

THE PRESERVATION OF THE WHITE MOUNTAIN FORESTS.

By George B. James.

MOUNTAINS are the natural home of the forest. Trees grow better on hillsides than on plains. The forest must have moisture in abundance to render available the mineral constituents of the soil. The forest does not create rain, but it cannot exist in a country without rain, or in sections of periodic rain and drought. Forests conserve rain by storage in their mossy base. The forest-clad mountains cause heavy rainfalls, on account of the air being chilled in the ascent of their cold slopes and the consequent precipitation of moisture. The best forest growths, especially those of spruce, occur on the sides of mountains which are presented to the prevailing winds, thus receiving a larger share of moisture than the other slopes. Forests prevent sudden changes of temperature; their climate is more equable than that of the cleared land.

The White Mountains, with their lofty heights, their forest covering, and their ever-flowing springs, give birth and sustenance to four of New England's mighty rivers. The valleys of the Merrimack, the Connecticut, the Saco, and the Androscoggin are made fertile by the snows and rains which fall on the rocky summits and forest glens of the mountains. More than a thousand feet above the ocean level starts the downward flow of these powerful streams, contributing to drive the busy wheels of New England's varied industries. Neither the steam engine nor the dynamo can successfully compete with the natural flow of water in the development of mechanical power. No more important factor in maintaining New England's manufacturing supremacy presents itself than the great water powers of our principal rivers. Is not the conservation of the rainfall in our mountain forests of sufficient importance to our

manufacturers to make them keenly alive to the preservation of our forests?

Upwards of 250,000 people annually visit the White Mountains, for health and recreation, spending not less than \$6,000,000 each season. Certainly this feature is important. Anything which tends to promote the health and vigor of our communities, anything which affords rest and recreation to busy brains and bodies, has a positive money value to our communities, apart from all matters of sentiment and pleasure.

How important that the forest scenery should remain attractive, and that increasing numbers of people should be induced to visit and enjoy the White Mountain region!

The forests may be made to yield their annual income of wood products, and yet be kept as beautiful in appearance as ever, through co-operative ownership and comprehensive plans of forestry management. Pleasure and profit may be combined, education and remuneration go hand in hand. If each visitor would contribute a dollar a year for a few seasons to a general fund, to be managed by a representative board of trustees, or by a corporation or club organized for the purpose, those who now enjoy the White Mountain forests and fear their destruction might soon own these broad woodland areas and preserve them, to bless mankind for generations to come. Without some such plan of co-operative ownership, eloquent protests against present management are all in vain.

These forests can never be saved by generalization. They can never be saved by legislation, pure and simple. An object lesson in forestry is needed by the present owners of woodlands. One's pet theories cannot be demonstrated at the taxpayers' expense alone. The better example must be set; then followers of

the new gospel of forestry may be expected. The farmers of New Hampshire will not willingly tax themselves to provide a public park or to preserve these forests lands for their scenic interest or for their climatic effects. This must be the work of the capitalist and those who are interested in these matters.

The fact that these forests have a two-fold value, first in scenery and then in natural product, is a reason why their broad areas would be owned and controlled by those who appreciate this double value. The only feasible scheme of preserving these forests is one of co-operative ownership, be it on a large or small scale, through the contributions of a few wealthy men or the smaller contributions of a larger number of people of moderate means.

There must be co-operation in the absolute purchase of these tracts of forest land, for the purposes of park or preserve, to erect suitable buildings upon, to make healthful resorts of, and to submit to the hands of careful forestry experts for management. The income could easily be made to pay the entire expenses of the co-operative movement. The first investment would cover the cost for all time. The natural growth in value of these forests will make their purchase at present prices an unusually good investment. Investors would have their reward, first, in a healthful and attractive spot for their vacations; second, in an income which would pay the bills; and third, in a rapid increase in the value of this growing timber.

The proper management of the forests demands a systematic cutting out of the ripe and fully grown trees. This will not only conserve the forests, but will produce a large annual income from the same. The forests should be treated as any other crop, subject to annual cuttings. The primeval forest shows no perceptible growth. Decay is stamped on every side. The original forest is cold, mossy, solemn, and devoid of life. The old trees should be cut out and marketed. A new growth immediately springs up when the sunshine is admitted. The smaller trees get part of the sunlight, air, and mineral food of the soil,

and growth is visible on every side. A proper thinning out of the forests conduces to increased income, not only in the timber removed, but in the more rapid growth of what is left. Nature is profuse in forest growth as in everything else, and a system of thinning out is as necessary in the forest as in the garden or in the cultivated field.

