MISCELLANEOUS.

Rail Axles, Wheels, Curves Upon Railways.

A very able and experienced, C. E., has written some important articles which have appeared in the Journal of Commerce, upon the subjects which the caption of this article stands for a test. We present a few extracts. He says :—

"The remarks which I have made in connection with this subject, have been extensively copied and favorably received by all, excepting Appleton's Mechanics Magazine, the editor of which, himself a 'Civil Engineer,' has sent forth such remarks as may well astonish the 'practical' men (barring the algebra) among whom he appears desirous of ranking. Here is a man, belonging to a profession, the very foundation of which is pure geometry, pretending to sneer at its application as of no 'practical value,' although 'a beautiful theory.' What jargon is this? What is the whole profession, on the main, but theory? Was not the greatest piece of modern engineering erected entirely upon theory, *i. e.*, 'inferences drawn from principles which have been established on independent evidence?'

I claim for the old engineers a far more just appreciation of the pure geometry of the railway, of the rolling stock, and even of the locomotive itself, than is commonly exhibited by those of the present day; and it is only by going back to 'first principles,' and restoring the 'ancient landmarks' which have been removed, that we can hope to avert those frightful accidents which so frequently occur, and which are in general so unsatisfactorily accounted for. We have seen what the editor is 'unable to determine;' and we have his thoughts next, thus: 'but think we can perceive from the treatment of the subject, that he has yet something to learn in the practice of railroad engineering.' Now, if this is anything other than an impertinent application of a mere truism, it means, *ergo*, 'I,' the editor, 'have nothing to learn,' on that subject, and I may add that he appears very desirous of learning it, did I not conceive that the printer's devil had usurped the editorial chair."

The question in dispute between them, is respecting the mooted point, "does steel become crystalline by vibrations." Here are the views of both sides :—

"The editor goes on to say :—'We know, beyond cavil or doubt, that incessant vibration will produce a square fracture, resembling that of cast-iron.

'Experiments, carefully conducted, have shown that repeated blows will produce this fracture in wrought iron; not an accident, resulting from the peculiar organization of the particular piece under trial, but an effect to be relied on in all cases.'

Well, if that is not "begging the question," or rather stealing it, and with a pretty high hand too, I don't know what is.

It is the very fact in dispute, and this enunciation makes me question if I have not been living in the woods, instead of among the metals, for the last half century. I don't know anything about these things which are so unceremoniously thrust forward as "beyond cavil or doubt." But I do know of some experiments made to a "foregone conclusion," to order; and I have seen some which did not, in my opinion, by any means, support them; and no less a personage than Mr. Stephenson himself expressed a doubt of the correctness of the conclusions drawn from others—valuable experiments as they were, and which, with all others that have ever been made, fully prove that no such thing as even moderately reliable certainty has yet been attained in the manufacture of wrought iron or in the results of any experiments that have ever been made therein.

But the concluding remarks are absolutely of the bare-faced and grossly erroneous assumption, that anybody can mistake the object of elevation of the outer rail. I give the conclusion in full, and it would appear almost ridiculous to reason with one who appears to make his assertions as he wants them, out of whole cloth, to stand for facts which they have no relation to, and to mix up matters of mere opinion with the exact sciences, as though they were equally subject to the fiat of a civil engineer in printer's ink.

'T. A. R. makes a grave mistake when he attributes the fracture of axles to the coning of the wheels, which latter practice he should have known has long since been abandoned. He mistakes the object of elevating the outer rail of the track entirely; and all his fine-spun views in reference to there being no centrifugal force generated, are without one particle of practical value. The coning of the wheel is a beautiful theory, supposing the rails, wheels, &c., to be perfect; but owing to unavoidable imperfections in these, is no longer attempted on our roads as a means for preventing the contact of the flange with the rail.'

As my experience on this subject has been of a more practical nature than a genteel civil engineer may perhaps care to boast of, I may as well say that I am fully aware of the fact that less coning than I have stated is becoming very common, and that more elevation of the outer rail than any theory (whether a correct one or not) has ever pretended to justify, is also very common.

I do no not know of any one who repudiates coning altogether; although there may be such persons to be found, I esteem it but little better than a libel upon the profession to assert that it is a general practice. I have seen some thousands of flanged wheels in different parts of the world, but never yet have I seen one that was not coned.

