A MARINE TOBOGGAN SLIDE.

BY H. C. HOVEY.

Tobogganing has become such a favorite winter pastime that the idea occurred, some time ago, to Mr. C. J. Belknap, of Bridgeport, Conn., that it might be adapted to the summer months also. He drew his plans in 1885, but did not carry them into execution till 1887, when he built the marine toboggan slide now described. It is an adjunct of the large bathing establishment at Seaside Park. The artificial slope rises from high water mark to the height of thirty-two feet above it, where there is a suitable platform that is reached by a flight of steps. The chute itself is but twenty inches wide, and contains 725 wheels for the sleds to run on. It is the inventor's intention this season to replace these wheels by a series of brass rollers each sixteen inches long. Almost any common toboggan will answer the purpose; but the patented "star oval board" will encounter less friction than a flat surface, and will meet with less resistance on striking the water. The slide is open to all at certain stages of the tide; but at high water none are admitted but good swimmers. The chute is 178 feet long. The toboggans start at the signal given by a bell, only one being allowed to go at a time; and on being projected from the lower end, they ricochet across the waters of the Sound for a distance varying from 75 to 175 feet, skipping along like a flat pebble, till the force acquired in the descent is lost, after which the bather swims ashore, pulling his sled after him. The facial expression of novices taking their first adventurous slide is quite remarkable, and the sensations felt are correspondingly novel and peculiar. The popularity of this new form of summer sport is proved by the fact that, during the month of August last, 11,000 slides were paid for at two cents a slide. Crowds of spectators were daily assembled to witness the exciting scene. The illustrations accompanying this account are from instantaneous photographs.

Improving Country Roads.

A writer in the *Wagon Maker*, on the above subject, concludes that it is a work too little thought of, too negligently done, and often so misapplied as to make roads worse rather than better. To see the black, mucky soil on the sides of roadways plowed up and scraped into the center, there to remain an impassable ridge during the summer, finally degenerating into an unfathomable slough of mud the next winter or spring, is enough to discourage the man who knows how roads should be made, and even force him to regard laziness in working out the road tax one of the excusable sins, if not actually a positive virtue.

In our climate, deep freezing combined with too much water is the bane of roadways. We cannot altogether prevent deep freezing, but if there be ample underground drainage, it will not effect great damage. The first object, then, of the road maker should be to secure good drainage. Without this, ridging the road only makes the mud deeper, and even stone or gravel do little good. It is often forgotten that the chief advantage from using an abundance of stone and gravel in road making is the incidental drainage which these afford, even when piled in the roads with no idea of this use. If the center of the road is underlaid with stone, and then ridged up with earth or gravel, it does for years form a good drain to keep the roadbed dry. But sooner or later frost will penetrate to these stones and upheave them. Then the last condition of the improved roadway will he worse than the first.

The fact is often forgotten that in a dry, compacted road, well ridged up, the soil freezes deeper than it does in the fields. This is especially so where the road is exposed to winds and swept bare of snow. The drain under the roadbed should be not less than three feet deep, and, if possible, four feet would be still better. Whether made with tile or stone, it should be laid as carefully and the joints covered as closely as if it were laid in the fields. Then, with good outlets and side drains to conduct the water from the center in all the low places, and with comparatively little ridging up with stone or gravel, the roadbed will be kept in good condition for years.

It is not the amount or sharpness of the ridge in the center that makes a roadway good, but the character of the surface and its uniform slope to either side. Ruts spoil roads quicker than anything else. They are the reservoirs for water, which, mixed by heavily loaded wheels, grinding it into the soil and making mud, renders it impossible for water to break its way through. Over the drain should be a foot or more of subsoil to keep the frost out, then followed by stone to a depth of six or eight inches, pounded fine on top and covered with gravel. There will always be an outlet under the stone to the drain below, and if its outlet is kept open in low places, the surface of the roadbed will always be dry. Such a road cannot become muddy except for an inch or so on the surface.

