



LIBRARIES

UNIVERSITY OF WISCONSIN-MADISON

Biennial report of the State Conservation Commission of Wisconsin for the fiscal years ending June 30, 1917, and June 30, 1918. 1918

Wisconsin. State Conservation Committee (1915-27)

Madison, Wisconsin: Democrat Printing Company, State Printer, 1918

<https://digital.library.wisc.edu/1711.dl/2VUH3BCIOMR3B9D>

Based on date of publication, this material is presumed to be in the public domain.

For information on re-use, see

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

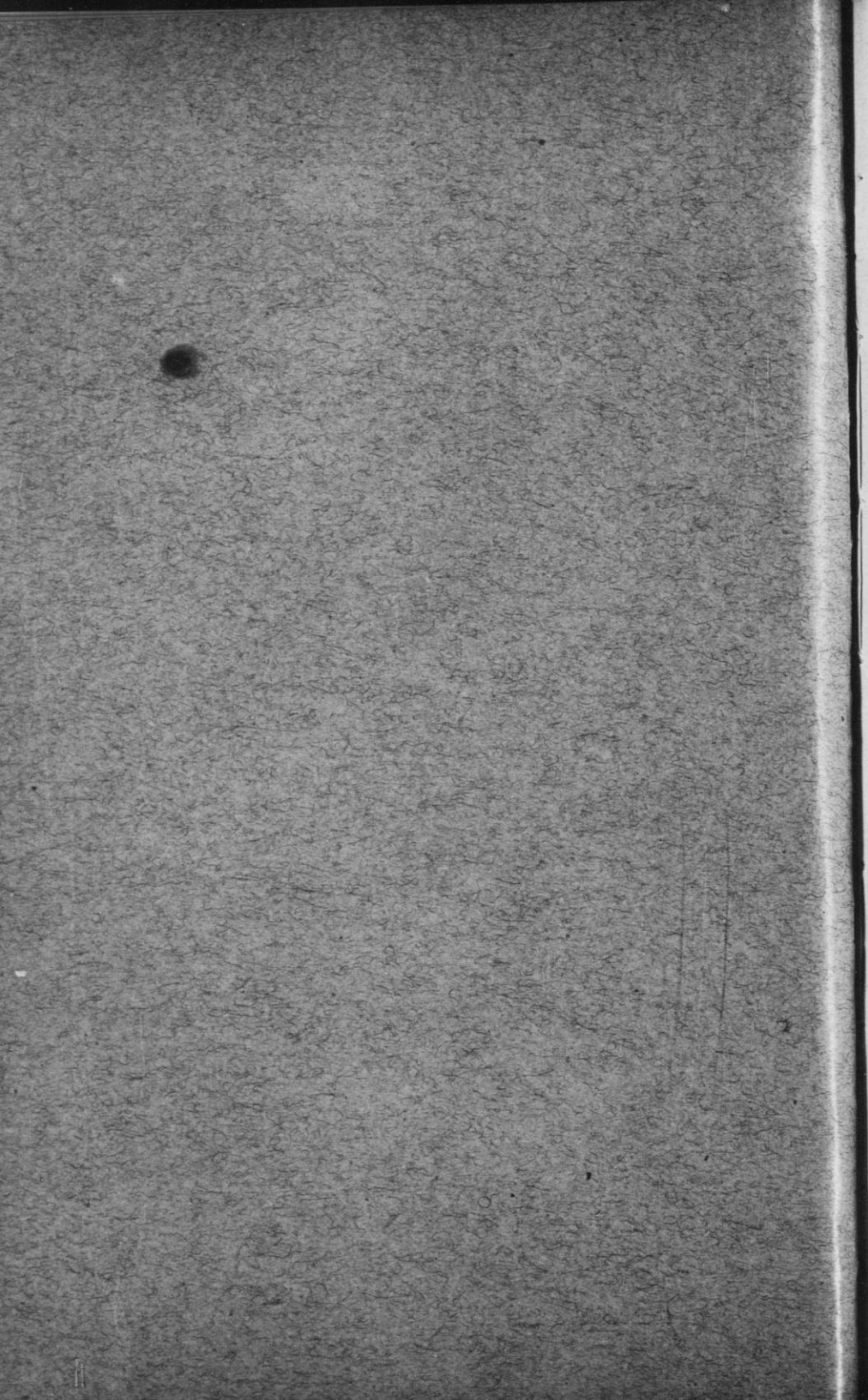
BIENNIAL REPORT
OF THE
STATE CONSERVATION COMMISSION
OF WISCONSIN

FOR THE

Fiscal years ending June 30, 1917, and June 30, 1918



MADISON, WISCONSIN
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1918



BIENNIAL REPORT

OF THE

STATE CONSERVATION COMMISSION

OF WISCONSIN

FOR THE

Fiscal years ending June 30, 1917, and June, 1918

MADISON, WISCONSIN

DEMOCRAT PRINTING COMPANY, STATE PRINTER

1918

COMMISSIONERS

W. E. BARBER, *Chairman*-----Term expires February, 1919

JAMES NEVIN -----Term expires February, 1921

CHAS. W. THOMPSON, *Secretary*

TABLE OF CONTENTS

Commissioner's Report and Recommendations.....	9
Wild Life Conservation.....	15-35
American Sportsmen's Creed.....	36
Division of Fisheries.....	37-63
Mussel Propagation, by Experiment and Practice.....	63
Value of Fish Caught and Sold from Outlying Waters.....	69
Output of Hatcheries for 1917.....	70
Distribution by Counties for 1917.....	71
Fish Distributed from Hatcheries for 1918.....	73
Distribution by Counties for 1918.....	74
General Routine of a Trout Hatchery.....	76
Wisconsin Park System.....	83
Peninsular Park.....	84
Devil's Lake Park.....	89
Nelson Dewey Park.....	91
Interstate Park	93
Brule Park	94
Cushing Park	94
Forestry Division, nurseries.....	96
Shipments of Planting Stock from State Nurseries.....	104-111
Forest Fire Prevention Plan.....	113-120
Financial Statement of Conservation Commission.....	121-133
Classification of Receipts.....	135
Inventory	137
Itemized Statement of Arrests.....	139
Amount of Fines and Costs by counties.....	140
Classification of Confiscations.....	142
Statement of Arrests and Seizures by Wardens.....	143



F. B. MOODY

F. B. MOODY

Since its last biennial report was issued this Commission has suffered a grievous loss in the death of Mr. F. B. Moody, its forestry member. Mr. Moody died of pneumonia, at his home in Madison after a brief illness, on August 19th, 1918. He was appointed a member of the Conservation Commission on July 3, 1915, so that his services in that capacity covered a period of little more than three years.

F. B. Moody was born in Maine in 1880. He was educated in Bates College and the school of forestry of the University of Michigan. He was appointed extension professor in Forestry at Cornell, after having served as assistant State Forester in Wisconsin. When the new Conservation Commission was created he was recalled from Cornell. In September 1917 he was commissioned a captain in the engineer section Officers' Reserve Corps, and was called into active duty on December 28th of that year at Camp Lee, Petersburg, Virginia.

Mr. Moody was an authority in forestry and as teacher and practical worker in the field had gained an enviable reputation in his chosen profession. But he was more than an expert forester. He possessed executive ability of a high order which made him a notable success in his work of administering the new and untried laws under which the Commission began its work. In 1915 the Conservation Commission created by the Legislature of that year took over the functions previously performed by three different departments of the state, and it is only fair to say that much of the success of the new Commission was due to the skill and tactfulness with which Mr. Moody performed his share of the work.

The preceding forestry administration had engendered a hostile feeling on the part of the people living in the forest sections of the state and it required the most considerate and wise treatment of the forestry problems to abate this hostility. Mr. Moody handled the situation so wisely that before the end of two years he had not only removed all feeling of hostility to the state's forestry and park policy, but had secured the friendly cooperation of every man in the northern sections

of the state who had dealings with the Commission. An unwise or careless handling of the situation would have brought serious trouble and have blocked the work of the state as laid out by the Legislature. No member of any state board ever more completely won the good will of the people with whom he had to deal than did Mr. Moody.

The death of Mr. Moody is a distinct loss to the state, and his place will be hard to fill. The loss to his associates on the Commission and to the members of the Commission staff is keenly felt. Mr. Moody was a manly man with whom to be associated was to be helped. Every person connected with the Commission bears testimony to the attractiveness of the man's personality which made association with him at all times a pleasure.

W, E. BARBER
JAMES NEVIN.

LETTER OF TRANSMITTAL

Honorable EMANUEL L. PHILIPP,

Governor of Wisconsin.

SIR: In conformity with law, we have the honor to transmit the report of this department for the biennium ending June 30, 1918.

Respectfully submitted,

W. E. BARBER,

JAMES NEVIN,

Commissioners.

CHAS. W. THOMPSON, *Secretary.*



DRIVE ON STATE HATCHERY GROUNDS NEAR MADISON.

COMMISSIONERS' REPORT

Pursuant to statutory command, we take pleasure in submitting our second biennial report. The report covers the period extending from July 1, 1916 to June 30, 1918. We shall try and give a complete statement covering our various activities and at the same time make it brief.

We believe it fitting to preface our report with a statement concerning our activities as a department in "Making the World Safe for Democracy" and upholding the cause of the Union.

Many of the men formerly in the employ of the Commission, and listed below, are now in Government service, some by enlistment and others in response to the call from Uncle Sam.

Several were officers in the National Guard and when that contingent was called, each reported to his company. Two organized companies and were granted captains commissions. Some hold commissions of a lesser degree while others enlisted as privates and are now taking an active part in the National organization overseas. Each and everyone went forth with a determination of a duty to perform with a willingness, if necessary, to sacrifice his all on the Nation's altar. At the time of writing, one of our former employees has made the supreme sacrifice, or in the terms of the army, "has gone west". Mr. John Brekke, but a few short years ago came to the land of the free from Norway. For a number of years was employed at our hatcheries and when the call to arms came, he was inspired with the desire to uphold the principles of democracy by enrolling in the United States army. In the first battle in which he took part, he paid the great price, his life, that the cause of mankind might survive the treacherous Hun.

The response of the Commission as a unit to the appeal for subscriptions to the Liberty loans was most gratifying and is a matter of pride to everyone in the department. It was patriotic and generous and in many cases involved serious sacrifice of comfort, and luxuries for all. Everyone appreciated that the purchase of bonds was a duty and a privilege and afforded an opportunity of investing funds in the world's best security. A record was kept of individual subscriptions, from reports received on our solicitation, and amounts varied according to each man's ability to pay, from \$50.00 to \$1,000.00.

The spirit revealed by employees and the results of their efforts indicate that they recognize their responsibility as citizens and patriots in this emergency. Because of this realization they will continue to bear their full share of our Country's burden.

What we have recited is not for the purpose of self-glorification, but to reveal the spirit of devotion and willingness to make sacrifice when necessary to aid in bringing to a glorious close the great struggle over-sea.

Only a few short months ago, America was a helpless giant, from a military point of view. Each passing day sees a steady increase in man power and marshalling of resources. Never did we doubt the quality and courage of our troops and in the supreme test at Chateau Thierry the world joined with us in heralding the American soldier as second to none.

The following list records the members of our Commission who have served in some branch of the military or are at present engaged in doing their bit either in the war zone or training camps.

ROLL OF HONOR.

Name	Position
R. S. Scheibel.....	Secretary of Commission
Matt Patterson	Shipping Clerk
R. J. Marvin.....	Stenographer
W. M. Wollin.....	Stenographer
A. R. Brunet.....	Warden
J. B. Fosnot.....	Warden
W. W. Wismer.....	Warden
John Long	Warden
A. S. Childs	Warden
R. B. Nolan	Warden
F. F. Russell	Warden
Neal Harrington	Forest Ranger
Percy Weaver	Forest Ranger
Paul Smith	Forest Ranger
George Kilp	Forest Ranger
John Iverson	Forest Ranger
Herman Bauman	Forest Ranger
Hugh Percy	Forest Ranger
P. A. Laurence	Park Superintendent
John Brekke	Hatchery Assistant
Elmer Gallagher	Hatchery Assistant
Christ Faulkner.....	Hatchery Assistant

BUDGET FOR BIENNIAL PERIOD ENDING

June 30, 1921.

Requested Appropriation (Annual)	
For Operation	\$233,500.00
For Repairs	17,500.00
For Capital	11,500.00

General Operation (\$233,500.00)

The amounts we have mentioned as sufficient to meet our needs annually for the next two years is an increase of about sixteen per cent more than was appropriated to our use for the past biennium. The

increased amount is necessary to meet the added costs of material and labor. We were unable to increase the salaries of employees in proportion to the increase in living costs and in justice to all our employees, we request a generous allowance to meet the need. Transportation costs have been increased fifty per cent, supplies equally as much. To administer the affairs of the department efficiently, an increase of the amount we have asked is absolutely necessary.

Repairs and Maintenance (\$17,500.00)

During the last two years there was appropriated annually, \$13,000.00 to keep in repair roads, tools and equipment, painting and repair of buildings, upkeep of hatchery ponds, pipe lines and raceways. It was impossible with that sum to maintain the usual high standard of state property. The closest economy was practiced and repairs made only where absolutely necessary. There is much to be done and to wait longer means a still greater cost in the end. As a matter of economy and good management, the amount requested should be made available.


Capital or Permanent Improvements, (\$11,500.00)

This expenditure may be considered in the light of an investment. New buildings, roads and facilities for accommodating the public in our parks are needed. Each year sees a greater number of people visiting state parks and it is only proper that their comforts should be provided for. Many miles of new roads should be built and to do the work at a minimum of cost, a tractor and heavy wagon trailer should be purchased. To enhance the efficiency of the warden force several cars should be purchased. Several of the cheaper type of cars commonly used could be purchased and maintained at an expense less than it now costs the department for livery hire, hotel expense and railroad fares. Improvements are necessary at several of our hatcheries, new equipment is needed and with all due respect to the necessity for practising economy, we believe that our request is reasonable considering the amount of property under our control.

RECOMMENDATIONS.

A study of the bills presented to the legislature for passage shows that more of them pertain to fish and game than any other subject. Fish and game is a subject in which many persons are vitally interested, and naturally many have ideas of their own which they like to have enacted into law. It is not the intention of the Commission to burden the legislature with numerous bills, but there are several changes we should like to see made that have a direct bearing on a better enforcement of existing laws. The administration of laws provides an opportunity of discovering their weakness. Sometimes a single word is sufficient to defeat justice and to remedy such defects and also present

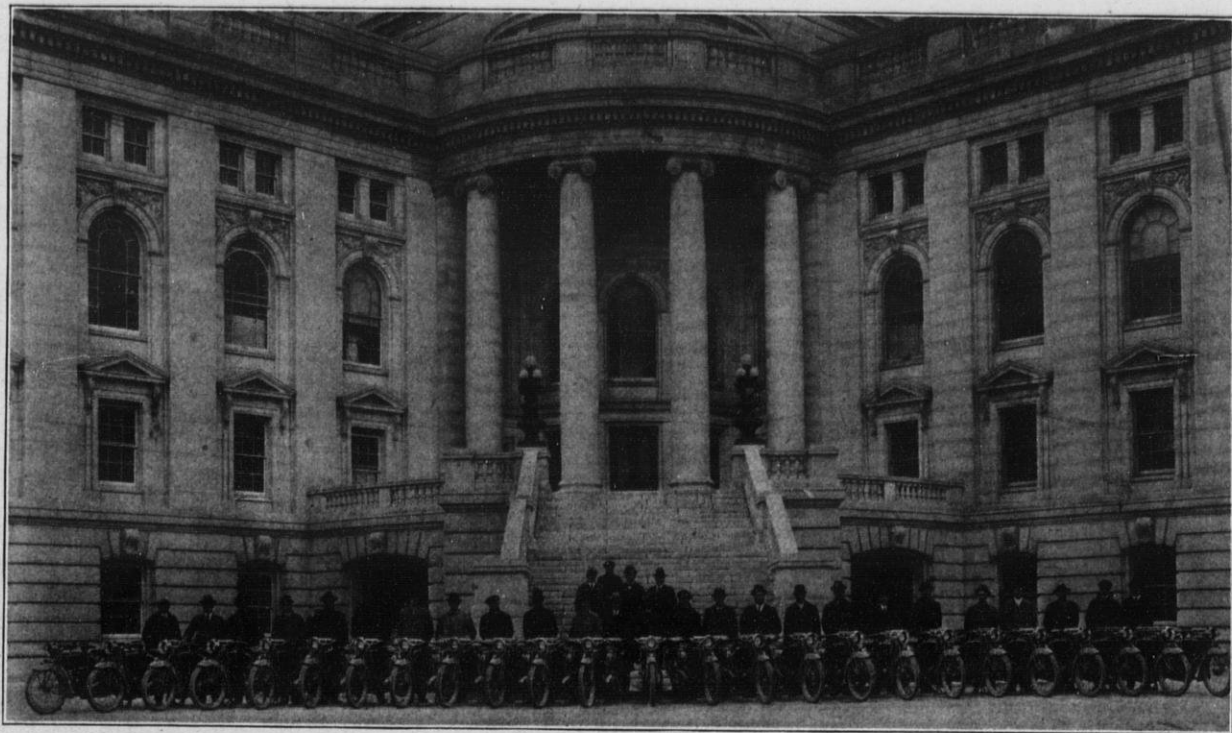
some new ideas for consideration, we offer the following recommendations:

1. Provide a closed season for all varieties of fish on the waters of Lake Michigan from October 21 until November 21.
 2. That the size of mesh in pound nets be repealed.
 3. That the law prohibiting the setting of nets in less than forty fathoms be repealed.
 4. That nonresident hook and line licenses be \$2.00 per year.
 5. No lake trout less than 16 inches in length be shipped from any lake port or placed in the market.
 6. No whitefish less than 15 inches in length to be shipped or placed on the market from any port of the outlying waters.
 7. That all lake trout less than 16 inches caught in pound nets must be returned to the waters alive.
 8. That all whitefish less than 15 inches caught in pound nets from the outlying waters must be returned to the waters alive.
 9. A closed season for lake trout and whitefish in the waters of Lake Superior to be from first of October to November 1.
 10. No gill nets to be set in the waters of Lake Superior of less than 2 $\frac{3}{4}$ inches stretch measure from the first of January to the first of October of each year.
 11. No nets of any kind to be set in the waters of Chequamegon Bay, from the commercial dock in the city of Washburn, Bayfield county, south and including Ashland county, to the state line of Michigan within two miles of the shore line of said counties.
 12. That the 8-inch perch law as it applies to Green Bay be repealed and that a 7-inch law be substituted.
 13. That the minimum size of muskellunge be increased from twenty-four inches to thirty inches.
 14. Repeal the law providing a minimum size of pike caught with hook and line.
 15. Amend the deer law so as to permit the killing of bucks only, with horns not less than four inches.
 16. Authorize construction of a trout hatchery on the state park grounds at St. Croix Falls, Wisconsin.
 17. Amend the clamming law and provide a \$1.00 resident clamming license.
 18. Amend Section 4562c by substituting the word "game" for deer.
 19. Amend Section 29.48 relating to sale of game fish by striking out the words, "from inland waters" and make it applicable to all waters.
 20. Reduce the amount of bond for guide license from \$200.00 to \$100.00.
 21. Amend the law pertaining to waterfowl, to make it conform to federal regulations.
- 

22. A law providing that all hunters must report their kill of game under their license to the Conservation Commission on blank forms or coupons furnished by the department.
23. That a uniform open and closed season for rabbits be established throughout the state.
24. That all hunters whether hunting for protected or unprotected game, must secure a hunting license.
25. That all commercial fur buyers must operate under a state license, license fee to be not less than \$25.00.
26. Unlawful to carry a gun in the counties where there is an open season for deer five days prior to the opening of the season, unless the same is knocked down, or in carrying case, and no loaded shells in possession.
27. Amend game fish transportation law to read, "Not more than lawful bag limit of any one variety in one shipment."
28. Establishing a wild life refuge on the state lands, Sections 8, 9, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23, 26, 28, 29, Township 41, Range 7 East, Vilas county.
29. The fine for violations of the law in the polluting of streams to be raised to not less than \$1,000.00.
30. That nonresident taxpayers of the state of Wisconsin be granted a nonresident hunting license for large and small game for \$10.00.

W. E. BARBER,
Chairman.
JAMES NEVIN,
Commissioner.

CHAS. W. THOMPSON,
Secretary.



MOTORCYCLE SQUAD, WISCONSIN CONSERVATION WARDENS.

WILD LIFE CONSERVATION

W. E. BARBER

Two years ago when this Commission issued its report, we had operated this department only one year under the law consolidating the fish, game, forestry, and park departments into the department of the Wisconsin Conservation Commission. It was plain to us then, as it is plainer now, that the interlocking of these departments was a wise legislative act, as it materially enlarged and strengthened each division, giving a broader view of the essential relations each division bore to the others, perfecting a more comprehensive system of the entire state, for conservation development.

The old scheme of forestry here, fish and game there, parks yonder, is unthinkable. These great problems of conservation are indissolubly interrelated: The forests and waters interblend and depend one upon the other, and the fish and game upon both. Therefore, viewing it with the importance obtained in efficiency, it proves that what is needed is not separation but closer fusion and a better understanding of the various elements pertaining to conservation.

We have passed that stage in our industrial life when haphazard or antiquated methods will apply. We are living in an age of industrial development which surpasses the fondest dreams of our ancestors, and we are steadily moving on. We must apply the same rules to this business; We cannot succeed in replenishing our denuded forests, streams and fields with game and fishes without the application of the very best methods.

New avenues for information must be provided for obtaining data of the amount and kinds of birds and animals that are taken each year by the hunters, which will enable the commission to more accurately determine whether or not any one or more species of game are increasing or decreasing. There is no way of taking an inventory of the living animals and birds, but a system of accounting for these that are killed each year by the hunters, can be provided, and, with such a system in operation for a few years we can determine whether the killing is increasing or decreasing, which will form a safe criterion for estimating the increase or decrease of the supply. It seems to us that this information is indispensable, if we are to properly regulate the seasons and the bag limits for maintaining the supply of game.

The Commission offered a bill at the last legislative session providing that every purchaser of a hunting license must make a report of the



BEAVER DAM IN ASHLAND COUNTY.

game killed under his license, the report to be made on a coupon attached to each license, with columns designating the different varieties of game that could be taken under the license, which must be filled out by the hunter at the close of the year, the coupon to be turned in to the county clerk as his application for his next year's license, the county clerk to forward all reports to the commission. The bill also provided that no hunter could secure another license until said report was made as provided in the law. Such a law would provide a comprehensive system of accounting for the game killed each year and no doubt would disclose many surprises. This bill was killed in the committee but we are not discouraged and will offer the same bill again this year, which we confidently expect will be enacted into law.