The foregoing remarks are made with great reluctancy, to guard the public against grave errors and false statements of facts, made in the most unscrupulous manner; and so obnoxious to all just criticism, that nothing but a sense of duty has induced me to make any reply whatever, to remarks so entirely destitute of reason and facts." T. A. R.

A Good Way to Save Life.

A correspondent of the New York Sun proposes a most excellent plan for saving life in cases of disasters like that of the Henry Clay. It is thus described :—

"My plan is to have every stool on board so constructed that in the hour of need some one or two hundred staunch life-preservers shall be scattered over the deck. Lightness and cheapness are the main requisites in their construction; both are to be had easily. I will just throw out two ideas. The first is to have the body of the seat a water-tight hollow substance, such as a tub or a gutta percha bladder encased in wood work; but of course there are strong objections to anything that derives its buoyancy from the exclusion of air or water, as one or two year's use would be apt to make some fatal punctures. The most preferable plan would be a space filled with cork-cuttings (very few would bear up two or three men) or else a framework with a seat of this material; and by all means attach three or four cords with floats at the ends, which, should misfortune demand their use, would stretch out on the water as so many arms to tempt the despairing clutch of the drowning person, when otherwise he might not have strength or time to reach the main substance. Of course this cursory idea will bear improvement. Cannot some Yankee friend follow it up in time to have a specimen in Castle Garden at the next Fair?"

The above should meet with prompt attention. In volume 6, Scientific American, page 59, the same plan was proposed by our foreign correspondent.

Remedy for the Bite of a Snake.

Mr. Abraham Kemp, who was bitten on the hand last week by a copper snake, immediately rubbed his hand several times on his pantaloons, which caused the blood to flow freely. Within the space of four minutes he chafed the wound with brandy, and applied to it sliced white onion and salt; he then applied spirits of hartshorn, which he repeated five times, and, although a very temperate man, he was advised to drink copiously of brandy—perhaps two or three gills in all. Two or three times next day he complained of a slight pain in one of his fingers; and in the afternooon, the inflamation having subsided, he succeeded in extracting the fang.—Since then he has felt no inconvenience from the bite whatsoever.—[Frederick (Md.) Examiner, 28th.

The Eight Wheeled Car Cases.

It seems that litigation is going on amongst the Railroad Companies and Car Builders, defending themselves against suits brought by Ross Winans, under a patent dated October 1, 1834, and extended by the Chief Clerk for seven years. The legality of an extension by that person is strongly disputed, as well as the validity of the Patent on other grounds. And a motion for an injunction on Eaton, Gilbert & Co., of Troy, to prevent them from manufacturing eight-wheeled cars, similar to those now exclusively used on railroads, was heard before the Hon. Alfred Conkling, at Auburn, on the 27th of last month. A former motion was denied, because the plaintiff did not show possession, and leave was given to renew the motion. In the meantime the defendants employed additional counsel from Philadelphia, and although the plaintiff's efforts to remedy the defects of his former motion were partially successful, the aspect of the case had become so changed by the exertions of defendants' counsel, that great doubt existed in the mind of the Court in the case. The injunction was therefore refused, and leave given the complainant to renew his motion on twenty days' notice, at any time within three months.

Sunken Rails.

It has been suggested that sunken rails would answer far better for railroads in cities than the raised rails. The great objection against railroad tracks, in cities, is, that carriages and carts cannot pass over the rails but at nearly right angles. In some places the rails are laid down in our city in such a manner that vehicles can pass over the track at a very acute angle, but we have oftentimes seen carts sorely troubled in crossing the track. It appears to us that a sunken rail would not mend the matter one whit, but would rather increase the evil. A rail made with a groove in its centre, and set flush with the pavement, and wheels cast with a central flange to run in the groove, but the tread to rest and run on the two flush faces of the rail, would no doubt obviate all the evils spoken of. This plan has already been carried out in principle by the kind of rail laid down by the New York and Harlem Railroad, against which we cannot see any possible objection, nor have we seen a plan, among the great many suggested, equal to it.

Wooden Cornices.

