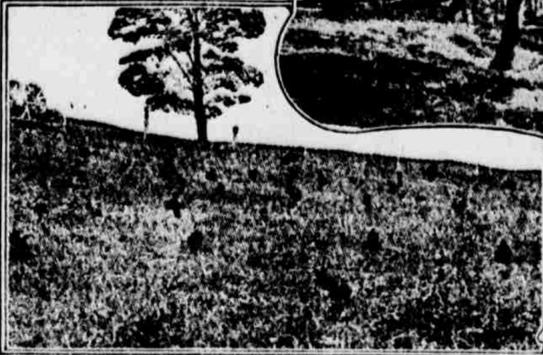


Forest Working Plans

BY W. K. WILDES, M.F.

ANY disposition on the part of the owners either of forested tracts or areas suitable for reforestation must, in the large majority of instances, be prompted by the expectation of financial gain. A few cases where this does not hold, embrace land owned by the state, water companies in a few instances, clubs and a small number of individuals. To this latter group of owners, the income from their holdings is not as important as the purpose to which a well-forested and properly managed area will be put, whether it be for its utility or aesthetic value. The large majority includes lumbermen, and owners of smaller areas, who have made their investment upon a strictly business basis, and who expect a suitable return from the same. If the forester can show the possibility of such a return, and at the same time provide for the preservation and improvement of the stand, he then advances the practical side of the practice of his art.

He may be dealing either with a large area, involving many conditions as to topography, character of timber, rate of growth, etc., necessitating different methods of cutting to obtain desirable reproduction, a future supply of stock, protection from windfall and fire, or, he may have simply a wood lot problem to solve. In either case, it is the results that owners are



PASTURE LAND PLANTED IN WHITE PINE



A FINE EXAMPLE OF NATURAL REPRODUCTION



NATURAL WHITE PINE REPRODUCTION, EIGHT YEARS OLD

looking for, and not an opportunity to invest their time and money for the advancement of forestry for its own sake. It is here that the forester has an opportunity to show that his work and its results are eminently practical, that a desirable return is possible; both immediate from the sale of the product, and remote from the increased and accumulating growth, as well as the improvement of the quality of the timber, together with the growing and the reproductive capacity of the soil.

In a planting proposition, the return is necessarily remote. If, however, it can be shown that an area, now producing 1 per cent. per annum, is capable of returning 3 per cent. per annum, compound interest, at the final harvest in 40 years, after deducting with interest, the initial cost of stock and planting, together with taxes and fire protection for the full period, is it not good business policy for many owners, whether individual or company, to make such an investment? It will be argued that only owners that are able to hold an area permanently will care to wait 40 years for a return, and that very few individuals would consent to an investment in which the returns are deferred for so long a time. This is true in almost all cases. There are, however, conditions which make such an investment desirable. It is not at all uncommon for plantations to be made, protected, and allowed to mature, in order that the returns may be enjoyed by the next generation of a family, or have them take the place of a life insurance policy.

In practicing forestry, it must be realized at the outset that an investment either of money or marketable material left standing is necessary. The former includes the extra cost of marking the timber to be removed, care in protection of the young growth, fire protection, including piling coniferous tops and patrol, and a slight increase in the cost of logging per thousand feet, as the larger the amount of timber removed from a given area the less is the cost per unit. Unless a clear cutting system is employed, some marketable material must be left on the area cut over both for seeding and in some cases for protecting the seed trees from windfall. This comes under the latter form of investment—namely, merchantable material. In return for this investment of merchantable material, the condition of the forest is improved. Instead of removing all of the valuable species and leaving the area to reproduce the undesirable and less valuable, the reproduction of desirable species is provided for, and the future value of the area increased.

For the successful operation of a working plan and the possibility of carrying it out for the full period specified, it is necessary for the forester and owner to meet on common ground. First of all, the forester must get the point of view of the owner, and arrive at a full understanding of his wishes and plans. This means that he cannot always provide for or obtain the results that may be most desirable from a scientific point of view. Many thoroughly desirable silvicultural operations must be ignored, for example, an improvement thinning may be scientifically necessary, but if there is no market for the material, and the owner does not wish to bear the expense, the operation must be delayed until the material reaches a marketable size. The first thing, then, is for the forester to meet the owner's wishes, making such

derstand these conditions thoroughly, and the demands of a region, may mean the financial failure of a plan. Oftentimes these local conditions preclude the possibility of certain provisions highly desirable from a technical standpoint, but which for practical reasons are impossible. In other words, the practical must be given full consideration along with the technical.

With complete co-operation between forester and owner, and a disposition on the part of both to make the necessary sacrifices, together with an understanding on the part of the former of the really practical side of the problem, there should be less and less cause for the abandonment of the provisions of working plans made for definite periods.