TRAPPERS' LICENSES

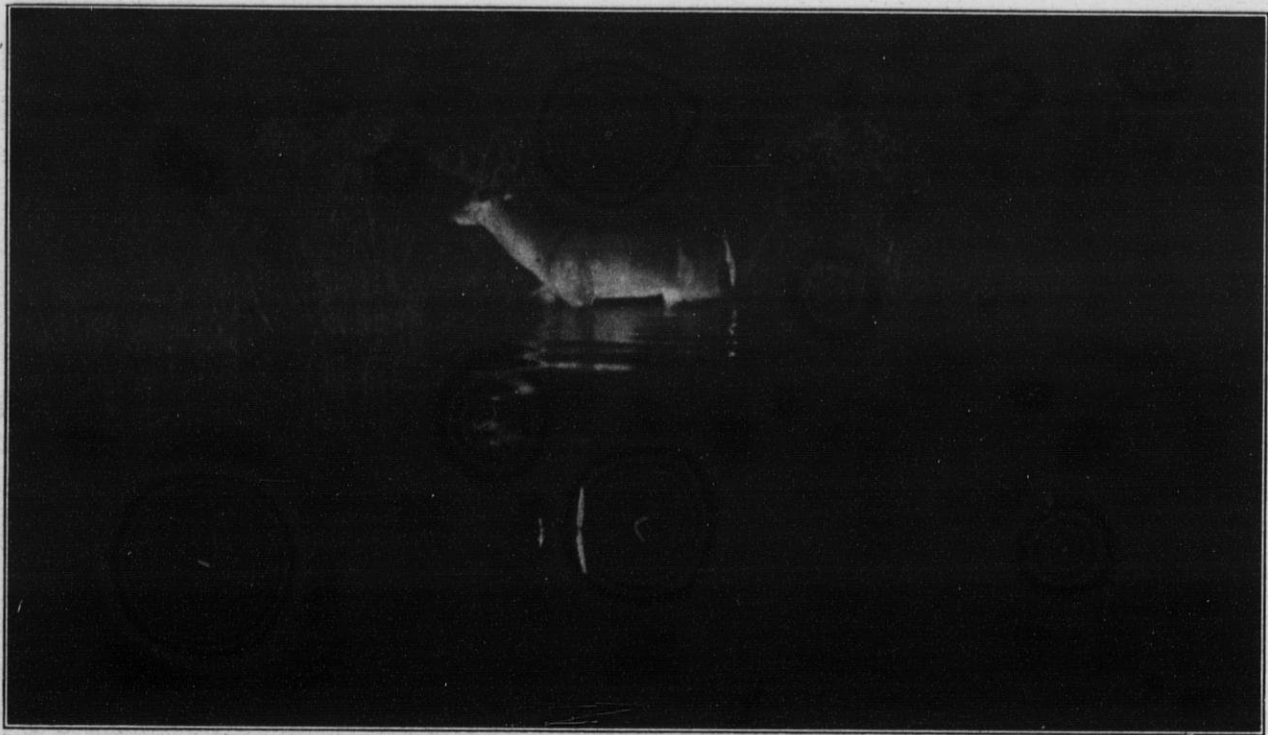
The Commission offered a bill to the last legislature at the last session providing that all trappers of fur-bearing animals must secure a trapper's license, and with each license issued a blank form for reporting the number of his license, the number and value of each variety of animals taken, and such other information as might be required. This bill was passed and we have been operating under this law during the past year. We sold 24,712 trappers licenses, which was a great surprise, as we had no idea that any such number of trappers were operating in the state and, we were still more surprised when the reports were all in and tabulated showing the tremendous number of fur-bearing animals taken, and the amount received by the trappers for their fur. The report in full is shown as follows:

Muskrats	802,948	\$400,960.10
Skunk	50,304	131,938.20
Mink	22,859	86,469.30
Raccoon	4,651	14,305.60
Weasel	14,883	11,636.50
Fox	1,794	15,295.50
Fisher	559	2,963.40
Wolf	157	1,140.50
*Beaver	537	4,118.20
Bear	32	335.75
Wild Cat	30	29.60
Lynx	19	289.00
Marten	48	100.10
Opposum	25	28.00
Coyote	13	31.10
Mole	70	8.80
Badger	976	255.55

*Special licenses issued for beaver in Price, Rusk, and Sawyer counties, 100 licenses issued. Largest number reported taken by one trapper, 33.

How many people had any conception that the fur-bearing animals of this state were yielding such an income and that it was so widely distributed?

These animals belong to the people of the state, and it is right that trappers should pay something for the privilege of taking them; it



A DEER IN THE VELVET CAUGHT BY FLASHLIGHT, "SNAPSHOT."

is also right that they should report to the state how much and what kinds of the people's property they are taking; besides, it is good business. Why should we not also know how much, and what kinds of game the licensed hunter is taking?

We do not know how many trappers' licenses we will sell this year but from appearances the catch of fur will be much less, especially of muskrats. Judging from the appearances of the rat habitations they were trapped out very closely last year, but we will be able to determine the facts when the reports come in for the next season's trapping. If we find the catch much reduced we must add protection by restricting the trapping area or by state-wide closed season.

It seems to us that this is intelligent legislation, and that the same intelligence should be exercised in providing adequate laws for acquiring a comprehensive report of the amount of game taken and its commercial value to the people.

We should also have a fur buyer's license law, requiring that all buyers of furs in Wisconsin must operate under a license, and also report to the commission the amount and kinds of fur purchased. Such a law would stop a lot of illegal trapping as the violator has no trouble under present conditions to dispose of his illegal fur at any season of the year.

POWERS OF COMMISSION

A law was enacted by the last legislature, giving certain powers to the Conservation Commission, in adding protection to one or more species of wild animals. Such power could not be exercised by the commission except by petition from a town or county signed by ten citizens of a township or twenty-five citizens of a county respectively.

This has proven a better law than the Commission anticipated when it was passed, as is proven by the use made of it in the several towns and counties during the past two years. Forty-one petitions have been filed with the commission since this law went into effect asking protection to one or more varieties of fish or game and we have held hearings under each petition and have issued thirty-nine orders granting the prayers of the petitioners.

The first petition filed came from Ashland, Bayfield, and Douglas counties, petitioning that commercial fishermen be prohibited from taking brook trout, brown trout, rainbow trout, steelhead trout, seago trout, salmon, or any variety of trout excepting lake trout in their nets in Lake Superior. Hearings were held in Bayfield, Ashland and Superior, and an order issued requiring that all trout excepting lake trout taken by commercial fishermen must be returned to the waters uninjured.

Petition No. 2 was presented by Columbia and Sauk counties relating to Lake Wisconsin, petitioning that the size of pickerel be raised from sixteen, to eighteen inches and that the bag limit be reduced from fifteen, to ten pickerel. Pike, all varieties, legal size raised from thirteen inches, to sixteen inches. Black bass, all varieties, legal

size raised from ten inches, to twelve inches. Crappie, bluegill, sunfish, a mixed bag of fifty fish. Hearings were held at Lodi, Columbia county and Merrimack, Sauk county, and an order issued granting the petition.

Petition No. 3 presented by Polk county, asking that Bass's Bay in Balsam Lake, Polk county, be closed to all fishing reserving the bay as a spawning area for black bass. Hearing was held at Balsam Lake and an order issued closing the district as petitioned.

Petition No. 4 was presented by Sauk county, petitioning that clamming in the Baraboo river be prohibited in certain localities. Hearing was held and an order issued that no clam could be taken by the use of crow-foot bars, rake or dredge or with any other device.

Petition No. 5 was presented by Waupaca county, petitioning that Pigeon river, a trout stream, be closed to all fishing for a period of two years to replenish the stream. A large number of citizens of Waupaca county were present at the hearing and much interest was manifested, which resulted in practically a unanimous vote that no order be issued and the commission so ruled.

Petition No. 6 was presented from Eau Claire county, petitioning that Minnow creek, a trout stream, which runs through the normal school grounds of the city of Eau Claire, be closed to all fishing. Hearing was held and Minnow creek ordered closed by the commission, and grounds posted.

Petition No. 7 was presented from Vilas county, petitioning that the legal size of muskellunge be raised in all the waters of Vilas county from twenty-four inches, to thirty inches. Hearing was held at Eagle River, and the prayers of the petitioners were granted.

Petition No. 8 was presented from Fond du Lac county, petitioning that the closed season for rabbits be extended to October 15. Hearing was held and order issued by the commission closing the season as petitioned.

Petition No. 9 was presented from Ashland county, petitioning that Chequamegon Bay be closed to commercial fishing. Hearing was held and an order issued by the commission closing the bay one mile from shore line in Ashland county,

Petition No. 10 from Hubbleton, Jefferson county, petitioning that that portion of the Crawfish river running through Jefferson county be closed to the seining of carp. Hearing was called and a very large crowd attended the hearing, showing that the citizens in that vicinity are deeply interested in commercial fishing. It developed that the opposition to the commercial fishing of the river were laboring under a misunderstanding of the situation, which was entirely removed in the discussion, and it was unanimously voted at the conclusion to continue the fishing as in the past.

Petitions were received from Ashland, Barron, Bayfield, Burnett, Chippewa, Clark, Douglas, Eau Claire, Florence, Forest, Iron, Jackson, Langlade, Lincoln, Marathon, Marinette, Oconto, Oneida, Pierce, Polk, Price, Rusk, St. Croix, Sawyer, Shawano, Taylor, Trempealeau, Vilas,

Washburn, and Wood counties, petitioning the Conservation Commission to use such methods as the law provides for changing the present deer law and reestablishing the One Buck Law, or such other law as will provide proper protection for conserving the deer in Wisconsin. Hearings were called as provided by law, which we will relate, covering the general developments, as our space will not permit the covering of each hearing separately.

The Commission traveled by car, holding hearings at 8:00 P. M. each evening, devoting the time between the places of hearings in looking over trout streams, lakes, and game conditions, talking with farmers, homesteaders, county officials and citizens to the number of thousands, informing ourselves as to public sentiment relative to the protection of deer, and their interest in the conservation and protection of fish and game. We traveled in all over 3000 miles, and as a result of this long itinerary, and investigation the commission were astonished at the knowledge and interest manifested by the citizens residing in the northern counties of the state in this subject. There were 1286 sportsmen and hunters who attended the hearings, and they all came with an individual idea of what the laws should contain. They were not all of one mind, but as a rule they wanted a law that would protect the deer and at the same time provide an annual open season for hunting them. Every man had an opportunity to be heard without interruption and there was no time set, limiting the discussions, which were, with very few exceptions, dispassionate, and allowed that the commission were earnestly striving to cooperate with the sportsmen for more game and better hunting conditions. We informed the hunters that 53,593 deer hunting licenses or deer tags were sold last year, which meant that 53,593 hunters expected to go into the woods to hunt deer. How many of them went we did not know but we did know that approximately 18,000 deer were killed last year, two-thirds of which were does and fawns; that it was plain that another year's hunting under the present law would necessitate several years of closed season; that we were there to inform them of the conditions and warn them of what would naturally happen if something was not done to save the deer this year; that we were going to leave it to a majority vote of the hunters to decide what action, if any, they wanted the commission to take.

We advised closing the season for does and fawns and providing that only bucks with horns not less than four inches in length could be killed. We put the question to a vote at each hearing, and of the 1286 hunters attending, 1012 voted for a One Buck Law. The Commission took the question under advisement and, while firmly of the opinion that a One Buck Law is the only law that will conserve the deer, and permit an annual open season, we did not want to go counter to the legislature.

The buck law was thoroughly discussed before the legislative committees of the legislature at its last session and they refused to recommend its passage, and the commission finally decided to protect the fawns this year, and have issued an order closing the season for killing

them. This order is generally approved by the hunters and, they say, there can be no excuse for killing the baby deer. We confidently believe that every member of the legislature will approve the action of the Commission in making this regulation. There was a tremendous slaughter of deer last year and to permit the slaughter to continue this year would have practically exterminated the deer in this state. We therefore contend that the law giving this power to the Commission to make regulations to add protection to one or more varieties of game has materially reduced the danger to which they were exposed under the law.

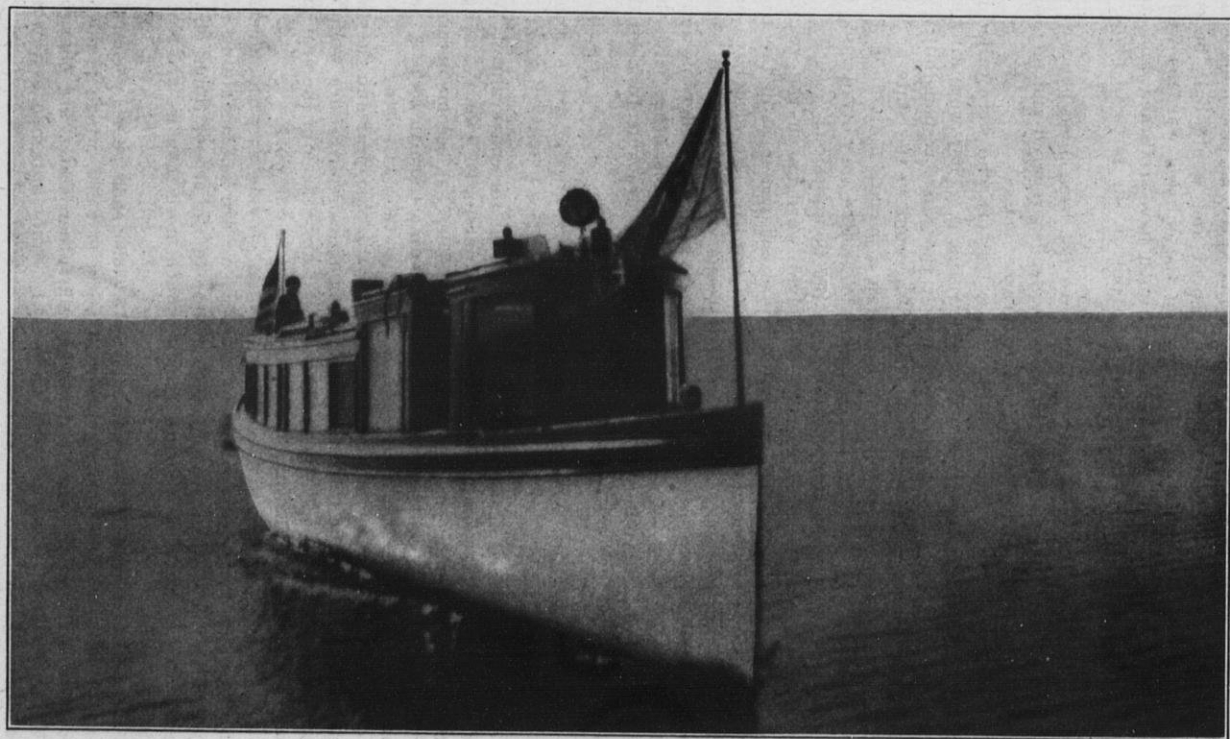
Two years intervening between legislative sessions is a long time and much havoc is often raised with fish and game during that time and the power vested in the Commission obviates this danger. Had this law been enacted a few years sooner no doubt the season for hunting partridge and prairie chicken would have been closed one year sooner than it was, which would have prevented the precarious condition threatening the extermination of those birds awaiting legislative action. The law is fundamentally right, as has been proven through the use made of it during the past two years.

In reviewing the number of petitions that have been filed with the Commission it shows the active interest that people are taking in fish and game protection. The hearings in nearly every instance were well attended, some of them bringing out over one hundred interested sportsmen, which gave the Commission an opportunity of meeting them and talking over the various questions, and we are satisfied that it has removed much of the prejudices that formerly existed toward the department and developed a more friendly spirit of cooperation, which is most essential to the success of this work.

The Commission have been greatly benefited in getting the views of hundreds attending the hearings, through the friendly discussions obtained. We believe those present went away fully satisfied that the Commission are earnestly endeavoring to increase the game supply and improve hunting conditions. We were not embarrassed through discourteous remarks, and a respectful and orderly decorum was manifest throughout.

CONSERVATION WARDENS

The vicissitudes of war and the dark sceptre of death have greatly reduced the ranks of this division. Wardens Wismer, Frank Russell, E. F. Fosnot, A. R. Brunet, R. B. Nolan, John Long, and A. S. Childs, enlisted when the call went out for men to join the colors. Warden Jakoubek joined the force in Uncle Sam's secret service department, and death claimed Wardens A. G. Russell of Wabeno, Wm. Barnhardt of Sturgeon Bay, and A. I. Hulbert of Barron. B. J. Shaver left the state employ to join the federal service of the bureau of Biological Survey, Washington, D. C. George Bennett resigned to enter other employment. This thinning of our ranks has disarranged the warden force very materially, and consequently has reduced the high standard



WARDEN PATROL BOAT "GALATEA."

of efficiency formerly maintained. It was not thought advisable to fill the places of the wardens who went to the army, as new men would require considerable time to become efficient and would only be employed for the duration of the war when the enlisted wardens would return. Fosnot, Frank Russell and Brunet have returned and are back at work, and one warden has been put on the force in place of Bernett.

The places of the deceased wardens have not been filled but will be very soon now that the new civil service list is prepared and men are available in the territories where they are needed.

A. G. Russell, Wm. Barnhardt and A. I. Hulbert who were called by death were counted among our most efficient men. They were diligent, conscientious and broad-minded, and felt the same responsibility of giving a square day's work and accurate account to the state of Wisconsin as though their employer had been a private individual. They were highly respected in the communities where they lived and, by their brother wardens and the Conservation Commission.

There are at the present time fifty-eight wardens on the regular force, besides eight forest rangers who are engaged most of the time during the winter months in the warden service. We also have one hundred and five nonsalaried special wardens who are of great assistance in suppressing violations, many of them giving considerable active service in assisting the regular wardens in various localities. With this total force of one hundred seventy-one men we are able to keep the offenders well in hand.

EQUIPMENT

The force are in need of additional equipment for conveyances. We are still using the twenty-five motorcycles purchased two years ago, but many of them are badly worn and the up-keep has become excessive and they should be disposed of either by trading them in as part payment on Ford cars or by selling them for what they will bring.

We have purchased four Ford cars during the past year and they are all in good order and provide the most economical conveyance when efficiency is considered. They can be used at any season of the year and over any sort of road, which is most essential in our work.

It seems to us that the legislature should provide us with sufficient funds for properly equipping our men, as we are self-sustaining and, including the fines collected which revert to the school funds of the state, we are turning into the treasury much more than we are receiving.

Our income could be increased over \$20,000 each year by charging \$2.00 for nonresident fishing license instead of \$1.00, which is not excessive and not more than many of the other states are charging. This additional income would thoroughly equip our men and would add tremendously to their efficiency.

Twenty-four of our wardens own cars and the state is paying them 8c per mile for the miles actually traveled while in the service of the

state, the wardens paying for all repairs, gas, etc. This to our mind is all wrong. In the first place, our men are not financially able to own cars but they are anxious to cover and properly take care of their territory and they assume the burden in order to give the services required.

Our source of income is through the sale of the various licenses, sale of rough fish, and confiscations, and our income always increases through efficient warden service in enforcing the laws. Besides, the sportsmen demand service because they are paying the bills. If we could have a \$2.00 nonresident fishing license it would furnish the necessary funds for giving us the much needed equipment.

We need a couple of high-powered launches on the Mississippi river to compete with the equipment of the law-violators operating there, and we also need a fast launch in Milwaukee for use on Lake Michigan. We have never had a suitable boat there, and it is needed frequently during the spring and fall especially, as the ducks are plentiful and open-water shooting is practiced constantly. There isn't any question but what the people are willing to pay their money for licenses if by so doing the fish and game can be properly protected.

ABANDONED DAMS

A law was passed at the last legislative session providing that whenever the Conservation Commission should determine that the conservation of one or more species or variety of wild animals will be protected thereby the commission is authorized to maintain and repair any dam located wholly upon lands, the title to which is in the state either as proprietor or trust for the people; subject, however to the powers of the Railroad Commission to fix the level and regulate the flow of the public waters.

The Conservation Commission have had occasion to repair one dam during the past year located at the mouth of Big Muskego Lake, Waukesha, county. This lake was drained several years ago by a corporation under a charter granted them by the Wisconsin legislature, but which was later declared unconstitutional by the Supreme Court. The court in its ruling ordered that the drainage ditch be filled by said corporation, but they had failed and the project abandoned before the judgment of the court was rendered.

A number of interested citizens raised a fund and constructed a dam at the mouth of the lake, raising the water several feet back of the dam, which they maintained for several years. The Railroad Commission established the water level of the lake two years ago and as the dam was in need of repairs, and there being no funds for maintaining the dam, the Conservation Commission made the necessary repairs, with the assistance of a number of interested citizens who donated most of the labor of men and teams. The dam was put in good repair at an expense of \$177.25 and should last for several years without further outlay or expense.



A DOE SURPRISED AT MIDNIGHT BY FLASHLIGHT.

Muskego Lake is one of the finest lakes in Wisconsin for fish and game. It ranks with Lake Koshkonong for feeding grounds for ducks and is prolific of black bass and pike. It is a popular lake for fishing and hunting and its close proximity to Milwaukee, with the Interurban Railway running past the lake, makes it a valuable asset to the people of that community and should be maintained.

DEER

Deer, as well as other wild game, have a new weapon pointed at them, more deadly than powder and bullets and much harder to escape, as its range is long and it reaches out into the remote districts where the deer once found refuge, safe from the pursuit of the hunter. The automobile has annihilated this space, and distance no longer protects them. This, with the march of civilization steadily encroaching upon their habitation presents a problem not encouraging to this specie. Does it mean that Wisconsin is to lose her deer, and that the annual deer hunting season, now hailed with delight by the hunters, will be closed forever, and another of the pioneer customs recorded in history with the dead, but not forgotten past?

This may sound like an obituary to the deer of Wisconsin which perhaps would be a little premature, but the melancholy story of their extermination will soon be written if the sportsmen and the legislature do not come to the rescue and extend the strong arm of the law for their protection.

As previously stated, 53,593 hunters purchased deer hunting licenses, or tags, last year and they killed approximately 18,000 deer, three-fourths of which were does and fawns. Does any sane man contend that these animals can stand that sort of killing? True, fawns are protected this year, which must help some, but stronger protection must be given them or they will soon be shot to death. High-powered rifles to shoot them with, and automobiles for accessibility to their grounds, and the present law in force, will sound the death knell to the deer in Wisconsin within five years. A One Buck Law is the only law that will protect the deer and provide an annual open season.

A closed season is not desirable as the sportsmen lose their interest in the game; besides, it is not necessary. If we protect the deer properly, and hunt them sanely, we can keep the deer as a game animal for years to come.

PRAIRIE CHICKEN

We are more cheerful in reporting the condition of these birds than we were when we wrote our report two years ago. A marked improvement has taken place, and the prairie chicken are responding most splendidly to the protection afforded them under the present closed season.

Nearly every county in the state have a few birds and several counties have a large number. We should not think of opening the

season for a couple of years more, when we should have a short season of good shooting each year. It would be suicide to these birds to open the season inside of two years, for they were so nearly exterminated when the present law was enacted that it requires time for their rehabilitation. They are one of the finest game birds in America and the sportsmen realize this fact, and they are behind the Commission in recommending a continued closed season for two more years.

PARTRIDGE

The same story is true of the partridge as of the prairie chicken, only more so. There is no longer any question as to the status of this greatest of America's game bird. There is such a marked increase of them in every quarter of the state that the sportsmen may laugh out loud, and thank their lucky stars that they are on the highway to recovery. Never again should we permit these birds to approach the danger line of extermination.

It seems strange indeed that a state, such as Wisconsin, that ranks second to none in the United States for fishing and hunting, that has more red-blooded sportsmen to the square mile than any state of like population, should tolerate for a moment any danger befalling its fish and game resources.

We can raise prairie chicken and partridge as easily as the farmer can raise his domestic fowl if we all try. This word ALL is a big word as used, but why should the sporteman seal his lips to the poaching upon these birds. He says he detests a squealer, but a squealer on a poacher is ten times more honorable than one who squeals because the birds are gone, and for which he shares the responsibility. When we all become squealers, the birds will thrive, but not until then.

We should continue the closed season on these birds for two years more when, with favorable conditions, we can safely provide a short open season.

BEAVER

In 1903 the Wisconsin Legislature passed an air-tight law protecting the beaver. At that time there were only three colonies left in the state and there was little hope at that time that beaver in Wisconsin would ever again become plentiful, but their prolific tendencies is fully established in the thousands that now inhabit the northern counties of the state. They are so plentiful that they have become a nuisance in some localities.

The legislature at its last session opened the counties of Rusk, Sawyer and Price for trapping them during the month of December. The bill also provided that the trapper must secure a license and that the cost of the license to be \$2.50. We sold an even one hundred licenses, five hundred and thirty-seven beaver were trapped, and \$4118.20 received from the fur.

We believe at the close of the season in 1918 protection should again be extended to them in these counties.

We have complaints occasionally of their damming up streams and flooding the lowlands, causing some damage: we have also had a few complaints from highway commissioners of their flooding highways that extend through lowlands in different places.

The law gives authority to the commission to take care of all complaints of damage being caused by them, and we have been able to relieve all pressing situations. The present laws are sufficient to properly protect the beaver except that Rusk, Sawyer and Price counties should again be closed by the legislature in 1919.



BEAR HUNTERS IN NORTHERN WISCONSIN.

BEAR

Never before was the bear protected in Wisconsin until the 1917 legislature provided a closed season extending from December 1 to November 10 of each year. Ever since old Bruin has been protected he has been "raising Cain" and his conduct has been very boisterous and we doubt if there has been a sheep, calf or porker killed in the counties where old Bruin holds forth that has not been charged to him. One sheep-raiser in Taylor county claims that the old beast put him out of business in raiding his sheep flocks, killing a large number of his sheep, until he was forced to sell out or face bankruptcy. Another complaint came from a lady who claims the old brute killed her sheep to the value of over \$700.00. Other minor complaints have come to us of his depredations but not one complaint of damage by wolves or foxes has been entered, probably because they are not protected. "

B B

Bear have become quite plentiful in the north part of the state and we advise that, owing to his voracious habits, the law protecting him should be repealed and that he again be exposed to his revengeful pursuers.