Every well-balanced person has the ambition to leave the world better than he found it. To be remembered as one who loved Nature and interpreted her in a language plain to all is worthy the effort of any man. The Arabs say, "He who plants a tree is a friend to mankind." There is something noble in promoting the growth of a grand old forest, in preventing the wasteful sacrifice of its products, in utilizing its beneficent effect on climate, in contemplating the wonders of nature in the deep recesses of the solemn forests with their tall trunks piercing the sky. Communion with these monarchs of the forest, the growth of centuries, and contemplation of grand mountain scenery, the wondrous creations of the Great Architect, elevate the mind, teach lessons of humility, and inspire men to nobler work and purer lives.

The White Mountain section is the most accessible spot in the country, combining natural scenery and forest value. No forests in America are situated in the midst of such grand and beautiful scenery as are the White Mountain forests. Nowhere else in America is there the combination of growth, of foliage, of lofty mountains, of abrupt ledges, of springs and streams, of lakes and intervalles, of pretty hamlets and busy villages, which exists in the White Mountains. These mountains are within one day's railroad travel of 12,000,000 people, within four hours' easy ride from Boston. They are the most prominent natural object on the Atlantic slope. They should be the pride of our citizens, and the health resort, not only of New-Englanders, but of our people West and South, and of the foreigners who visit our shores.

Co-operative ownership of forest and mountain areas, managed in a public-spirited way, with well-regulated hotels, clubs, and boarding houses, with well-con-

structed roads, will attract increasing throngs of visitors. Before many years the White Mountains of New Hampshire will vie with the mountains of Switzerland. Little Switzerland is to-day the most travelled country in Europe, with an annual income from tourists aggregating \$30,000,000. Yet the appreciation of the fine mountain scenery of the Alps is only a development of the present century. In the last century the Alps were regarded as ugly and formidable obstacles in the journey southward to Italy.

There have been mistakes in belittling the extent and value of the forest areas of the White Mountains, both in their æsthetic and practical qualities. The White Mountains proper cover an area of about 800,000 acres; while the timber area, primeval and secondary, covers upwards of 1,000,000 acres. Not ten per cent of this land has been damaged beyond reparation. The scenery remains attractive and unique. Except in a few isolated cases, the main damage to the mountain-sides in this territory has been occasioned by fires, rather than by the lumberman's axe. Notably is this the case on Moat Mountain, west of Conway; on Potash Mountain, on the East Branch of the Pemigewasset; and on Cannon Mountain, near the Profile House. One of the best sections in the recent forestry law passed by the New Hampshire Legislature is that which makes better provision for the prevention of fires, and for the guarding of the forests by the official supervision of firewardens.

Perhaps too much dependence has been placed upon the sentimental side of this question. This is unnecessary in appealing to practical business men. It is easy to convince these men that investments in well-selected timber lands surpass all other investments in absolute worth and certain increase in value, in a positive demand for future products, and in a certainty that neither time nor custom nor fashion can change the public want for this material, so long as it can be supplied at any reasonable cost. Competition in production cannot reduce its demand nor increase the number of trees, except through intervals of one hundred to one hundred and fifty years devoted to

planting and growth. The ownership of timber lands is free from the contingencies which surround investments in railroad property, industrial stocks, and corner lots.

Co-operative ownership is the key to the situation. Divided and scattered ownership means destruction; co-operative holdings tend to proper development and care. The value of detached parcels of forest land, held by numerous owners many of whom may be possessed of but limited means, with no connected purpose or general aim in the workings, is greatly enhanced when a strong and powerful combination represents the scattered interests. Frequently weak holders of timber, to answer their immediate necessities, are inclined to flood the market when low prices prevail, making the depression still greater, whereas abler and richer owners would wait for a demand before manufacturing the supply.

Any plan of planting forest trees in the mountain regions of New England at the present time is purely theoretical. It has no practical argument in its favor. The capitalists can buy to-day, in the White Mountain forests, fully grown forest trees at less than the cost of plantations a year old. Thus the most enthusiastic individual would not contract to plant an acre to seedling spruces, maples, and birches, and cultivate for one year alone, at a less cost than forty dollars to fifty dollars per acre, leaving out of the question the original value of the land. Let the statistician figure what such areas would cost, compounding the interest upon the original outlay, for a period of one hundred years. The aggregate would show something over twenty-five hundred dollars per acre.