The first working plan in Vermont under the state forest service, was made by the writer while engaged as assistant to the state forester. The area treated is owned by Dr. William Stanford Stevens of Albans, Vermont, and is located at Enosburg, in the same state. An outline of the work and its provisions follow.

The area involved embraces 900 acres, divided as follows: Woodland, 360 acres; pasture land, 344 acres; meadow, 196 acres.

The conditions that led the owner to consider the possibilities of forestry were these: The area had been maintained under a more or less diversified system of farm management, and as the owner did not live on or near the property, he wished to be relieved of the care and attention that such an arrangement involved.

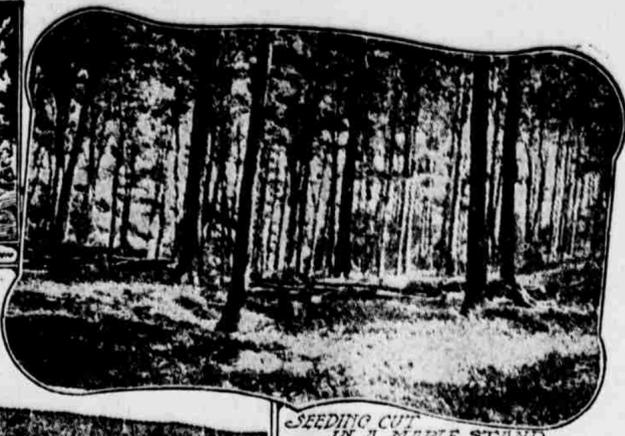
To accomplish this purpose it seemed best to bring the three classes of land under a definite and permanent system of management through the provisions and maintenance of a forest working plan.

- The provisions follow:
1. To complete the treatment of the whole tract at the end of ten years.
 2. All woodland to be treated is divided into ten equal areas, one to be thinned in the fall and winter of each year.
 3. All pasture land is divided into ten equal areas, one to be planted in the spring of each year.
 4. All meadow land will be maintained as such.
 5. For each wooded area, the kind of thinning to employ is stated; also a rough estimate, together with net value, of the amount to come out.
 6. For each area to be planted, the species are selected and the number necessary given, together with the total cost of the work.

The woodland is mixed, hardwoods consisting of sugar maple, yellow birch, beech, and a small percentage of ash, basswood, poplar, ironwood, cherry and elm, with young hemlock and spruce reproduction well established on a few sections. Sugar maple reproduction is especially good, and with ash and basswood is particularly desirable.

In treating this area either reproduction or improvement thinning were prescribed, removing all undesirable and over-mature species and such mature species as seemed best for the requirements of the area. Thus only desirable species were left to reproduce as well as to become more valuable through increased growth.

In carrying out the field work for this plan, the area was first surveyed both by boundaries and types of land. It was necessary to ascertain the



SEEDING CUT IN A MAPLE STAND

area of each, with the exception of the total could be divided into ten equal parts for annual treatment. Upon each wooded section the total stand of material was estimated, both in board feet and cords, the system of management and the character of thinning necessary was prescribed, and the material to come out the first year marked. Where a reproduction cutting was recommended, provisions for keeping out grazing were made.

Upon each section of the pasture land the necessary planting and species were determined, together with the fencing required to prevent grazing and killing young planted material.

In the office, a map was prepared showing each class of land together with the specified area to be thinned or planted each year. For example, 1910-1911-1912, etc., denote the year in which the area is to be cut, which I, 1b, 1c, 1d, etc., denote the area and order of planting; I to be planted in 1910, II in 1911, etc.

In the written plan a complete statement of the treatment of each section, both cutting and planting, is given for each year. For example:

Woodland, 22 acres will be thinned, 1a being clear cut for planting. Planting, 32.41 A will be planted with white pine, namely 1b, c, d and e. 1a is not to be treated; 1d has been stalked out. The other acres have definite boundaries. On this area there is sufficient cord wood available to make its removal profitable.

Woodland, 20 acres will be thinned. Of this area 7.8 acres in the lot by the sugar-house have been marked for a reproduction cutting. Tract Vb will be clear cut for planting. Planting, Tract II, 37.36 A will be planted with white pine. All apple trees, brakes and hard hack are to be removed.

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OUTLINE FOR CUTTING.

Years.	Board Feet.	Sale Price \$3.50	Cords.	Sale Price \$30	Total
1910....	30,000	\$105.00	130	\$39.00	\$144.00
1911....	22,000	77.00	240	72.00	149.00

OUTLINE FOR PLANTING.