COW ELK IN STATE GAME FARM

ELK

Wisconsin received an allotment of forty elk from the National Preserve in Yellowstone Park, Wyoming, March 12, 1917, and they were liberated in the game farm enclosure at Trout Lake. They arrived in good condition, but the weather was severely cold and the ground was covered with fourteen inches of frozen snow, which offered them a mighty cold reception.

The cold weather and change of altitude developed pneumonia which attacked nearly the whole herd and necessitated the constant services of a veterinarian for about a month, and we escaped with a loss of fourteen Elk, leaving us a herd of twenty-six. The herd were all young, thrifty animals and since they have become acclimated they have done well, and we should have within a few years a substantial herd. From the fact that these were all young animals we have had very little increase thus far but the coming year we should realize considerable increase.

We have learned considerable from this experience regarding the importation of these animals, that will be useful should the state ever undertake another venture of this sort. The elk should be kept in the corral at the point of shipment until the 1st of May, which would bring their arrival here in the warm spring days in May, which would obviate the danger of climatic disease. Those we have on hand are in fine condition and we can reasonably expect a thrifty increase each year from now henceforth.

GAME FARM

There is little to report on the game farm excepting that it is becoming overstocked. The deer are increasing each year and the adding of the Elk stock has over-taxed the feeding grounds and we should enlarge the enclosure. We had planned to do this work this year and had the posts cut last winter and hauled out ready for use but the war-time prices of wire fencing prevented our going on with the work. As soon as times revert to normal conditions we will double the size of the enclosure, which will provide range and food sufficient for years to come.

As near as we can estimate there are one hundred twenty-two deer and thirty elk counting old and young, and the enclosure contains about three hundred acres of brush lands.

WILD LIFE REFUGES

The conservation of wild life has become of world-wide importance and our national Congress has set aside millions of acres of wild lands in various sections of the United States as national preserves, where no hunting is allowed, and where federal wardens are steadily employed in destroying vermin and guarding against poachers, making the preserve a sanctuary, for wild game instinctively seek quiet and

safety. The Wisconsin legislature at its last session passed the first law recognizing the importance of the sanctuaries, giving authority to the Conservation Commission to establish sanctuaries on private lands upon petition by the owner or owners of said lands. Pursuant to this law the Commission have established four large refuges located as follows:

- One in Rusk county comprising 1280 acres;
- One in Douglas county of 4000 acres;
- One in Barron and Washburn counties of 6840 acres; and
- One in Jackson and Eau Claire counties of 600 acres.

All of these refuges are fenced and posted as provided in the law.

Townships No. 38 North, of 12 and 13 East, Forest county, all state lands were set aside as a refuge by the legislature in 1915. Lines have been cut out along the boundary and the refuge posted as required by law.

To make these forest preserves fulfill the function for which they are designed they must be made a sanctuary in every sense the word implies, which means, that they must be patrolled and the vermin and predatory animals destroyed and poachers kept without the boundary.

Tamarack Farm Refuge in Douglas county, Rice Lake Refuge in Barron and Washburn counties, and the Forest County Refuge are ideal in natural environment for every variety of animals and birds native to this climate and we propose to give them the necessary care and attention to get the full measure of results.

These three refuges are sufficiently large and important to warrant the steady employment of a warden in each of them, and we propose to give them this necessary supervising. The refuge plan for increasing the wild life supply has passed the experimental stage as has been demonstrated by the Federal government. The State of Pennsylvania has given the refuges the longest and most systematic test of any of the states, and the refuge plan is vouched for most enthusiastically by the Fish and Game Commission of that state. Wisconsin will not lag behind in this work, for to our minds it is the most sensible method of preserving and increasing our wild life supply.

MIGRATORY BIRD TREATY ACT

The passing of the Enabling Act by our National Congress July 3, 1918, giving effect to the convention between the United States and Great Britain for the protection of migratory birds migrating between the United States and Canada is, without question, the greatest conservation act ever consummated for the protection of wild birds in all history. It means that the United States Government has thrown around the migratory birds of this country the protecting arm of Uncle Sam and that they are no longer exposed to the inadequate legislation of the various states for their protection.

This law also gives authority to the Secretary of Agriculture to make certain regulations relative to the taking, catching, and killing of migratory game birds and the fixing of the open and closed seasons,

national daily bag limit, possession and commerce in these birds, and the authority to employ federal wardens for the enforcement of the law.

With this protection provided, augmented by the state laws and state wardens, the migratory birds are amply protected to insure their permanent well-being. It has always been a mooted question with the hunters since Wisconsin has passed legislation protecting the migratory game birds that we were passing laws protecting these birds, while the southern states were permitting the indiscriminate slaughter and sale of them. There was much truth in the argument, and when Wisconsin passed the first law prohibiting spring shooting there was a storm of protest that it was open discrimination in favor of the other states. The old federal migratory bird law sprang into existence shortly afterward which offered some relief and brought about a more equitable condition but, the question of the constitutionality of the law was soon raised, which offered a pretext for many of the states, in the framing of their laws, and they placed little credence in its provisions. They proceeded to frame their state laws entirely ignoring the federal statutes, allowing spring shooting, early and late shooting, and every sort of shooting, which resulted in arrests by federal wardens and court trials, and finally landing in the Supreme Court where they were waiting decision when the present treaty act went into effect, settling the cases once and for all.

There is no question of the constitutionality of the present Federal law and the birds and the hunters are equally protected under its provision. We confidently expect that the federal authorities will be diligent in the enforcement of the law, especially in the states where there is a lack of law, or law enforcements and proper cooperation with the Federal authorities in executing laws.

There has been a great increase in the flight of all varieties of migratory birds in this section of the country, which we attribute to the protection offered through the old migratory bird law. Many of the states observed its provisions and framed their state laws to conform with the Federal regulations which has greatly increased all varieties of migratory birds. It has done a lot of good, whether it would have stood the test of the Supreme Court or not, and we rejoice that we now have a law that all must respect.

GUN LAW

We have constant complaints of the early hunters establishing their hunting camps in the deer territory many days before the opening day of the season, preparatory to getting a few days early hunting before the season opens and before the law-abiding sportsmen undertake to hunt.

There is no doubt of the truth of this statement as our wardens often find them in the woods with loaded rifles, but as they have no game in possession, or any in sight, we have no case against them. They hide their deer securely until a few days after the opening of the season

when the carcass appears with his respective deer tag attached. This is unfair to the law-abiding sportsman, and we should have a law that would make it impossible to start this early hunting without easy detection.

We should have a law prohibiting the carrying of a gun in the woods in the counties where there is an open season for deer ten days prior to the opening of the season unless the same is knocked down or in a carrying case and no loaded shells in possession. Then if a warden intercepts a deer hunter with rifle in possession he will not be obliged to hunt up his hidden venison to establish a case against him. Such a law could work no injustice or hardship to the law-observing sportsman and would do away with a contemptible practice.

PLANTING OF DUCK FOODS

This is a subject worthy of the attention of every sportsman of the state, as the future supply and distribution of the aquatic waterfowl depends largely upon the supply of food. The state has never given the subject any thought or attention, but it is time now that we enlarge our scope and provide for a larger and wider distribution of these birds.

No well-informed sportsman denies that the supply of aquatic waterfowl has increased very materially since the migratory bird law went into effect, and as we have every reason to believe, they will continue to increase, as the amendments to the Federal law materially strengthens it thus, the migratory flights should increase from year to year. Therefore, we should prepare to receive them with an abundant supply of food so that they will not be forced to continue their flight northward in order to find food.

We have thousands of good lakes in Wisconsin, yet but few of them have any sort of duck foods, and no attempt has ever been made to plant them. We should start at this work this year and pursue an aggressive system of widely distributed planting, and follow up the work each year until a large portion of the lakes are supplied with food, which will in time distribute the birds, and enlarge the hunting area, and enable the citizens of the state to enjoy the season's hunting in closer proximity to their homes. Waterfowl are the only birds left to hunt and they should have proper protection and food, which will insure this sport for all time.

SKUNK

This pesky animal has enjoyed the protection of a closed season extending from February 1, to November 15; for the past two years. Never before has the legislature given this mischievous little animal protection and we doubt the wisdom of this law. True, their fur is of considerable value but, if there was no protection, and no closed season provided, we believe the fur sales would be equally as much. The damage they do to the ground-nesting birds and to domestic fowls would far overbalance any possible added value to the fur produced from the protection afforded.

In the first place, skunk are a most prolific animal and through the protection afforded they are multiplying tremendously and are becoming a nuisance in various sections of the state. There is a general demand from the farming districts of the state for an open season during the entire year, and we advise that the law protecting them be repealed.

EDUCATION

This important work has been given substantial attention since we submitted our last report, and we confidently expect that within the coming year that our plan as outlined in that report will have been carried out, and that the study of wild life will be placed upon the curriculum of our public schools with regular periods of recitation established.

The first question to be considered in introducing this study into the schools was the securing of a proper textbook adopted to this study. We made inquiry of the various publishing houses and found that there was no publication on the market, suitable as a textbook, and we found it necessary, in order to consummate our plan, to interest a qualified student of ornithology to prepare a textbook.

After considerable correspondence with several well-known students and publishers, we went over the proposition with Prof. Cahn, teacher of entomology at the Wisconsin State University, and he finally concluded to take up the task of preparing the textbook, and had the copy prepared and ready for the printer, when he enlisted in the U. S. army. Here the matter rests, and will so remain until he returns.

We expect Prof. Cahn will push the publication and distribution of this book when he returns, which we have every reason to believe will be eagerly sought after by nearly every school board in the state. The state of Wisconsin, nor any officer of the state, are interested financially or otherwise in this publication; except that the Conservation Commission are interested to see that the study is systematically adopted in the schools throughout the state.

This system of educating our children in this most wonderful and important creation, is opening a field of study endless in its benefits to the citizens, and will place Wisconsin in the front ranks of the pioneer states in going to the root for a healthy growth in public sentiment for the Conservation of the wild life in this state.

The educational campaign carried on by the federal authorities for the conservation of all food resources has been most beneficial and is reflected in the manner in which the people have submitted to all orders, and supported the officials in the performance of their duty. These lessons were learned in the hard school of experience in self-denial and are impressed indelibly upon the minds of the people, which should give tremendous impetus to future educational work in the conservation of every natural resource of Wisconsin.

Education is the most important feature of the conservation work. It is understanding that the people need and, when they understand, the question will be settled and settled right.

THE AMERICAN SPORTSMEN'S CREED

LET ME pause in these momentous days and think with wonder and reverence how the spirit and activity of the American pioneer hunters and fishermen have given us the American soldier—that splendid type of the land of the free and the home of the brave.

I want my boy and his comrades and the boys of the future to receive this heritage of gun and rod. It is a heritage of the open, which now must be idealized to a love of nature and a thoughtfulness for the meaning and preservation of life.

FEELING this, I record my unalterable belief that a Sportsman should:

1. Never in sport endanger human life.
2. Never kill wantonly, or needlessly or brutally.
3. Obey the laws of State and Nation, work for better laws, and uphold the law-enforcing authorities.
4. Respect the rights of farmers and property-owners and also their feelings.
5. Always leave seed birds and game in covers.
6. Never be a fish-hog.
7. Discourage the killing of game for commercial purposes by refusing to purchase trophies.
8. Study and record the natural history of game species in the interest of science.
9. Love Nature and its denizens and BE A GENTLEMAN.

“To this ideal I consecrate myself—that sport shall not be my only aim—that my reward and my lesson shall be in the thrill of the chase and the glory of the heights, and the whistle of the stag—in the music of the murmuring stream and the leap of the playing trout—in the gold of the autumn's woods and the whirr of the ruffed grouse—in the sweet soft scent that breathes from off the sea and in the beauty and silence of the lonely hills and dells.”

Attest: John B. Burnham, President American Game Protective Association.

Attest: John B. Burnham,
President.

quote
PP

DIVISION OF FISHERIES

BY JAMES NEVIN

The field of fresh water fish investigation has been little touched upon. No one assumes that the great number of streams and the numerous lakes and ponds throughout the state are productive to their maximum capacity, yet rarely is due care taken to conserve the practical ways and conditions favorable to the growth and propagation of fish. That the streams, lakes and ponds should be stocked and restocked with fish is an ever-growing demand which indicates the widespread interest in such fishing grounds, whether they serve as a field of recreation or a source of food supply. Stocking and restocking of the waters is, however, the only means for keeping up the supply therein.

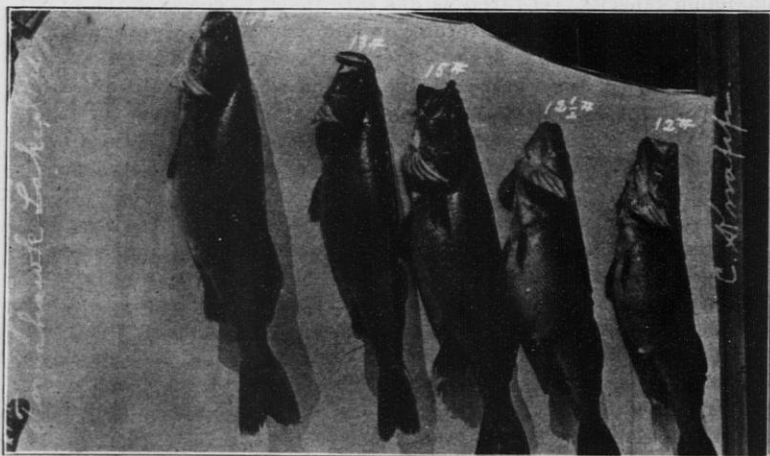
The natural destruction begins with the loss of the fertilized eggs deposited by the parent fish on spawning grounds which are eaten by the ground eating fish such as suckers, mullets, redborse, eelpouts, lizards and in fact by other fish of their kind. A large part of those eggs become covered with mud or silt or are smothered, the young fish eaten by the minnows during the early fry stage, and the fingerling size eaten by the larger fish. This loss cannot be estimated, neither can it be entirely prevented, but one great source of destruction can be controlled by laws that can be made and enforced by man.

Looking back over the period covered by this report, we feel on the whole that our activities in the state's interests in fisheries and fish hatchery operations have been successful and well administered. The high standard of our hatcheries has been maintained and the production has been above normal. In another part of our report will be found tables showing the number and varieties of fish that have been distributed and planted during the past two years in our many lakes and rivers. The demand for fish for planting purposes is on the increase, but we feel that we have met the wants of the public satisfactorily under the existing circumstances.

The propagation of fish has many problems. A large number of eggs may be taken, thoroughly impregnated and hatched, only to become infected with some disease, and millions die just before time for distribution. The road to success for the fish culturist is just as hard and full of bumps as that of the farmer. The farmer with his grain fields promising well for an abundant crop, often meets with serious losses from the wind, storm and hail, drought or hot sun. Similarly,

even the human family itself suffers from epidemics such as Spanish Influenza which has caused the death of many people. Thus unhappy experiences are met with in fish propagation.

Last year at our Bayfield hatchery we put too many brook trout eggs in one basket and the result was the serious loss of fry. We sent the bulk of our brook trout eggs from Madison and Wild Rose hatcheries to Bayfield hatchery as the conditions obtaining there insured a larger hatch and a better opportunity of caring for the fry for a longer period. It was our purpose to hold the trout fry until after the spring floods and plant them when the streams had returned to their normal stage of water. Just before the work of distribution was to begin, we were visited with an epidemic and we lost approximately two million fry. Our foreman, Mr. Ripple, did all that anyone could do to save the fish but without avail.



FIVE WALL-EYED PIKE, TOTAL WEIGHT 66½ POUNDS, TAKEN FROM TOMAHAWK LAKE, ONEIDA COUNTY, WISCONSIN.

At our Delafield hatchery during the past year, the black bass hatch was about normal and the fry that were sent out, 498,000, were extra large and strong. More than 16,000 fingerlings were distributed during the month of September. The hatch of bass at our Minocequa hatchery was a total failure. The fish spawned on more than two hundred nests but a sudden drop in temperature the middle of June, and the freezing of the water around the edge of the ponds, destroyed the eggs on the eve of hatching, as bass eggs cannot stand any sudden chill.

Last winter we succeeded in exchanging more trout eggs than ever before with both public and private hatcheries. The fish hatched from these eggs are being reared in our hatching ponds in the hope of improving our brood stock and the quality of eggs for propagation purposes.

In the Commission's last report we emphasized the importance of making a survey of our many streams to determine their fitness for planting trout and other food fishes. Two years ago the work was begun and the streams of several counties were thoroughly examined and the data obtained is now in our office. The work was discontinued this year, owing to the necessity for curtailing expenses. We disliked to lose a year in carrying on this important work and we hope that the legislature will provide us with sufficient funds in the future so that a complete survey of the state can be made. Hundreds of applications for fry are received each year for streams about which we have no information. If all the conditions were known we would be in a position to determine whether any particular stream was suited to the kind of fish for which application has been made, and if it were not, we could supply such fish as would thrive. Such a policy would save many trout fry that are now planted in streams unsuited to them.

The Commission, when holding the hearings relative to the protection of deer, traveled by automobile. This enabled us to observe the conditions of many of the inland waters of the state. It called to our attention many streams that we knew only by name. We gained some idea of the size of the stream and the number of fish that would be required to properly stock many of the different streams. We also learned something of the amount of fishing done on some of the different streams that are not being stocked as freely as they ought to be, to keep them properly replenished. After July 1, due to the small amount of rainfall, we found some of the streams at a very low stage, and we believe that many trout will perish in these waters, especially during the winter months, unless a heavy rainfall should bring the streams up to normal.

During the past summer there was a falling off in the number of non-resident fishing licenses issued. However, it was as good a year for summer tourists as we could expect under conditions that prevailed at that time. We have a good road system now in vogue extending into the northern lake region, and a number of tourists are taking advantage of this and bringing their families with them. One night at Minocqua last June, there were ten automobiles in the garage, one from each of ten states. With the many people who have bought lake shore property surrounding our lakes and streams, and have built beautiful homes, while others have built cottages and come and stay from thirty days to six months during the year, and again there are thousands of others who come and stay for a few days to a few weeks at the many summer hotels and boarding houses that are located bordering on the lakes. Some come to hunt, others to fish, many for recreation and enjoy outdoor life. These people spend on the whole, several millions of dollars in our state every season and everyone of us receives some benefit from it in some indirect way.

The fishing interests of the outlying waters is of great commercial value and an asset to the state. The propagated commercial fishes are normally relative to the number of pounds caught. Some of the varieties that are not being propagated are decreasing. The lake trout that the Commission are propagating mostly for the outlying



WHITE BASS TAKEN FROM WOLF RIVER, WISCONSIN.

waters, are showing an increase in the number of pounds that are being taken from waters of Lake Michigan and Green Bay. The whitefish caught in the past two years have shown a considerable increase. The state is not distributing the number of whitefish that should be propagated for commercial purposes. The whitefish eggs that are hatched and planted are obtained from the Bureau of Fisheries, Washington, D. C.

The catch of fish in pounds and value received, as reported by the fishermen, caught in the outlying waters of this state for 1916 and 1917, is as follows: In 1916 there were caught 16,988,966 pounds. The value of products sold by the fishermen was \$797,504,77. For the year 1917, the number of pounds caught and sold were 19,808,613, for which the fishermen received \$1,244,768,65.

The law relative to the size of whitefish should be amended. The taking of whitefish that weigh less than two pounds ought to be prohibited. The small fish should be left in the waters until they have reached two pounds or more. They would then be worth more to the fishermen in the increase of pounds caught, and in the intrinsic value of their product. As the law is now, they are permitted to take baby lake trout and whitefish which is clearly a wilful waste of food, that should be made of commercial value to the state.

The legislature will be asked to make a few changes in the laws pertaining to fish conservation. The most important change will be to require an increase in the size of whitefish and lake trout taken for commercial purposes.

Chequamegon Bay in Ashland county was closed to commercial fishing. Many complaints were received the past summer to the effect that commercial fishermen were taking large numbers of game fish in that bay and requested that this be stopped. Lake Superior on the whole is a very deep lake with very little shallow water for fish to spawn in, and the fish eggs to mature. There is also very little shallow water where the sportsman can enjoy any real sport in angling for the purpose of taking game fish. For these reasons the Commission conducted the hearings at Ashland, and as a result an order was issued prohibiting the fishing with nets within one mile of the Ashland county shore line. For many years, commercial fishing in Chequamegon Bay was prohibited, leaving this entire water as a breeding ground and for the protection of small fish. This was done, because it was thought that game fish might be increased in these waters.

A storm on Lake Michigan caused considerable damage to the sea wall and boundary line at the Sheboygan hatchery. The repair of this wall caused an expenditure of some \$2700. This was one of the unforeseen expenditures that the Commission had to contend with.

At St. Croix Falls, the state owns a most beautiful state park, containing several hundred acres of land. A very excellent site with an abundance of pure spring water is to be found on these park lands and suitable for a state fish hatchery. If more water was needed, it could be obtained by drilling some wells. The location is ideal for the purpose of a fish hatchery, and for the building of the necessary ponds. A

fish hatchery at this place would be suitable for the maintaining of many fish as breeders, and for raising fingerling brook trout to be planted in the streams of the state during the autumn months. The plat of ground that is thought of is located between the villages of St. Croix, Wisconsin and Taylor Falls, Minnesota. The Commission wishes it were possible for every member of the legislature to see this site, for it is confident that they would decide that, the state now owning the grounds, it ought to do something to improve their appearance. Why should not this property be made useful as well as ornamental, especially as making them useful would enhance their beauty. The ground proposed for fish hatchery purposes lies on a slope at an angle of 20 degrees. Large, beautiful elm and basswood trees from twenty-five to fifty feet apart, are scattered all over these lands. Trout ponds could be constructed with a fall of several feet between each pond, and some forty to fifty feet long. This property must be seen to be appreciated and nothing could be more appropriate on this park site than a fish hatchery and ponds with many thousands of trout where they would make a most attractive feature of the park, as well as adding to the welfare of the state.

The state fish car, Badger, was generally overhauled and painted this year. It is now in as good condition as the day it was received from the Pullman shops six years ago. This has been the first money expended on the car in that time. The railroads have hauled the car free for the purpose of distributing fish, the only charge being made was railroad fare of 4 cents per mile for two messengers in charge of the car. The Federal Government has recently issued a new ruling, however, relative to the hauling of state fish cars. In the future it will cost us at the rate of 30 cents per mile. Two-thirds of the fish that have been distributed each year were hauled in baggage cars, free of charge, by the various lines, a shipment consisting of one messenger and an average of twenty-five cans of fry. We have not yet received any instructions as to charges for the carrying of fish in baggage cars from the Government. But it looks as if most of the shipments will have to be made in baggage cars, unless we receive a larger appropriation for this purpose. Heretofore, it cost us \$40.00 per thousand miles for the use of the fish car and the conveyance of two passengers. Under the new ruling it will cost us \$300.00 per thousand miles traveled, and with an increase of one cent per mile in railroad fare for each messenger. This will make quite an item in the expense incident to the distribution of fish fry.

The increased cost of labor and materials of all kinds has been a serious handicap to the commission in trying to maintain its usual high standard. Take for example the cost of fish foods. Last year this one item cost \$1700 more than the previous year. The purchasing power of a dollar has fallen so much that it will be necessary to have a substantial increase in our appropriations for operation and maintenance.

We have attempted very little new work at any of the state hatcheries, other than repairing the buildings during the past summer. These buildings one and all are in fairly good condition.

A number of the employees entered military service, which necessitated the supplying of their positions with new men. We found it very difficult to secure suitable men for the messenger service. This service requires much thought and care. This work is probably the most important, as after the state has gone to the expense of hatching fish, it is very necessary that they be carefully distributed. This work is done by men in the messenger service.

THE PERCH LAW

The Commission believes that the 8-inch perch law affecting the waters of Green Bay should be repealed. In these waters great numbers of perch are caught annually by fishermen with fyke and gill nets. Soon after the 8-inch law went into effect, fishermen complained that if the laws were all strictly enforced they would be driven out of business. Pressure from fishermen became so strong that the Commission instituted an investigation, extending its inquiries to the dealers as well as the fishermen. This resulted in finding that not to exceed five per cent of the perch caught in Green Bay reached the 8-inch size.

Because of the war demand for food production and conservation, the Commission decided not to enforce the 8-inch provision of the law, it being clear that to do so would virtually eliminate perch as a food supply.

