

Paper Rails.

The paper industry seems inclined to make a determined fight with the iron trade. Paper car wheels have already proved a success, and now paper pulp rails follow closely on their heels. It is said in favor of the new material that the cost per mile will be less by one-third than that of steel, and that it will last much longer, being almost indestructible. There is no expansion or contraction from heat and cold, and there are no loose or open joints. Being much lighter than iron or steel, the rails can be made much longer and the connections firmer, thus insuring an even and smooth road-bed. An official of the road said that much heavier trains could be hauled over a track made of this class of material, the adhesion of the drivers of the engine being greater than to steel. Consequently an engine of the same weight and cylinder surface can do a greater amount of work without a corresponding increase in the cost of fuel. The smoothness of the rail, it is also claimed, will decrease materially the wear and tear on rolling stock. The rails are made wholly of pressed paper pulp, and are so solid the sharpest ax will not make the slightest impression on them, and the action of the atmosphere has no effect on them. Paper companies in the North-west take note.

The Parent Wheat.

In a country such as this where wheat is the grand staple a large amount of interest necessarily centers in the history of the product. From McMillan's Magazine we copy the following in reference to the question: The nearest form of wheat now found wild in the British Isles is the creeping couch grass, a perennial closely agreeing in all essential particulars of construction with our cultivated annual wheats. But in the south European region we find in abundance a large series of common wild annual grasses, forming the genus *Egilops* of technical botany, and exactly resembling true wheat in every point except the size of the grain. One species of this genus, *Egilops ovata*, a small, hard, wild, wiry annual, is now pretty generally recognized among botanists as the parent of our cultivated corn. There was a good reason, indeed, why primitive man, when he first began to select and rudely till a few seeds for his own use, should have specially affected the grass tribe. No other family of plants has seeds richer in starches and gluten, as indeed might naturally be expected from the extreme diminution in the number of seeds to each flower. On the other hand, the flowers on each plant are peculiarly numerous, so that we get the combined advantages of many seeds, and rich seeds, so seldom to be found elsewhere, except among the pulse family. The experiment conducted by the Agricultural Society in their College Garden at Cirencester have also shown that careful selection will produce large and rich seeds from *Egilops ovata*, considerably resembling true wheat, after only a few year's cultivation.

Primitive men, of course, did not proceed nearly so fast as that. Of the earliest attempts at cultivation of *Egilops* all traces are now

lost, but we can gather that its tillage must have continued in some unknown western Asiatic region for some time before the neolithic period; for in that period we find a rude early form of wheat already considerably developed among the scanty relics of the Swiss Lake dwellings. The other cultivated plants by which it is there accompanied, and the nature of the garden weeds which had followed in its wake, point back to central or western Asia as the land in which its tillage had first begun. From that region the Swiss Lake dwellers brought it with them to their new home among the Alpine valleys. It differed much already from the *Egilops* in size and stature, but at the same time it was far from having attained the stately dimensions of our modern corn. The ears found in the Lake dwellings are shorter and narrower than our own, and the spikelets stand out more horizontally, and the grains are hardly more than half the size of their modern descendants. The same thing is true in analogous ways with all the cultivated fruits or seeds of the stone age; they are invariably much smaller and poorer than their representatives in existing fields or gardens. From that time to this the process of selecting and amelioration has been constant and unbroken, until in our own day the descendants of these little degraded lilies, readapted to functions under a fresh regime, have come over to almost all the cultivable plains in all the civilized countries, and supply by far the largest part of man's food in Europe, Asia, America and Australia.

Fifty Years' Progress.

The years roll on and we take little count of the remarkable progress that is being made in our time. We are living in an era not paralleled by any. In reference to this question we quote from the *Denver Journal of Commerce*:

Ten years ago there was no Centennial State, no millionaire in Colorado, no electric lights, no telephone or phonograph.

Fifteen years ago, and there were no railroads penetrating the rocky mountains, no palace sleeping cars in existence, no narrow-gauge railroads or patent air brakes.

Twenty years ago, and there were but five railroads running to New York, and but three to London, and none west of the Missouri River.

Twenty-four years, and there was no ocean cable, no signal service, no telegraph or railroad crossing the continent, and no oleomargarine sold for creamery butter.

Thirty years ago, and it took sixty days to go from the Missouri River to the Sacramento, and not a white man found in that vast expanse, save it were a handful at the Holy City.

Thirty-five and gold had not yet been found in the Sacramento, Pike's Peak not heard of, the silver mines of America were in Mexico and men were yet sold as chattels.

Forty years, and coal oil had not been discovered in the bowels of the earth, the telegraph had not been invented, and not a railroad built west of the State of New York, and the great New York and Erie was yet on paper.

Forty-five years, and there was no pathway across the continent of America, the Great Salt Lake had not been discovered, and not a hundred miles of railroad in the entire country, and but fifty in all Europe.

Fifty years ago, and there were no railroads, no gas lamps, no coal oil, no electric lights, no telegraphs, no public schools, no carbonates, and but little improvement. The cities of New York, Boston and Philadelphia were lighted with whale oil lamps and tallow candles, and all minor towns groped their way in darkness.

Soda Ash Manufacture.

The manufacture of soda ash is very shortly to be commenced over the line at Warsaw, New York State, by English manufacturers. This alkali is used extensively for making glass, paper, soap, etc. The consumption of soda ash in the Dominion of Canada would easily keep a manufactory going all the year round. This article is made from sulphuric acid, salt, limestone and soft coal. It is extensively manufactured in the United Kingdom at Widnes, St. Helens, Runcorn, Newcastle-on-Tyne, Glasgow, Dublin, Warrington, etc.

Soda ash has been imported into the United States for some years past for the special purpose of making salsoda or soda crystals. This venture, however, has not been attempted in Canada, although the consumption would warrant the erection of a work of medium proportions. Bicarbonate of soda is made from salsoda. The latter is placed into leaden chambers, afterwards sealed up, and then carbonic acid let in the top of the chambers. After being thoroughly carbonated the article is put into a drying kiln, and afterwards undergoes a milling process, the same as flour. During the previous century alkalis were almost exclusively made in Germany, but owing to the deposits of sulphur ore, coal, limestone and the manufacture of salt being so well centered in the United Kingdom, the German makers were almost entirely driven out of the market by British manufacturers, who have held the position up to the present. It yet remains to be seen whether the Americans can make alkalis as cheap as in the mother country. The problem is a doubtful one, owing to the heavy wear and tear of plant through corrosion and difference in price of labor. The project, however, is well worth a trial. The result is being anxiously looked for on both sides of the Atlantic.

Save the Quarters.

The *Toronto Budget* has the following very sensible remarks, and which might be acted on with profit by many: Twenty five cents a day will accomplish a great many things. There are very few persons having any income at all who cannot afford to spend such an amount. There are very few persons who do not expend it for something or other besides their necessary expenses of living. It will buy from one to five cigars a day, depending upon the kind. It will pay for two or three drinks. It will pay for a number of horse-car rides. Little nick-nacks of great variety can be bought with it.