Year.	Block.	Area, Acres.	Species.	Number.
1910....	1 b	10.56	White pine	12,000
	1 c	2.38	White pine	2,400
	1 d	17.24	White pine	17,240
	1 e	2.34	White pine	2,588
1911....	11	32.42	White pine	34,328
		37.36	White pine	37,360

(The acreage of woodland to be treated is cut down from the total 360 by the fact that about 150 acres was being cut over under a contract made previous to the adoption of this plan. It accounts for only 22 and 20 acres coming under management for the years given above, which is, of course, not one-tenth of the total area of woodland.)

It is estimated that the total receipts from the cutting, including the tract being cut under contract above mentioned, will pay the complete cost of planting and seedlings.

The plan just outlined means that at the end of the ten-year period the owner will have his woodland under a good system of forest management, and greatly improved over its present condition, together with 344 acres planted to Norway spruce and white pine, the cost of which being met as before stated by the returns from the area itself. The returns from thinning which will be made on each section in the period from 1935 to 1945, making each section thinned 25 years old, will give a considerable return. At this time about 400 trees per acre will be removed. From 1950 to 1960 the area will be clear cut by sections and replanted. The total yield from this cutting should be at least 30,000 board feet per acre. The plan also provides for proper fire protection, which is absolutely necessary for the successful maturing of a plantation. It also states the conditions which any contractor must meet who makes the cuttings during the next ten years. These conditions follow:

1. All trees to come out are blazed and stamped with the letter "V."
2. The contractor must take all marked and leave all unmarked trees.
3. Care in felling must be taken in order that young growth and reproduction will not be injured.
4. All sound logs 6 inches at the small end and over are to go into lumber.
5. Sound down timber and tops of felled trees are to be cut into cord wood.
6. Care must be taken in skidding logs not to injure standing trees and reproduction.
7. The contractor will be liable to a penalty of twice the value of any tree that is cut not bearing the official stamp.
8. All work is subject to inspection. The state forester also agrees to mark the trees to cut each year.

While the owner himself will not enjoy this return, the plan offers an example of the instance cited previously by which an individual is willing to make a long-time investment in order to make it possible for the next generation in his family to enjoy the results.

The Return From Captivity

Sunday School Lesson for Oct. 15, 1911
Specially Arranged for This Paper

LESSON TEXT—Ezra 1:1-11; 2:6-7, 10.
MEMORY VERSE—1:4.
GOLDEN TEXT—"He retaineth not his anger forever, because he delighteth in mercy."—Mic. 7:18.

TIME—Cyrus takes Babylon 538 B. C. His decree of return 520 B. C. First return, under Zerubbabel, 520 B. C.

PLACE—Babylon and vicinity, Jerusalem. And the long journey between.

RULERS—Cyrus was king of Babylon, and a large part of the East. Zerubbabel called also Sheahbazzar (Ezra 1:8, 2:2) from Babylon became the ruler of Jerusalem.

MONUMENTS—On stone tablets and cylinders, are written records of these days.

The Cyrus Cylinder, found at Babylon in 1879, now in British Museum.

The Nabonidus cylinders, in British Museum.

Annalistic tablet of Cyrus, a proclamation by him, written shortly after his conquest of Babylon.

There were three eras of captivity for the children of Israel as there were several eras of return. The first captivity was by Nebuchadnezzar, when Daniel and his friends were carried captive. Seventy years from this brings us to B. C. 536, the time of the completion of the return described in this lesson.

Nebuchadnezzar again captured the city, sent a great amount of treasures from the palace and the temple to Babylon, with 10,000 of the more important of the people. Among these were the prophet Ezekiel and the great-grandfather of Mordecai, Queen Esther's cousin. The third captivity was also by Nebuchadnezzar, who, after a siege of a year and a half, in July, 586, completely destroyed the city and the temple. Seventy years from this time brings us to the completion of the temple, B. C. 515.

The discipline of the exile has accomplished its purpose so far that it is wise and safe to permit a large number to return and renew the ancient nation. It would be useless to bring back to Judea people who would commit the same sins which made the exile necessary and who had not learned to some extent the lessons which their hard discipline was sent to teach.

The power of idolatry was forever broken. They never again yielded to its fascinations. They were taught to set a new value on the filling of all the forms of worship with the spirit of religion. God had allowed even the city which was the type of heaven and the most glorious temple dedicated to his worship to be destroyed when these became a substitute for true religion instead of an aid to it. They were also taught by their absence the value and necessity of religious institutions, of the means of worship, of the Sabbath day.

It led to renewed study of the sacred Scriptures. The exile was the period in which the guardianship, transcription and study of the written Scriptures became the special care of a distinct class, afterwards famous as the great order of the scribes. It led, also, to the establishment of the synagogue for social worship and reading of the Scriptures, with its accompanying schools.