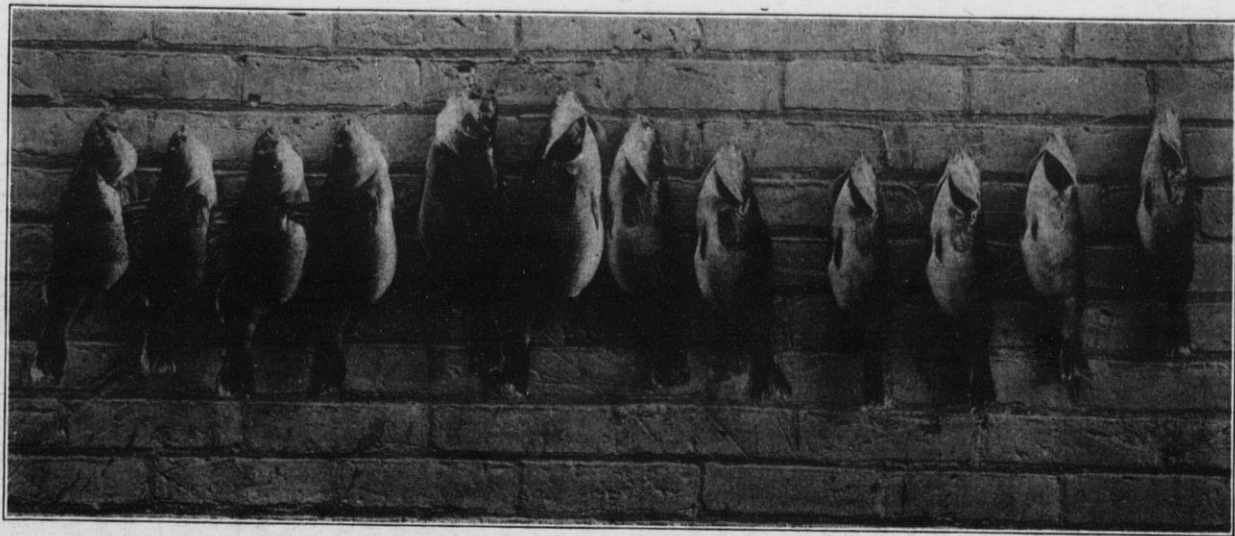
We did not allow any perch to be shipped out of the state under 8 inches, nor did we allow the fishermen to place any perch on the market of less than 7 inches in length. They were all placed and sold in the home markets of the state.

It is a question with the Commission now whether many perch in the upper end of Green Bay ever reach the 8-inch size as the food conditions are not altogether favorable. Lower down the bay from Little Sturgeon to Washington Island, the fishermen made no complaint about the 8-inch law; in fact, they seemed to be well satisfied with it. The same sentiment prevails among the fishermen on the Lake Michigan side of the peninsula. The perch there seem generally to grow considerably larger than those caught in the upper reaches of Green Bay.

The Conservation Commission has hatched and distributed during the past year some 277,000,000 of fish of various kinds—209,000,000 of these fish were game fish and were distributed in the many lakes and streams of the interior of this state.

There were also some 68,000,000 in round numbers, of lake trout and whitefish fry hatched and deposited in the outlying waters of Lake Superior, Lake Michigan and Green Bay, which fish are for commercial purposes.

To undertake the collection, hatching, and distributing of this large number of fish is quite an undertaking. It is a work that requires great attention from the first spawning of the fish to get the eggs and care for them until the fry are deposited in the lakes and streams. It is a work in which you cannot say, "We will not pay any attention to



TWELVE YELLOW PERCH, TOTAL WEIGHT 16 POUNDS, TAKEN FROM LAKE

it today but will do it tomorrow." Tomorrow may be too late. A man who has charge of the supervising of live fish must be prompt in all details. It is always best to be a little ahead of time, to be on hand to prevent loss in case of any mishap. If anything unfavorable does occur there is no way to make up for it until the year rolls around again.

Little does the public in general know the routine of work and the attention that must be given to the handling of fish in their various stages, to make the work of propagation and distribution a success.

BLACK BASS

Large and small mouth black bass are to be found in nearly all the inland lakes and larger rivers of any size in this state. Bass are a great favorite with the sportsmen and other fishermen on account of the great fight they put up when hooked at the end of 100 feet of line.

Bass are in greater demand for stocking purposes than any other fish that the Commission distributes. For the past twenty-five years I have been advocating a closed season on bass to extend to July 1st, so that the bass would get a chance to spawn, and not be taken from the water at time when they are on the nests. It is a shame that something has not been done in this matter to protect the fish just at a time when the fishing season opens. The spawning season comes at a time when the people most desire to go fishing, during the month of June.

The month of June is the spawning season for bass in this state. It takes twenty days on an average from the time that the eggs are deposited on the nests until the fry rises from the nests and are ready to scatter. The parent bass then leads them off to the weeds and grasses where they can find hiding places from their enemies, before being left to shift for themselves.

Small mouth bass spawn on gravel and sand bars and after depositing her eggs the female remains near, continually fanning the eggs on the nest until they hatch. She protects her nest from the time the eggs are first deposited until the young leave the nest. The fry when hatched, cling to the bottom of the lake and will hide under stones or logs to keep out of sight of their enemies.

The large mouth bass make their nests around a bed of moss, a brush heap or under a log or tree top, on a mud bottom. They very seldom make their nests out in the open like the small mouth bass. The large mouth bass, after depositing her eggs, all unlike the small mouth bass, leaves the nest until about the time for the eggs to hatch. One may go around the shores of a small lake after these bass have spawned and conclude that there was not a bass in the lake, as they have all left the shore for deep water. When it is time for the fry to make their appearance on the nests, the shores will be lined with the male bass who begin looking after the nests. Grass and moss have grown up through many of the nests and it is frequently hard to discover them. When you see a male bass you can make sure there is

a school of small ones in the vicinity. It is most interesting to watch the bass protect their nest at the time that the young are rising from the nest and to examine the many nests and count the number on each nest of good and bad eggs. The largest number of fry that I ever saw rise from one nest was 10,250. In some nests not one egg will be impregnated, while other nests will produce in number from 25 fish up to several thousand.

Bass eggs are very sensitive to temperature. We had some 200 or more nests that the bass had spawned on this past season when a frost came the middle of June and froze ice around the edge of the ponds and lake which caused the water to be chilled and we did not get a single fry from any one of the nests. We have traps made for catching the fry from the ponds at a time when we commence distributing the fry, which we set around the shore of the pond. These the fry run into before we take them to the reservoir for holding them for shipment.

It is not generally known that the small mouth black bass hibernate during the winter months. Not so with the large mouth bass. This has been proven by the keeping of the bass breeders in the ponds during the winter months. The closed season for bass should be extended to the first of July to a time when they are through spawning. We have made this recommendation several times but it is very difficult to convince the members of the legislature of the necessity of such a law, as popular opinion seems to favor an open season beginning on Memorial Day. As a substitute for a closed season until July 1st, we recommend that certain portions of lakes containing bass be declared closed to fishing, whereby the same results might be obtained and the public not deprived of the privilege of fishing. On nearly every lake in the state there are bays or muddy marshes where the large mouth bass go to spawn and if the Commission had authority to declare them as reserve waters for the thirty days of June, very few bass would be caught and a future supply of such fish would be assured. Signs could be posted about the lakes in conspicuous places and articles published in local papers advising the public of the closed waters. Such a policy, would in the Commission's estimation, prevent a great many bass from being caught while on the spawning bed, and would be very beneficial to the lake in a future crop of bass.

BROOK TROUT

It is not generally known by the public at large, but what the streams in this state that have brook trout in them today, had an abundance of trout in them in former days before the coming of man; but such was not the case.

All the streams emptying into Lake Superior and the Mississippi River basin with streams flowing into Marinette and Oconto counties were abundant with speckled beauties in the early settlement of the state. All through the southern and central part of the state, brook

trout was not known until the streams were stocked in recent years by the Fish Commission.

The counties of Adams, Waushara, Waupaca, Marathon, Lincoln, Rusk, Oneida, Langlade, Portage and Shawano have proved to have some great trout waters where trout have grown and thrived in abundance from stocking where formerly trout was not known. In fact, there is hardly a stream in any county where brook trout have been planted and where the water was suitable, but the planting has proved a success.

Personally, I do not think that we are getting as good results from the planting of trout fry in the streams today as we did some twenty to thirty years ago. In former days, when the streams were first stocked, there was an abundance of insect life in the water upon which the trout seem to thrive and grow much faster and larger than they have been doing in the past fifteen years. At that time there were more minnows, such as shiners and other small fish that the larger trout fed upon and grew to good size. Then again, there were not the number of fishermen that there are today. With the automobile, the sportsmen can get around to many streams in a day which in former days he could not do. Hence, the number of trout in many of the streams are not as plentiful as in former days from the results of stocking.

A great many people think that trout should not be planted until they are of fingerling size and think that we would get better results from the stocking of streams. In this, I do not agree with them. We know that brook trout is very cannibalistic in the eating of fish and is no respecter of varieties which they attack. When fry are planted according to instructions in the small rivulets they have their natural instinct to keep out of harm's way and will seek hiding places from their enemies. On the other hand, if fry are kept in small ponds and fed from the hand of man for several months and then turned loose to seek their food in a stream, they do not know what it is to have an enemy and become an easy prey to the first fish that comes along, having lost their natural instinct to beware of enemies.

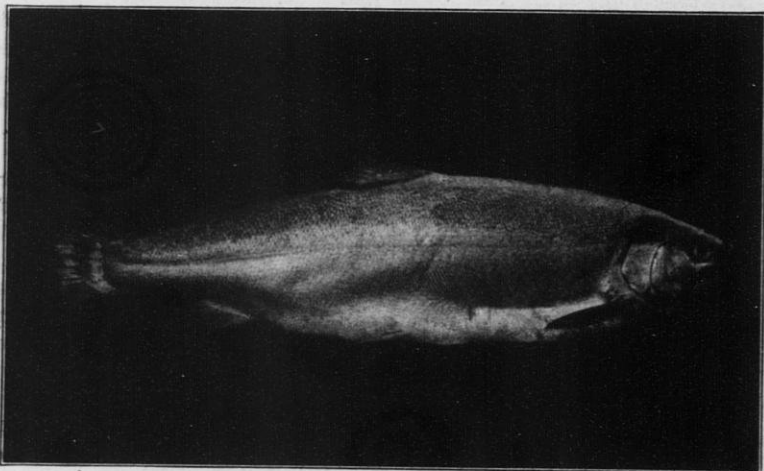
To illustrate: Twenty-five years ago, we planted some 800 lake trout two years old and over that would average in weight one pound or more, in Lake Mendota. The next morning, four of these same trout were taken from pickerel that had been speared during the night by a Mr. I. E. Troan and taken to Dunning & Sumner's Drug Store as evidence that they had been eaten by the pickerel. Mr. Dunning at that time was president of the Fish Commission.

CHANGING FOOD CONDITIONS OF THE TROUT FAMILY

The degree of success achieved in planting fish is determined by the conditions of the water in which they are planted. Some lakes and streams are more productive of fish and the life upon which the fish feed than others. The problem with which we are confronted is how can these conditions be maintained. The farmer that sows and reaps without returning anything to the soil, soon has a barren field. We

have been planting fish in streams for years, and at first got good results. The time has arrived when many of our streams cannot support greater numbers of game fish and the question to be solved is what can be done to restore these streams to their former pristine conditions so that they can be stocked to meet the increased demand.

The principal food of large and small trout and which is found in most all spring water fed streams, is a crustacea that adheres and grows on stones on the bed of the streams. The caddis larva is a wormlike creature found in the streams and looks as if it might be encased in bark from the tree or an alder bush and pebbles. Then again, in most all of our spring water holes, where water-cress will grow, there will be found vast numbers of fresh water shrimp found all along the stream clinging to roots, logs or stones as they drift along down the stream and the fish feed upon them.



RAINBOW TROUT CAUGHT IN LAKE MICHIGAN NEAR RACINE, WISCONSIN.
(Weight 11 pounds, 1 oz.)

Brook trout prefer streams that contain hiding places and clear spring water with a maximum temperature of about 60°. In many of the counties of the state intensive farming has caused the removal of brush and trees from the banks of streams, destroying the conditions that provided natural haunts for the fish. Many farmers set aside for pasture that portion of their farms through which the stream flows. Cattle and hogs wade and wallow in the stream, making it roily and unfit for trout, with the consequence that the fish move away or die. After a heavy rainfall, the wash from cultivated fields also makes streams unfit for trout. To farmers and others interested in fish and fish life, it would be a good idea for them to plant willow and tag alder along the stream.

We have one trout stream in this state that in years gone by attracted more sportsmen and men of note than any other. Some thirty

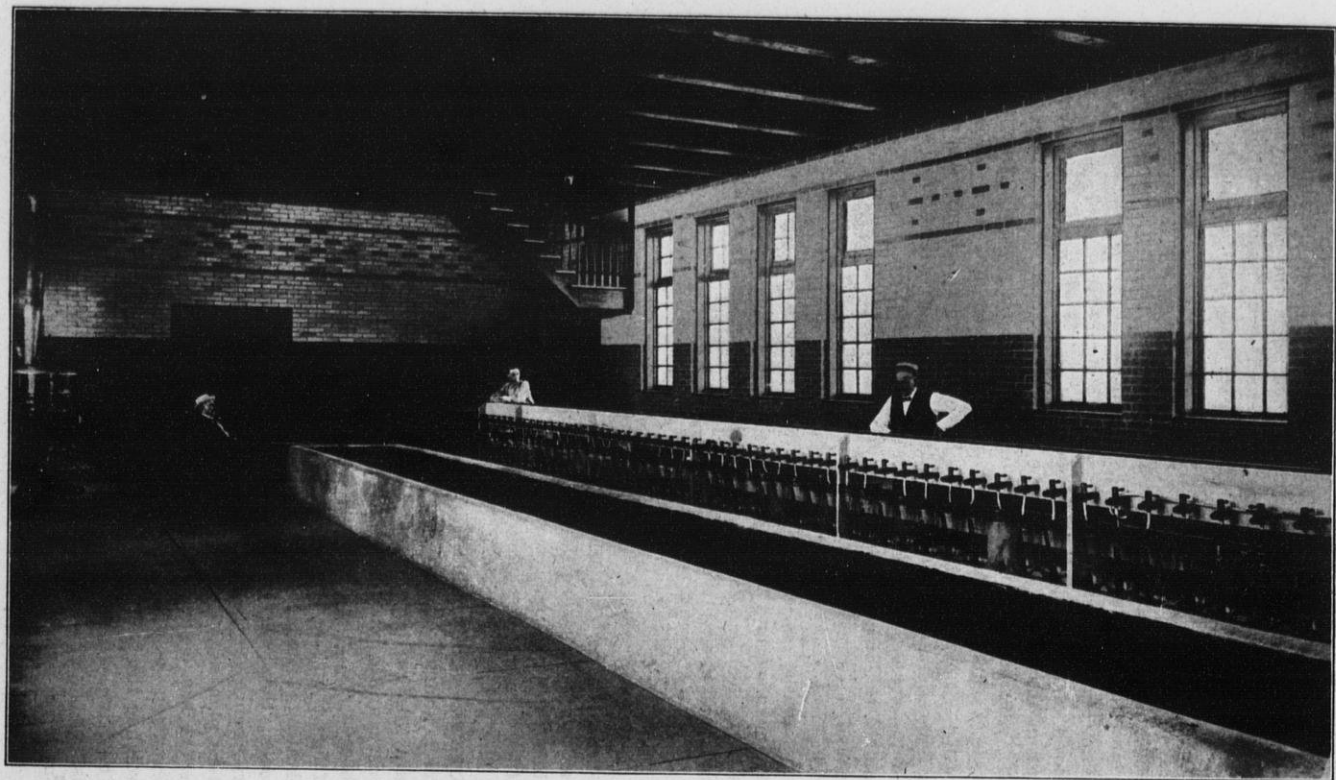
years ago when visiting this stream, we observed that it was bordered by a dense forest of pine. Trees frequently were found fallen across the stream and logs and brush formed pools and ideal hiding places for trout. Several well-to-do sportsmen from nearby cities bought small tracts of land along the stream and built elaborate summer homes, and others built cottages, and in time there got to be quite a settlement along the stream. Practically all of the marketable timber has been cut except the small areas that are privately owned and used as sites for summer homes.

Time came when the sportsmen thought the river ought to be cleared of all brush and logs so they would be able to fish from the bank of the stream and also be more convenient to wade to catch the fish. All those having an interest in the stream got together and raised a sum of money to have the stream cleared of all logs and brush. A man was hired to do the work and the result was not what the sportsmen desired. The condition of the stream was so altered and the former haunts of trout removed until today there is not one trout in the stream where formerly there were twenty. The man who cleaned the stream kept a resort and acted as guide for the accommodation of the many sportsmen who visited the stream each year. Two years ago he made the remark that he had been guilty of ruining his own business and the reputation of the stream by accepting the contract to clean out the river. He had driven the fish away by destroying their hiding places.

BROWN TROUT

Brown trout, or Lochleven trout, is not native to this country but was introduced some thirty years ago by the U. S. Bureau of Fisheries. Through this Bureau various State Commissions secured limited quantities of eggs for propagating purposes.

The brown trout is a very hardy and gamey fish and grows to a large size. As a table fish its eating qualities are surpassed by none. For a number of years we did not make much of any effort to propagate this particular species as it was reported that the brown trout was cannibalistic and destructive of other fish. Our experience and observations do not bear out the report. They are no more destructive of fish than the brook trout or other species of trout. We have been planting from 100,000 to 500,000 each year for the past twenty-five years; they were mixed and distributed along with the brook trout fry; hence can be found in most all of the streams where brook trout were planted. The brown trout have thrived in many streams and a report has been received of a single fish being caught that weighed seventeen pounds. One fisherman caught three in one day that weighed thirty-six pounds, in the Kinnickinnic river in Pierce county. The Kinnickinnic seems to furnish ideal conditions for this variety of fish and at the present time probably contains more brown trout than any other stream in the state.



INTERIOR VIEW OF STATE HATCHERY AT DELAFIELD.

The demand for the brown trout for planting is constantly on the increase, more especially for the streams in the southern half of the state. Some people think that the brook trout is not doing as well in our southern streams as formerly and are ordering brown trout to take their place. To meet the increased demand we have endeavored to increase our stock of breeders; so far this season we have taken over 1,000,000 eggs, the most we have ever taken in one season.

RAINBOW TROUT

Rainbow trout were introduced into Wisconsin about thirty years ago, and many millions have been planted in the streams and inland lakes of the state. In many instances they grow larger in these waters than they were ever known to grow in their former habitat. One weighing 24 pounds was speared in Rusk Lake, Oneida county. Several weighing from sixteen to eighteen pounds each have been taken in the state as reported to the Commission. A four-year old fish weighing eight pounds was caught in Willow river, St. Croix county by the late H. C. Reed, one time secretary of Senator John C. Spooner. The age of the fish was ascertained by looking up the record of the first planting of rainbow trout in Willow river. The fish was caught just four years after the first planting.

Rainbow trout are now found in nearly all the streams of the state from Lake Superior to the Illinois line. They are better adapted to the larger streams than are the speckled trout. They are a gamey fish and furnish excellent sport. The Peshtigo river is one of the best streams in the state for rainbow trout. They do not grow so large here as in some other streams but there are plenty of them. Two, four and six pound fish are the larger sizes caught in the Peshtigo.

Many of the rainbow trout planted in the rivers have gone down stream to Lake Superior, Green Bay and Lake Michigan. As these fish are spring spawners they ascend the rivers from the lakes in the spring for spawning in large numbers. September is the best month in which to catch these fish. A good many sportsmen are of the opinion that in this state the open season for trout should be extended to October 1st so that rainbow trout might be fished for when they take the bait more freely.

Rainbow trout are not cannibals. I have failed to see the first rainbow trout attempt to eat another, and I have been in close touch with them for a great many years.

PIKE EGGS

Of the pike eggs collected by the Conservation Commission, two-thirds or more are gathered in the waters of Tomahawk and Kewague-sag Lakes in Oneida county. These lakes connect with the thoroughfare adjacent to the hatchery in the town of Woodruff, which makes it very convenient for the catching of the fish and the delivery of the eggs to the hatchery by the Commission's own boats. From there, the

eggs needed for the other sub-stations and hatcheries are shipped to them. The pike fry hatched at the sub-stations in the various parts of the state, can be taken to any lake or river within a very short time by railroad as our shipping facilities are excellent for getting them to their destination at the lakes without any loss of fry.

The stocking of lakes with pike fry is not always satisfactory. Even in lakes where it is known the planting has been successful the catching of them with hook and line is sometimes very slow. What the reason for this is it is not easy to say. In some lakes pike will not take the bait until after night fall. Cases have been known where they did not begin to bite until nearly midnight. At Oshkosh it is not unusual to see hundreds of people fishing in the forepart of the night from docks and bridges within the city limits, using lanterns.



CATCHING WALL-EYED PIKE FOR COLLECTION OF SPAWN.

Pike will make a growth of a pound a year up to five years of age. We have found this to be true in lakes where until planting was done there were no pike, and then noting their growth year by year. There are waters again where pike at ten years of age do not weigh to exceed one and a half pounds. Poor food conditions undoubtedly explain this slow growth.

It has been very interesting, to watch the growth of pike in Tomahawk Lake for the past ten years on this account. This is the lake from which we catch our stock of breeders returning the fish to the waters as soon as freed of their eggs. Female fish, grow on an average much larger than male fish. This last spring we had the largest collection of large fish, held in our dummies waiting for the fish to spawn, that I have ever seen in one collection. Tomahawk Lake is stocked from year to year from the hatchery and the fish are caught in fyke nets so that we are in a position to watch their growth from year to year.

Pike eggs are very sensitive to changes of temperature. We have had a couple of seasons in the past fourteen years in the hatching of pike eggs at the Minocqua hatchery, when on a few nights shortly before the eggs began to hatch the water dropped to a temperature of 56° Fahrenheit. The fish immediately began to die in the eggs. There would be a couple of inches of dead eggs on the top of the water in the hatching jars each morning. The only thing we can do in such a case is to wait for "Old Sol" to warm things up and save as many eggs as possible when the temperature rises.

MUSKELLUNGE

The spring of 1918 was a poor one for the catching of muskellunge for hatching purposes. The muskellunge is the big game fish of the northern lake country and is in great demand on account of the size it obtains and the sport there is in catching it.

At the last session of the legislature, the law was amended making the length of the fish that might be caught, 24 inches. This is much too small to be taken as such a fish will not average more than four or four and one-half pounds in weight. The citizens of Vilas county petitioned the Commission to increase the size of the fish, which we have the power to do, and which was done at a meeting held at Eagle River, to 30 inches in length in Vilas county. This will bring the weight of the fish that may be taken to about six pounds. Nobody wishes to catch a small "muskie" of less than eight to ten pounds in weight.

The number of fish that the Commission catches each year to take the eggs from, will not exceed 150 all told, during the spawning season. Two-thirds of those taken are male fish and the eggs we secure from the female are limited in numbers and are very sensitive to the touch in handling. Great care has to be taken in getting them to the hatchery before they are placed in the hatching jars.

In the early spring the ice goes out from the thoroughfares much earlier than from the lakes and at that time, the "muskie" after being confined under the ice for a long period, seek the first opening in the ice. Thus they become a prey to the settlers who are waiting to get fresh fish. A great many fish are speared just at a time when they should have protection, before the spawning season. This spring, the ice melted out of the thoroughfares much earlier than usual and a big majority of the fish had spawned before our men had arrived on the grounds to catch them. Because of this, we did not get as many eggs as we usually get for propagating purposes.

BIRDS DESTRUCTIVE TO FISH

Sentiment in favor of protection of all kinds of birds has grown during late years, due chiefly to education and emphasis on the economic value of birds. There are three species of birds, however, protected by both state and federal law which should be removed from the pro-



PRIZE MUSKELLUNGE CAUGHT NEAR EAGLE RIVER, WISCONSIN.

tected lists because of their destructive habits. The kingfisher, American bittern, and blue heron during their stay in this region live on fish and during the course of one season consume many thousand pounds. They may be found about our many streams and lakes, the bittern and heron standing in shallow water apparently motionless except for a sudden thrust of the head into the water to add another victim to their already long list. The cranes and blue heron will feed all night long. I know of places where the birds will fly just after dark to our hatchery ponds to feed on fish, and many thousands of fish have thus been taken from our ponds. The kingfisher is the worst pest of the three species about our hatcheries, but the other two are in our opinion more destructive to fish life. We suggest that the state law protecting these birds be repealed. Such action should be taken as the federal law authorized the Secretary of Agriculture to issue permits to kill such birds as destroy property of economic value.

