

**NEW HAMPSHIRE
FORESTRY COMMISSION
REPORT
1895-6**

THIRD REPORT
(FIRST BIENNIAL)

OF THE

NEW HAMPSHIRE

FORESTRY COMMISSION

1896.

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REPORT.

To his Excellency the Governor and the Honorable Council :

The New Hampshire Forestry Commission, presenting its first biennial* report, takes occasion to notice a marked increase in popular interest in forestry throughout the state. This is indicated by the enlarged popular demand for the publications of the Board and the increasing attention devoted to the subject by numerous organizations for the promotion of our agricultural, manufacturing, and social interests. Still more significant is the interest in forest preservation which recently has been manifested for the first time by several of the large manufacturing corporations which make use of the water power of the Merrimack valley. These corporations, having experienced large losses by the disastrous floods of the last two years, apparently now concur with the conclusions of every forestry commission in respect to the danger attending rapid deforestation.

EDUCATIONAL WORK.

The educational work of the commission since the publication of its last report has not varied in character from that therein described. By the frequent publication of newspaper and other articles dealing with the different phases of the forestry problem, attempt has been made to enlighten the public with regard to the general principles which underlies forestry, and the inevitable effects which the continuation of existing conditions must produce in New Hampshire.

*This is the sixth forestry report published under the auspices of the state of New Hampshire, the previous issues having been that of the temporary commission appointed in 1881, and reporting in 1885; of the temporary commission appointed in 1889, and reporting in 1891 and 1893, and the annual reports of the present permanent commission published in 1893 and 1894. All of these publications are out of print, except the report for 1894, a limited number of this issue being still in hand. They may be had by addressing the secretary of the Forestry Commission, Concord, N. H.

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& etc.

In accordance with the provisions of the statute the commission has held "meetings from time to time in different parts of the state for the discussion of forestry subjects." Several organizations courteously have extended opportunities to the commission for presenting these subjects to large audiences in different parts of the state, among them being the State Board of Agriculture, Pomona and subordinate granges throughout the state, the State Board of Trade, local boards of trade, the officers of the Grange State Fair, and several organizations embraced in the membership of the State Federation of Woman's Clubs. Occasional addresses upon forestry have been made by the secretary of the commission before some of the public schools, several teachers' institutes, and a few woman's clubs. An unmistakable result is the gradual extension among all classes of our citizens of interest in, and desire for, the preservation of our forests. But such educational efforts of the commission cannot be continuous, nor without aid from others can they be wholly adequate, and it therefore is deemed proper to renew the suggestion made in our last report, that the New Hampshire College of Agriculture and the Mechanic Arts should immediately find some means for establishing a course of instruction in practical forestry. Not only do the permanent interests of this commonwealth, as then set forth, demand such a course, but the college, with its enlarged opportunities for specialization, by introducing it might become one of the most important and helpful agencies in New England in carrying on this work. Such undertaking is clearly within its province, and, when measured by the practical good which might result to the state, the study of forestry is not secondary to any of the subjects now embraced in the curriculum of the college. Though earnestly sought, no satisfactory method has yet been found for bringing forestry to the attention of the public schools of the state. The only present available method of doing this without materially increasing the burden of either teachers or pupils apparently is to provide for a more frequent introduction of forestry topics in the programmes of teachers' institutes, which are held in all the counties of the state, and also in the programmes of the two summer schools which are already established in New Hampshire.

The educational efforts of the commission, however, have not been confined to arousing a general interest in forestry, or to presenting the subject in populous towns. Within the past two years this educational campaign has been carried into the woods, among lumbermen, both owners and operators. As a result of these endeavors it is now possible to report that a number of the great lumber operators at work in the state have begun to adopt such methods of harvesting the forest crop as will tend to ensure the perpetuation of the valuable species which are now chiefly in demand. These methods restrict lumber operators to the removal of trees not less than ten or twelve inches in diameter at the stump; and they have been adopted for the purpose of fostering the recuperative power of the forest, so as to secure from the same area an endless succession of forest crops. This voluntary adoption of restrictive methods of lumbering on the part of several studious lumbermen, is a recognition of the fact that this commission correctly interpreted the conditions of continued success in lumbering in this state when in its first report it was remarked that, "Apparently we have reached such a point in the distribution of titles to forest areas that we are not likely to see many more large transfers of timber lands. This means that lumber operators must henceforth confine their cutting to the holdings which they now possess; therefore it behooves them to treat their possessions so as to ensure their perpetual use with profit. This can only be done through the application of forestry principles."

THE PRESENT PROBLEM.

The frank recognition by large operators that the conditions above described must be closely studied as a prerequisite to long-continued success in their business, is a distinct gain. It marks a new phase in the progress of forestry agitation in New Hampshire. The problem among those representative industries which make the largest use of the forest product, namely, the pulp and paper industries, now is how to conserve, direct, and utilize the annual forest crop so as to ensure the successive reproduction of the valuable growth. The forests of New Hampshire occupy about sixty per cent. of the total area of the state, but they form an insignificant portion of the great

northern coniferous forest belt which stretches from the Atlantic to the Pacific, and which is dominated by only eight hardy conifers. Nevertheless, it is upon the comparatively limited area of New Hampshire that the greatest relative demand for timber has been made. It is a demonstrable fact that the larger portion of the timber supply for the New England market has thus far been drawn from the relatively small area of our own state. This disproportionate drain upon the forest resources of New Hampshire has been due to its accessibility to a good market, the comparative ease with which its forest cover may be removed, and the superior quality of its forest product. If, therefore, the present demand for this product is sustained, and the existing methods of removing it are not further modified, the early exhaustion of our forest resources is inevitable. How early, may be judged from the statement of Mr. George T. Crawford, the well-known forest expert, who has given his opinion that at the present rate of consumption the last of our original spruce forests will have been cut over in fifteen years.

