plants and machinery, 11 millions to logging equipments, logging railways, etc., including also logs on hand at the time, and over 31 millions to timberland, tributary and belonging to the saw-mills. These same establishments paid during that year nearly $700,000 taxes, a sum equal to the total state taxes of Wisconsin; they paid over $3,000,000 for running expenses aside from wages; about 15 million dollars for wages and logging contracts and over $700,000 for the keep of animals alone.

The lumbering industry gave employment in a regular way to over 55,000 men (not women and children), besides purchasing several million dollars worth of logs. Of those persons employed in these operations a large per cent. are settlers who through this industry alone are enabled to support themselves until their slowly growing clearings furnish sufficient harvest. It is the taxes on timber land (not waste land, however,) and its industries which furnish the "road money" and it is this same fund which builds, equips, and largely maintains in the thinly settled backwoods of Wisconsin, schools equal if not better than those of the country districts of any other state. It is this same industry which for years has made farming in the backwoods more profitable, and the farmers more prosperous than those of some other states with milder climates and equally fertile soil. Nor is it the pine alone which has done and is doing so much for this country. For owing to an unnecessary and injurious competition in the exploitation of the pineries there has resulted a concentration of milling and logging operations which in many cases deprived the particular counties in which the pine supplies were located, of much of the benefit which otherwise would have accrued to them from this resource. It is therefore to be expected that to counties like Langlade, Shawano, Forest, Lincoln, Taylor, and others, the standing hemlock and hardwoods promise to be of greater value than was their former stand of pine.

Forest, Climate, and Waterflow.

It is conceded by all that the forest exerts a beneficial influence in tempering the rigors of a cold continental climate with
its sudden changes and severe storms. What share the forest has in the general changes of humidity is not so apparent. It seems quite certain that a general and very gradual change from a moister to a drier condition has been going on for a long time over the entire Lake Region. The behavior of hemlock and even of white pine in the matter of distribution is probably in part due to this change. How much the forests have done to retard the progress of this desiccation can only be inferred. On the other hand there are striking changes in the drainage conditions which have required but a short time, have taken place within the memory of many of the residents, have fairly forced themselves on the attention of all experienced and observing people. These are all too intimately connected with the changes in the surface cover to leave in doubt the influence of the forest upon drainage.

The flow of all the larger rivers has changed during the last 40 years; navigation has been abandoned on the Wisconsin, logging and rafting have become more difficult on all rivers, and, what is even a far better measure of these important changes, the Fox river is failing to furnish the power which it formerly supplied in abundance. On all smaller streams similar observations have been made. The “June freshet,” which in former years could be relied upon in driving operations, has ceased on most streams and is uncertain on the rest of them. Of the hundreds of miles of corduroy road a goodly per cent. has fallen into disuse, the ground on the sides has become dry enough for teams, many swamps of former years are dry, and hundreds of others have been converted into hay meadows and fields without a foot of ditching. Tamarack stood on parts of the present site of Superior, and both cedar and tamarack were mixed through the forests in many places where the mere clearing has sufficed to dry the land for the plow. Many of the smaller swamps are changed before actual clearing takes place. Where the fires following the logging operations have cleaned out the swamp thicket, aspen followed the fire exactly as in the upland, and though in some cases many years have elapsed, the
places have not reverted to swamp timber. The ground is too dry, the hardwood thickets have come to stay. These things are well known, especially to the woodsmen of the region; they are in all cases referred to the removal of timber, and there is probably no locality in the world where this subject could better be studied than in North Wisconsin. A drive with some old resident through the settled parts of Shawano, Marathon, Taylor, and other counties and the rehearsal of his memories present matters of the utmost interest in this connection, and will hardly fail to convince even the most skeptical of the decided changes in drainage and soil moisture which have occurred here and are still in progress.

THE OUTLOOK FOR THE FUTURE.

It is impossible to foretell how long the pine is likely to last. As stumpage increases in price and the opportunity to buy it decreases, one mill after another drops out. Half the mills of 20 years ago are no longer in existence, not because they failed to pay but because their pine supplies gave out, and this same process will continue. The output, already on the decline, will grow smaller, and the exploitation of the 17 billion feet of standing timber is likely to be drawn out over a period far greater than would seem possible with the present rate of cutting. Nevertheless, the experience of parts of Michigan and also of Wood, Portage, and other counties in Wisconsin indicate that cutting will go on without regard to the end, and its rate depends merely on considerations of market conditions and facilities for handling timber, so that the end of the greater part of pine lumbering is likely to be quite sudden, and its effect correspondingly severe.

The cut of hemlock, though still small, may at any time take on considerable dimensions. There are several good reasons which make this desirable. The wood is much better than is commonly assumed, and it is mere prejudice—and more the prejudice of the carpenter than of the consumer—which prefers poor pine to good hemlock. For some time the old hem-