It costs something to thoroughly underdrain a roadway and improve it after this manner, but, once done, it will last practically forever if the drain outlets are kept open. Doing a little piece each year, the people in any road district may in time have good roads, that will need only trifling attention to keep in repairs. It is far better than the wasteful way of trying to improve long sections of roadway every year, and doing generally quite as much harm as good. The difference between having good and bad roads to market does practically affect the valve of their land more than most farmers think. If they appreciated this as they should, thousands of them would take a greater interest in the way their road tax is worked out than they have ever done before.

The Metric System.

Ten mills make one cent, ten cents make one dime, ten dimes make one dollar, ten dollars make one eagle. This is the metric or decimal system. It is easily understood by everybody, has been in use, in respect to our coinage, ever since the foundation of the government. How desirable it is that it should be substituted for the old system in all our expressions of weights and measures.

An estimate, worthy of confidence, of the saving in the teaching of arithmetic in schools was published in the "Proceedings of the American Metrological Society," vol. ii., p. 193, in these words:

"A schoolmaster who has had experience both in New England and in the West, and has taught the metric system, has made a careful detailed estimate. He puts the length of the arithmetical course at 162 weeks, and thinks it could be reduced to 88 weeks by substituting the metric system for our old weights and measures. The saving of 74 weeks, or 46 per cent of the course of study in arithmetic, pursued simultaneously with other branches, would probably amount to nearly a half year solid of school life."

Assuming the whole length of school life even at so extravagant a figure as ten years, the saving for more useful purposes would thus be five per cent of the child's education, which is an important item. According to the report of the United States Commissioner of Education for 1884-5, the expenditures for public schools in all the States and Territories of the Union in that year amounted to upward of $110,000,000, of which nearly $66,000,000 was paid for the salaries of teachers. A saving of 5 per cent per annum on $110,000,000 is $5,500,000. Capitalized even at the excessive rate of 10 per cent, this gives $55,000,000 as the amount which it would on this basis appear that the United States could afford to pay out now, if it could by so doing get rid immediately of the perpetual annual expense hereafter of teaching ancient weights and measures in public schools. Private schools would have to be added to this to get a complete estimate even of school instruction. The number of children enrolled in the public schools was upward of 11,000,000. Hence $5 for each child is the rate of the above $55,000,000 estimate; the number of "teachers and scientific persons" in the United States, according to the census of 1880, was nearly 228,000, while upward of 17,000,000 of other persons were classed as having occupations. How much would the introduction of the metric system save these other 17,000,000 citizens? Evidently the waste of effort by the use of bad weights and measures after they were once familiar would be a less proportion than the waste of effort to learn them at first; but if, instead of 5 per cent, it were 1 per cent, or 1-10 of 1 per cent, on the industry of the 17,000,000 persons having occupations in the United States, and 1 per cent, or 1-10 of 1 per cent, on every citizen's income, it is a matter that we cannot afford to ignore.

That a valuable proportion of the labor that is expended upon business calculations could be saved by the substitution of the metric for the old weights and measures, cannot be doubted by any one who compares a few tables, such as have been in use for reference, with the corresponding ones appropriate to the metric system; although the contrast of calculations, if the tables were once made, and were known to be correct, and were always at hand when wanted, would obviously be less than that of the tables themselves.

To Avoid Noxious Gases in Houses.

The best way of securing the house against danger from its pipes during times when it is not occupied is a matter upon which plumbers are by no means agreed. The danger to be guarded against when the house is shut up and the people are gone away on vacation is the emptying of traps by evaporation or siphonage. Some plumbers go so far as to say there is no safety short of disconnecting the fixtures and securely closing the ends of the pipes. Others recommend shutting the water off and filling the closet with oil. Some suggest simply shutting the water off, while others would do this and also ventilate the closet. Filling the closets and traps with raw oil or glycerine after shutting off the water is a favorite recommendation. Some plumbers favor an adjustment of the valves so there will be a continual dripping of water. The *American Artisan* wisely suggests that, where a house is to remain closed for some time, the best plan is to arrange with some person to go into the house once a week or so, let the water circulate throughout the house, and take a look around to see that all is right.