To the emphasis with which Mr. Crawford has expressed this opinion is due the adoption of a restrictive method of cutting by some of the large operators to whom we have referred, viz., The Russell Paper company, the Fall Mountain Paper company, and the Winnipiseogee Paper company, which in the aggregate consume thirty million feet of spruce timber per year, or about fifteen per cent. of the total cut of the state, and which require the annual product of four thousand acres of forest.

The ultimate profit of this restriction of the cutting will not be denied, and the operators whom we have named also have demonstrated its present profit.

THE PROPER LIMIT FOR CUTTING.

The twelve-inch limit, however, is not all that is to be desired. The scientific study of individual tree growth, referred to in our last annual report, is likely to prove that still further restricting the cutting will largely increase the ultimate gain. Investigations recently made upon typical spruce forests tend to show that fourteen inches rather than twelve inches is the proper

limit for securing a continuous and reasonably profitable annual return from that desirable species.

These investigations were conducted by Mr. Austin Carey, agent of the Forestry Bureau at Washington, who, by measurements upon sample acres of forest in New England, has been able to ascertain the annual wood increment in a spruce forest under varying conditions of lumbering. His conclusion is, that if the cut be restricted to fourteen inches, the spruce forests of New England may be lumbered over at intervals of twenty years so as to yield the owners at each operation the equivalent of four and one-tenth per cent. compound interest annually in wood material. The return in money, estimating the value of stumpage for logs of this size at four dollars per thousand, will amount to five and six-tenths per cent. compound interest annually.

Despite this conclusion, the commission at present would be content to have twelve inches the general limit for future lumber operations in New Hampshire. This is the limit already set for themselves by the most enlightened operators, and its general adoption would therefore be secured with less difficulty. Moreover, uniform adherence to such a rule would equalize the conditions of production, and would go far to relieve the situation of its most threatening aspects.

FOREST FIRE LAWS.

During the past two years the forests of New Hampshire have not suffered seriously from fire. The statutes now provide with apparent adequacy for the protection of all portions of the forests of the state against fire. The selectmen of towns are forest fire wardens, *ex officio*, charged to "watch the forest, and whenever a fire is observed therein to immediately go to the scene of it, and if possible extinguish it." The greater and more valuable area of forest which lies in the unincorporated townships of the northern part of the state, is protected by amendments to the forest fire law passed by the last legislature at the suggestion of this commission. These amendments provide that the Forestry Commission shall, upon application by the owner or owners of any tract of forest land situated in a locality where no town organization exists, appoint a suitable

number of special fire wardens for such tract, define their duties, limit their term of employment, and fix their compensation. The expense attending the employment of such special fire wardens shall be borne, one half by the party or parties making the application for their appointment, and one half by the county in which such tract of forest land is located.

The responsibility for future extensive ravages by forest fires rests, therefore, under the law, with the selectmen of towns and the owners of the endangered property. It is desirable that both these officers and proprietors clearly recognize their powers, duties, and privileges under the present law.

PROTECTION OF SHADE-TREES.

The legislature of 1895, in order to protect the shade-trees which adorn the highways of the state, sought to bring them under public care by enacting that the selectmen of towns be authorized to designate trees of this character at prescribed intervals along the roadside. The trees thus designated were to be marked with a brass tag bearing the state seal, and were to become public property, never to be removed except by consent or order of the selectmen. The duty of providing tags for marking the trees was laid upon the secretary of the Forestry Commission, and the demand for them aggregated several thousand. No appropriation having been made by the legislature for providing such tags, the secretary of the commission was unable to supply this demand. Within the past few months, however, a generous summer resident of Tamworth, Dr. William Rollins, of Boston, moved by his sense of the propriety of the law and the desirability of early action under it, offered to have a suitable die engraved and the requisite number of tags for use in Tamworth struck from it. This generous offer was so clearly for the public good that the commission was constrained to accept it, but with the proviso that the die should become the property of the state and should be lodged with the secretary of this board. It has thus become possible, by Dr. Rollins's compliance with this provision, to meet the present demands for tree markers at slight expense, the cost of the die having been the greatest charge. But if this law is to be made effective, the governor and council should be authorized to draw

warrants on the treasury for the purpose of carrying out its provisions to an amount not exceeding two hundred and fifty dollars annually.

PUBLIC FOREST PARKS.

The most gratifying part of our labors during the past two years has been an attempt to render operative that portion of the forestry law of 1893 which provides for the establishment of state forest preserves. There is now a reasonable prospect of the early acquisition for the state of two areas of forest property, which will be set apart as public parks under the provisions of the law.

The first and larger and more important of these areas naturally will be located in the White Mountain forest, and the site has been chosen with reference to all the future conditions which now appear to this board most likely to arise in the extension of its work. The tract sought is located in the heart of the White Mountain region, and is readily accessible to the general public.

It is triangular in shape, and lies along the northeast boundary of the town of Bethlehem, its apex resting at a point a few rods southeast of the Mount Pleasant House and its base, about four miles distant, lying upon the slopes of Mount Willard. It has both original and secondary forests, and contains among other scenic advantages, Beecher's cascade, one of the most notable and lovely of the White Mountain falls. The present title to this land is now in dispute between two persons who have been unable to agree upon a transfer of the property to the state, and proceedings have therefore been instituted through the attorney-general for its condemnation under the provisions of the Forestry Law.