CISCO FISHING IN THE ISLAND LAKES

At the last session of the Legislature, a law was passed allowing the cisco to be caught in a gill net of 100 feet in length. The licensee has to pay fifty cents for a license and must not use more than 100 feet of net and is not allowed to catch more than 100 pounds of fish a day. The season lasts for twenty days during the month of November.

The lakes in the northern half of the state contain an abundance of cisco and it seems like a needless waste to leave them in the water at a time when food-products are so high, and when the citizens in the vicinity of the lakes could make use of them, and sell what they could not use to their neighbors.

The fish will average in size all the way from one-half pound to four pounds in weight. In some lakes the fish are much larger than in others. They are variously called cisco, tulebee and whitefish. They all belong to the whitefish family.

One great trouble in the granting of licenses for the catching of the cisco is that it encourages the people to buy nets, which they have on hand at all times to place in the water when convenient and catch game fish at any season of the year. It may be in the long run that we are doing more harm than good in granting permits and it may be wise to have this law repealed, or have the nets turned over to the local wardens to keep when the open season is past.

SILVER BASS

The Commission has not done much heretofore in the propagation of the commoner varieties of fish such as silver bass, crappies, and rock bass. Of late years there has been quite a demand for this class of fish. For some reason there has been no call for perch. This we do not understand as they make a fine pan fish and are suited to most of our waters. I suppose it is because perch are found in most of our lakes. In some lakes they grow much larger than in others.



WALLEYED PIKE FROM TOMAHAWK LAKE, ONEIDA COUNTY, WISCONSIN

The Commission is thinking of setting aside some of the ponds at the bass hatcheries to see what can be done in the way of breeding silver bass and crappies for distribution.

If the Commission were not cramped financially there is no reason why we could not be able to get a large number of full grown crappies from the Wolf river and distribute them to the many lakes where there is a call for them. In the future, we will endeavor to do more in this line of work, if funds are available.

LAKE WINNEBAGO AND ITS TRIBUTARIES

The fishing on Lake Winnebago and the Wolf and Fox rivers this past two years, with hook and line, has been the best known for the catching of white bass and wall-eyed pike. There were thousands of these varieties caught with live bait, which is what the local fishermen use. Two years ago, the white bass caught in these waters did not average more than one-half pound in weight. The past two seasons most of the white bass caught seemed to be full grown, and very few of the smaller size were taken.

The pike commenced to take the bait last March and from that time on, great strings were taken during all the spring and summer months and until late in the fall. It pleased the people who lived within reach of the lake territory that they could get a mess of fresh fish without spending much time.

In regard to the rough fish caught with fyke nets in Lake Winnebago waters, the fishermen who are catching these under contract with the state, are making complaint and by the reports of the supervising warden, the complaint is well-founded, that they are not catching fish enough to warrant them continuing in the work, or investing any more money for nets. The class of fish they are allowed to catch and dispose of to the public include eelpouts, suckers, dogfish and sheepshead. These bring very low prices and at times when shipped this season to the commission houses, were unsalable. As there is an abundance of bullheads and crappies in the lakes and rivers and no one pays any attention to the catching of such with hook and line, the fishermen and the citizens in the vicinity of these waters with whom I have talked on the subject, think that they ought to be allowed to catch them with the rough fish in said waters for a couple of years to help reduce the numbers.

I do not think there are as many carp in Lake Winnebago as there were ten years ago. It is the opinion of men who spend most of their time on the waters, that the fish do not come to the surface of the waters in such numbers as in former years.

Catfish and sturgeon appear to be on the increase as they are taken in seasons when fishermen are taking rough fish and returned to the waters.

Hook and line fishing on the whole was fairly good throughout the state. There are a great many lakes where there is an abundance of

game fish but at the same time, it is very hard to get many of them to take the bait. Fishermen who use live bait generally get as many fish in a day's outing as the law allows, that is, if they are fishermen. Others again, who are listless in their fishing and do not know where to go and do not see the necessity of using fresh bait, will never get many fish. The fellow who is not afraid to make use of fresh bait and is a worker, will always get his quota of fish.

The bait question for the hook and line fishermen is getting to be a serious one, as bait is getting scarce and there are more anglers wanting live bait than can be supplied. People who make a business of furnishing live bait, in some cases now go from 50 to 100 miles for it which costs time and money. Many thousands of dollars are paid out each year to the people of this state who make a business of furnishing live bait. The successful resort owner is the man who keeps his guests well supplied with good bait.

WATER CONDITIONS

One of the vexing problems that we have been unable to solve, which exists at several of our hatcheries, is the great difference in the percentage of eggs that hatch, and the number of fish fry that will live and thrive when the water, to our best knowledge, is most suitable for their production. The point we wish to make can best be illustrated by a concrete example.

We have a small hatchery for hatching pike fry at Spooner, Washburn county, also one at Minocqua, Oneida county, and one thirty miles east, at Eagle river, Vilas county. The water that we use at Spooner is backwater of a river dammed to develop water power. The source of our water supply at Minocqua is the overflow from a chain of lakes that empties into Tomahawk Lake. At Eagle River we obtain the water from the chain of lakes forming the headwaters of the Wisconsin river. The eggs for these hatcheries are secured from the waters near Minocqua, and except to Minocqua, must be transported by rail before being placed in hatching jars. The water supply at our Minocqua hatchery is the same from which the pike are caught to secure the spawn and should be ideal for that particular fish. Experience, however, proves the contrary. We have been able to hatch a much larger percentage of eggs at Spooner and Eagle River than at Minocqua in spite of the fact that the eggs must be transported by rail. After the eggs are hatched the fry do much better in the Spooner and Eagle River waters than they do at Minocqua. We have never suffered any loss of fry after they have been placed in reservoirs where they are held ready for distribution. What there is in the quality of the water we do not know. It is almost unbelievable that there should be such a difference. The only apparent difference in the water is that of color. At Minocqua the water is clear while at Spooner and Eagle River it has an amber or golden tint. We can understand why certain qualities in the water might be detrimental

to the growth of fry, but cannot understand why it should effect the percentage of eggs hatched. Similar difficulties are experienced in the hatching and raising of brook trout. Some waters are so much better than others for the propagation of fish. Soft water is much better than hard for all varieties of fish.

A great many fish hatcheries have been located at places not suitable for fish propagation, just to please some friend or politician, not taking into consideration or knowing the requirements of the variety of fish and the qualities of the water that was most suitable for them.

Several brook trout hatcheries that were established many years ago have had to be abandoned in recent years. They were not capable of raising brook trout in numbers that would warrant their continuation, in the propagation of this variety of fish.

THE POLLUTION OF STREAMS

The pollution of streams in Wisconsin has come to be a serious menace to the propagation and protection of fish life. With the many canning factories, paper and pulp mills, tanneries, sulphite mills and other industries pouring their chemical waste into streams, the preservation of fish is a difficult task. One who has not investigated the subject can hardly conceive the terrible destruction this pollution of streams is causing.

What makes the situation more exasperating is the fact that the pollution comes more generally from the big industries that might easily make provision to care for their waste, rather than from the smaller ones.

This Commission has taken up the question of stream pollution with the State Board of Health, and the engineer of that body has devised a plan whereby the waste from industries can be kept from streams. In company with an officer of the State Board of Health the members of this Commission called upon the owners of a number of large industries that were polluting streams and enabled them to realize the injustice that was being done by allowing their waste and refuse to get into streams or lakes.

This Commission proposes to be more vigilant in the future in protecting the public from the wrong resulting from polluted streams.

RESCUING FISH FROM THE MISSISSIPPI RIVER

Men who know anything about the formation of the Mississippi river bottom lands know it is made up of innumerable small ponds, and sloughs. The fish get into these ponds at the time of high water and then when the water recedes vast numbers of them perish in these ponds. One can hardly understand how it is there are any fish left in the river. There are very few of large breeding fish ever found in any of the small ponds, however, and it may be the instinct of the parent that makes it seek the channel which preserves the stock of

fish in the river. With the number of fishermen who are making a business of catching fish from the river, one would think that even the large breeding fish would have become extinct by this time.

The Commission has been much gratified with the great work that the U. S. Bureau of Fisheries has done on the river in the rescuing of fish, during the past summer and fall. It was very unfortunate for us this past two seasons not to have had funds available for this rescuing work, such as the Bureau of Fisheries is doing. It has always been our contention that the waters of the Mississippi river produced more fish to the square acre than any water in this country.

The Commission is recommending to the legislature that authority be given to use the money received for licenses for fishing in the Mississippi for the rescue of fish from the shallow ponds along the river.

ROUGH FISH

The fish of Wisconsin are, by law, divided into two groups, game fish and rough fish. The game fish are those varieties for which a closed season is prescribed, while the rough fish include chubs, dace, suckers, carp, redhorse, sheephead, eelpout, dogfish, garfish, buffalo and lawyers. The species of rough fish, about which most interest is centered is the carp. It is found in many of our inland lakes and streams and in large numbers in Green Bay and of late years has become one of the leading commercial fish.

For a number of years, the state has exercised control of the carp industry in our inland waters. Such fish caught in Green Bay and the Mississippi river was the property of the fishermen upon condition that a license had been secured. In controlling the industry on our inland waters, other means were adopted. Instead of issuing licenses, contracts were made with experienced fishermen, authorizing the use of nets and specifying that the drawing of seines or lifting of nets could only be done under the supervising of an agent appointed by the Conservation Commission. The salary and expense of the supervising warden was borne by the fisherman. The contract further provided that a financial consideration be paid to the state, based on the number of pounds caught or a percentage of the net proceeds of sales. A payment of twenty per cent on net proceeds of sales was considered most satisfactory by both the fishermen and the Commission.

During the year 1916-17 the state's share from the sale of 1,038,915 pounds of fish, principally carp, amounted to \$8,169.88. For the year following, \$16,360.35 was received from the sale of 859,317 pounds. There was a large increase in the amount of revenue derived although there was less fish marketed, the difference being due to the increased market value of the fish and the terms of the contract. Besides the commercial sales of 859,317 pounds of fish marketed there was sold within the state from municipal markets, approximately 700,000 pounds.

Shortly after war was declared with Germany the federal govern-

ment through its agents instituted a campaign to conserve food, with emphasis on meats, and urged the public to save meats by eating fish, using as their slogan "Save the products of the land—eat more fish, they feed themselves." The response of the people is evidenced in the amount of carp and other rough fish consumed during the period of about five months. Formerly there had been practically no market for carp in Wisconsin. The people of our cities were impressed with the order of the food administration and fully realized the necessity of using substitutes that meats might be sent to our armies and allies.

To Governor Phillip, with his usual foresight, should be given the credit for suggesting that municipal markets be established in all our cities and rough fish be offered for sale at cost. Since then several of the states have taken up the work in a similar manner. The State Council of Defense in cooperation with our Commission decided on a course of action. It sent our circulars to its branch organizations and had published in newspapers that rough fish could be obtained for public sale from the Conservation Commission to retail at approximately five cents per pound. This price was maintained regardless of the market value of the fish elsewhere. The contracts that were made with the fishermen specified that all orders for fish from within the state should be given priority, and a fixed price of 3½ cents per pound established. The retail price of the fish determined by the cost of transportation was seldom above five cents.

To still further encourage using carp as a cheap wholesome food, receipts for preparing the fish were printed and distributed freely. A few of the cities that ordered fish failed to reorder, but generally they maintained the market until weather conditions made it impossible. We have not a complete record of the total sales to each city, but we know from the records of the number of pounds of fish caught that not less than 700,000 pounds were sold within the state. The city of Milwaukee led by far in the amount of sales.

MARKETING OF LAKE TROUT TO THE CITIZENS OF THE STATE

It would be well worth while to educate the people of Wisconsin to eat fish at a time when they can be bought from the state at low prices.

In outlying waters our laws provide a closed season for lake trout and whitefish during the spawning period. During that time this Commission is authorized to catch such fish to obtain spawn for the fish hatcheries. The fish are caught under special permits granted to commercial fishermen who strip the fish of eggs and milt, after which they become property of the fishermen. Most of such catches are sold in Chicago and a large part sent back to cities and villages in Wisconsin and sold in local markets. The price of fish varies with supply and demand but this year the fishermen realized about fourteen cents per pound for lake trout. The fish companies in Chicago reshipped to Wisconsin markets these same fish and charged approximately twenty cents. The transportation of the fish plus the profit of the local

dealer added still more to the cost of fish, and it is safe to say the ultimate consumer paid not less than twenty-five cents per pound.

It is respectfully suggested that this Commission be vested with authority to fix the price and control the sale of such fish caught during the closed season, and as far as possible dispose of them to the people of Wisconsin direct. Announcements could be made in newspapers and circulars sent to meat markets explaining that the state would furnish them with fish at a fixed price for delivery a week later. The price of the fish once established could be maintained throughout the month and thereby make it possible for the dealers to advertise several days in advance what the fish will sell for. In establishing the price of fish cognizance would be taken of the ruling prices for the previous eleven months and an average taken. This manner of fixing the price would be fair to both the fishermen and the consumer.

The state of Wisconsin each year spends thousands of dollars to maintain the supply of trout and whitefish in the outlying waters and the Commission believes that especially during the closed season the people should have the benefit of the catch. We estimate that about 500,000 pounds of lake trout from Lake Michigan and 50,000 pounds from Lake Superior were caught during the last closed season. The people of Wisconsin should have the benefit of these fine fish and if more are caught than can be disposed of in home markets, the surplus can be shipped to outside points. The consumer should buy the fish at a price allowing just enough profit to pay the necessary expense that the state has been to in furnishing the fish.

THE CLAMMING INDUSTRY

The clamming industry in Wisconsin was in its infancy only twenty years ago when it was started on the Mississippi river in which great beds of the shells of clams were found. Many people along the river went into clamming and made good wages, as the investment in the outfit which was necessary to catch clams in those days did not require on an average over \$50. Factories for making buttons were built at various cities along the river. There clammers found a market for their product, for which they were paid at the rate of \$6.00 per ton on the bank. The operators of the factories had big barges on the river which they kept busily employed in the transportation of shells to the factories.

The time came when, like the wild pigeon, the buffalo and other game, clams became almost extinct. This Commission made an effort to secure the enactment of a law regulating the taking of clams in combination with the state of Minnesota. Minnesota passed the bill which was to become effective in case this state passed a similar bill. Our bill did not pass and the result is that we have no regulations controlling clamming. Clams became so scarce in the Mississippi that the clammers began to look for new territory in this state. Large

beds of clam shells were found suitable for making buttons in the Rock, Fox, Wolf and Wisconsin rivers as far up as Stevens Point. At times there are hundreds of people at work on the several rivers catching clams. The Fox and Wolf rivers for the past two seasons have been like beehives, so numerous and active are the clambers.

During the past two seasons the clambers have received good prices for their product, all the way from \$28.00 to \$35.00 per ton on the bank. Many workers in the business cleaned up a snug little sum in a few months' time.

What this state should have is some regulation of the industry. It might then be able to ascertain what resources it has in clams. In 1917, \$950.00 was received from the sale of nonresident clamming licenses. This year \$3,050 was paid for nonresident clamming licenses. These licenses cost \$50.00 each.

The Commission believes that the residents should pay \$1.00 for a license and each man who takes out a license for catching clams be required to make a report of the number of tons he takes from the waters and the price received for them. The state could then get some idea of what the industry is worth to it and the number of men engaged in the business.

The federal government has long recognized the importance of clams and has been conducting a scientific investigation to provide means, if possible to propagate clams artificially. The discoveries which have been made and the methods pursued are of much interest and the Commission takes the liberty of incorporating in this report, an extract from a bulletin published in 1914 by the Bureau of Fisheries.

MUSSEL PROPAGATION, BY EXPERIMENT AND PRACTICE

(Bulletin of the U. S. Bureau of Fisheries)

In the practical propagation of mussels the Fairport station serves as headquarters for field operations conducted throughout the Mississippi River Basin, including the Mississippi River and its various tributaries. There were in the field at one time from two to six field parties operating near the station or at a distance of several hundred miles, and all parties are organized under the superintendent of fish culture.

While the available personnel and means do not permit of covering the extensive field, the present endeavor is to restrict the operation to certain localities favorable for the work and needing replenishment, and to distribute these localities as widely as practicable through the territory. Hence operations are now conducted in Lake Pepin of Minnesota and Wisconsin, on the Mississippi at Fairport, Iowa, on the Wabash in Indiana, and on the White and Black rivers of Arkansas.

Each field party is under the direction of a competent head, who may be a permanent or temporary employee, sent out from the Fairport station or from the central office in Washington to work under the direction of the Fairport station. The crews employed in the seining of fishes, inoculating them with glochidia, and liberating them again in the river are made up of local laborers or fishermen temporarily employed.

There is no definite outlay of apparatus required. The chief of the party is provided with compound microscope or a dissecting microscope, an ordinary Coddington magnifier, the usual dissecting instruments, and a field equipment which may consist of seines, fyke nets, tub tanks, buckets, etc. A Government-owned launch and row boats may be employed in the region where the operations are conducted. It is generally convenient to use flat-bottom rowboats of small size, 16 to 24 feet in length, but a launch is also practically necessary in order that more rapid movements can be made from place to place, thus extending the sphere of operations possible for a day's work. In some cases the field parties can find accommodation in towns conveniently located, but in other cases a houseboat must be rented in order that the fishing party may have a place in which to sleep and board.

The methods of propagation are based upon a peculiar feature of the normal course of development of fresh-water mussels. The young fresh-water mussels, with rare exception, when first liberated from the incubation pouches of the parent, must become parasitic upon fish in order to pass through the next stage of their existence. To this end, if the chance offers after liberation, the young mussels or glochidia, as they are called in this stage, attach themselves to the gills, fins, or scales of a fish. The mussels of economic importance attach themselves almost exclusively to the gills. In attaching or biting on the fish a very slight wound seems to be caused, which begins at once to heal over; but in the process of mending the glochidium is overgrown and thus inclosed within the tissues of the fish. The mussel is now actually an internal parasite, in which condition it remains for a period of two weeks, more or less. It is thus conveyed wherever the fish goes, until, when the proper stage of development is reached, it frees itself from the host and falls to the bottom; if through favorable fortune it finds suitable lodgment, it continues its growth to form an adult mussel.

The glochidia are so small that the infection, if not excessive, has no apparent injurious effect upon the fish that serves as host. Investigations by the station have shown that mussels do not attach to fish indiscriminately, but that for each species of mussel there is a limited number of species of fish which may serve as host. Particular instances are mentioned on a later page.

The task of propagation is to bring together suitable fish and the glochidia of mussels. Careful studies of natural and artificial infections show that a moderate sized fish may successfully carry in

parasitism from 1,000 to 2,000 of the microscopic glochidia, but that under the chance operation of nature few of the glochidia find a lodgment upon the proper fish or upon any fish.

During the last fiscal year, in round numbers, 344,000,000 glochidia were liberated in parasitic condition, 208,000 fish being employed in the operations. A considerable proportion of these glochidia undoubtedly fall upon unfavorable ground or from other causes fail of reaching maturity. However, it is the large number which can be infected and liberated at small expense that justifies a confidence in the accomplishment of commensurate benefits. The average cost per 1,000 glochidia artificially infected in the fiscal year 1915 was 2.7 cents, inclusive of overhead expenses.

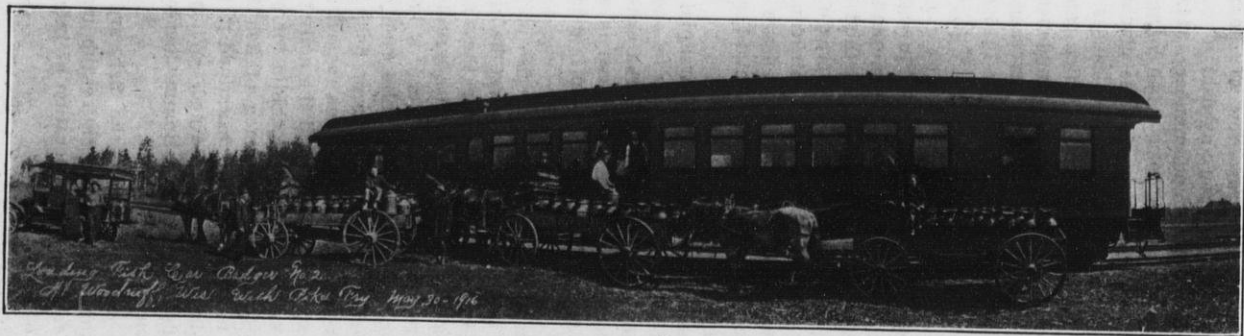
Methods of Propagation. The operation of infecting the fish with glochidia is a very simple one, though the methods may vary considerably with each party. Essentially the method is as follows:

(1) The first step is to secure a number of gravid mussels in order to obtain a supply of glochidia. Generally this can be accomplished by visiting the beds where the mussel fishermen are engaged in work, looking over the catch, and picking the desired number of gravid females, for which a small sum may be paid.

(2) These mussels are then opened, the marsupial passages are cut out, placed in a pan of water, where they may be opened with scissors or scalpel and the glochidias squeezed out in the water. The glochidia are taken up with a suitable pipette and placed in a small container, such as a glass or can. Usually this operation is delayed until the fish have been obtained.

(3) It is now necessary to secure as many fish as possible by means of seine or nets, and the species of fish must be appropriate for the species of mussel to be propagated. After the fish are transferred from the seine to tubs or tanks, and when a suitable number of fish are in the tanks, overcrowding being avoided, a lot of glochidia are thrown into the water. There is no definite rule as to the number of glochidia to be used with any number of fish, but the person in charge is guided by his experience with due regard to the temperature of water, the number and size of fish, and the activity of the glochidia. The fish may remain exposed to the glochidia for a period of 5 to 20 minutes. From time to time a specimen of fish is taken by hand, or with a small hand net, and the gills examined to ascertain if a sufficient degree of infection has been obtained. When, in the judgment of the operator, the fish show the optimum degree of infection they are ready for liberation.

(4) Using buckets or small nets, the fish are transferred from the tank back into the river or the entire tub may be turned over into the river. This concludes the operation of infection as ordinarily carried on in a practical way.



LOADING STATE FISH CAR AT WOODRUFF, WISCONSIN.
(Distributing Pike Fry)

DISTRIBUTION OF FISH.

Fish for stocking public waters are distributed to applicant's railway station free of charge. Anyone desiring fish for this purpose should write to the Conservation Commission at Madison for application blanks. These blanks are then filled out by the applicant and after stating the varieties of fish desired and describing the water to be stocked, returned to the department.

When the fry are ready for distribution the office at Madison notifies the applicant by letter of the hour, day and date that the fish are to arrive at his railway station, enclosing a card which the applicant must fill in and sign saying he will be on hand to receive the fish at the time specified, that he will see that the fry are taken to the stream and liberated according to directions in the circular letter and that he will have the cans in which the fry are shipped returned to the depot at once. The cans are needed for other shipments. Applicants must make it a point to be at the railway station upon arrival of the train and take the fish promptly to the lake or stream as soon as possible.

Brook and brown trout fry should be planted in small spring rivulet feeders of the main stream, as the temperature of the water will be about the same as the fry are accustomed to at the hatchery. In these small spring rivulets there will be very few varieties of other fish to prey upon the fry.

Bass and pike fry should be planted in and around a weed bed so the little fellows will find a place to hide from their enemies.

Before liberating the fish the cans should be placed in the water, allowing the water in the cans to cool off by dipping some of the lake or spring water into the can, according to the variety of fish, and letting it run out. Do this until the temperature of the water in the can is the same as the water you intend to plant the fish in.

ROD AND GUN CLUBS.

Before closing our report, we wish to express our appreciation to the state organization and local organizations for the protection and conservation of fish and game, for the spirit of cooperation that has been manifested throughout all our dealings. In allotting shipments of fish to different parts of the state we have exercised our best judgment and have aimed to stock waters that would produce fish without favoring one locality over another. The various organizations have been of great assistance in providing men and conveyances to carry fish fry from trains to waters in which they were planted and we desire to emphasize our thanks and gratitude for that help.

THANKS TO RAILROAD EMPLOYEES.

The Commission wishes to express its thanks at this time for the valuable service which several railroad employees of this state have rendered to us in the movement of the fish car "Badger", and the transportation of the many thousands of fish cans in baggage cars in the distribution of fish throughout the state. The courtesy and helpfulness of railroad men have been very pleasing to the Commission.

IN CONCLUSION.