Central Park Trees.

The trees in the Central Park, in this city, have not looked as well as they do just now for a number of years. The cool, late spring, the abundant rains of May, and the heat of the early summer have all been favorable to a vigorous and healthy tree growth. Most of the trees, with the exception of the half dead Norway spruces, which are covered with red spiders, are unusually free of insect pests. The American elms have made a remarkable growth, and when planted under favorable conditions, are now objects of great beauty. The American and European lindens are very fine, too, and several species are now covered with their fragrant flowers. The two silver lindens (*Tilia argentea* and *T. petiolaris*) are striking and attractive in habit and in the pleasing color of their foliage. No foreign trees are better entitled to a place in our plantations than these two European lindens, of which many fine specimens exist in the park. The six thousand trees which have been removed from the park during the past year are not missed. The work, as far as it goes, seems to have been judiciously planned and executed. No one would now suspect that a single tree had been cut; and the park plantations and the general appearance of the park would be immensely improved if thirty or forty thousand trees were removed during the present year. They would no more be missed than those already cut are missed. Dying conifers still disfigure the park in all directions; everywhere fine trees are in danger of being ruined from overcrowding, while the removal here and there from the plantations of inharmonious elements, as where, for example, trees with light and feathery habit are too closely associated with round-headed, compact trees, would add immensely to their natural and harmonious appearance. There are cases, too, where trees of peculiar rarity or interest should be freed from encroaching neighbors, that their full development and long life may be insured. This is the case with the Asiatic elm (*Ulmus parviflora*) which stands near the Seventy-second Street entrance from Fifth Avenue. This is without doubt the largest and finest specimen of this rare tree in the United States. It is a specimen not only of extraordinary interest, but of great and peculiar beauty. It now forms one of an inharmonious group of three trees. On one side it is being pushed out of shape by a common tupelo or sour gum tree, while its branches on the other side are stunted by a common European maple. It is hard to imagine a more incongruous or less pleasing combination of trees; and it is clearly for the interest of the park and of the public that the maple and the tupelo should be cut away and that every opportunity should be given to the elm to spread its branches out freely in all directions. There are hundreds of just such cases all over the park where interesting and valuable trees are being ruined in this way; but in the particular case to which we venture to call the attention of the park authorities, the prominent position of this beautiful tree and the great interest which it excites among all persons who know it, seem to warrant us in urging prompt action to insure it from further disfigurement.—*Garden and Forest.*

Slipping.

The statement that engines slip continually while running at full speed is often made, but almost invariably by persons of no practical experience, who appear to be unaware that any slip of the drivers can be instantly detected by an engine runner. Any one who has run a fast train knows that on entering a damp tunnel slipping occasionally occurs, but the vibration imparted to the engine is so peculiar that no one who has once felt it is likely to fail to recognize it again. Messrs. Abbey and Baldwin, when making some observations on the running of a Jersey Central express passenger engine on the Bound Brook route,* found that the slip at high speed was practically *nil.* The wheels, as calculated from their diameter, should give 298·98 revolutions per mile. A counter showed that 298·62 revolutions per mile had been actually made, the difference being negative and only ⅓ of a revolution per mile, or within the limits of errors of observation. As these engines are run very hard and made to do their utmost, it might reasonably be expected that they would show slip, if any existed at high speed. It is therefore reasonable to suppose that any continuous slipping at high speed is non-existent. The continuous slipping theory is supported by so very little evidence, either practical or theoretical, that it must take its place among the numerous other pseudo-scientific delusions.—*Railroad Gazette.*

A Remarkable Meteor.

A dispatch from Appleton, Wis., says: "At 2:30 in the afternoon of July 2 a tremendous meteor was observed to pass across the southern sky from east to west. It rivaled the sun in brightness and left a long train of sparks in its wake. The meteor moved slowly and was evidently at a great height. It was visible for half a minute, and finally faded away without noise."

*See *Recent Locomotives* (enlarged edition), p. 79.