This location, aside from the forestry and scenic advantages which the tract offers, is on many accounts the most desirable in the state for the beginnings of a public forest preserve, inasmuch as it is situated in a portion of the mountains where the proposed park will be most likely to attract public attention. Moreover, the area of a park in this location, in case of additional contributions for such a purpose, can easily be extended, with the largest possible advantage to the whole state, so as to

protect the forest standing at the head watershed of the Saco, Connecticut, and Merrimack river basins. This tract also adjoins forest preserves owned by the Mount Pleasant Hotel company and the Boston & Maine Railroad company, so that when the title to the proposed state park shall have been acquired, a forest reservation of considerable area will have been established in the very heart of the Presidential Range.

The acquisition of this tract, without expense to the state, in conformity with the provisions of the forestry law of 1893, has been made possible by the generous contributions of Mr. Henry C. Warren of Cambridge, Mass., and Hon. George Byron Chandler of Manchester, president of the board.

It is expected, also, that another forest preserve will be established during the coming year upon Mount Monadnock in Dublin, where, by the contributions of Mr. George B. Leighton and other summer residents of that town, the commission has secured funds with which to institute proceedings for condemnation of a considerable area of forest land.

In addition to these two parks, another, in the vicinity of the Pinkham Notch or the Carter Notch, has been made possible by the formal offer of a contribution from Gen. M. C. Wentworth of Jackson, toward the establishment of such a reservation in that locality whenever it shall be deemed by this commission feasible to do so. But further contributions to the same end will be necessary before any practical efforts can be made in that direction.

MAP OF THE PRESIDENTIAL RANGE.

Accompanying this report will be found a map of the Presidential Range, White Mountains, printed from plates which have recently been completed by the United States Geological Survey, and from which the first imprints have been made for this report. This map is so accurate that we have felt it incumbent upon us to secure its early publication in this manner, inasmuch as a prerequisite for successful scientific study of forestry is an accurate map of the locality under consideration. This map, as first prepared, showed the location of the hotels and other buildings, the highways and paths and the contours of the country at intervals of fifty feet. The commission has caused to be added

an appropriate tint (green) to indicate the extent of the forest cover in that region, and another (red) to mark the position and approximate size of the forest preserves now established by the Boston & Maine Railroad and the Mount Pleasant Hotel company, so that the location of the proposed state preserve referred to above may be readily ascertained.

FOREST GROWTH AND WATER SUPPLY.

The relation of the forest cover to the water supply of the state is in the judgment of the commission, the most important question it had been directed to investigate. Although it has given attention to this branch of forestry, and has collected a considerable amount of data relating to it, the subject is so intricate, and the interpretation of the data so difficult that the commission does not deem itself justified at present in publishing the statistics which it has collected, and still less in making deductions therefrom. It can hardly be doubted, however, that the continuance of the policy which now is being pursued by the great body of lumber operators in New England will bring about the recurrence of the successive and disastrous floods which have so disturbed trade and destroyed property throughout New England in the past few years. The voice of Nature, which has spoken so unmistakably in rebuke of the unwise and improvident destruction of the forest cover, will continue to make itself heard with the recurrence of every considerable period of rainfall, unless efficient means soon are taken to preserve the equalizing effect of the forest cover.

The exact connection between forest growth and water supply cannot now be stated, but it is expected that the common assumption of causal relation will be demonstrated by means of the investigations about to be set on foot in the Merrimack Valley by the United States Geological Survey upon the final application of this board. These investigations will comprise a series of observations and measurements carried on through an extended period of time, and tending to show the volume and rapidity of the waterflow in streams, the variations in the flow from one month to another, and cognate facts bearing upon the question of water-power and supply, its perpetuity and the best means of utilizing it. These investigations will form a part of

the hydrographic survey and related investigations now being carried on by the division of hydrography of the United States Geological Survey, and will be moderated under the direction of its hydrographic, Mr. F. H. Newell. The data thus obtained will be available for use by this board in its study of the relation between forest growth and water supply, and will for the first time afford the state accurate scientific knowledge upon this most important topic.

PEMIGEWASSET VALLEY RAILROAD EXTENSION.

At the December law term of the supreme court in 1895, the directors of the Pemigewasset Valley Railroad filed a petition for authority to build an extension or branch of that railroad from Lincoln to a point in the valley of the middle branch of the Pemigewasset river, a short distance north of the Flume House. This petition, no objection having been made, was referred to the board of railroad commissioners to determine the question whether the public good required the building of the proposed extension.

On the thirteenth day of February, 1896, the railroad commissioners held a hearing upon this petition at Plymouth, and from the published testimony of the witnesses for the petitioners it became evident that the proposed road was to be used mainly, if not wholly, for the transportation of forest products. Such an extension of the Pemigewasset Valley Railroad appeared to this commission to be a project to facilitate and expedite the removal of the forest cover in a portion of the state where every economic reason demanded its preservation, and where denudation already had been carried so far without the aid of railroad facilities as to arouse severest condemnation, in which the state was made to bear the burden of blame.

