

INFLUENCE OF FORESTS ON WATER-COURSES.

We take the following from a paper read by Mr. David D. Thompson, of Cincinnati, before the American Association for the Advancement of Science, at that city, last month. The rapid destruction of our forests has at last begun to attract public attention, and the efforts of those who are endeavoring to awaken interest in the preservation of the standing trees, and to promote their cultivation where none exist, are bearing fruit, especially in the prairie states of the West and Northwest. The arguments used are usually such as may be embraced in the question: What shall we do for fuel, for fences, for ships, for building material, for railroad ties, and for the innumerable industries of which wood forms a part, when our forests have entirely disappeared? For all these purposes it is probable that some substitute may be found. But there are other uses for our forest trees, and for which nothing else can take their place. Important, possibly most important, among these is the influence, and the effect of their removal, upon water-courses, such as lakes, rivers, creeks and brooks, and also upon springs and wells.

Trees during a rain storm retain a vast quantity of water. In that form, the soil covered with forest receives a certain portion of the whole rainfall, the trees having absorbed four-tenths. The portions which will vary, depending upon the character of the foliage and the position of the trees to each other.

Besides, what is retained by the twigs and leaves, the roots, by penetrating the soil around them loosen, induce the ready absorption of the larger part of the rain which washes the ground, and much of which, but for the trees and their effect upon the soil, would immediately flow away. The foliage of the trees by partially or wholly excluding the sun's rays, prevents, in a large degree, the evaporation of the water in the soil, which, in a treeless region soon renders the ground as destitute of moisture as though no rain had fallen.

By the absorption of the rain by the trees, the flooding of the streams is largely prevented; and by retaining the water in the natural reservoirs, and allowing it to flow off gradually, the streams are supplied with water continuously. It can safely be said that no stream having its source near a tract of forest has ever run dry.

In the early history of the eastern and middle states, a farm was regarded as lacking in an essential feature if there was no spring upon it, and the farmer's wife would as much expect to do without milk pails as to do without a spring-house. But now a spring-house is a rare sight. When the pioneers settled these lands, they were covered with forests, and the first and most important work of the new settler was to cut away the timber, in order to get land upon which to raise food for himself and family. For many years there was, of course, no apparent effect upon the water courses; but as the number of settlers increased, and the amount of forest land decreased, the springs began to dry up, and with them the brooks, creeks and smaller rivers.

It is not unusual for many localities the beds of what were formerly important mill streams waterless, except when filled by sudden freshets; and in this state certain streams emptying into the lake which were once declared navigable, will not now float a canoe. Previous to 1832 a Captain Delorme, of Hamilton, Ohio, annually sent a fleet of flat boats down the Big Miami river, and the risk; but with the destruction of the forests along that river, the risk became so uncertain that the enterprise was of necessity abandoned. Professor N. Aberry, in his travels of Ohio, states that the Ohio river had been getting lower and lower, in dry seasons, for many years. About 1871-72 the Ohio sank lower than had been known before, and at Smith's Ferry, where the Pennsylvania line crosses, a ledge of rocks was laid bare that had not been seen or heard of by any one living in that vicinity.

Latham says that, "such have been the changes in the flow of the Milwaukee river, even while the area from which it receives its supply; but partially cleared, that the proprietors of most of the mill and factories have found

it necessary to resort to the use of steam, at a largely increased yearly cost, to supply the deficiency of water power in dry seasons of the year. The floods of spring are increased until they are sufficient to carry away bridges and dams, before deemed secure against their ravages. What has happened to the Milwaukee river has happened to all other water-courses in the state from whose banks the forests have been removed, and many farmers who selected land upon which there was a living brook of clear, pure water, now find that the brooks dry up during a considerable portion of the year."

Even in the state of Tennessee, where comparatively but little of the original timber has been cut, the same results are manifest. Hon. J. B. Killbrow, late commissioner of agriculture of that state, relates that, upon visiting the home of his childhood, a short time ago, he was surprised to what at the time he left his childhood's home, thirty years previously, was a considerable stream flowing through his father's farm, had entirely disappeared, and its former bed had been ploughed up. The reason for it he found in the removal of the forests along both its banks. A striking illustration of the total disappearance of a running stream is found here in Cincinnati. Deer Creek, in the boyhood of residents of this city, now of middle age, flowed with a stream of sufficient volume to turn a mill. The despoiling of the hillside, and the consequent exposure of the entire surface to the rays of the sun, have dried up the springs which formerly fed it, and no water now flows in its former bed.

