

water the pretty tiny white scales of crystalline hydrated plumbic oxide form with very great rapidity, if there is free access of air, and the bottom of the vessel containing the lead and water will speedily become covered with a white deposit. Freshly fallen rain water acts nearly as well. Hence rain water for alimentary purposes should never be collected from leaden gutters.

On the other hand, however infinitesimal the amount of lime salts in solution may be, if they can be detected at all the water in which they are found is positively free from all action as regards lead. Soft water dissolves lead; hard water preserves it untarnished.

No other salts appear to preserve the lead so entirely from oxidation as do the salts of lime. Inasmuch, however, as it is impossible for the water to percolate or pass over any considerable amount of soil without taking lime into solution, and this lime it is impossible wholly to remove by any means short of a complete distillation, it follows that all river water may be conveyed with the most perfect security through lead pipes without in any way interfering with its wholesomeness as a potable water.

In Paris the matter is still being enquired into, and reports on the subject are expected from M. Bouilland, Fordos, and Boudet; so that, perhaps, after the ghost of lead-solution in drinking-water has been duly laid by so many priests of science, it will not reappear for some few years to come, at least not in such a bold way as to affect the repose of the scientific world.

THE MINERAL WEALTH OF THE NORTH.

There can no longer be any doubt that the country to the north of this village abounds with iron ore of a superior quality. Specimens of ore are frequently brought to our office by persons from the back country, and in each case the specimens have been of a good quality, and were represented to have been procured at places where the supply was in prodigious abundance. Reports reach us, moreover, from many quarters of fresh discoveries of iron ore. A careful search will probably disclose the presence of other valuable minerals, and at no very distant day we may expect to find the mineral treasures of our back country become the source of greater wealth and prosperity than that which has been flowing for so long a period from the timber and other produce of its forests. It would really seem Nature had destined the back country for a gigantic metallurgical laboratory. Not only is the ore found in the richest profusion in the heart of the forests which supply the fuel necessary for the extraction of the metal, but in close proximity are found the lime stone, with which smelting cannot be carried on, and the most wonderful system of lake and river navigation for its transport that can be found in any part of the world. The chain of waters of which Bobcaygeon is the centre gives a navigation from Port Perry to Bridgenorth, some seventy miles in length, and throughout the whole of the back country are chains of lakes of varying length on which steamboats can ply with advantage. A reference to the letter of our Minden correspondent will show that a proposed dam at the outlet of Mountain Lake will give an uninterrupted navigation nearly thirty miles into the townships of the English Company, and the commencement of this navigation is scarcely a mile distant from the termination of the navigation of the Gull River, which latter, at a comparatively trifling expense, could be brought into connection with the navigation that connects Port Perry, Lindsay, and Bobcaygeon. Burnt River could also be made available for a barge navigation, and thus every point of the mineral region would be brought within a distance of a few miles of water transport. Seeing that the consumption of iron is largely increasing, who can doubt that our back country iron ore will ere long furnish the material for a great, important, and profitable industry?

In the meantime, a proposition is on foot to open a good winter road from Nogey's Creek, on Pigeon Lake, to the Snowdon Iron Mine. As this would pass directly through the thriving Swamp Lake Settlement, it would be a most desirable local improvement. From navigable water in Pigeon Lake to the Campbell mine would be about seventeen miles, and this winter road would probably ultimately form the track of a tramway or railroad.—*Bobcaygeon Independent.*

THE PROPOSED CHAMPLAIN SHIP CANAL.

By reference to the annexed map, the reader will be enabled to trace the extended route which it is proposed to open to commerce, by the construction of a ship canal and the improvement of the Hudson River between Troy, N.Y., and Whitehall on Lake Champlain. A perfectly feasible engineering work is contemplated, which, while inconsiderably small beside others of a similar nature which have been completed throughout the world during recent years, nevertheless offers beneficial results of the highest importance to the North and North-west of the United States, in that it provides undeniably the natural and best route from the Great Lakes to tide water.

From New York to Troy, a distance of 150 miles, the Hudson is navigable, as is well known, by vessels of large tonnage. From Troy to Fort Edward, a distance of forty miles, there is an elevation of 116 feet to be overcome; from Fort Edward to the summit, a distance of two miles, an elevation of thirty-one feet; from the summit to Lake Champlain, at Whitehall, a distance of twenty-one and three-tenths miles (seven miles of which is in Wood Creek), there is a descent of fifty feet to Lake Champlain. Thus it will be seen that the highest point between tide water and the St. Lawrence is 117 feet, and that the entire length of the river and canal improvement is but sixty-three and three-tenths miles. Eleven locks and dams are required, the former to be 300 by 45 feet in size, to overcome the elevation and to give ten feet of water in the river. Wood's Creek, which runs into Lake Champlain, is already nearly ten feet in depth, and would require little straightening, so that the canal portion to be constructed is reduced to but seventeen miles, requiring but two locks. The width at the bottom is to be 110 feet and at surface 150 feet.

The route from Whitehall extends up through Lake Champlain to the Richelieu river, and thence to St. John's, where the latter stream is entered by the projected Caughnawaga canal. For this enterprise a charter has already been granted by the Canadian Government, and work is to be speedily begun. The canal extends to Caughnawaga upon the St. Lawrence river, and is 29 miles in length. The country through which it passes is almost a dead level, there being a rise of but 25 feet, so that the entire work can be built in half cutting—that is, a cut of six feet and a bank of six feet would be all that would be required to construct a canal of 12 feet in depth. From Caughnawaga the route continues, *via* the Beauharnais canal of eleven miles and the Cornwall canal of twelve miles (which canals are constructed around rapids in the St. Lawrence river, and which rapids are now being improved so that vessels on the downward course do not need to use the canals), through the St. Lawrence to Lake Ontario, and thence through that lake and the Welland canal (twenty-seven miles) to Lake Erie. From Lake Erie, vessels of any tonnage can pass into Lake Huron, Lake Michigan, and Georgian Bay; and *via* the Sault Ste. Marie canal, of a little over one mile in length, vessels of 2,000 tons can pass from the waters of Lake Huron to Lake Superior. From Green Bay, an arm of Lake Michigan, there is now an improvement in process of construction which when completed, so improve the Fox and Wisconsin rivers that water communication will be opened between the Mississippi and Green Bay, a distance of 278 miles, and another already concluded by the Illinois and Michigan canal and the Illinois river to the Mississippi river, a little above the mouth of the Missouri. Through this entire distance, from the lakes to tide water, with the exception of eighty-four miles of ship canal, there is, so far as speed is concerned, a free and uninterrupted water way upon which steamers or sailing ships can be propelled at an average rate of eight miles per hour for steam vessels. From all the ports on the upper lakes to the foot of Lake Erie, all vessels whose cargoes are destined for tide water by any route will be upon equal terms. At that point Nature has presented a barrier, and here the products of the west take different routes to different markets. By the Champlain route a boat could come from Port Colborn, near the foot of Lake Erie, to tide water (without breaking bulk) in four days' time, allowing only the same rate of speed in the eighty-four miles of canal as are now made on the Erie canal, as against an average of at least ten days from Buffalo to Albany by the latter. This saving, of time and interest, of the expense of breaking bulk, of transshipment and division of cargo, requires no argument to prove its importance. It is believed, moreover, that a canal adapted for a vessel of 1,000 tons—as it is proposed to construct that