Accordingly, at a meeting of this board held in Concord February 22, 1896, the following resolution was adopted :

WHEREAS, the Pemigewasset Valley Railroad company has filed a petition in the Supreme Court, in Merrimack county, for leave to build an extension or branch from North Woodstock to a point about one mile north of the Flume House in Franconia, alleging that the public good requires such exten-

sion, and its said petition has been referred by the court to the railroad commissioners to find and report the facts bearing upon that allegation; and

WHEREAS, the legislature, expressing the public apprehension that the removal of our forests, as now carried on, may affect injuriously the agricultural and manufacturing development of the state, has authorized an investigation of the facts relating thereto by a forestry commission, and its official reports thus far made show that there is reasonable ground for such apprehension, and that in the determination of the issue whether the public good requires any railroad extension, where its natural and ordinary operation will tend to facilitate the more rapid removal of our forests, the probable effects of such extension upon timber supply, water power, climate, and scenery, must be deemed material to that issue; and

WHEREAS, the state, now without legal title to a single acre of its once vast forested area, by an act approved March 29, 1893, has invited private persons to subscribe for the establishment of public parks, and an effort is now being made by such means to secure the creation of a White Mountain Forest Reservation, the title to which shall be vested in the state, some subscriptions for that purpose already having been made, and there is reasonable ground to believe that this effort will be successful, if the state shall not at the same time, by its official action, appear to public-spirited citizens to be indifferent to the preservation of our equally important forests in the Franconia mountains,

Voted, That the secretary of this board be and hereby is instructed to appear before the railroad commissioners, at their meeting to be held February 24, 1896, for a hearing upon the petition for an extension of the Pemigewasset Valley Railroad, and to ask that a reasonable time be allowed to this board, within which to prepare and file a series of requests for certain findings of fact, disclosed in the official reports of the forestry commission, bearing upon the issue of the public good, raised by the aforesaid petition, and also to ask that an opportunity be given this board, if it shall desire it, to be heard in argument thereupon.

Pursuant to these instructions, the secretary of this commission appeared before the board of railroad commissioners at their meeting Monday, March 2, 1896, presented the resolution cited above, and asked that a time might be fixed when he could file a request for findings of fact bearing upon the question whether the public good required the building of the proposed extension, and be heard in oral argument thereon. Monday, March 9, 1896, was appointed for such a hearing, but on that day this state, in common with all northern New England, was in the grasp of the most extensive and disastrous freshet known in her history, and the railroad commissioners were unable to reach Concord.

The hearing was therefore postponed, and was not held until September 23, 1896. On that date the secretary of this board appeared before the railroad commissioners and was heard in oral argument upon the following request for findings :

To the Railroad Commissioners of New Hampshire :

The New Hampshire forestry commission appears by its secretary, George H. Moses, and requests the railroad commissioners, sitting as referees on the petition of the Pemigewasset Valley Railroad company, for leave to build an extension or branch to a point one mile north of the Flume House in the Franconia valley, to find the following facts :

That the proposed railroad is to be used exclusively for the transportation of forest products.

That the territory from which these forest products can be drawn is so limited in area that to enable the proposed road to pay adequate dividends will necessitate the speedy and complete denudation of the forest cover in that valley.

That the preservation of the forest cover in that valley in its substantial integrity is a matter of great importance to the maintenance of the equable supply of water in the Merrimack River system because of the geographic relation of the valley to that system and because of the topography of the valley itself, which is a long and narrow valley with precipitous sides heavily wooded to the crest of the hills on either side, thereby heightening the dangers which would ensue in case of extensive denudation.

That the legislature of the state has taken action through various acts and resolves, namely, Chapter 117, Laws of 1881; Chapter 161, Laws of 1883; Chapter 152, Laws of 1889; Chapter 101, Laws of 1891; Chapter 44, Laws of 1893; looking toward the preservation of the forest cover in that portion of the state in which the proposed extension is to be located, this action having been taken with the express purpose of subserving the public good by the preservation of that cover the removal of which would be both facilitated and expedited by the proposed extension.

The report of the railroad commissioners, as filed with the court, prefaced by the petition, is as follows :

STATE OF NEW HAMPSHIRE.

IN BOARD OF RAILROAD COMMISSIONERS.

GRAFTON SS.

To the Supreme Court :

The board of railroad commissioners, to whom the foregoing petition, as amended, was referred, after due notice to all persons interested, as appears by the order of notice and certificates of service herewith returned, met the parties at the Pemigewasset House in Plymouth, in said Grafton, on the thirteenth day of February, A. D. 1896, at two o'clock in the afternoon, and the said petitioner, appearing by Hon. F. S. Streeter and John M. Mitchell, its counsel, and several citizens interested in the proposed extension being present, proceeded to hear all the evidence and arguments there presented, and upon proper cause shown, the hearing was continued from time to time, to the twenty-third day of September, A. D. 1896, at eleven o'clock in the forenoon, at the office of the board, in Concord, at which adjourned hearing the petitioner appearing by its counsel aforesaid, and the New Hampshire forestry commission by George H. Moses, their secretary, and such further evidence and arguments as were presented, were fully heard.

And upon consideration the board find and report the facts as follows :

The extension asked for by the petitioner, under the petition

as amended, contemplates the building of a railroad from the present terminus of the Pemigewasset Valley Railroad, in North Woodstock, up the Pemigewasset Valley, to a point in the town of Lincoln, near the mill of Frank Hall & Co., a distance of about three miles.

The board find the proposed extension would greatly facilitate the operation of large sawmills situated near its route. That the amount of lumber produced by these mills is very considerable, about twenty-five million feet per annum, and that now all of their product is transported by teams over the highway leading from North Woodstock through the Franconia Notch to the station at the terminus of the Pemigewasset Valley Railroad.