The captivity served as a missionary scheme to spread the knowledge of God over the world. It was an aid in preparing the world for the coming of the Lord Jesus Christ and for the spread of the gospel by the apostles. Thus there was the promised land, the homeland the center of religious life, and the dispersion as an agency in every country of the known world.

The journey home and the whole movement may be made most real to all, and especially to children, by tracing the journey on the map. Note the great rivers to be crossed without bridges, the desert lands, the savage tribes, the countries of their old enemies, the rugged mountains to be traversed, hunger, thirst and pain, the long weary months of travel on foot, and the desolate city and devastated homes at the end of their journey.

If we may trust later traditions, the setting out of the "captivity" for Palestine was joyous in the extreme. An escort of 1,000 cavalry accompanied them, for protection against the desert Arabs, then as now given to plunder, and they started to the music of tabrets and flutes. Forth from the gates of Babylon they rode, to the sound of joyous music—a band of horsemen playing on flutes and tabrets, accompanied by their own 200 minstrel slaves and 128 singers of the temple, responding to the prophet's voice, as they quitted the shade of the gigantic walls and found themselves in the open desert beyond. "Go ye out of Babylon. Flee from the Chaldeans, with a voice of singing declare ye, tell this, utter it even to the end of the earth; say ye, The Eternal hath redeemed his servant Jacob." It was like the procession of the vestal virgins, with the sacred fire in their hands, in their retreat from Rome; like Aeneas with his household gods from Troy.

For all who have gone into the captivity of sin there is a call to repent and return to the Father's house.

The sins that led to the exile were not a fall upward. The fall into sin is never a fall upward. The man who throws away the "gold, silver and precious stones of life" for the "wood, hay and stubble," may be saved, but "so as by fire," a fire that burns up the little gains of sin. There is great joy in returning from captivity of sin, not only the joy of the returning wanderer, but the joy of the angels who know how great beyond conception is the blessing of the return.

PUTTING IT UP TO CENTRAL

All Caller Wanted Was Mrs. Smith's Number, and Surely That Was Easy to Get.

"Hailon, there, central! Is this central? It is? I thought it was, but I couldn't quite be sure. The other day I supposed I was talking to central, and here it was only my grocer. I do think there are some queer mixups in this telephone service. What I want now is to find out the telephone number of Mrs. John Smith—S-M-I-T-H, Smith. I find that there are more than 100 persons of that name in the book, and I don't know which one is the husband of the lady I want. She is a large lady with a florid face and prematurely white hair, and I think her husband is a traveling man, and a brother-in-law of hers, named Jones, lives somewhere on M street—a stoutish, elderly gentleman with side whiskers. Kindly let me have Mrs. Smith's number at once. I had it on a slip of paper that I can't find. Seems to me it was two-four-six-ten ring three, or one-two-sixty-four ring two. You know how confusing telephone numbers are. Let me have Mrs. Smith's number right away, please."

"ECZEMA ITCHED SO BADLY I COULDN'T STAND IT."

"I suffered with eczema on my neck for about six months, beginning by little pimples breaking out. I kept scratching till the blood came. It kept getting worse, I couldn't sleep nights any more. It kept itching for about a month, then I went to a doctor and got some lard to take. It seemed as if I was going to get better. The itching stopped for about three days, but when it started again, was even worse than before. The eczema itched so badly I couldn't stand it any more."

"I went to a doctor and he gave me some medicine, but didn't do any good. We have been having Cuticura Remedies in the house, so I decided to try them. I had been using Cuticura Soap, so I got me a box of Cuticura Ointment, and washed off the affected part with Cuticura Soap three times a day, and then put the Cuticura Ointment on. The first day I put it on, it relieved me of itching so I could sleep all that night. It took about a week, then I could see the scab come off. I kept the treatment up for three weeks, and my eczema was cured."

"My brother got his face burned with gun-powder, and he used Cuticura Soap and Ointment. The people all thought he would have scars, but you can't see that he ever had his face burned. It was simply awful to look at before the Cuticura Remedies (Soap and Ointment) cured it." (Signed) Miss Elizabeth Gehrk, Forest City, Ark., Oct. 16, 1910. Although Cuticura Soap and Ointment are sold by druggists and dealers everywhere, a sample of each, with 32-page book, will be mailed free on application to "Cuticura," Dept. 17 L, Boston.

Determined. Gillet—What did you pay that world famous specialist \$50 for if you felt perfectly well? Perry—I wanted to know how he pronounced appendicitis.

As long as there are people in the world who try to get something for nothing, a lot of other people will be able to live without work.

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