The mountains are but a forest land, and up to a certain elevation would be perpetually covered with trees. To settlers living at the base of mountains, the forest trees are of incalculable value, for by excluding the sun they prolong the melting of the snow, absorb a large percentage of the heat which has melted, prevent its flowing in a flood, and carrying death and destruction to all that may lie in its track. And the fallen twigs and branches, the undergrowth, the mosses and other herbage among the decaying leaves, and the millions of leaves which break the force of the falling rains, which come quietly to the earth, and sink into the soil until they reach internal caverns, or local strata, from which they are gradually distilled through perennial springs, that keep up a constant and regular supply for the streams.

Wood for Fuel.

The United States Census Bureau has been gathering some facts upon the consumption of wood for fuel. After taking the figures in our last annual for the coal output, the superintendent says: "Even with the large increase in the coal production during the last half century, wood still keeps in the van as fuel, the consumption in this country being in favor of wood against coal in the proportion of four to one. In Maine, New Hampshire, and Vermont, wood is almost the only fuel. In many counties of Massachusetts coal is ahead of wood, while in the States generally, as well as in Connecticut, the percentage is about equal. Thickly populated cities, like New York, and Hudson and Essex counties, New Jersey, containing the cities of Jersey City and Newark, are not doing as entirely coal. In Pennsylvania, the great coal state, there are many entirely coal counties, while in others, as Crayford, in the western part of the state, not over 3 per cent. of coal is used. The same difference holds good in different parts of New York."

A Good Deal of It.

At the late bankers' convention at Niagara Falls, N.Y., the future utility of the water power of the falls was discussed, and the statement made that the conversion of the 60,000,000 cubic feet of water hourly passing down the river into horse power under a fall of 200 feet, would yield an aggregate of 3,000,000 horse power. A full utilization of this enormous force would serve the present needs of a population four times that of the United States to-day. Doubtless the time is not far distant when it will be partly utilized, and it must be a sort of relief to the economist to know that such a wonderful natural reserve force is at hand, if the need for it should ever arise.

A WESTERN LUMBER KING.

Hon. Philletus Sawyer, one of the senators from Wisconsin and a heavy lumberman, has lately been written up on the political side by a correspondent of the Chicago Times, who introduces into his article the following, which will be interesting to his fellow lumbermen:—

Mr. Sawyer's home has been in Oshkosh for 31 years, and everybody, irrespective of party, not only in the city but in this entire section, is his friend. He owns two or three counties in the piney portion of the state, half a dozen swamps, a bank, a large share of a railway, and a goodly bundle of Government bonds. He is a thorough business man in the best sense of the term, and numerous good stories illustrative of his shrewdness are told by his admiring neighbors. A great many years ago, knowing that a very large tract of pine land, located in northern Wisconsin, was to be sold at auction in New York, he started out alone, and made careful minutes of the location and extent of the most valuable sections of the tract. When the sale began he was on hand, and began bidding on the parcels which he wished to purchase. Some wealthy New Yorkers, knowing that he had been on the ground and had spied out the best lands, watched his course, and always outbid him. He went to the auctioneer and induced him to postpone further sales till the next day. Over night he employed an agent, and giving him a memorandum of the sections he wished to buy, went back prepared for another encounter with his eastern competitors. The sale went along very smoothly. Whenever Mr. Sawyer bid on a parcel of land the New Yorkers raised him out. While Mr. Sawyer's agent bought his lots without opposition.

Shortly afterward the New Yorkers, who felt that they had done a cunning thing, came out to Oshkosh to inspect their purchases. They visited Philletus at his pleasant home, and entertained them well. They apologized for outbidding him, but said they had no alternative in his judgment that they know they must make money on the lands. He assured them that he had no hard feelings toward them, and hoped they would be pleased with their purchase. Just as they were starting out to go with a merry twinkle in their eyes, he said, "I would advise you if you want to get any lumber out of this ground, to get it while you can, for it will be long before it will be sold again."

After the visit of the wise men from the east, Mr. Sawyer, after discovering that they had bought a quarter interest in a tract and bottomless marsh, while Mr. Sawyer owned all the good pine land in the tract. They did not stop at Oshkosh on their return trip, and never registered their apologies for having outbid the prospective senator.

Mr. Sawyer's word is considered as good as a government bond of the registered variety by all who know him.

