

THE WATCHMAN-WARDER.

Volume XLIII. Number 36.

LINDSAY, THURSDAY, SEPTEMBER 6th, 1900.

75 Cents per annum

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This is the season for Fish Stories, but we come forward and tell you a

Dry Goods Story

more reliable than any fish tale ever spun.

Summer Goods will soon be out of sight, but then the Fall brings everything new.

We have beautiful New Estamine Friezes, Cheviots, Serges, Zibelines, Ladies' Cloths, Irish and Canadian Homespins.

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Men's Furnishings, Ordered and Ready-Made Clothing, and everything that men need.

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HOW TO MAKE THOSE GRANOLITHIC WALKS

Road Commissioner Campbell gives some General Information.

The granolithic walks have come to stay. They are reckoned to stay for 20 years and their record is about 100 times better than that. Portland cement has in derision the third and fourth generation. That is, if it is properly handled. Its use in walks has become so general of late that the words of Commissioner Campbell in his report will be read with interest. The following paragraphs refer only to the use of the cement in walks. He says:

The advisability of replacing old plank sidewalks in very many cases with the more permanent concrete has been frequently urged, and a specification was included in the report of this department for 1898. In so doing, however, it has not been advocated that an inferior quality of concrete would be preferable to a good quality of plank walk, the comparison being, in every case between good quality of both plank and concrete.

The first cost of plank walks is about five cents a square foot. The life may be extended to about fifteen years, but for the last ten years repairs will have been many. Each repair requires that a man be sent with material so that the patching process is very expensive in proportion to the first cost. The result is to about double the original cost of the work in a term of fifteen years, making the cost ten cents a square foot.

Cement concrete walks are being laid for eleven and twelve cents a square foot, although the circumstances of some cases, the difficulty of obtaining broken stone, gravel, or sand, may require a slightly increased outlay. The life is indefinite for we really do not know how long concrete work will endure, but we do know that concrete structures of the Romans, built 2,000 years ago, are still in existence. It is not too much to expect that the concrete walks now being laid will do service for fifty years if laid as they should be. The cost after a term of fifteen years is very little more than that of plank walks, so that their life beyond a term of fifteen years is a practical saving to the municipality.

The use of concrete is far from being properly understood by those who have charge of sidewalk construction in some municipalities, and the result has been in many instances, that most unsatisfactory work has been obtained.

Cement concrete in walks, culverts and other structures of a like nature, is lasting and serviceable, and when properly mixed and rightly put in place, is in the best sense economical. But defective work shows itself quickly. Wherever there has been careless or "scamped" work, it is very likely to show itself after exposure to a winter's frost and dampness. Work which stands for two years without signs of cracking, shaling or crumbling is likely to be permanent, its life conditional chiefly upon the actual wear which it receives.

CAUSES OF POOR WALKS

Among the most frequent causes of poor concrete is the use of an inferior brand of cement. A cheap sidewalk obtained by the use of cheap cement will, in the end, prove exceedingly costly. Cement is a material of widely varying degrees of excellence, and experiments should not be tried by the smaller municipalities. There are good and reliable brands of Canadian Portland cement which have proven their qualities in large government works, and in other extensive contracts, and to go beyond these is unnecessary and in many cases entirely unsafe.

Just as to how cement can be of poor quality is not understood by many, and it may be pointed out as one example, that the presence of free lime causes what is known as "blowing" in the finished concrete, and rapidly results in decomposition of the sidewalk.

Again among causes of inferior sidewalks is the use of gravel and cement to form the entire work, in place of a proper mixture of sand, cement and stone. In the composition of concrete we first prepare a mortar of sand and cement with just sufficient water to make a plastic mass; this is mixed with a quantity of stone in such proportion that the mortar will completely fill the voids between the stones, with a proper excess of mortar for safety. There are certain definite proportions of cement, sand and stone which must be uniformly mixed in producing a good quality of artificial stone.

In using gravel only, the difficulty arises from the fact that the cement, sand and stone are not and cannot be expected to be mixed uniformly in those propor-

tions. Gravel usually contains sand, but not in uniform quantities, nor in any definite proportions. Some pockets of so-called gravel will be almost completely sand, while adjoining it there is scarcely any sand, perhaps almost clean stone. To mix such material with cement to produce concrete, while in many cases it may be successful, is always hazardous. The only safe way, where gravel is the material to be used, is to separate by screening, the sand and stone which compose the gravel, then to mix the cement and sand in proper proportions to form the mortar, to which is then added the stone, uniformly, and in its proper proportion.

MIX CAREFULLY

A cause of an inferior sidewalk is that the materials composing it have been carelessly mixed. The cement and sand should first be mixed dry. This should be turned over and mixed with shovels not less than ten times before the water is added. Water is then added in just sufficient quantity to slightly dampen the mixture, and the paste should be again turned over and mixed not less than six times. If this work is properly done, each grain of sand will be surrounded by a sufficient coating of cement. This mortar having been spread out, the stone should be added and the whole turned over and mixed not less than ten times before being used, the last mixing ensuring that each stone is completely surrounded by a coating of mortar.

The use of too much water in mixing will produce, when set, a concrete of spongy texture. Concrete when ready to be put in the work should have the consistency of freshly dug loam, and should be rammed into place until moisture appears on the surface.

Neglect to keep a newly laid walk damp, and protected from the rays of the sun, will permit the surface to set too rapidly. Minute, hair-like cracks will appear on the surface. These fill with water, which freezes in cold weather, and the expansion destroys the surface of the walk, causing a thin layer to shale off in patches. The same shaling will result from laying concrete in frosty weather; nor should it be mixed nor laid in wet weather.