No objection was made by any persons living in the vicinity of the construction of the extension.

The request for finding of certain facts made by the New Hampshire forestry commission through Mr. Moses, their secretary, is hereto annexed, marked [A].

In conclusion, the board find that the public good requires the construction of the proposed extension upon the route described from the point begun at, so far as the petitioner now proposes to build the same.

HENRY M. PUTNEY,
J. G. BELLOWS,
E. B. S. SANBORN,

New Hampshire Railroad Commissioners.

Upon this determination of the question of the public good by the railroad commissioners, the court, in accordance with the provisions of the existing statutes, authorized the building of the proposed extension.

RESTRICTIONS ON LUMBERMEN AND COMMON CARRIERS NECESSARY.

That the completion of this extension of the Pemigewasset railroad may have no other result than the public good, additional legislation is, in the judgment of this commission, necessary, for such a road will render possible the denudation of the southern slope of the White Mountains.

Whether this baneful consequence will be realized must de-

pend, under existing law, upon the judgment which a few interested landowners and timber operators may form in respect to the rate of cutting which will promote their own pecuniary interests. The continued prosperity of the population of the entire Merrimack valley, in so far as the forest cover at its headwaters is an essential condition for the preservation of its water supply and equable river flow, will thus be at the mercy of a smaller number of men (and those admittedly interested) than the law requires to adjudge a civil action in which the damages claimed are only \$14. Such an anomalous condition of affairs, which may put in jeopardy both the agricultural and manufacturing industries of the Merrimack valley, deserves the serious consideration of the legislature of 1897. The existing law, which forbids the riparian proprietors at the headwaters of the Merrimack river to so divert their course as to deprive the dwellers below of their customary use of its waters, may be nullified if the forest cover is speedily removed. Every prudential consideration, therefore, would seem to demand the early enactment by the legislature of laws which shall insure the state against the possibility of such disaster as would be entailed by denudation.

PROHIBITION OF INDISCRIMINATE CUTTING NECESSARY.

Fifteen years ago New Hampshire, having parted with the last acre of her public domain for small consideration, awoke to the danger that her grantees, if unrestrained, might so use their possessions as to destroy the forestry resources of the commonwealth and inflict irreparable injury upon the health, property, and occupations of all their fellow-citizens. Three successive forestry commissions have been appointed to investigate the forestry conditions of the state, and to report upon the extent and effects of the indiscriminate cutting of wood and timber, the wisdom and necessity for the adoption of forestry laws, and to hold meetings in different parts of the state for discussion of forestry subjects.

All three of these commissions have reported that the present methods of lumbering, if continued, inevitably will entail baleful scenic, climatic, and economic results; that already the ruthless axeman and wasteful pulp-miller have impaired the scenic attractions of several mountainous districts, and by their

denudations apparently have occasioned disastrous floods; that the continued removal of immature trees must limit to one generation the number of crops of forest products that can be harvested, and that the prosperity of both the agricultural and manufacturing industries in our great river basins largely depends upon the perpetuity of the forest in such condition as to preserve its functions as an equalizer of water supply and water flowage.

This commission would not assume the rôle of an alarmist of the commonwealth, but it is bound to take official notice of the fact that, after fifteen years of forestry agitation, indiscriminate cutting of wood and timber is continued to such an extent as to threaten the exhaustion of our spruce forests within another fifteen years, and to render intermittent the flow of the rivers which are most important to our agricultural and manufacturing industries, and especially that of the Merrimack.

Discussion of forestry subjects has sufficed, as has been stated elsewhere, to lead many of our lumbermen and operators, including several important corporations, voluntarily to restrict their cut; but enough owners of large forested areas and operators of pulp-mills still persist in so denuding the White Mountain region, the source and equalizer of all our rivers, as to jeopard the health, property, and occupations of the citizens in other parts of the state, and to impair permanently its economic resources. The number of such owners and operators is relatively small; but their continued refusal to recognize the just claims of the state, which creates and protects their titles, now raises the question whether they should be allowed longer so to use their own as to injure others. These persons, blind to everything except their immediate pecuniary gain, and deaf to every entreaty to spare immature trees, will continue to stand mute when addressed by any Forestry Commission until it may command them in the name of the state. Their persistent violation of economic laws is believed by many persons already to have inflicted large losses upon their innocent fellow-citizens. No competent authority will deny that the tendency of their action is to impair permanently the productive power of New Hampshire. The imperative interests, therefore, not only of future generations, but also of the people now living within our

borders, demand energetic action by the state to stay the hands of these improvident axemen and pulp makers.

The disastrous floods of the past two years warn us that such action should be immediate and radical. This involves the direct interposition of the state in the creation of a forest reservation by the exercise of the power of eminent domain, or in the prohibition of indiscriminate cutting, through the exercise of the police power. The first of these remedies would be complete, but the apparent unreadyess of the people to increase their present burden of taxation forbids any hope of its seasonable adoption.

This commission, therefore, after due deliberation, deems it to be its duty to recommend the adoption of the other of these remedies by the enactment of a statute making it unlawful for any person to cut or remove any spruce, pine, or hemlock tree, unless the same shall be twelve inches in diameter three feet above the ground or fallen, burned, or blighted timber, or any poplar or birch tree, unless the same shall be ten inches in diameter three feet above the ground or fallen, burned, or blighted timber, but providing that such enactment shall not apply to any person cutting wood or timber for his own exclusive, domestic consumption, or to any farmer clearing land for agricultural uses only, not exceeding fifty acres in any one year.