A fortnight ago a wealthy mill owner of Fond du Lac went over to Oshkosh, and meeting Mr. Sawyer at the depot, said, "Sawyer, I want to buy your logs."

"I'll sell them," was the reply.
"How many have you got?"
"About five million feet."
"Are they as good as last year?"
"Yes, just as the same."
"What'll you take for them?"
"Fourteen dollars."
"All right. I'll take them, and send you a check for \$70,000 in the morning."

This conversation is a fair sample of the senator's way of doing business.

A good many people throughout the state maintain that Mr. Sawyer is a dangerous power in politics, but they fail to show wherein he has as yet done anything amiss. Few of them have as large interests at stake in the state, or can as well afford to be honest in their private or public relations. Surely it ought to be considered a credit rather than a reproach to Mr. Sawyer that he possesses the energy and ability to make his way from poverty to wealth, from an humble saw mill on the banks of the Fox river to the senate of the United States, retaining throughout his whole career the confidence and esteem of the people among whom he lived, and who have known him best.

THE WORTH OF TIMBER.

The following letter appears in the London Timber Trades Journal:—

Sir,—I have read with much interest the account given in your last number, at page 135, of the increasing value of timber in the North American territories, which the writer traces to its wholesale destruction by the original settlers, who did not then know the value of what they were destroying by every means in their power, which, he says, "from the standpoint of the present time may be characterized as simply atrocious." Notwithstanding which, he goes on to account for it in a very natural way, and we learn from it that, so far from there being any atrocity in it, the first settlers had no other option but to destroy the timber which cluttered their ground or starve. An emigrant who becomes owner of a tract of land in a new country has first to consider how, with the means at his disposal, he can make it support himself and family with the least possible outlay of money, which probably is a scarce article with him. If he finds his land covered with timber of the most useful description to distant civilization, it is to him not only a superfluity, but a mortal enemy to be grappled with and overcome before he can turn the ground on which it grows to any useful purpose—that is to grow corn and edibles, or green herbs for the service of man. If he could only wait till civilization came a little nearer to him, or till a tolerable road was made for him to the nearest navigable river—which may be done ten years hence—he might make something of his timber; but he must get it out of his way at once, or as much of it as will enable him to sow a piece of land sufficient for him to raise food on when the next season comes round, by which time the resources he has been able to bring with him into the wilderness will probably have given out. His strong arms and his trusty axe, with such help as his family can give, are all he has to depend on, and the prospect is gloomy enough; and, if he calls in fire to his aid, it is because there is nothing else to befriend him. He finds himself in precisely the same position as the poor cock on the dunghill; he wanted a barley-corn, instead of which he scratched up a precious stone, which was no sort of use to him. Not only "fifteen, nay ten years ago," was it the custom to leave only the best trees, destroying all under 12 or 14 in., but even at this day (and for ages to come) in Canada there will be new settlers, in the remote forests, to whom the timber around them is the basis of their lives, who would welcome a gang of lumbermen willing to chop down the trees, though they were all of black walnut, and clear them away for nothing, as if they were good angels from heaven.

Sir, we have now great facilities for the transportation of wood, in the application of steam and the use of railroads, which were unknown to our grandfathers, but even now the prices of imported timber for building purposes do not always represent the cost of getting it to market, even if the trees, as they stood before the axe was laid to the root, were made a present free gratis to the lumbermen who undertook the work. In your number for August 27th, p. 142, there is a report of the sale of a parcel of 4th Richibucto spruce deals lying at Barrow. They were of good mercantile lengths, 3-9 to 20 in wide, and the best sizes only fetched £5 per Petersburg standard. Now as £3, in round numbers, goes for freight alone across the Atlantic, only £2 would be left to pay for 165 cubic feet of sawn merchantable spruce delivered on board ship in the port of Richibucto.

Query, after paying for cutting, squaring, hauling to riverside, launching, rafting, and floating down to port, then sawing, sorting, and shipping, what would be left to pay for this valuable wood as it stood in the forest? What- ever has been inevitably or even wantonly destroyed does not appear to render American building timber much more costly at the present day than the value of the labor bestowed on it to get it to market.—I am, sir, your constant reader,

Liverpool, Sept. 7th, 1881. LAND'S END.

DR. FOWLER'S EXTRACT OF WILD STRAWBERRY cures summer complaints, diarrhoea, dysentery, cholera morbus, cholera infantum, sour stomach, colic, nausea, vomiting, canker, piles and all manner of fluxes.