Nature shows us forests, averaging one hundred years old, which are available at a cost not exceeding ten cents a tree. Thus, in the White Mountain forests, nature has worked one hundred years, with air and moisture, and with the chemical laboratory of the soil, in producing full-grown trees, which in the year 1893 man can buy and own in quantity, at ten cents per tree, at the point of growth. Can the mind conceive of more stately, more satisfying, and more remunerative estate

than century-old forest trees, within one hundred and fifty miles of Boston, at a cost of ten cents each? What shall be said of the theorists who would purchase naked land, plant and care for trees a hundred years, in competition with the abundant growth of nature now in sight, and available at such reasonable cost?

Ah, says the theorist, the immense drain upon our forests will soon exterminate them from the face of the earth. If this were true, how attractive the investment in White Mountain forests at the present time, when they have the double value of scenery and health resorts, combined with the salable value of forest products! If the American forest is to fall before the axe, how satisfying the ownership of 100,000 or 200,000 acres of primeval forest, at the low cost of to-day! It is the White Mountain forests now under consideration which are entirely within the co-operative control of a reasonably large company of capitalists, and which, under such control, would not suffer the wasteful destruction predicted for American forests in general.

Present cotton machinery can supply fifteen per cent extra demand for fabrics without the erection of new buildings. Shoe factories can supply the present demand by working only eight months in the year. The same factories could add fifty per cent to their present product without new outlays for plant or machinery by manufacturing every month in the year. The iron, coal, and steel output could be doubled by a few years of increased enterprise. Yet it must take from 100 to 150 years to perfect a spruce-tree, and perhaps 200 to 250 years to produce a timber pine. The owners of forest lands may look with equanimity upon their property, which everywhere shows an increased demand for lumber, pulp wood, and fuel, with everywhere a diminishing supply of raw material.

Rational forestry demands a method covering generations. Individual ownership is dictated by selfish motives, regulated by short-sighted plans, and terminated with insufficient profits. The plans of rational forest management should be far reaching. The rights of individ-

ual ownership should be respected, yet enlightened public opinion and an economic consideration of values must insist in the end upon a preservation of the forests through broader co-operative ownerships, if not by State or nation as in Europe, then by capitalists, clubs, or companies of public-spirited citizens. Public policy dictates the conservation of forests, and sound business judgment detects therein good investments and ever-increasing values.

In Europe, forestry matters are subject to government control. In France an eminent legal authority has laid down the principle "that the preservation of the forests is one of the first interests of society, and consequently one of the first duties of government."

The United States is still a young country, in comparison with the nations of Europe, and in order to secure the attention of our capitalists, as regards the forest lands, some argument must be presented besides that of public-spirited ownership for the preservation of these forests and the natural scenery connected therewith. If we had a large leisure class, or the accumulated wealth of a thousand years, there might be a sufficient number of rich men who would purchase these forest lands through the promptings of sentiment and the public good. As it is, the utilitarian argument of practical worth must be brought into consideration. This is where the co-operative movement in the White Mountain forests has its greatest basis of strength. The value of these forests being twofold,—first as to scenery and value in maintaining the water flow and atmospheric conditions, and secondly in the sale of the forest products,—the very conditions are met which are needed to attract our public-spirited and wealthy men, who desire to benefit the community in which they live, and at the same time make a profitable investment of their money.

Real estate is the safest of all investments and the most certain to appreciate in value during a term of years. Forest lands are the most valuable of all forms of real estate, the most difficult to duplicate, and the most promising, both in

remunerative returns and future enhanced value. In the Old World, forest lands are selected by rich families as entailments. Future generations will profit by these investments. With an ever-increasing demand and a lessened supply, enhanced future values are a certainty.

Individual ownership is not equal to the business of controlling large blocks of timber lands. The proprietor perhaps lacks experience in cutting, manufacturing, and marketing the forest products. He has only limited quantities of any one variety on sale. His operations are not sufficiently extensive to warrant the employment of the best talent, either in the forest, the mill, or the market. It is only by the co-operation of small owners, or a joint ownership of a large tract, that the means for profitable management are secured. Under these conditions skilled labor may be employed in each department, and the work proceed with economy and system.