In conclusion, we wish to state that we have endeavored to keep informed on subjects relating to fish culture as presented by authorities throughout the country. Experiments are being made continually and we have been watching results in the hopes of learning new methods of fish propagation, to aid in bringing our hatcheries to a higher state of efficiency. To secure the best results requires a personal interest and application to the smallest detail on the part of all employees. It is gratifying to report that such conditions prevail, and we feel that the Commission's success in a large measure was secured through the perseverance and untiring efforts of the members of the staff.



INTERIOR VIEW OF STATE HATCHERY AT OSHKOSH.
(Hatching Pike Eggs.)

VALUE OF FISH CAUGHT AND SOLD FROM OUTLYING WATERS

1916

	<i>lbs.</i>	<i>value</i>
Whitefish	151,870	\$16,552 46
Lake trout.....	3,781,115	365,724 59
Bluefin.....	734,811	23,175 36
Chubs	2,418,941	124,590 77
Herring	5,830,050	111,385 34
Pike	153,423	17,247 31
Bass	909	127 95
Perch	1,959,940	74,474 46
Rough Fish	1,958,907	61,199 53
	16,989,966	\$794,504 77

1917

	<i>lbs.</i>	<i>value</i>
Whitefish	162,499	\$23,660 45
Lake trout	4,180,119	516,690 20
Bluefin.....	1,561,006	65,157 91
Chubs	3,137,418	205,593 85
Herring	7,240,039	256,691 49
Pike	133,581	18,386 61
Perch	1,649,122	86,886 61
Rough Fish	1,744,829	71,899 65
	19,808,613	\$1,244,768 68



WILD FLOWERS. PENINSULAR PARK.

SUMMARY OF OUTPUT OF HATCHERIES

1917

Madison Hatchery:		Sheboygan Hatchery:	
Brook trout, advanced fry	1,464,000	Lake trout fry.....	18,286,000
Rainbow trout, advanced fry.....	1,972,000	Whitefish fry	3,300,000
Rainbow trout, fingerling	8,000	Chub fry	2,743,125
	<u>3,444,000</u>		<u>24,329,125</u>
Bayfield Hatchery:		Spooner Hatchery:	
Brook trout, advanced fry	2,771,000	Pike fry.....	22,050,000
Rainbow trout, advanced fry	669,200	Minocqua Hatchery:	
Brook trout, fingerling	24,400	Pike fry.....	31,250,000
Rainbow trout, fingerling	33,450	Black bass fry.....	621,000
Lake trout fry.....	11,527,625	Muskellunge fry	2,250,000
	<u>15,025,695</u>	Pickrel fry.....	240,000
		Lake trout fry	1,365,000
			<u>35,726,000</u>
Wild Rose Hatchery:		Oshkosh Hatchery:	
Brook trout, advanced fry	162,600	Pike fry	32,150,000
Brown trout, advanced fry	48,000	Eagle River Hatchery:	
Rainbow trout, advanced fry.....	1,707,000	Pike fry.....	10,800,000
	<u>1,917,600</u>	State Fair Exhibit:	
			330
Delafield Hatchery:		Tenney Park Hatchery:	
Pike fry.....	14,900,000		14,520,000
Black bass, fingerling	231,050	Neenah Station:	
	<u>15,131,050</u>	White bass, fingerling.	33,630
		Perch, fingerling.....	18,810
Sturgeon Bay Hatchery:			<u>52,440</u>
Lake trout.....	16,400,000	Total	191,946,220
Bluefin fry	400,000		
	<u>16,800,000</u>		

RECAPITULATION BY HATCHERIES

Madison Hatchery	3,444,000
Bayfield Hatchery	15,025,675
Oshkosh Hatchery	32,150,000
Minocqua Hatchery	35,726,000
Delafield Hatchery	15,131,050
Wild Rose Hatchery	1,917,600
Sheboygan Hatchery	24,329,125
Sturgeon Bay Hatchery.....	16,800,000
Spooner Hatchery	22,050,000
Eagle River Hatchery.....	10,800,000
Tenney Park Hatchery.....	14,520,000
Neenah station	52,440
State Fair exhibit.....	330
Total	<u>191,946,220</u>

DISTRIBUTION BY COUNTIES

1917

County	Brook trout advanced fry	Rainbow trout advanced fry	Brook trout fingerling	Rainbow trout fingerling	Wall-eyed pike fry	Black bass fry	Black bass fingerling	Perch fingerling
Adams	25,600	28,900					3,000	
Ashland	133,200	139,800			2,172,000		2,250	
Barron	55,800	86,400	2,000		1,188,000			
Bayfield	566,400	431,800	2,000	4,800	3,555,000	31,500		
Brown	3,600	4,500			100,000			
Buffalo	46,800	13,600						
Burnett	34,200	41,800			918,000	9,000		
Calumet	14,000	8,500			600,000			
Chippewa	61,200	67,000			567,000		3,000	
Clark	63,000	54,000	800	600	800,000		6,000	1,200
Columbia	52,000	61,200			1,812,000			
Crawford	18,800							
Dane	63,600	71,400	400		6,378,000			400
Dodge							18,000	
Door			16,000					
Douglas	124,200	131,400		4,800	2,250,000	24,000		
Dunn	102,600	18,000			624,000			
Eau Claire	86,400	46,500			582,000			
Florence	41,600	27,000			1,240,000			
Fond du Lac	68,000	58,700			2,200,000		3,000	2,400
Forest	82,800	89,400		4,800	1,842,000	9,000		
Grant	30,000	91,800			102,000			
Green	20,000	40,800						
Green Lake	18,000	4,500			600,000			
Iowa	44,800	11,900	2,000		102,000		9,000	1,200
Iron	95,400	21,600			2,412,000	33,000		
Jackson	106,200	85,000	4,000	4,000	408,000		4,500	1,800
Jefferson	8,000	30,400			938,000		2,250	3,000
Juneau	40,800	42,500			840,000			
Kenosha					2,500,000		7,500	3,600
Kewaunee	43,200	40,500						
La Crosse	28,000	105,400	2,000	2,400	800,000			
Langlade	40,400				2,212,000	33,000		
Lincoln	74,400				1,728,000	33,000		
Manitowoc	21,600	42,000			1,652,000	15,000	3,750	1,200
Marathon	105,900	57,000			504,000			
Marinette	150,000	278,800			2,510,000			
Marquette	11,200			4,800	100,000			1,200
Milwaukee					286,000			1,800
Monroe	189,200	127,500	2,000	2,400	600,000			
Oconto	32,400	49,500			2,750,000			
Oneida	63,600	104,400	4,000		14,668,000	132,000		720
Outagamie	12,000					3,000		
Ozaukee	6,000	16,000					1,500	1,200
Pepin								
Pierce	90,000	130,900						
Polk	34,200	77,400			1,674,000			
Portage	62,000	45,000			1,972,000			2,400
Price	81,000	80,700			2,550,000		3,750	

DISTRIBUTION BY COUNTIES.—Continued.

1917.

County	Brook trout advanced fry	Rainbow trout advanced fry	Brook trout fingerling	Rainbow trout fingerling	Wall-eyed pike fry	Black bass fry	Black bass fingerling	Perch fingerling
Racine							8,250	3,600
Richland	53,400	59,500		4,800				
Rock		10,200			2,098,000	6,000	10,500	2,400
Rusk	93,600	126,000			936,000			
St. Croix	106,200	106,800			366,000	6,000	4,500	
Sauk	42,000	27,200			476,000			
Sawyer	50,400	65,700			1,872,000	37,500		
Shawano	162,000	182,000			1,672,000	30,000		
Sheboygan	4,000				646,000			1,200
Taylor	27,000	24,000			1,900,000		2,250	
Trempealeau ..	85,600	194,800	2,000		532,000		1,500	1,800
Vernon	74,400	52,700						
Vilas	57,600	79,200			11,512,000	189,000		
Walworth	32,000				2,800,000			3,240
Washburn	90,000	47,000			9,387,000	24,000		
Washington ..	6,000	4,500			5,690,000		21,000	5,280
Waukesha	48,000	44,200			5,690,000	115,500		4,200
Waupaca	62,000	78,000			1,992,000	12,000		1,200
Waushara	244,000	345,000	2,000		100,000			
Wood	48,000	56,800			1,400,000			
Total.....	4,496,380	4,341,100	39,200	33,400	117,900,000	736,500	115,500	45,040



A FINE LOOKOUT. ISLAND IN THE DISTANCE.

NUMBER OF FISH DISTRIBUTED FROM HATCHERIES

1918

Sheboygan Hatchery:		Delafield Hatchery:	
Lake trout fry.....	17,833,000	Pike fry.....	32,650,000
Whitefish fry.....	18,600,000	Black bass, advanced fry.....	498,000
	<u>36,433,000</u>	Black bass, fingerling..	16,200
		Large bass, one year old	3,500
		Rock bass.....	1,300
			<u>33,167,000</u>
Bayfield Hatchery:		Sturgeon Bay Hatchery:	
Lake trout fry.....	14,550,000	Lake trout fry.....	14,550,000
Brook trout fry.....	2,255,600		
Rainbow trout.....	605,000	Minocqua Hatchery:	
Rainbow trout, fingerling.....	28,565	Pike fry.....	42,950,000
Brook trout, fingerling	23,250	Pickereel fry.....	160,000
	<u>17,462,415</u>	Muskellunge fry.....	140,000
			<u>43,250,000</u>
Madison Hatchery:		Spooner Hatchery:	
Brook trout fry.....	620,000	Pike.....	34,000,000
Rainbow trout fry.....	2,445,750		
	<u>3,065,750</u>	Oshkosh Hatchery:	
		Pike fry.....	52,200,000
		Random Lake:	
		Lake trout fry.....	40,000
Wild Rose Hatchery:		Elkhart Lake:	
Brook trout fry.....	210,600	Lake trout fry.....	40,000
Rainbow trout fry.....	1,365,000		
	<u>1,575,600</u>	Crystal Lake:	
		Lake trout fry.....	50,000
Eagle River Hatchery:		Lake Allen:	
Pike.....	35,950,000	Crappies planted.....	10,800
		Total.....	271,794,565

1918

RECAPITULATION BY HATCHERIES

Madison Hatchery.....	3,065,750
Bayfield Hatchery.....	17,462,415
Oshkosh Hatchery.....	52,200,000
Minocqua Hatchery.....	43,250,000
Delafield Hatchery.....	33,167,000
Wild Rose Hatchery.....	1,575,600
Sheboygan Hatchery.....	36,433,000
Sturgeon Bay Hatchery.....	14,550,000
Spooner Hatchery.....	34,000,000
Eagle River Hatchery.....	35,950,000
Random Lake.....	40,000
Elkhart Lake.....	40,000
Crystal Lake.....	50,000
Lake Allen.....	10,800
Total.....	<u>271,794,565</u>

DISTRIBUTION BY COUNTIES

1918

County	Rainbow trout	Brook trout	Wall-eyed pike	Black bass
Adams	47,250	27,200	800,000	
Ashland	63,000	50,000	3,400,000	
Barron	78,750	57,600	5,800,000	
Bayfield	162,000	176,400	5,000,000	750
Brown				
Buffalo	56,250	28,800		
Burnett			2,600,000	
Calumet				8,750
Chippewa	63,000	10,800	2,550,000	
Clark	92,250		1,600,000	7,500
Columbia	90,000	24,000	650,000	
Crawford	58,500		150,000	
Dane	126,000	75,600	12,400,000	54,250
Dodge	6,750	38,000	4,450,000	12,500
Door		39,600	600,000	
Douglas	279,000	25,200	5,600,000	
Dunn	76,500	10,800	2,450,000	
Eau Claire	49,500		600,000	
Florence	47,250		1,300,000	1,500
Fond du Lac	141,750	68,800	2,200,000	10,000
Forest		50,400	1,100,000	
Grant	155,250	77,400	800,000	
Green				
Green Lake		16,000	1,950,000	
Iowa	83,250	27,000		
Iron			6,000,000	
Jackson	27,000	104,400	400,000	6,250
Jefferson		7,200	2,800,000	31,250
Juneau	33,750	55,600	2,300,000	13,750
Kenosha			1,800,000	36,250
Kewaunee	36,000	36,000	600,000	
La Crosse	24,750	52,200	1,200,000	
Lafayette		72,000		
Langlade	96,750	54,000	1,300,000	
Lincoln	85,500	72,000	2,400,000	
Manitowoc			400,000	
Marathon	99,000	72,000	1,800,000	
Marinette	200,250	212,000	2,000,000	
Marquette	24,750	37,250		
Milwaukee				
Monroe	117,000	112,200	600,000	5,000
Oconto	184,500	90,000	1,950,000	
Oneida	54,000	46,200	18,600,000	
Outagamie			3,000,000	
Ozaukee	6,750			
Pepin				
Pierce	130,500	54,000		
Polk		23,400	2,800,000	
Portage	54,000	10,800	1,400,000	3,750
Price	211,500		3,650,000	
Racine			1,800,000	
Richland	54,000	10,800		20,000
Rock		3,600	4,450,000	2,500
Rusk	45,000	93,600	1,500,000	
St. Croix	186,750	18,000	3,250,000	

DISTRIBUTION BY COUNTIES.—Continued.

1918.

County	Rainbow trout	Brook trout	Wall-eyed pike	Black bass
Sauk	155,250	39,600	2,150,000	21,250
Sawyer		32,400	8,150,000	
Shawano	139,500	266,400	1,800,000	
Sheboygan			1,000,000	20,000
Taylor			1,500,000	
Trempealeau	139,500	32,400	1,200,000	
Vernon	175,500	75,600		
Vilas	186,750	45,000	27,500,000	
Walworth		36,800	3,150,000	46,250
Washburn			3,700,000	1,500
Washington		14,400	1,800,000	31,250
Waukesha	42,750	57,800	8,950,000	122,500
Waupaca	49,500	50,400	1,950,000	
Waushara	96,750	173,200	1,250,000	
Winnebago			15,000,000	
Wood	31,500	44,800	1,000,000	



EAGLE TOWER. EIGHTY FEET TO PLATFORM AND NEAR EDGE OF EAGLE CLIFF.

THE GENERAL ROUTINE OF A TROUT HATCHERY

BY

R. L. RIPPLE.

Where can there be a line of work more fascinating, or less monotonous as a daily vocation than that found in a brook and lake trout hatchery, where many millions of both varieties are handled every year? The trout hatchery is mentioned in this instance in preference to those hatcheries where other varieties of fish are handled, because the breeders are reared from infancy and kept in the ponds the year round, and must be fed and cared for and kept in a good condition. The fertility of the eggs and the vitality of the little fish which result from the spawning season each year, depend on the manner in which the adult trout have been fed and otherwise cared for.

The spawning is the fisherman's harvest, the result of a year's careful and painstaking work is at hand. Perhaps during the year there are many trials and worries, but the condition of the fish, as they are removed from the ponds to the spawning races shows that all is well.

However, strive as the hatchery man will to prevent it, there is always a certain loss of breeders in the stock fish ponds that is put down as unaccountable. We count each year, one by one at spawning time, all the fish put into the ponds. We keep an accurate account of all dead fish removed from each pond during the year, but still there is always a shortage of fish in the ponds. Fish have many enemies such as the blue heron, muskrat and kingfisher. The blue heron is one of the greatest consumers of fish that we have to contend with, as it does its work at night and I have had a very good reason to believe that the muskrat, that great vegetarian, will gorge on a fish when he wants a change. There is a large loss of trout and trout fry every year from the ponds.

Our station at Bayfield has a capacity of about twenty double hatching troughs, eleven boxes long, twenty-two boxes to the double trough, each box holding seven trays at two quarts per tray. When the hatchery is filled with its quota of lake trout, brook trout and brown trout eggs, it means many millions. Only those who have the work in charge can realize what effort it takes to fill these many stations, especially in the case of lake trout, as they must be netted in the Great Lakes by the commercial fishermen in the late fall. Only one who has

experience in the work can tell what a fight with the elements and unfavorable conditions is encountered in bringing home each fall this harvest of spawn.

The spawning season over, the responsibilities grow heavy on the hatchery men. Millions of fishes lives are contained in those eggs. The running water is passed over them, and must be kept passing. The ten to twenty-five per cent of infertile eggs must be removed as they begin to decay. Instead of the time-worn plan of picking them out with tweezers by hand, we use the more modern method, the brine box. In this the trays are placed, several at a time the brine solution allowing the bad eggs, which are lighter, to come to the top, where they are scraped off with a small net. Two men, in the same time, now do what it formerly took eight or ten men to do.

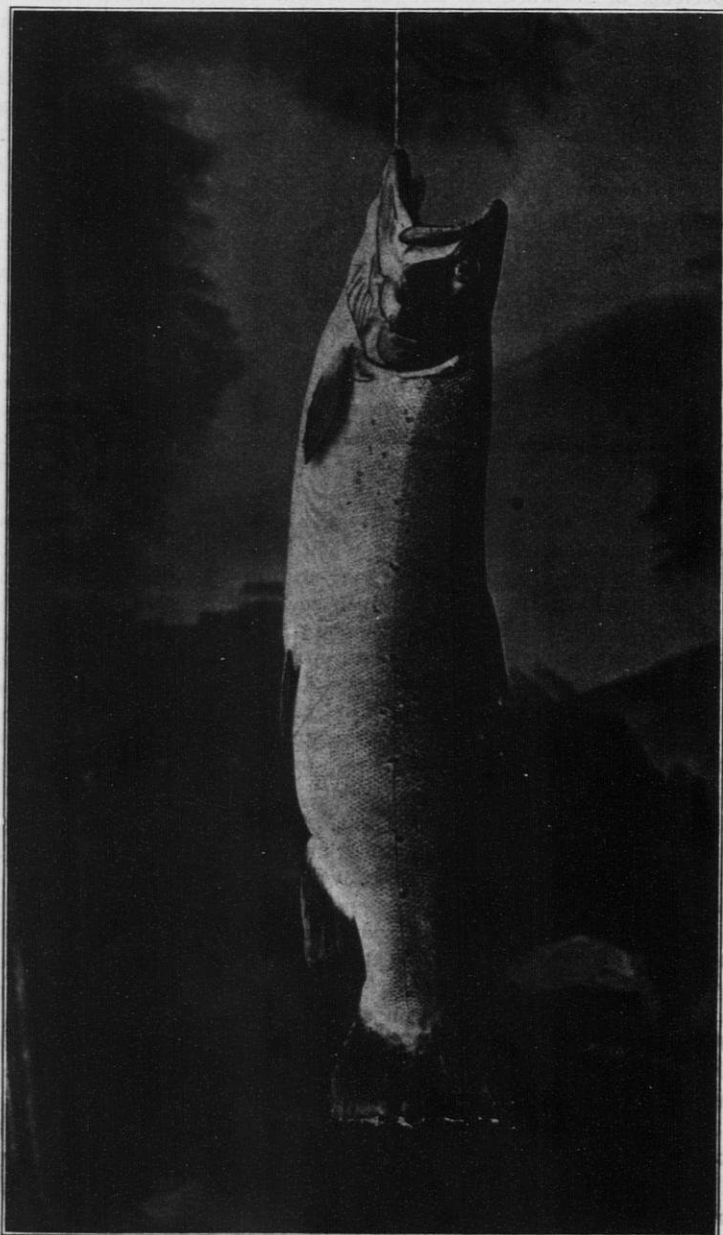
For 110 days, on the average, these millions of eggs must remain on the hatchery trays, bringing the hatching season along into March or the latter part of February, in our locality. When the lake trout fry are ready, being some six weeks old, they are taken out in boats and planted on the reefs and spawning beds, where they would naturally hatch.

The millions of brook and other trout fry are placed in the various feeding tanks and rearing ponds. When shipping time is at hand, the tanks are full of fry, taking their food six times a day, ready to go out into the streams, and it is with much rush of cans and men, etc., that they are started out on life's journey. Every outgoing baggage car must take its shipment or shipments of trout. Not only the baggage cars do this, but also the commodious State Fish car, "Badger", which carries 200 of the ten-gallon shipping cans at a trip. Each can contains the proper amount of fry according to distance it is to travel, and has a chunk of ice on the cover to drip and keep the water at the right temperature in the can below.

The fish messengers are sent out with their allotted cans of fry, holding them over perhaps at some junction, or, through some delay, holding up maybe a day at the railway station until the fish are delivered to the applicants; or they may have orders to plant the fish in the headwaters of a stream as soon as they can reach there. Seldom indeed does a complaint come in that the fish were not planted in good condition.

Every can carried in a given shipment contains the same number of fry or fingerlings. We measure all our fry by dry measure at times of shipping, by means of small screen-bottom dippers or strainers, each holding a certain number of fry or fingerlings at different ages. I know of no method more accurate or more easily operated than this for measuring the fish put into each can.

As the hatchery tanks of fry are thinned out through shipping they are filled again from the hatching troughs with those that are coming on daily to the shipping age and size. They do not hatch all at once nor reach the shipping condition at the same time.



GERMAN BROWN TROUT CAUGHT IN WAUSHARA COUNTY, WISCONSIN.
WEIGHT 8 $\frac{1}{4}$ POUNDS.

The several hundred thousand fry to be kept for fall shipment are now removed to the outside rearing ponds, where they will have more room, and the feeding, from six times a day, is cut gradually to twice a day.

The feeder is very careful that the fry all get some of the food, scattering the little particles of meat or strained "plucks" over the whole surface. He knows many anxious moments and days until all are feeding well and they start to grow rapidly. If he can see no dead ones on the clean gravel bottom, and they work to the head of the pond and fight the current, even the fish hatchery man feels some little joy in life.

The rearing ponds are small in size, many of them being almost square, while others are oblong. We find, however, that the most satisfactory ponds are those about 8 feet wide, and from 30 to 50 feet in length, with depth of 18 inches to 2 feet of water. If one can arrange, as we are able to at Bayfield, to have the water fall a foot or more into each pond, it will help to aerate the water and also it creates a natural condition much appreciated by the fish. These long and rather shallow ponds give the desired current. They are also more easily covered with shades made of two by fours, in the form of gable-roof frames over which building paper or tar paper is stretched. We formerly did not use these, as we have considerable natural shade from trees, but we were greatly bothered with algae in the water. The shades do way with this trouble, giving the fish all the available room in the ponds and making it more agreeable when the time comes for removing them for sorting or shipping. Formerly, this green "moss" would be seined in with the fish, getting into their gills and causing no small loss.

Nothing can be more ideal for a bottom to these ponds than a layer of clean gravel that can be raked over and over when cleaning, allowing the water to work through it and making for more sanitary conditions.

We have at the Bayfield hatchery, now nearing completion, six fingerlings or fry ponds, each 8 feet wide, 50 feet long and 40 inches deep, and the water will fall about eighteen inches into each pond. These are being built along our Birch Run Springs stream, among the densest of natural shade. It is an ideal situation. We have tested the water for several years past, because we trout men know only too well that fine looking water, clear and beautiful, does not always assure success. The Birch Run water is the softest in use at any of our trout hatcheries.

Our Wild Rose Hatchery has the most beautiful water in abundance, natural shade, plenty of fall, sandy, clean locality, where the trout streams are the best in the state for fishing, where there could hardly be a doubt left as to its suitability for the propagation of trout, yet here we have met with conditions unfavorable to an extent undreamed of. If we can get the trout past the stage of absorbing the yolk sac, our trouble is past. The eggs that are taken there annually—some two

to three millions—are shipped to the Bayfield hatchery, where they hatch into the strongest of fry and we have no losses in the fry stage.

The man with the feed pail and dipper, the man who selects the livers and plucks, the man that knows how to spread the feed and do a thousand other things properly, is truly the man responsible for the results, as it is with a successful stock raiser. For months and years he stands guard over these things and he may know little else and care less. It is confining work, but still very fascinating.