Another cause of the failure of sidewalks is that the concrete has not been properly and completely separated into flags to allow for expansion, with the result that in hot weather, when expansion takes place, the sidewalk is thrown up at points of least resistance. The expansion of concrete is about the same as that of steel, and no railway company would contemplate for an instant the laying of a continuous steel track in which there are not joints at proper intervals to allow for this expansion. This is true to the same extent with a concrete walk, and every care must be taken to first cut through the foundation layer of concrete, then through the surface layer directly in line with the joint underneath. The entire joint should then be filled with sand to ensure complete separation.

The surface layer of the sidewalk must be laid upon the foundation layer while the latter is still damp and before it is set, otherwise there is not a proper union of the two, and shaling will result.

The effect of frost on a wet sub-soil must also be guarded against by the use of under-drains, otherwise the upheaval of the ground, under the expanding influence of frost, is very apt to crack the walk. The separation of the sidewalk into flag divisions, however, is also of service in this respect by giving the separate divisions an opportunity to rise and subside with the soil underneath. No dependence, however, should be placed on this, as a saturated sub-soil will eventually cause a very uneven surface, since the separate flags when once upheaved seldom return exactly to their original position.

Walks are very commonly laid by contractors who furnish their own specifications and agreement. Where such is the case, the agreement should contain a clause specifying in the most stringent terms that the walk is to be kept in perfect condition, order and repair, so that at the end of the term of guarantee, usually five years, the walks shall have given satisfactory evidence of their proper construction and durability. The guarantee is generally so worded that it can be interpreted to mean that the contractor is simply to keep the walk in repair for five years, and entailing no responsibility on the contractor even if the walk at the end of that period is ready to crumble to pieces, demanding almost immediate reconstruction. A town, however, should not depend upon the contractor's guarantee, but should employ an experienced and reliable inspector to see that the specifications are faithfully carried out.

Elder, Dempster & Co., will acquire a fleet of 25 steamers belonging to the British & American Steam Navigation Company at a cost of £900,000.

HE NEVER FELT ANY BETTER IN HIS LIFE

So Writes Sergt. McCrea From the R.C.R. Camp at Springs.

The following brief letter to his sister is the last from Sergt. McCrea:

Spring, July 31, 1900.

Dear Ella:—Mall which came Thursday brought me your newswy letter of June 19th. Nobody has had any papers for a month. We heard a few days since that Gen. Buller had captured 1500 Boers and several guns, killed and wounded 500 and had 1200 casualties on his side. Yesterday it was officially announced that 5000 Boers had surrendered at Bethlehem in the Orange Free State.

Trenches are still being constructed here. Nothing is said just now about going home, but the draft and employed men are getting squad drill 4 hours per day. This, I suppose, is in view of a review, somewhere, sometime. I am orderly man to-day and am for outpost to-night, so I am trying to get this ready for the mail.

I am in good health and weigh within one pound of the highest I ever did. The weather is getting a little warmer, the days a little longer, and consequently we stand to arms fifteen minutes earlier now. Two men arrived here Monday morning, and have been taken on the strength of R.C.R. One is Doey of Campbellford.

Aug. 1st.—Mall arrived last night bringing only papers we should have had last week. Dr. Barrie of the Y.M.C.A. has opened a coffee room which is much appreciated by the men. Sixpence will you a good meal of fruit sandwiches or buns and tea or coffee. In the regular way sugar sells at one shilling and three pence per pound, and rice and oatmeal at one shilling per pound. I think the low diet we had was good for us, for everybody looks extremely well. JOHN.

News of the Week

—The strike of colliers and railway men in Wales is ended, the companies having acceded to the demands of the men. Over 50,000 men were out.

—Miss Tillie McCrudden of Belleville, while returning home from a visit in Toronto, met with an accident at the station there, which cost her her life. It appears that the young lady was asleep when the train arrived at Belleville and only awoke after the cars were in motion again. The train had gained considerable speed when Miss McCrudden attempted to get off near the east end of the platform. She was thrown between the platform and the train, and terribly crushed, dying at the City hospital a few hours later. Miss McCrudden leaves a mother, two sisters, and a brother.

—An important deposit of lithographic stone has been found on Burnt Island, Lake Temiscamingue. This is said to be the only bed of pure lithographic stone in Canada, and, in fact, will be the only place in Canada from where such stone will be taken. The most of the stones now in use are imported from Bavaria, and a big saving will consequently be effected. Burnt Island consists of 1,500 acres, and is said to be covered with the stone. The material is in layers, and stones may be taken out in any sizes. The claim is made that the stone from Burnt Island is as good as any now in use. An idea of the value of the lithographic stone may be obtained from the fact that a slab four feet in width and six feet in length, and perfect on both sides is valued at \$1,000.

—A terrible hail and rain storm swept over the Bancroft section on Tuesday afternoon of last week, which did a great amount of damage to the crops and buildings in the surrounding country. Some of the farmers residing in the Pandash Lake district will not have a bushel of grain to harvest, the hail and rain having swept over the fields, crushing the grain into the earth and leaving it useless. Hail stones as big as hen's eggs were a common thing, and some were two or three times that size. Houses were left without a pane of glass, and barns and outbuildings were wrecked. In Bangor township the storm was even worse. Large trees were torn off close to the roots, and any hay or grain that was cut and left in the fields was lost forever, being carried for miles by the strong wind. A man named Dupuis almost lost his life. His barn was blown to pieces, and one of the beams struck him in the back, inflicting serious injuries. It was thought that his back was broken, but such was not the case, and he is now progressing favorably. Several other barns were shattered, cattle and other animals were killed, and altogether the storm was the worst that has visited that section for many years.