Wooden cornices have been instrumental in the destruction of an incredible amount of property. The following facts, stated by a correspondent of the Boston Atlas, in viewing the scene of the late fire in Montreal, show the impolicy of continuing to construct buildings with this appendage:

I walked over the ruins, until I came to the spot where once stood the Bishop's Church and Palace, all in their architectural beauty and grandeur. I gazed upon the dilapidated walls and broken columns with feelings of astonishment. And who would not be astonished at such an exhibition, especially when it is clearly seen how the fire commenced the work of destruction upon these noble buildings. They were built of hewn stone, and the roofs handsomely tinned. They were almost fire-proof, and would have been quite so, as least so far as this conflagration was concerned if the builders had used a little more tin. But no! the eaves, troughs and cornices were made of wood—and could they have done anything better to make the fire take easily? The flakes of fire fell upon the tinned roofs and slid down to the eaves, where sufficient combustible matter was found to ignite and destroy the buildings.

The Voltaic Lemon.

The celebrated Professor Bakoffner has been making some experiments lately at the London Polytechnic Institution, with a new magnetic or electric vegetable pile discovered by Dr. LeMolt, surgeon. It consists simply and solely of a lemon, possessing in itself the elements of the galvanic pile, the exciting acid, the porous membrane, and the reservoir which is formed by the lemon skin. The length of its action depend on the amount of citric liquid the fruit contains, and its influence can be actively felt for eight or ten days. This simple and ingenious voltaic pile can decompose water, acts powerfully on the magnetic needle, precipitates metals, and can, in the shape of a battery of six or eight lemons, send telegraph dispatches across the Straits of Dover.

[This we have seen in a number of our exchanges; we give it for what it is worth.

Repairing a Ship's Bottom While Afloat.

The following method of repairing a vessels' bottom while afloat was adopted and put in practice by Mr. Moody, shipwright, on the Geyser, a steam sloop of war, whose bottom was greatly injured by the striking on rocks, 50 miles from Rio De Jeneiro. The annexed description is given by Mr. Moody is taken from the London Civil Engineer and Architects Journal :—

"In obedience to directions to report the manner in which I proceeded to replace a defective sheet of copper on the bow of Her Majesty's ship Hyacinth, the same being five feet below the light water-line, I beg to state, that on considering what means could be adopted for so doing, short of heaving the vessel out, it occurred to me that the principle of coffer-dam might be applied to it. I accordingly caused a water-tight case of three sides and a bottom to be made, ascertained the curve on the bow on each side of this defective part, and cut the mouth or open side of the case to fit it; and having lined or dressed the curved edges with felt, saturated with tallow, and attached ballast to the bottom, the case was suspended by a tackle to the rough tree rail, and lowered until the top was within a few inches of the surface, opposite the defective part, over which it was hauled by means of two hawsers, one placed vertially from the rough tree rail under the keel to the opposite side, the other horizontally from the quarter round to the stern, to the opposite side, and both set taut with tackless. By these means the case was made to fit close to the bottom, where it was further secured by a shore, reaching from the side of the ship to its outer edge, to prevent its rising. The suction hose of a fire engine was then placed in the case and the water contained in it pumped out. When empty, two shipwrights descended, and removed the defective copper, replacing it with a new sheet. The operation, from the time of suspending the case until completed, did not occupy more than twenty minutes.

This principle could be applied to the repairs of many defects under water, such as the wing cocks of ships, or the pipes in the bottom of steam vessels."

British and American Steamers.

The London Artisan publishes the letter of Messrs. Stillman, Allen, & Co., in reference to a letter by some person signing himself Britanicus, who stated that they had learned how to construct their engines "by obtaining permission of the proprietors of the Cunard Line" to take mouldings and castings of every part of the engines constructed by R. Napier, of Glasgow, Scotland. The Artisan takes part with Messrs. Stillman, Allen & Co. We, however, have always thought there was no use of those gentlemen answering such a letter, for it carried on its face that which condemned it. These gentlemen know that the proprietors of the Collins Line could not give permission to any body to take castings of the engines of the Atlantic while they were in the Novelty Works, neither could Napier allow of such interference,—every engineer knows this. It is known that Mr. Farron was in Glasgow for some time, but nobody here believes he ever took a mould or casting from Napier's Works. In all such controversies, as a general thing, both sides claim too much.

Submarine Blasting.

Messrs. Maillefert, De Raasloff, and E. Merriam, have been blasting away for two weeks past, at Diamond Reef, opposite this city. It will require about 20,000 lbs. of powder to reduce it to twenty feet below mean water level.

There appears to be some fears for the loss of our mackarel fishing grounds on the coast of Nova Scotia. The British have a large fleet there to keep our fishermen from approaching nearer than three miles to any shore or bay.