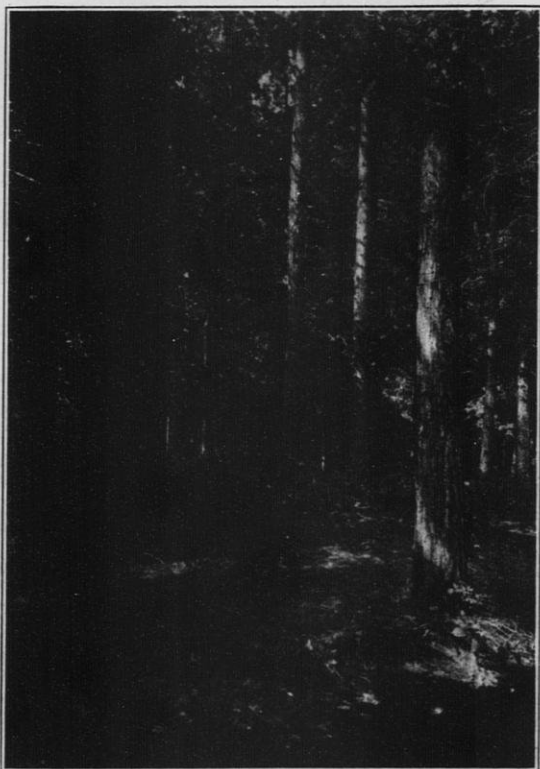
The fry are fed five or six times a day, at first, in the hatchery vats, with very finely ground food composed of one-half liver and one-half sheep plucks. We find the plucks an excellent food, because the fine particles float, giving the little fellows plenty of time to get it, whereas the liver will settle quickly to the bottom. However, the fry that have learned how to feed take it before it reaches the bottom. This finely ground food must all pass through a sieve before being mixed with the water for feeding, to make sure that there will be no pieces large enough to harm the fry. During the five or six weeks they have been in the hatchery fry troughs, they have been absorbing nourishment from the natural food sac. They are eager now for a change of diet, and the little particles of liver and plucks are taken eagerly. It is interesting to see them retain their places at the headwaters, where the current is swift, and work for the food. All these things work into a trout man's system and become a part of him.

Some of these little fingerlings are now growing faster than others and some of them are destined to be, at maturity, much larger than others, of the same age. These larger ones must be separated from the others, or else there will be a tremendous loss during the late summer, for the large devour the small, especially among the brook trout. Those who maintain that the rainbows are eternally eating up all the brook trout are, I believe mistaken to a great extent. We all know the rainbow is a very much hardier fish in suitable waters. We know it stands more abuse and is not subject to the copepod parasite that yearly carries off quite a number of our brook trout of two years of age and over in the wildest of streams, as well as in hatchery ponds. We do not remove the rainbow fry to sort, because we have not had any great loss through cannibalism, though there is just as much irregularity in size as among the brook trout at a given age. There is, however, one feature against the rainbow, in comparison with the brook trout, in that we find on the average a larger number of infertile eggs.

A few hundred thousand of these little beauties in a small space make a sight to behold, rolling to the surface to feed and sparkling in the sunlight with their little small red fins and tails. The water fairly cracks as those little bodies hit the surface in masses.

The large breeders in the ponds will follow the feeder and his pail around the ponds and even come to the landing place and take food from his hand. One may see thousands of these trout at sunset jumping for flies, sometimes leaving the water three to five feet. To witness all this is living.

Allow me to add in conclusion that we have at Bayfield one of the finest equipped hatcheries in this country, in ponds, in buildings, in water and in grounds that compare with the best kept parks in the cities, and we are proud of our work.



A GOOD STAND OF SECOND GROWTH NORWAY PINE. PENINSULAR PARK.

6—C. C.



BAY VIEW. PENINSULAR PARK.



ONE OF THE MANY CHARMING FOOTPATHS IN PENINSULAR PARK.

WISCONSIN'S PARK SYSTEM

Although Wisconsin was not the first state to institute a state park system its first effort in that direction antedated the establishment of parks in a majority of the states. In 1878 the Legislature set apart about fifty thousand acres owned by it in the lake region in what are now Iron and Vilas counties as a state park and it was provided that "no authority should be given to any one to cut down or destroy any timber on such lands". For nineteen years this land was preserved in its virgin state, but the 1897 Legislature repealed the law of its predecessor of 1878 and sold 32,000 acres.

The present state park system really dates from 1895 when a few public-spirited citizens of vision secured the enactment of a law authorizing the governor to proceed to acquire 250 acres along the St. Croix river which being purchased constitutes, with a similar tract on the other side of the river in the state of Minnesota and purchased by the latter state, the Inter-State Park. This park includes the picturesque gorge through which the St. Croix river runs at that place. The appointment of commissions by the governor authorized by the Legislature of 1895, to examine the tract and make the purchase made practicable the establishment of the park system as we have it now.

Wisconsin has spent in the purchase of land for park purposes, to date, \$291,571.23 and has now six parks each one of which has distinct features of attractiveness. These parks are, Devil's Lake Park, Peninsular Park, Inter-State Park, Marquette Park, Brule Park and Cushing Park. These parks were mainly chosen as were the system of National parks, to preserve for all time to the public certain features of scenic beauty or grandeur and forest growths and portions of lakes or rivers for playgrounds for the present and future generations. Wisconsin parks are in no sense rivals of the great National parks but it is to be claimed for them that their selection and maintenance have been carried out along intelligent lines and that they do not represent merely a transient sentiment for scenic beauty or unique natural formations of country. In the very nature of the case the generations to come in Wisconsin will secure greater benefits from our parks than can the present generations, but we may take pride in the fact that this generation had the vision which prompted it to preserve for those to come, beauty spots and playgrounds that will for all times minister to their love of outdoor life and make living more useful and enjoyable. Wisconsin people may justly therefore find pride and gratification in recalling what they have done for their children and their children's children.

PENINSULAR PARK.

BY

A. E. DOOLITTLE.

This largest of state parks contains nearly 4,000 acres of which about 2,800 acres is timber. It is located in the Door county peninsula between Fish Creek and Ephriam. It is preeminently the forest park of the system and its fine stand of white and red pine, hemlock, balsam and hardwoods, including beech give to it a most varied attractiveness. Each year sees a marked increase in the number of visitors to this park; especially is it becoming a favorite point for automobile tourists. It is reached by motor stage from Sturgeon Bay, or by boat from Marinette. Many come from the lower parts by steamer lines from Chicago and Milwaukee. By whatever means visitors reach the park, once here there are attractions to meet the desires of all lovers of outdoor life. Good automobile roads, trails for the pedestrians, cabins for visitors who desire to remain a while, camping privileges, picnic grounds and golf links offer a variety to meet any taste.

In these days of the automobile good roads are a necessary factor of park improvement. The roads through this park have been so constantly travelled during the last year, that repair is necessary and will be made. Many stretches of this road, the surface of which was only a few inches in thickness has been entirely worn off, leaving the road bed proper in an uneven surface of sharp pointed limestone rocks, so constant was the travel over them this season.

The early plans of two years ago called for substantial road repair and new roads to be built. Previously a considerable amount of work was done in locating the driveways, in the clearing of the timber and brush ready for the taking out of the stumps. War conditions have interfered somewhat with the road building program law of two years ago, nevertheless some beautiful scenic driveways have been opened and still others are in contemplation.

Mention ought to be made of The Eagle Cliff Drive which was made ready for the grading, and graded, and it is now a good and substantial driveway to Eagle Cliffs and Eagle Tower. In addition a number of loads of gravel were hauled and dumped on low spots on the other roads of the Park.

A considerable amount of gravel will be necessary to make the road of the park smooth, as some of the roads at present are very rough. This with a top mixture of clay will make a very substantial road. With the purchase of two heavy wagons and a tractor this work could be done with a minimum of cost, as the hauling by team is costly, on account of the length of the haul. Further repair work during the past two years consisted in the trimming of some of the main drive-

ways. Some were not trimmed because to have done so would have destroyed the scenic effect.

There are twelve miles of trails in this park. About four miles of these were old logging and "tote" roads of the lumbering days. These in particular are now all beaten paths that furnish excellent walks about the Park. Much work is however necessary to keep these walks in good condition, as superfluous growths are constantly crowding upon them. These paths are very necessary as they furnish the only possible way for people to see many of the most beautiful of the forest growths and the flowers.

The fishermen's houses remaining near the beach after the purchase of the park lands have been repaired and made habitable. While this has necessitated a small amount of expenditure, there is a demand for these houses, justifying the amount expended. A nominal rental fee is charged for the use of these houses but the amount thus far has not covered the expense of the furnishing; nevertheless this has been the means of opening up a source of pleasure not possible otherwise. Some of the amount collected as rental was used in supplying cook stoves, tables, beds, springs, mattresses, for the comforts of the public using these buildings. The rentals for the following years will be used to reimburse the state for amounts expended during the past two years.

Camping privileges have not been used to the extent that was expected though those who have camped here have spoken enthusiastically of the pleasures thus enjoyed. One reason that more people do not come with camping outfits may be attributed to the poor docking facilities. During the past two years much damage has been done to the docks by the ice of Green Bay. While pleasure boats were common visitors a few years ago, they very seldom stop now, because of the difficulty in docking. Some campers come with cars and equipped with means of camping. Plans of the Conservation Commission contemplate the construction of buildings large enough to back a car into with room at the sides for camping and also some substantial docks.

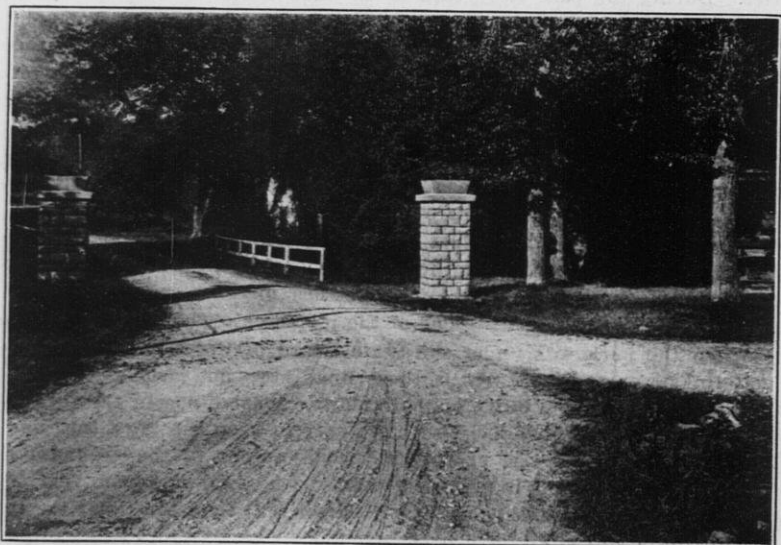
Some improvement has been made on the grounds at Eagle Cliff, and other places to accommodate picnic parties have been put in shape. These are provided with tables and benches and it is no uncommon sight to see a number of families at a time enjoying the use of these picnic grounds and facilities. The patches of wild raspberries and strawberries furnish another one of the picnic enjoyments of the park.

When the park was under the State Board of Forestry the present golf links were opened. While these links have not been extensively utilized, there is possibility of their more extensive use in the future. A little work each year has been necessary to keep the grass cut, and in condition for the use of players. The contour of the ground for golfing is ideal, and it is proposed to expend a small sum each year in the hope that some enthusiastic golf player will take the initiative in organizing a golf club.

The plans for Peninsular Park, for the planting of certain portions of the park with seedling pine and certain cutting of the mature tim-



ENTRANCE TO PENINSULAR PARK. EPHRAIM SIDE.



ENTRANCE TO PENINSULAR PARK. FISH CREEK SIDE.

ber are under way. Some of this work has been done, but more is needed as some parts have grown up to unsightly weeds. These places should be planted with suitable trees that would add much to the scenic beauty of the Park. Ninety-five thousand trees have been planted on the Park during the past two years, and it is safe to say that four-fifths are alive and thriving. As to the cutting of mature timber, about twenty thousand log feet were taken last winter, consisting of basswood, oak, maple, with a small amount of pine and hemlock. This was sawed into lumber which has been piled and is drying, so that it will be in excellent shape for dressing the coming winter.

Some objections was raised by people living near the park to the cutting of timber, it being claimed that it was not the intention that any tree should be cut from the park lands. The Commission, however, believes that when the lumber needed for park improvements can be cut in the park without impairing its forest growth, or its beauty, it is wise to make use of it. An additional twenty-thousand feet will be cut this year.

Other improvements made in the last two years consist in the painting of all buildings used for the housing of tools, also the outbuildings and house used by the park superintendent. Several wells were drilled. Holland Orchard was pruned. Signs were also posted directing visitors to places of interest about the park. Stairways at Eagle Terrace and a number of benches and tables were constructed to add to the convenience of visitors.

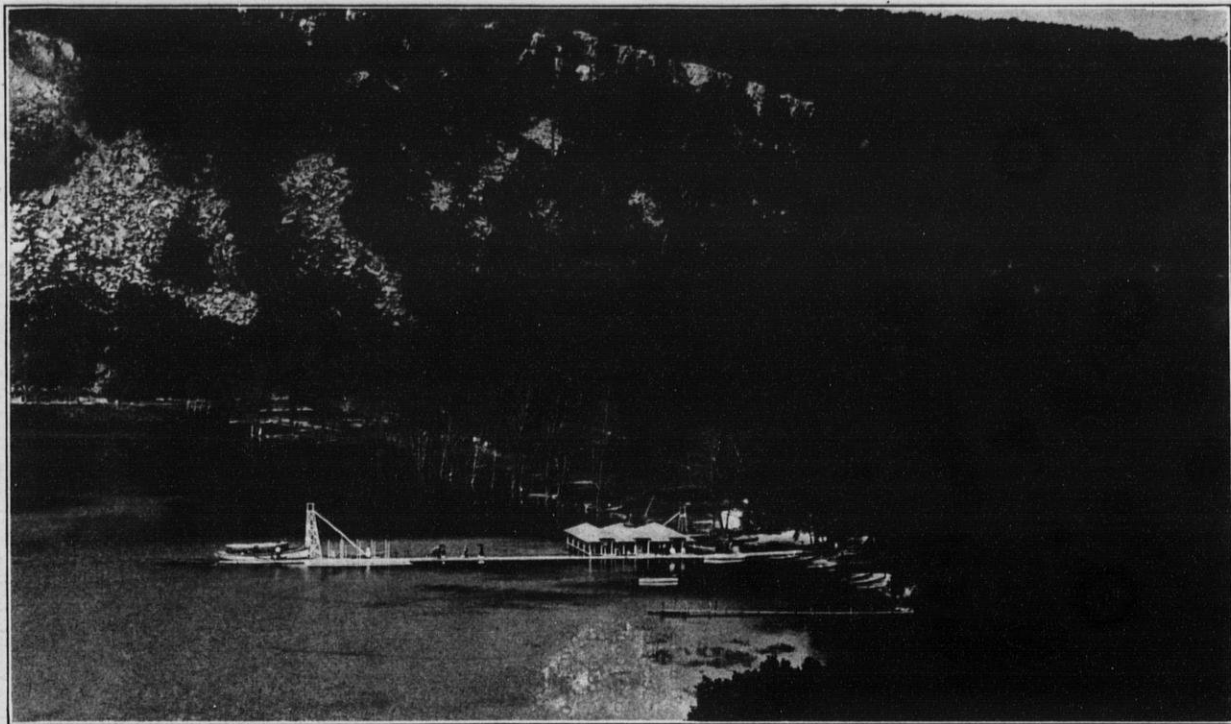
A telephone system covers the park for fire protection purposes. Two high towers have also been erected and during times of drought a constant watch is thus maintained. In addition to these there is maintained a tank wagon and a truck load of cans which are always filled with water and on hand in case of fire. Also in the early spring all fields that are not seeded with pine are burned to rid them of the dry grass.

With all of this work for fire prevention, fires sometimes occur. During the last two years there were several that came so near getting beyond control, that apparently the only condition which saved the park was a change in the direction of the wind. With the shifting of the wind a furrow plowed, was all that was necessary to control the fire.

At the extreme headland of Eagle Point stands Eagle Tower. This tower was built four years ago and the top story of it rises high above the towering trees. From the top one secures an excellent panoramic view of the park. While many do not climb the winding stairs of this tower, more than one thousand during the month of August had registered their names and places of residence.

Another point of interest is along Eagle Driveway, which is so wide that it furnishes parking facilities for automobiles. At one time last summer there were five thousand cars parked along this driveway.

It will be as pleasing to the people of the state generally as it is to the Commission to learn that the popularity of this great playground is increasing. Thousands of visitors are each year making use of it.



WEST BLUFF—DEVIL'S LAKE PARK.

DEVIL'S LAKE PARK.

Devil's Lake Park continues to be a favorite resort and playground for the people of the state as well as a point of interest to students of geology. Beside the hundreds of people who have summer homes along the shore or on the surrounding bluffs thousands of people coming by automobile or train visit it each year. This park is one of the small parks owned by the state, containing about 1,040 acres, but it possesses features of interest distinctly its own.

The lake which is one and one-fourth miles long by about one-half mile in width has neither surface inlet or outlet. Notwithstanding this, and the fact that its drainage basin is very limited the lake experiences the same variations in levels that other lakes with inlets and large drainage areas. Thus during the summer of 1916 and 1917 the water was from eighteen to thirty inches above its normal level. The surface of Devil's Lake lies about 600 feet below the East bluff which is 1,400 feet above sea level, so that Devil's Lake which is apparently much higher is really considerably lower than Lake Monona.

Devil's Lake is described geologically as "enclosed on the east, west, and south shores by rugged bluffs of Baraboo quartzite. The north and south-east ends are filled with glacial drift and this glacial drift has formed the lake basin by damming up both ends of the earlier gorge. The bluffs are without glacial drift and the limit of the driftless area is sharply defined." President Van Hise of the University of Wisconsin, a distinguished geologist said of the Devil's Lake region "I know of no other region of the state which illustrates so many principles of the science of geology". It is because of this that geology classes from various state Universities visit Devil's Lake Park each year.

The Commission is making needed improvements in the park to increase the attractiveness as a playground. The improvement of roads leading into and through the park, the enlargement of bathing facilities, the opening of new portions for tenters, the repair of the hotel buildings and cottages, all tend to make the park a most attractive spot for family or tourist picnics, as well as for those who come to study the geology of the place or enjoy its striking beauties. Like the region of the Dells of the Wisconsin river a few miles away the native flora of Devil's Lake Park is well worth careful study. Pains are being taken to preserve the flora as well for its beauty as for its interest to scientists.

It is proposed to erect as soon as practicable an artistic stone bridge over the creek to the north end and also on the Messenger shore; and a concrete walk from the pier to the pavilion at the North end.



LOOKOUT POINT, NELSON DEWEY PARK.

NELSON-DEWEY PARK.

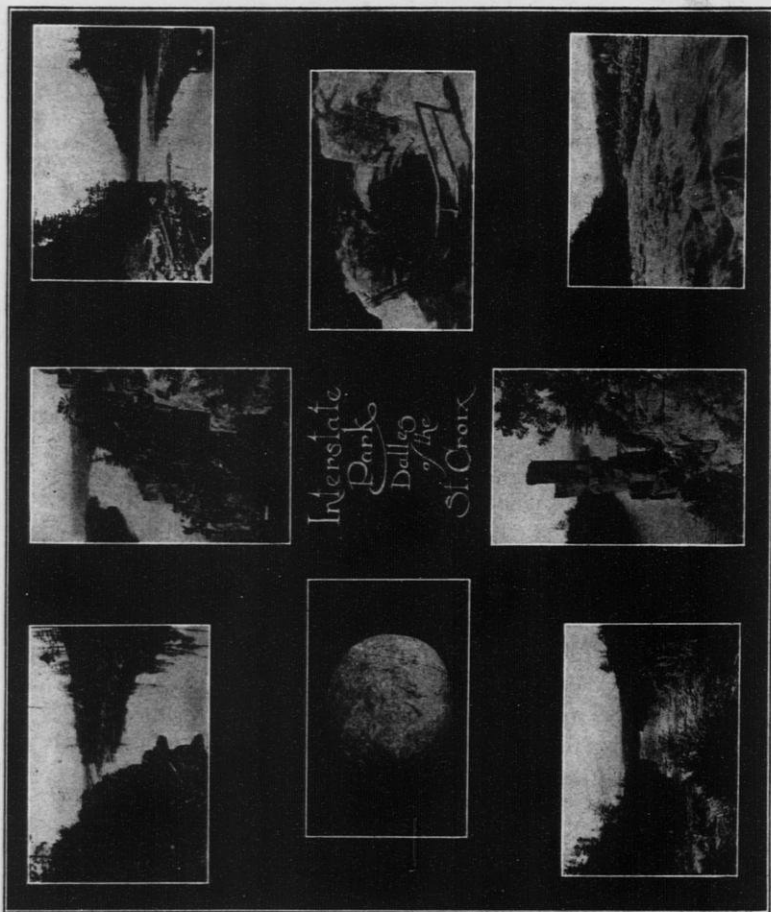
To the late State Senator Robert Glenn more than to any other man is due the fact that the state now owns as part of its park system the beautiful Nelson-Dewey Park. This park is located in Grant county and comprises the angle formed by the confluence of the Wisconsin and Mississippi rivers near where the former joins the latter. It takes in the bluffs along both rivers. Nelson-Dewey park contains 1,651 acres and the most of it lies about 1,180 feet above sea level. The military road terminates on the highest point of the park, about 500 feet above the Mississippi river. From the bluffs a panorama is unfolded to the eye that gives this park the distinction of offering the finest views of any one of the state system.

A rare group of Indian mounds decorate the crest of Sentinel Ridge, overlooking the "father of waters". This group extends along the edge for half a mile and consists of 14 conical, 18 linear and one effigy mound. It has been marked by the Wisconsin Archeological Society. The location of these mounds at a point commanding a beautiful view of a winding river, wooded slope and cultivated plain, bear witness to the sense of beauty possessed by the far away builders of them. Wherever these prehistoric mounds are found in Wisconsin one is sure of a fine landscape view. This park has the further distinction of being the site of the first fur trading post established on the upper Mississippi.

It was from Point Lookout that Father Marquette and Joliet after their long river voyage from Green Bay, up the Fox and down the Wisconsin caught their first view of the lordly Mississippi. The construction of three miles of good roads make accessible Point Lookout and Sentinel Ridge. The road winds about several of the large Indian mounds giving a fine view of these, and reaches the point on the C. B. & Q. railroad where a station for the accommodation of visitors is to be built at an early date.

Other points of interest in the park are Glenn Grotto, Winnashisk, Linden Valley, Roll Away, Black Hawk Monument, Eagle Eye, Signal Hill and Sunshine Hill. Glenn Grotto is a picturesque sand stone cave, down the sides of which the water tumbles in numerous cascades. The wooded portion of the park which comprises nearly two thirds of the park area contains white, red and black oak, basswood, sugar maple, aspen, white birch, ash, slippery elm, black walnut, butternut, silver maple and white elm.

It is the intention of the Commission to extend the road system of the park to Walnut Eddy on the Wisconsin River a distance of one and a quarter miles; and also to lay out a number of trails for pedestrians.



INTERSTATE PARK.

It was wise foresight which prompted some public-spirited citizens twenty-five years ago to suggest the preservation of the beauties of the Dells of the St. Croix by joint action on the part of two states. The St. Croix river forms for part of its length the boundary line between Minnesota and Wisconsin. To have undertaken to preserve for a public park only one side of the river, while the opposite shore was neglected, would have made an incomplete and far from attractive park. It took patient, persistent work on the part of the promoters of the project to secure the cooperation of the legislature but it was finally accomplished.

The park contains 730 acres of which 580 acres are owned by the state of Wisconsin and 150 acres by the state of Minnesota. It is proposed now by the Conservation Commission to locate an additional trout-hatchery on the Wisconsin side of the park, if the Legislature will grant the needed authority.

The Dalles of the St. Croix are the chief features of the park. The river flows through a narrow gorge in the Keweenawan trap rock, which at one point rises to a height of more than 200 feet. There are several picturesque rock formations, the most interesting of which are the "The Old Man of the Dalles" a remarkable profile stone face on the Wisconsin shore and the "Devil's Chair" a column of rock on the Minnesota side. A series of potholes, varying in diameter from one to six feet, and in depth from one to eighty feet, are found on the banks, chiefly on the west side of the river. These potholes, now to be seen high above the river were worked into solid rock by the grinding action of the spherical boulders, many of which still remain in them.

The general improvement work on the park has been under the supervision of a park superintendent. Much of the wooded area has been cleared of underbrush, trails and bridges have been repaired, and the dead and down trees have been cut, from which over 43,000 feet of lumber was sawed. A portion of the lumber has been used in building a tool house near the ball ground which will also afford a dressing room for the players.

The baseball ground has been developed on the upper end of the park, midway between the towns of St. Croix Falls and Taylor's Falls, the towns subscribing \$423.00 and \$119.00 respectively for the work. The time of the superintendent in supervising the work was donated by the state together with other expenses, amounting to \$147.00.

BRULE PARK.