*Draw
limit*

Such an enactment, efficiently enforced, would, it may be confidently predicted, insure a perpetual series of forest crops for New Hampshire, and the preservation through successive generations of its forest cover in such condition as to enable it to fulfil its function as an equalizer of water supply and water flowage, and so perpetuate the agricultural and manufacturing prosperity of the state.

Though such restraint upon private greed is urged, because deemed to be necessary for the common weal, its adoption could not fail ultimately to benefit the very persons who seemingly would be hindered and obstructed in the conduct of their lumbering business.

AUTHORITY FOR PROPOSED LEGISLATION.

Ample constitutional authority for such enactment is believed to exist in the possession by the state of the sovereign power

of police. The circumstance that courts confess that it is difficult accurately to define this power, and to mark its proper limits, does not prevent them from affirming that its legislative application may be co-extensive with public health, morals, social order, and property rights, nor cause them to disallow any legislative application of it because novel, if this can be shown to correspond to changed economic, political, or social relations, and to be a necessary and proper means to accomplish the purpose.

"The police of a state, in a comprehensive sense," according to Judge Cooley (Constitutional Limitations, 6th ed., p. 704), "embraces its whole system of internal regulation, by which the state seeks not only to preserve the public order and to prevent offenses against the state, but also to establish for the intercourse of citizens with citizens those rules of good manners and good neighborhood which are calculated to prevent a conflict of rights, and to insure to each the uninterrupted enjoyment of his own so far as is reasonably consistent with a like enjoyment of rights by others."

Other authoritative descriptions of this power have been given by two of New England's most eminent jurists.

Redfield, C. J., for the court in *Thorpe v. Rutland & B. R. R. Co.*, 27 Vt. 140, 62 Am. Dec., 625, said: "This police power of the state extends to the protection of the lives, limbs, health, comfort, and quiet of all persons, and the protection of all property within the state. According to the maxim, *Sic utere tuo ut alienum non laedas*, which being of universal application, it must, of course, be within the range of legislative action to define the mode and manner in which every one may so use his own as not to injure others." The issue in this case was the constitutionality of a statute imposing upon existing railroads the duty of erecting and maintaining cattle guards at all crossings, and the statute was upheld.

Shaw, C. J., for the court in *Com. v. Alger*, 7 Cush. (Mass.) 85, said: "Rights of property, like all other social and conventional rights, are subject to such reasonable limitations in their enjoyment as shall prevent them from being injurious, and to such reasonable restraints and regulations, established by law, as the legislature, under the governing and controlling

power vested in them by the constitution, may think necessary and expedient. This is very different from the right of eminent domain, the right of a government to take and appropriate private property to public use, whenever the public exigency requires it; which can be done only on condition of providing a reasonable compensation therefor. The power we allude to is rather the police power, the power vested in the legislature by the constitution to make, ordain, and establish all manner of wholesome and reasonable laws, statutes and ordinances, either with penalties or without, not repugnant to the constitution, as they shall judge to be for the good and welfare of the commonwealth, and of the subjects of the same. It is much easier to perceive and realize the existence and sources of this power, than to mark its boundaries or prescribe limits to its exercise." In this case the validity of a statute fixing lines in the harbor of Boston beyond which no wharf shall be extended or maintained, was upheld.

This description of the police power by state tribunals and the competency of a state legislature to enact all manner of laws not expressly forbidden by the constitution, which shall be deemed necessary and reasonable for the protection of public health, morals, social order, and property rights has been affirmed repeatedly by the supreme court of the United States.

The leading case upon the regulation by the legislature of private property affected by public interests (*Munn v. Illinois*, 94 U. S., 113), was brought to the supreme court of the United States in 1876 on a writ of error to review a judgment of the supreme court of the state of Illinois, which affirmed the constitutionality of a statute of that state fixing a maximum charge for the elevation and storage of grain in warehouses in that state. This act was challenged as a violation of the constitutional guaranty contained in the fourteenth amendment to the constitution of the United States. The supreme court affirmed the judgment of the state court, on the ground that the legislation in question did not infringe the clause mentioned, but was a lawful exercise of legislative power, and by Waite, C. J., said: "When one becomes a member of society, he necessarily parts with some rights or privileges which, as an individual not affected by his relations to others, he might retain. This does

not confer power upon the whole people to control rights which are purely and exclusively private (*Thorpe v. R. R. Co.*, 27 Vt., 143) but it does authorize the establishment of laws requiring each citizen to so conduct himself and so use his own property as not unnecessarily to injure another. This is the very essence of government. From this source comes the police powers, which, as was said by Taney, C. J., in the License Cases (5 How. U. S. 583) 'are nothing more or less than the powers of government inherent in every sovereignty, that is to say, the power to govern men and things.' Under these powers the government regulates the conduct of its citizens one towards another, and the manner in which each shall use his own property, when such regulation becomes necessary for the public good."

The circumstance that no precedent for a legislative act forbidding the indiscriminate cutting of trees by private owners may be found, cannot bar the state from such exercise of its police power. In the leading case above cited, the court, by Waite, C. J., said: "Of the propriety of legislative interference within the scope of legislative power, the legislature is the exclusive judge. Neither is it a matter of any moment that no precedent can be found for a statute precisely like this. It is conceded that the business is one of recent origin, that its growth has been rapid, and that it is already of great importance. And it must also be conceded that it is a business in which the whole public has a direct and positive interest. It presents, therefore, a case for the application of a long-known and well-established principle in social science, and this statute simply extends the law so as to meet this new development of commercial progress." The argument of this case was very elaborate, and its treatment by the court was unusually thorough, the conclusions being clear and decisive.

