocks were suspended by ropes and on ladders attached to the trees above.

The viaduct consists of nine spans of 51 feet each; the curve is of 325 feet radius, and the grade rises 1 foot in 25. Steel rails are laid on all the heavy inclines, and guide rails are introduced on the curves. The rails on the viaducts are carried by transverse sleepers attached to the upper member of the girder, to which they are secured by hook headed bolts.

Make a Note of It.

Those who have never tried the experiment rarely appreciate the benefit which an enterprising, progressive mechanic derives from keeping a record of matters worth remembering. An intelligent workman, especially one who reads, is constantly acquiring interesting and useful information, which at some time he will probably have occasion to apply

practically in his business. Almost every day he learns something new, and says to himself: "I must remember this;" but unless he has occasion immediately to apply his knowledge, he is very apt to forget all about it, or to retain only a vague recollection of having some time read or heard something about it. The memory, unless highly trained and naturally retentive, is a treacherous repository for odd scraps of useful knowledge not gained by experience or personal observation, and every mechanic should have a paper memory, which will never let a useful fact slip away.

We should advise all mechanics, and especially all young men with unformed habits who are learning mechanical trades, to keep note books in which to enter anything worth remembering which may come to their knowledge. Facts learned from observation and experience, or gathered from conversation with other mechanics, useful hints gained from books, valuable suggestions, or facts of practical interest found in newspapers should always be promptly recorded and saved. When a book is full, it should be carefully indexed and laid away in some place where it will be easy of access. The mere fact of writing, especially if condensation is required, will tend to fix a fact in the memory, and give a man a more ready control of what he knows. In any case, he has the fact at command at all times, and a book such as we have described, containing the gleanings of years of study and practice, becomes of inestimable value to the possessor. We have seen mechanics' note books which would not have been given in exchange for a whole library of technical works, and we have never known a man to begin the record of facts who was not glad he acquired the habit.

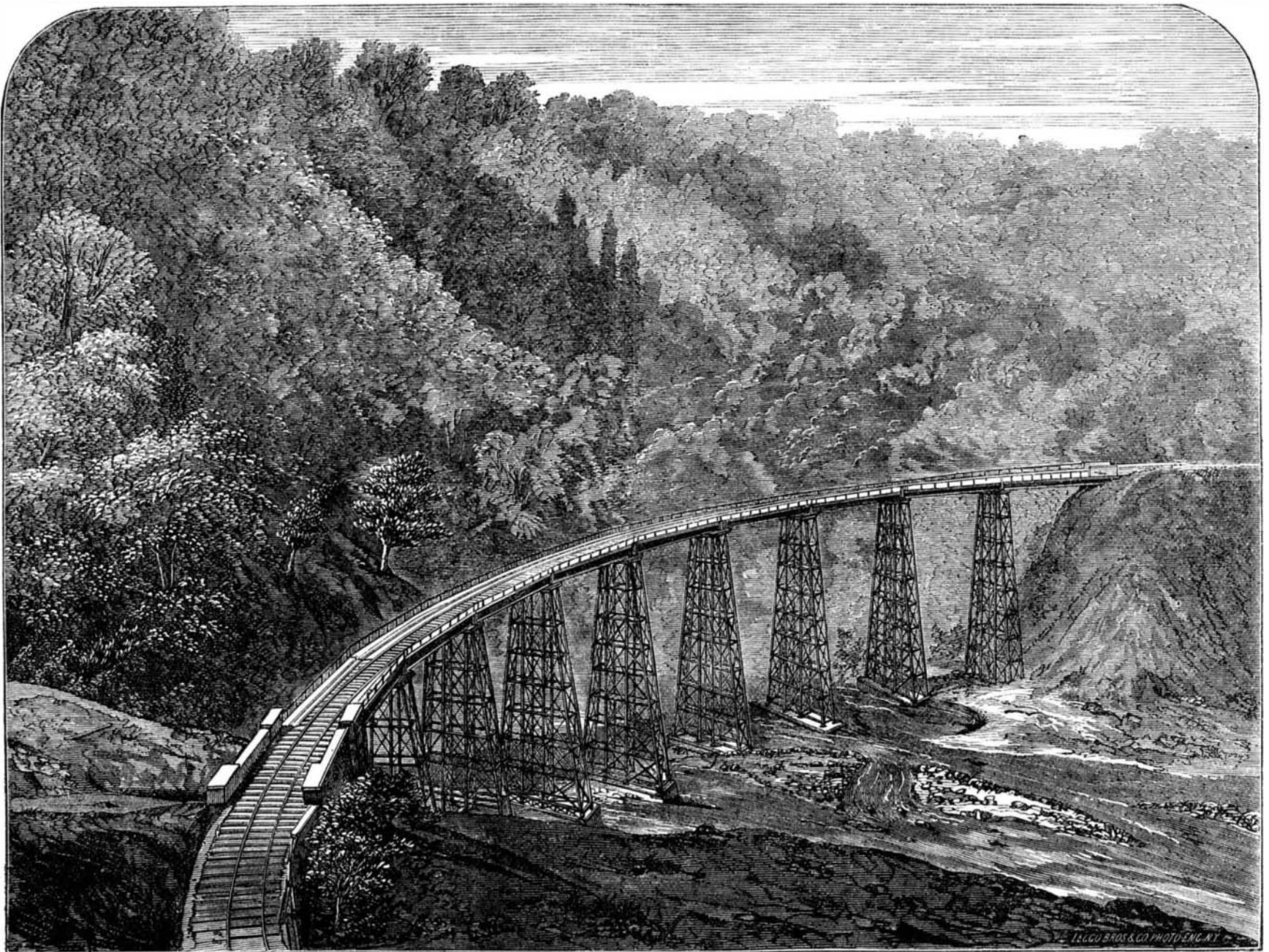
We regard this as a matter of great practical importance to mechanics in the trades we especially address. No printed text books contain all the points which a smart mechanic will pick up in the course of his business, and nothing will take the place of a scrap and note book. Let our readers, young mechanics especially, try the experiment, and we

promise them that they will find immediate and life-long benefit from so doing. It will be to many the stepping stone to success in life, by inculcating careful habits of acquiring useful knowledge, and making them wiser men and better mechanics than they would otherwise have become. To all young mechanics we say: Never let a fact worth remembering slip away from you. Make a note of it in some shape, and then put it where it will be accessible when you want it most. The habit is easily acquired, it need consume no time required for the performance of other and more important duties, and the pleasure which it will give will more than compensate for the trouble involved, even were no subsequent benefit to be expected from it.—*Iron Age.*

Young Lions Nursed by a Terrier.

Carefully caged in our Central Park Museum are two young cubs. They are four or five weeks old, a pair, lion and lioness, fine healthy little creatures, and are nearly old enough to be shown to the public. They are the progeny of the pair of beasts, known as Lincoln and Jenny, in the Museum. But the mother being from some cause unable to nurse them, they were at once given to a large terrier whose puppies were taken away, and who plays the part of a foster mother. She seems, indeed, as fond of the cubs as if they were her own offspring, and covers them with caresses, though they are nearly as big as she is. It is a curious fact that lions reared in captivity are not as gentle as those captured and tamed. The parents of these cubs, which were caught when wild, and tamed, are very tractable, while some of the other lions which were born and brought up in the Museum are sullen and ferocious.

TO MAKE brazing solder, ordinary brass is mixed with or melted with one sixth its weight of zinc. Pour out of the the crucible, cool, and granulate by crushing with a hammer



THE METLAC VIADUCT ON THE MEXICAN RAILWAY