The principal coniferous growth in the White Mountain forests is spruce, with some pine, hemlock, and fir. Spruce is among the hardiest growths known to America, and will thrive at greater altitudes than any other available tree. The deciduous growth, embracing the maples, birches, and beeches, is of superior character. White ash grows to a limited extent, while there is but little oak north of Sandwich and Campton. Spruce is now more valuable than sapling pine, by reason of the rapidly increasing demand for wood pulp. Formerly pulp and paper manufacturers preferred poplar for their process, but now spruce wood stands at the head for strength and quality of fibre. Poplar wood is still used for pulp in a limited way and at less price than spruce. Forty per cent of all the spruce annually cut in New England and New York is now used in the wood-pulp industry. It is estimated that this demand is increasing at the rate of fifteen or twenty per cent per annum, and within eight or ten years will call for fully as large a quantity of spruce logs as is now cut for all purposes. The cut of spruce last year in New England and New York aggregated about 1,200,000,000 feet, of which 700,000,000 feet were consumed in the man-

ufacture of lumber, and 500,000,000 feet in the wood-pulp industry. There are no large areas of spruce forest in America, except those in Northern New England, the Adirondacks, and the Province of Quebec.

The spruce of the White Mountain forests is more highly esteemed for lumber, and especially for wood pulp, than that of other sections, and brings a larger price. This superiority is by reason of its large size, great length, smoothness, softness, and freedom from defects. Much of the Canadian spruce imported by our pulp and paper concerns is glassy and hard to work, by reason of the fact that it grows on wet and swampy soil. Both the hard and soft woods of the New Hampshire forests command comparatively higher prices, by reason of their high quality, as well as by reason of their proximity to favorable routes of transportation to market. These products will always be marketable at the best prices, and hence are the most favorable for co-operative ownership. The income from these New Hampshire forests may be placed at the head of all the woodlands in New England, by reason of their accessibility and superior quality. The owners of the New Hampshire forest lands have a rare combination of advantages. These lands produce more timber to the acre than the forests of other sections. There is but a small percentage of waste lands. Their accessibility to low-cost transportation is without parallel, whether the logs be floated down the great rivers, or freighted on railway cars, coming within easy hauling distance of the timber areas. Few other forest areas can be approached, as these may be, by three or four express trains each day, thus permitting frequent oversight of the proprietors and pleasure in superintending the business.

The practice of intelligent forestry is all important in the development and preservation of these magnificent White Mountain forests. There is a grave misapprehension of the province of forestry and its objects among the lumbermen and present owners of forests, who are apt to sneer at progressive ideas in the management of woodlands. The owner is as much entitled to his annual harvest of

forest products as the farmer to his season's growth of grass and grain, or the fisherman to his seasonable catch of fish.

It is a grave mistake for the present generation of lumbermen to think there is nothing to be learned in the management of the forest. The price of timber lands has heretofore been so cheap that the lumberman has felt its only value to be that of the material he could cut off at one fell swoop. He has had no realizing sense of the permanent income to be realized from his forest lands by rational management. He has much to learn, even though he has spent a lifetime in slaughtering the monarchs of the forest.

In the White Mountain district nature may be relied upon to cover with forests every spot where the soil is left intact. Man cannot destroy these forests by the axe alone; but he may injure their value by his ignorance, indifference, or greed. That fruit grower would be considered insane who should cut down his orchards to secure one crop of apples, pears, or peaches. That florist would be adjudged foolish who should pull up his vines and shrubs and bushes rather than cut his buds and flowers at the seasons of bloom. Yet the average American lumberman recklessly destroys his forest, or renders it valueless for generations to come, by cutting off all growth, large and small, at one operation. In the light of progressive forestry, the White Mountain forests are worth many times the present value attached to them by the wood chopper who only seeks for one crop and one cutting, regardless of the possibilities of future workings.

The transfer of the White Mountain forests from the improvident and impecunious ownership which seeks to secure a petty return for one indiscriminate slaughter of all the growth, to the wise, substantial ownership which shall seek the largest annual income for all time, consistent with the processes of practical forestry and the natural condition of the forests, would add millions of dollars to the forest wealth of New Hampshire. The true preservation of the forests lies in conserving their growth, utilizing mature and marketable products, and in a management which looks to annual income for all time.