The criticism of the decision in *Munn v. Illinois* by two dissenting justices, and by writers of some ability, has failed to shake the foundations upon which it is based or to detract from the general favor in which it is justly held. The objections that have been urged against it are carefully examined by Andrews, J., in *People v. Budd*, 117 N. Y., 1, 15 Am. St. Rep. 460, and his conclusions thereon are announced with great force in the following language: "The criticism to which the *Munn* case has

been subjected has proceeded mainly upon a limited and strict construction and definition of the police power. The ordinary subjects upon which it operates are well understood. It is most frequently exerted in the maintenance of public order, the protection of the public health and public morals, and in regulating mutual rights of property, and the use of property, so as to prevent uses by one of his property to the injury of the property of another. These are instances of its exercise, but they do not bound the sphere of its operation. There is little reason, under our system of government, for placing a close and narrow interpretation on the police power, or in restricting its scope so as to hamper the legislative power in dealing with the varying necessities of society and the new circumstances as they arise, calling for legislative intervention in the public interest."

A striking analogy to the proposed legislation for the preservation of the timber supply of New Hampshire, and one which cannot be distinguished in principle, is found in existing laws for the preservation of game and fish which affect the property in game lawfully taken. Such statutes actually impair in a marked degree the value of what is called private property. Yet these laws have been universally upheld as a wise and just exercise of the police power by the highest judicial authorities in the land, and that notwithstanding their enforcement incidentally affected interstate commerce.

The principle of these cases is well stated by Clark, J., in *State v. Roberts*, 59 N. H. 256; 47 Am. Rep. 199, as follows: "The taking and killing of certain kinds of fish and game at certain seasons of the year tend to the destruction of the privilege by the destruction consequent upon the unrestrained exercise of the right. This is regarded as injurious to the community, and therefore it is within the authority of the legislature to impose restrictions and limitations upon the time and manner of taking fish and game considered valuable as articles of food or merchandise. For this purpose fish and game laws are enacted."

The leading case upon this subject is *Phelps v. Racey*, 60 N. Y. 10, 19 Am. Rep. 140. This was an action to recover penalties imposed by a statute on any person who should have in his possession any dead game at a certain season. Defendant

answered that some of the dead game was in his possession before the passage of the statute and when the killing was not prohibited, and the remainder was received from another state where the killing was lawful. In holding that a demurrer to such answer was properly sustained, the court of appeals of New York by Church, C. J., said: "The legislature may pass many laws the effect of which may be to impair or even to destroy the right of property. Private interest must yield to the public advantage. All legislative powers not restrained by express or implied provisions of the constitution, may be exercised. The protection and preservation of game has been secured by law in all civilized countries, and may be justified on many grounds, one of which is for purposes of food. The measures best adapted to this end are for the legislature to determine."

Such statutes have been sustained by the supreme court of the United States. In *Lawton v. Steele*, 152 U. S. 133, on writ of error to the court of appeals of New York, the case was elaborately argued on both sides, and the language of the court by Justice Brown is particularly instructive on the general principle under discussion: "The extent and limits of what is known as the police power have been a fruitful subject of discussion in the appellate courts of nearly every state in the Union. It is universally conceded to include everything essential to the public safety, health, and morals, and to justify the destruction or abatement, by summary proceedings, of whatever may be regarded as a public nuisance. Under this power it has been held that the state may order the destruction of a house falling to decay or otherwise endangering the lives of passers-by; the demolition of such as are in the path of a conflagration; the slaughter of diseased cattle; the destruction of decayed or unwholesome food; the prohibition of wooden buildings in cities; the regulation of railways and other means of public conveyance; and of interments in burying-grounds; the restriction of objectionable trades to certain localities; the compulsory vaccination of children; the confinement of the insane or those afflicted with contagious diseases; the restraint of vagrants, beggars, and habitual drunkards; the suppression of obscene publications and houses of ill fame; and the prohibition of

gambling houses and places where intoxicating liquors are sold. Beyond this, however, the state may interfere wherever the public interests demand it, and in this particular a large discretion is necessarily vested in the legislature to determine, not only what the interests of the public require, but what measures are necessary for the protection of such interests. To justify the state in thus interposing its authority in behalf of the public, it must appear, first, that the interests of the public generally, as distinguished from those of a particular class, require such interference; and second, that the means are reasonably necessary for the accomplishment of the purpose, and not unduly oppressive upon individuals. The legislature may not, under the guise of protecting the public interests, arbitrarily interfere with private business, or impose unusual and unnecessary restrictions upon lawful occupations. In other words, its determination as to what is a proper exercise of its police powers is not final or conclusive, but is subject to the supervision of the courts." After enumerating a number of such instances, he continues: "The preservation of game and fish, however, has always been treated as within the proper domain of the police power, and laws limiting the season in which birds and wild animals may be killed or exposed for sale, and prescribing the time and manner in which fish may be caught, have been repeatedly upheld by the courts. The duty of preserving the fisheries of a state from extinction, by prohibiting exhaustive methods of fishing, or the use of such destructive instruments as are likely to result in the extermination of the young as well as the mature fish, is as clear as its power to secure to its citizens as far as possible a supply of any other wholesome food."

