Again, a cubic foot of wrought iron in the work, say 450 lbs. at 7½ cts.,—$34.

Wood is about one-fifteenth as strong as iron. But about one-half of its fibres must be separated, in order that the other half may be so connected in the structure as to be available to their full strength by tension. Hence, it will take some 30 feet to equal one of iron; for which, say it will cost $12; shewing a difference of a little less than three to one; the average for both kinds of iron, reckoning equal quantities of each, being about 2.6 to 1.

To offset against this, we have the superior durability of the iron, which, as before observed, may be regarded as per-durable, whereas wood requires frequent renewals, at a cost each time equal to the first outlay. Now the first cost of iron is sufficient to provide for the first cost of the wood, and nearly two renewals. Besides this, money, though an inanimate substance, is nevertheless, in these usurious times, made to be exceedingly prolific; insomuch that with good husbandry, it is found to double itself once in ten or twelve years, according to the hard face of the lender, and the hard fortune of the borrower.

Assuming 5 per cent per annum as the net income of money invested, the term of time in which the 1,400 dollars saved in the wooden structure, will require to produce one dollar for renewal, will shew the time that wood ought to last, to be equal to iron in economy. 1,400 dollars at compound interest, will yield at 5 per cent, one dollar in a little less than ten years.

Therefore, if an imperishable iron structure cost 2.6 times as much as one of wood, and the latter last but ten years, and money will net 5 per cent compound interest, the two materials are nearly on a par as to economy.

Now experience has shewn that wooden bridges, unprotected by roofing and siding, seldom last with safety, over eight years, or thereabouts; and the more there be expended to increase the durability, the less surplus capi-