It is easy to criticise the methods of the present owners of these forests. Perhaps, however, the circumstances which surround them forces them to destructive methods. The ownership of the White Mountain forests has been divided up into a large number of small holdings. The present tendency is to aggregate larger areas under fewer ownerships. Take the case, however, of an impecunious farmer who, in addition to a few acres of rocky land, may have fifty or one hundred acres of woodland or forest growth. His little farm will not support his family. He ekes out a scanty income by annual drafts upon his forest growth. He is not in a position to avail himself of the forester's art: he needs cash to buy groceries and clothing, to pay his taxes, and for many other purposes of family need. He can best secure his cash income from the sale of his forest products. He cuts and sells according to the dictates of his necessities.

Co-operative efforts in purchasing these forests and utilizing their growth, through organized companies or clubs, would naturally lead to the establishment of one or more schools of forestry. Such forestry schools would be an important aid in this movement, and would yield practical results. At present the price of forest lands in New England is too cheap to warrant other than experimental work in planting seedlings. However, there is much intelligent work necessary in the proper management of existing forests, and there is an absolute lack of individuals educated in forestry matters to give proper care to the valuable areas now demanding intelligent attention.

While the variation in soil, climate, and economic conditions precludes our full acceptance of European forestry practice in the management of our American forests, there are general principles everywhere acceptable. In thickly settled Europe, every variety of forest product has a cash value. With us, the high cost of labor, the exorbitant rates of transportation, and the abundance of firewood throughout New England, necessitate the waste in the forest and at the sawmill of more than seventy per cent of the total growth. In France fagots and

kindling wood sell by the pound. Little or no waste is permitted; while Americans actually market less than thirty per cent of the tree as nature produces it. The lumberman leaves behind in the forest, in root, limb, and top, and at the sawmill, in slabs, edgings, and sawdust, fully seventy per cent of the total growth of the entire tree.

In many sections forest lands in Europe are valued at \$100 and upwards per acre, while equally well-stocked forests can be purchased here at \$10 to \$15 per acre. This inequality cannot last for many years. The consumption of wood is much larger *per capita* in this country than in any other on the globe. With a rapidly increasing demand and a constantly diminishing supply, not many years must elapse before American forest products will advance materially in price. This is in favor of those investments which may be made at the present time; it is in favor of those people who are willing to come forward with their means and preserve the White Mountain forests. This preservation is not a Utopian idea, born of sentiment and fancy, but an investment worthy the investigation of the most critical and conservative capitalist.

Co-operative ownership and management of forest lands are well exemplified by several clubs in the Adirondacks, one of which controls a large area of land, the cost of which was contributed by five hundred wealthy gentlemen, who subscribed \$1,000 each to the original purchase. The sale of ripe and marketable timber and wood from this area, under the guidance of careful managers, nets an income beyond the cost of the club management. The shares in the principal club in the Adirondack region, which originally cost \$1,000 each, now stand \$1,250 bid, with \$1,500 asked for each share. Its members and their families have enjoyed the advantages of the club beyond measure. Life in the forests, and on the lakes and streams, has newly created many city dwellers. They have realized the charms

of nature. Better work will result all along the line of human endeavor from such outings.

The establishment of clubs, Alpine societies, and co-operative ownerships of these mountain forests will soon make the White Mountains as favorite a walking ground for our vigorous youth of the present generation as the Scottish Highlands or the Swiss Alps. Such associations as the Appalachian Mountain Club are doing good service in promoting this beneficent work. They should receive the encouragement and aid of those of our citizens who are interested in preserving the stately forests of New Hampshire. A healthy public sentiment should be created in forestry matters.

This sentiment needs a rallying point. Suppose the Appalachian Club had five thousand or ten thousand members instead of one thousand. It is worthy of such a membership. It would then become a leading factor in the great army of forest preservers; it could then inaugurate comprehensive plans and stimulate subscriptions to purchase valuable areas of forest growth and mountain scenery. Around its organization might crystallize a mighty movement which, by gaining public confidence, could own and hold for the public good vast areas among the White Mountain forests.

Little or no reliance can be placed upon any scheme for inducing the New Hampshire Legislature to tax the people of that State in the preservation of forests, which are as much for the benefit of the people of Massachusetts and other near States as those of New Hampshire. It must not be expected that the people of New Hampshire will tax themselves in a burdensome way to provide health resorts, mountain scenery, and forest property for the people of other sections. This is not necessary, if the wealthy men, or those of moderate means, of other States can be convinced that the White Mountain forests cannot only be saved in their aesthetic aspect, but can also be cultivated as any other crop and return an annual income to the owners.

New England Aug.

1893