The conditions thus described by the highest judicial authority as essential for the constitutional application of the police power to a new subject matter, in the opinion of this commission, now exist in New Hampshire. "The interests of the public generally, as distinguished from those of a class"—lumbermen—require the conservation of its forestry resources. The interference herein recommended prohibiting the indiscriminate cutting of trees is believed to be "reasonably necessary for the accomplishment of that purpose, and not unduly oppressive upon individuals."

RESTRICTION ON COMMON CARRIERS.

Such proposed legislation, in order to be most effective, should be supplemented by a corresponding restriction upon common carriers. This commission, therefore, also recommends the passage of an act making it unlawful for any railroad or other transportation company to transport or to have in its possession for the purpose of transporting, except it shall receive the same from some point outside the state, any spruce, pine, or hemlock timber in the log whose diameter at the larger end shall measure less than twelve inches; or any wood or timber of poplar or birch in the log whose diameter at the larger end shall measure less than eight inches.

Precedent for such legislation to protect our timber supply may be found in our present game laws, which were enacted to protect the food supply of the commonwealth.

GEORGE BYRON CHANDLER,
NAPOLEON B. BRYANT,
JAMES F. COLBY,
GEORGE H. MOSES,

Forestry Commissioners.

NEW HAMPSHIRE FORESTRY LAW.

(SESSION OF 1893.)

Be it enacted by the Senate and House of Representatives in General Court convened :

SECTION 1. There is hereby established a forestry commission, to consist of the governor, *ex officio*, and four other members, two Republicans and two Democrats, who shall be appointed by the governor, with the advice of the council, for their special fitness for service on this commission, and be classified in such manner that the office of one shall become vacant each year. One of said commissioners shall be elected by his associates secretary of the commission, and receive a salary of one thousand dollars per annum. The other members shall receive no compensation for their services, but shall be paid their necessary expenses incurred in the discharge of their duties, as audited and allowed by the governor and council.

SEC. 2. It shall be the duty of the forestry commission to investigate the extent and character of the original and secondary forests of the state, together with the amounts and varieties of the wood and timber growing therein; to ascertain as near as the means at their command will allow, the annual removals of wood and timber therefrom, and the disposition made of the same by home consumption and manufacture, as well as by exportation in the log, the different methods of lumbering pursued, and the effects thereof upon the timber supply, water power, scenery, and climate of the state; the approximate amount of revenue annually derived from the forests of the state; the damages done to them from time to time by forest fires; and any other important facts relating to forest interests which may come to their knowledge. They shall also hold

meetings from time to time in different parts of the state for the discussion of forestry subjects and make an annual report to the governor and council, embracing such suggestions as to the commission seem important, fifteen hundred copies of which shall be printed by the state.

SEC. 3. The selectmen of towns in this state are hereby constituted fire wardens of their several towns, whose duty it shall be to watch the forests, and whenever a fire is observed therein to immediately summon such assistance as they may deem necessary, go at once to the scene of it, and, if possible, extinguish it. In regions where no town organizations exist, the county commissioners are empowered to appoint such fire wardens. Fire wardens and such persons as they may employ shall be paid for their services by the towns in which such fires occur, and in the absence of town organizations, by the county.

SEC. 4. Whenever any person or persons shall supply the necessary funds therefor, so that no cost or expense shall accrue to the state, the forestry commission is hereby authorized to buy any tract of land and devote the same to the purposes of a public park. If they cannot agree with the owners thereof as to the price, they may condemn the same under the powers of eminent domain, and the value shall be determined as in the case of lands taken for highways, with the same rights of appeal and jury trial. On the payment of the value as finally determined, the land so taken shall be vested in the state, and forever held for the purposes of a public park. The persons furnishing the money to buy such land shall be at liberty to lay out such roads and paths on the land, and otherwise improve the same under the direction of the forestry commission, and the tract shall at all times be open to the use of the public.

SEC. 5. This act shall take effect upon its passage.

[Approved March 29, 1893.]

(SESSION OF 1895.)

*Be it enacted by the Senate and House of Representatives in
General Court convened :*

SECTION 1. It shall be the duty of the forestry commission, upon application by the owner or owners of any tract of forest land, situated in a locality where no town organization exists, to appoint a suitable number of special fire-wardens for said tract, to define their duties, to limit their term of employment, and to fix their compensation. The expense attending the employment of said special fire-wardens shall be borne one half by the party or parties making the application for their appointment and one half by the county in which said tract of forest land is located.

[Approved March 29, 1895.]

PROVISIONS OF THE PUBLIC STATUTES RELATING TO FOREST FIRES.

If any person shall kindle a fire by the use of firearms, or by any other means, on land not his own, he shall be fined not exceeding ten dollars; and if such fire spreads and does any damage to the property of others, he shall be fined not exceeding one thousand dollars.—Chapter 277, section 4.

If any person, for a lawful purpose, shall kindle a fire upon his own land, or upon land which he occupies, or upon which he is laboring, at an unsuitable time, or in a careless and imprudent manner, and shall thereby injure or destroy the property of others, he shall be fined not exceeding one thousand dollars.—Chapter 277, section 5.

Whoever shall inform the prosecuting officers of the state of evidence which secures the conviction of any person who wilfully, maliciously, or through criminal carelessness has caused any damage by fire in any forest, wood lot, pasture, or field, shall receive from the state a reward of one hundred dollars. The state treasurer shall pay the same to the informer upon presentation of a certificate of the attorney-general or solicitor that he is entitled thereto.—Chapter 277, section 7.