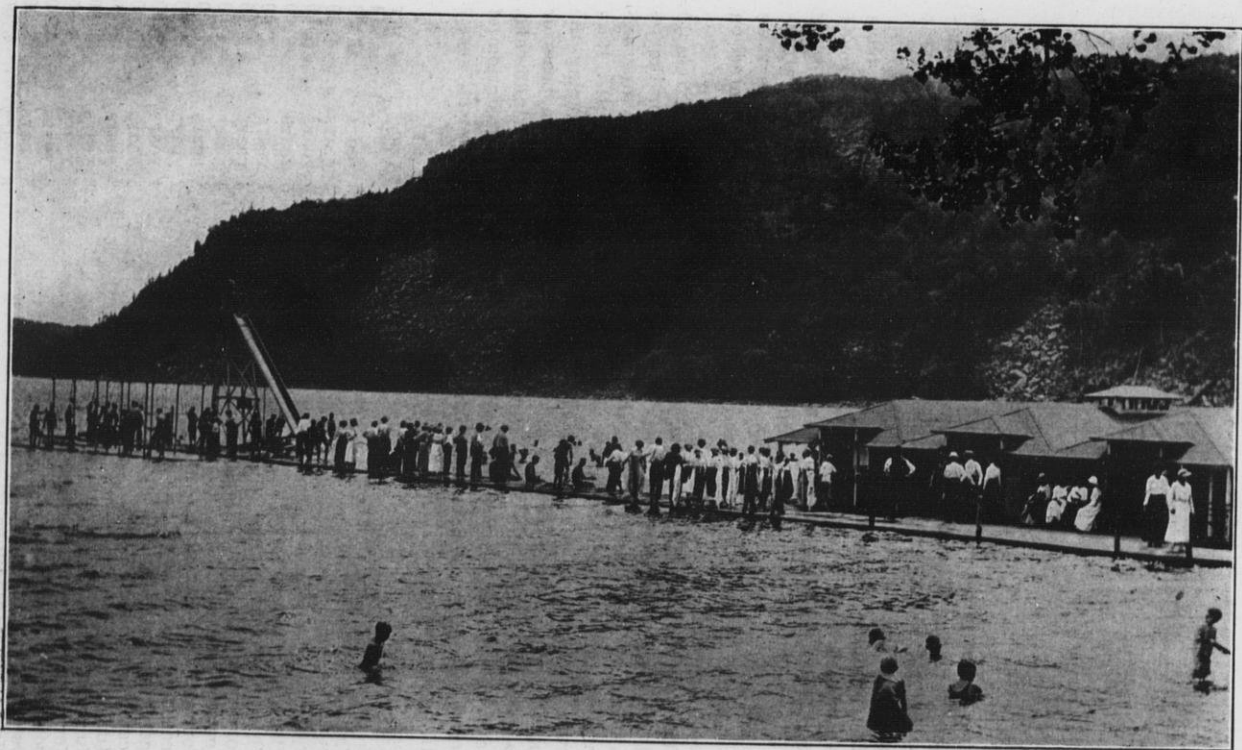
Since the earliest settlement of Northern Wisconsin along the south of Lake Superior the Brule River in Douglas county has been a favorite resort of trout fishermen. It is counted the best trout stream in the state, though some planted streams in other portions of the state bid fair to rival it. Along this stream the state has reserved the tract for a state park. Up to this time there have been no important improvements made in the park except to plant coniferous trees on the cut-over portions. The Conservation Commission has set out in all 72,000 coniferous trees in Brule Park. Some roads have been built, but for the most part the natural wildness of the place, or at least the conditions created by the lumberman remains. At one point along Brule river lots have been set aside on which to build cottages for resorters. The park is within easy walking distance from stations on the Northern Pacific Railroad and the Duluth South Shore and Atlantic Railroad.

Up to this time Brule Park has been sought chiefly by fishermen but its natural beauties including its clear waters and its balsam fragrance will one day make it a popular recreation ground.

CUSHING PARK.

The smallest of the parks of the state system is Cushing Park, in Waukesha county which contains less than ten acres. To the Waukesha County Historical Society is due the credit of creating this park, which in 1915 was turned over to the state to be under the control of this Commission. The park comprises the old Cushing Homestead located a half mile west of Delafield in Waukesha county, and the preservation of the place commemorates the three Cushings, all of whom distinguished themselves by their bravery in the Civil War, William B. Cushing, practically single handed, sank the ironclad ram Albemarle, which has been pronounced by Col. Roosevelt as one of the most daring deeds on the pages of naval history. Alonzo H. fell at the crest of the battle of Gettysburg, after being shot four times. He did much to turn Pickett's charge and win the day. Howard B., the third brother, was in command of a troop fighting the Apaches in the Southwest, and lost his life in a hand to hand conflict with the Indians. No other Wisconsin family perhaps produced such a trio of brave fighters.

Cushing Park is cared for by the man in charge of the state hatchery at Delafield. Through the generosity of Delafield and Waukesha people a fine road has been built in the park leading past the graceful monument erected in memory of the Cushings. The Commission is beautifying the park by tasteful planting of trees and shrubs, and contemplate further improvements to enhance the beauty of the place.



DEVIL'S LAKE AFFORDS SPLENDID BOATING AND BATHING.

FORESTRY DIVISION

NURSERIES

Two forest nurseries are maintained, one at Big Trout Lake, Vilas county, and the other at Tomahawk Lake, Oneida county. The nursery at Big Trout Lake contains approximately eight acres and at Tomahawk Lake, three acres.

The products of the nurseries are used, to restock lands that have been burned over several times, where the seeds have been destroyed and there is no possible chance that they would be reforested of their own accord. Stock is also planted on park lands. Trees are furnished private landowners at cost for reforestation and last year we distributed, without cost, more than 15,000 trees to be planted on school grounds.

The Conservation Commission will be prepared to furnish trees to private landowners for windbreak or woodlot planting, or for the reclaiming of idle waste land within the state. At present, approximately a million and a quarter young trees are growing in the state forest nurseries, of which one million will be available during the coming spring. This stock is all very thrifty and free from pests or diseases. It will make ideal stock for the planting of windbreaks, the improvement of worn-out woodlots, or for the reforestation of estates, waste or idle, cut-over lands. Trees of the following species will be available:

Species	Age	Price per thousand
White pine seedlings	3 years	\$3.00
White pine seedlings	4 years	4.00
White pine seedlings	6 years	5.00
White pine transplants	5 years	6.00
White pine transplants	7 years	7.00
Norway pine seedlings	3 years	3.00
Norway pine seedlings	4 years	4.00
Norway pine transplants	5 years	7.00
Scotch pine seedlings	2 years	3.00
Scotch pine seedlings	4 years	4.00
Scotch pine transplants	5 years	5.00
Mugho pine seedlings	3 years	3.00
Norway spruce seedlings	3 years	3.00
Norway spruce transplants	5 years	6.00
Douglas fir seedlings	5 years	5.00
Douglas fir transplants	5 years	6.00
Sitka spruce seedlings	6 years	5.00
Red oak seedling	2 years	6.00

During the time that the products of the state nursery have been available to the public there has been an increasing demand for trees. The following table shows the number of trees shipped to private individuals for a period of five years, and below is a table giving details of shipments for past two years:

1914	20,200
1915	77,400
1916	110,200
1917	272,900
1918	229,041

Last spring we endeavored to stimulate an interest in the planting of trees on school grounds. A circular was prepared and sent to each county superintendent, high school, and graded school principal along with planting instructions. We shall continue the plan for the coming spring as outlined.

TREES FOR PLANTING ON SCHOOL GROUNDS.

The State Conservation Commission is desirous of having school children of every school in the State plant some small trees on the school grounds. To this end the Commission is willing to donate a limited number, not over 500 trees, to each school if the scholars will plant them and pay the express or parcel post charges. These charges vary from twenty-five cents to rarely as much as a dollar, depending on the distance from the nursery which is located at Trout Lake, Vilas county.

Several species are available,—white pine, Red or Norway pine, Scotch pine, Norway spruce, Colorado blue spruce, Douglas fir, and Arbor vitae or White Cedar. These trees range in size from three inches to one and one-half feet tall. If larger than this they become too difficult to handle in planting.

With each order of trees the nurserymen will send a sheet of "planting instruction" which tells how to take care of the trees when first received and how to plant them. It accents strongly the importance of keeping the roots moist constantly, for a few minutes drying will kill the trees.

As to the time of planting, although Arbor Day has been proposed, it often happens that the trees would have to be kept "heeled in" too long, or they may not have been received on that day, so it would be better to plant them the first favorable day after they have been received. Sunny, windy weather is to be avoided; cool damp days are the best.

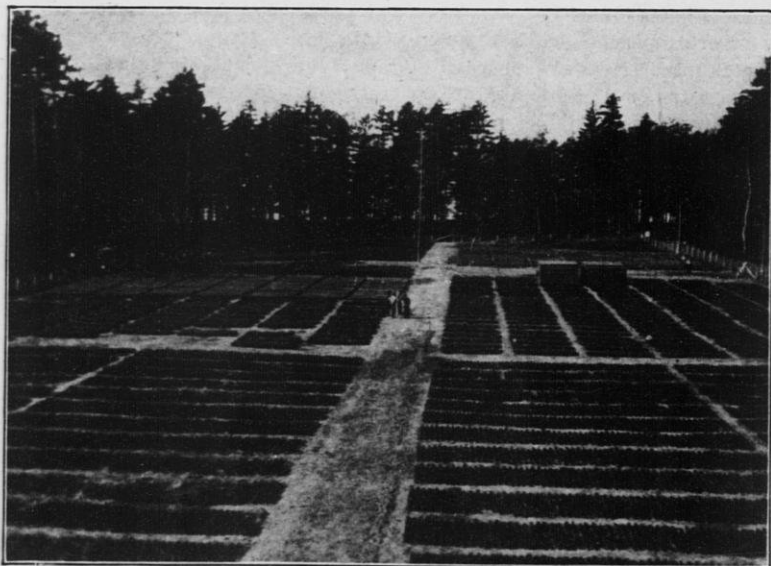
After the trees have been planted they need comparatively little care. It is advisable to keep the soil loosened around the tree for about a foot and free from sod.

We begin to realize now, as perhaps we never did before, how great a place wood has in the industries and life of the nation. The coal situation can be relieved only by using more wood, wood that we had



PORTION OF NURSERY, TROUT LAKE

(Note: Original pine forest in middle and left backgrounds; new plantation in right background.)



PORTION OF STATE FOREST NURSERY, TROUT LAKE.

not anticipated using for some years. The thousands of wooden ships being built draw on our forests to an extent of which we had not dreamed. Our supply of timber was none too large before the war started, and now with these great quantities of wood,—the railroads; for cars, ties, and telegraph poles. The building of cantonments, and even aeroplanes, makes large drafts on our forests,—and so on, the list could be prolonged indefinitely.

The Commission makes this offer in order, not only to stimulate interest in tree planting by scholars, but also to bring about a better observance of "Forest" or "Arbor Day".

An application blank is herewith enclosed on which you may indicate the number and kinds of trees desired. If you have no available ground for planting kindly pass this along to the grade-school teachers in your county.

PLANTING INSTRUCTIONS.

First: Unpack the trees immediately after arrival. If impossible to plant the trees immediately, moisten the roots and heel them in some shady spot. By "heeling in" is meant the process of digging a trench of the desired length and about six inches deep, placing the roots of the trees in it and packing the dirt firmly around the roots, leaving only the tops exposed. In the case of large bundles, the strings holding the bundles should be cut and the trees in the bundles evenly distributed along the trench, otherwise the trees in the center of the bundle will become dry. Great care should be exercised in preventing the roots from drying out from exposure to the sun and wind, or from other causes. Drying out of the roots will invariably kill the trees.

Second: The best time for planting is on a dark cloudy day, or in the morning or evening, for then the roots are much less likely to become dry than at other times.

The trees should be carried, roots downward, in pails containing several inches of water. The men usually work in pairs, one man with the implement for making the hole and the other with the pail containing the trees. The first man removes the litter and sod, and digs a hole large enough to receive the roots of the tree without crowding it. The second takes a tree from the pail, places it in the hole in an upright position and slightly deeper than it was in the nursery, and places the soil firmly around it. To secure the best results, care should be taken to place the roots in their natural position, with the larger roots downward and the smaller roots evenly distributed around the larger ones. The spacing is usually six feet apart each way, but may vary with different conditons.

The planting tools are spades or grub hoes. If roots and rocks are encountered, grub hoes are the best. For the better types of soil, spades are often better than hoes. This must be determined by those in charge of the planting. Always bear in mind the fact that exposure

of the roots to the drying action of the sun or wind will kill the plants. Always keep the roots moist.

Third: The plantation should be protected from fire and grazing. A fire line around the plantation will be a great help if cleared annually. Domestic animals not only tramp on and injure the young trees, but eat them off, producing stunted and deformed trees.

Do not allow trees to dry out in the heel. If trees are starting to grow in the heel a little hay thrown over them will make a shade and will retard growth. This may be done immediately upon heeling.

IMPROVEMENT OF FARM WOODLOTS AND TIMBERLANDS.

The woodlots on the farms of the State, in a great majority of instances, can be vastly improved by the application of the principles of correct forestry practice.

In an effort to improve the farm woodlot, to utilize the waste lands on the farms in the State, and to stimulate an interest in the planting of forest trees, the Forestry division of the Conservation Commission desires to cooperate with owners of woodlots, timberlands and waste lands. It is now prepared to give special attention to the different phases of forestry that are of interest to those who desire to improve their wooded or bare areas by planting trees or by introducing practical forestry methods. Thousands of acres of waste land, both on improved farms and on wild lands, which today bear little or no valuable growth, can be put to a practical use and made to bear a valuable crop, by planting desirable forest trees.

It has been estimated that the Wisconsin farm woodlots in 1917 were worth over six million dollars and with the growing need of wood for fuel because of the shortage of coal, the importance and value of the woodlot as a great asset will become more and more evident.

In order that these woodlots may be properly managed an effort should be made to not only follow some simple plan of cutting but also certain areas should be replanted to rapid growing trees in order to provide for a future supply. The following suggestions may be of some assistance in working out a cutting and planting plan.

All down timber or the remains from logging operations, which include tree tops and slab piles, are usually suitable for no other purpose than fuel. The latter can be converted economically because cutting in the woods and skidding costs are eliminated.

All dead or dying and unsound trees and those which are distorted or have wide spreading crowns and short trunks should be removed.

In stands where the trees are too close together for good development, a thinning can be made and worked into fuel wood. This is especially true in pole wood stands. In such thinning the crooked, unsound trees should be removed first and then those of lower lumber value. Thinnings should be very carefully made. Heavy cuttings may cause severe injury to the permanent stand.

In selecting species for fuel wood, it is of course best to take those of lesser value for the different lumber products. The form and soundness of a tree will determine its fitness for lumber uses. Some species, however, are of more value than others for this purpose and should not be used for fuel.

Trunks which produce good sound saw logs should not be made into fuel wood. The standard of quality of logs which may be rated as salable is constantly decreasing. On the other hand, it will pay better to convert logs of certain species into fuel than to dispose of them as lumber. A small white ash or black walnut log even if a little crooked or "cat faced" may have a value for lumber whereas the same quantity of birch, scarlet oak or red maple would not pay for its delivery as lumber. Market conditions must determine largely what product pays best.

The policy of the Commission to cooperate with farms or other small timber holders in the matter of the improvement of their holdings or in the marketing of their mature timber will also be continued during the future. On request to the commission an expert forester will make a personal examination of the land in company with the owner, tenant or farm superintendent. During these examinations, advice as to the best methods of improving the woodland will be discussed, and later a practical working plan report, with recommendations, will be prepared for the owner. This report will not only include the most practical methods of the disposal of the mature part of the woodland, but will consider the planting of new trees, and the general improvement of the land.

The Commission is also willing to furnish a speaker for any organization or public institution wishing to arrange a lecture on forestry. These lectures will be illustrated wherever the opportunity permits. The only expense connected with land examinations and lecture work will be the traveling expenses and maintenance of the speaker or examiner. Application for planting stock, advice or cooperation should be addressed to the Conservation Commission, Madison, Wisconsin.

COST OF PLANTING FOR THE STATE

Spring, 1918.

Oxley Ranger Station.		Star Lake Ranger Station.	
Trees Planted	216,100	Trees planted	43,650
Total cost of planting .	\$724.95	Total cost of planting .	\$260.80
Cost per acre	\$3.35	Cost per acre	\$6.65
No. acres planted	225	No. acres planted	43
Saynor Ranger Station.		Rest Lake Ranger Station.	
Trees planted	251,900	Trees planted	7,300
Total cost of planting .	\$1,379.20	Total cost of planting .	\$31.50
Cost per acre	\$15.18	Cost per acre	\$4.50
No. acres planted	252	No. acres planted	7



EAGLE TERRACE.



A RESTFUL SPOT.

BIENNIAL REPORT

STATE NURSERY INVENTORY

July 1, 1918

Trout Lake Nursery

Specie	Number	Years in seed bed	Trsp. bed	Source of Seed	Height	Condition	1919 Price per M.	Value
White Pine	100,000	3	0	D. Hill Co.	2" to 5'	G.	\$3.00	\$300.00
"	199,000	4	0	"	4" to 8"	V. G.	4.00	796.00
"	106,000	6	0	"	6" to 14"	G.	5.00	545.00
Norway Pine	98,000	2	3	N. E. For. Co.	7" to 17"	Exc.	6.00	588.00
"	130,000	3	0	"	2" to 5"	V. G.	3.00	390.00
"	38,000	4	0	"	4" to 8"	G.	4.00	152.00
Scotch Pine	69,000	2	3	"	6" to 10"	V. G.	7.00	483.00
"	8,000	4	0	D. Hill Co.	9" to 16"	V. G.	4.00	32.00
Mugho Pine	15,000	2	3	"	10" to 16"	Exc.	5.00	75.00
Norway spruce	1,000	3	0	U. S. F. S.	3" to 6"	G.	3.00	3.00
"	100,000	3	0	D. Hill Co.	2" to 6"	G.	3.00	300.00
Douglas Fir	24,000	2	3	"	4" to 12"	V. G.	6.00	144.00
"	5,000	5	0	"	3" to 7"	F.	5.00	25.00
Sitka Spruce	5,500	2	3	"	4" to 8"	G.	5.00	27.50
"	500	6	0	"	4" to 9"	F.	5.00	2.50
Red Oak	1,000	2	0	"	9" to 16"	Exc.	6.00	6.00
							Total.....	\$3,869.00

Tomahawk Lake Nursery

White Pine	28,000	3	0	D. Hill Co.	2" to 4"	F.	\$3.00	\$84.00
Norway Pine	100,000	2	3	"	6" to 15"	G.	6.00	600.00
Scotch Pine	8,000	3	5	"	12" to 30"	Exc.	7.00	56.00
"	30,000	2	3	N. E. For. Co.	4" to 10"	V. G.	7.00	210.00
Total	913,000						Total.....	\$1,100.00
Grand total	1,129,000						Grand tot	\$4,969.00

NOTE:—In the above table "F" stands for Fair, "G" for Good, V. G. for Very Good, "Exc." for Excellent.

FORESTRY

SHIPMENTS OF PLANTING STOCK FROM

Name and Address of Consignee	TROUT LAKE						
	White Pine				Red Pine		
	2-1	2-2	3-0	4-0	2-1	2-2	3-0
Peninsula Park, Fish Creek, Wis.....		20,000				20,000	
Devils Lake Park, Devils Lake, Wis.....		3,000				1,000	
Marquette Park, Wyalusing, Wis.....		4,000				500	
Interstate Park, St. Croix Falls, Wis.....		8,000				4,000	
Brule River Lands, Brule, Wis.....		3,000				19,000	
Headquarters Pltg., Trout Lake, Wis.....		9,250		8,000		50,750	
Star Lake Ranger St., Star Lake, Wis.....				8,000		8,000	
Plum Lake Ranger St., Plum Lake, Wis.....		1,750		3,000		120,575	
Oxley Ranger Sta., Boulder Jct., Wis.....		2,750		10,000		92,000	
Rest Lake Ranger Sta., Rest Lake, Wis.....		1,200		1,000		17,000	
W. A. Dana, Eau Claire, Wis.....		100	100				100
Dr. F. C. Wood, Coloma, Wis.....	1,000						
Rhineland Nur. Co., Rhineland, Wis.....						5,000	
Lisle Manual Tr. Sc., Coloma, Ill.....				500			500
H. McClurg, Viroqua, Wis.....							
Mr. Harris, Waukesha, Wis.....							
M. C. Rotler, Milwaukee, Wis.....							
W. M. Person, Osseo, Wis.....							
C. F. W. Seiler, Osseo, Wis.....		400					
Ed. Kremer, Madison, Wis.....							
J. H. Fiebing, Elkhart Lake, Wis.....		100				100	
W. J. Steinloff, Platteville, Wis.....		100					
J. H. Accole, Prairie du Sac, Wis.....							
J. J. Angel, Jefferson, Wis.....							
James Wallace, Amery, Wis.....						800	
David Dohmeyer, Thiensville, Wis.....		350				250	
W. H. Lighty, Madison, Wis.....				500			500
Y. M. C. A., Mukwonago, Wis.....		250				250	
O. K. Olson, Augusta, Wis.....		50				50	
Felix Kaznerchak, Kewaunee, Wis.....		300					
Cloquet Exp. Sta., Cloquet, Minn.....							10,000
University Mich., Ann Arbor, Mich.....							
E. B. Ingram, Eau Claire, Wis.....		5,000					
Rev. E. Perry, Harshaw, Wis.....		100					
Milwaukee Co. Park Com., Milwaukee, Wis.....				1,000		2,000	
R. N. Belland, Watworth, Wis.....							
H. J. Luehring, Milwaukee, Wis.....						600	200
Ben Meier, Coon Valley, Wis.....						50	
J. S. Donald, Mount Horeb, Wis.....		100					
R. S. Scheibel, Madison, Wis.....							
F. B. Metcalf, Milwaukee, Wis.....	10	10		10	10	10	10
N. Paulson, Iola, Wis.....		1,000					500
J. H. Dennison, Arena, Wis.....				500			
F. R. Cordes, Okauchee, Wis.....							
J. Norseman, Middleton, Wis.....	50	100			100	50	
Munising Co., Munising, Mich.....			50,000				25,000
E. C. Voelzke, Manitowish, Wis.....			25			100	25
O. E. Toepfer, Madison, Wis.....		500				500	
H. J. Grell, Johnson Creek, Wis.....		500				500	
Mr. Nelson, Minocqua, Wis.....							
Mr. Ed. Johnson, Winneconne, Wis.....						100	
Frank Miller, Minocqua, Wis.....						50	
J. B. Tussell, Appleton, Wis.....		20	25			25	25
E. Wilson, Gordon, Wis.....						30,000	
O. C. Doering, Fifeield, Wis.....		24,000				24,000	
Total shipments, spring of 1917.....	1,060	85,980	50,150	32,510	110	397,260	36,860

Private shipments (1914).....	20,200
Private shipments (1915).....	77,400
Private shipments (1916).....	110,200
Private shipments (1917).....	272,900

Total for 4 years..... 480,700

DIVISION

STATE FOREST NURSERIES (Spring of 1917)

NURSERY								TOMAHAWK LAKE NURSERY					Totals
Scotch Pine		Norway Spruce		C. B. S.	D. Fir	W. Cedar	Sk. Sp.	W. Pine		Red Pine	W. Sp.		
2-1	3-0	2-1	2-2		3-0	4-0	4-0	2-1	2-3	2-1			
												40,000	
												4,500	
												5,500	
												16,050	
					750	500	500		7,000			29,000	
												71,700	
												16,300	
												125,325	
												105,050	
												19,200	
											200	1,000	
		200		200	100							1,000	
												27,000	
					5,000	5,000	5,000					1,000	
												50	
												200	
					200							2,000	
					1,000							1,000	
					500	500						1,000	
					300	100	100				100	1,100	
					500	100						600	
					100	100					100	600	
					100	100						200	
					50							1,000	
			1,000									600	
			250		100						250	1,800	
					200	300	100				200	2,600	
					500	500	500				250	2,000	
					125	250	125				250	2,000	
											250	1,000	
		250									50	300	
					50							300	
											2,000	2,000	
												15,000	
		5,000										5,000	
												200	
											1,000	9,000	
					2,000	1,000						100	
					100							200	
					100							200	
					100	200						1,200	
												250	
					30							30	
					10	10	10					100	
					10							1,000	
												1,000	
					50							50	
					100							500	
												100,000	
					75	250						375	
					300	200	100					2,000	
												1,000	
					100							100	
												100	
												50	
												300	
					20	50	85					40,000	
												48,000	
												48,000	
28,075	10,600	3,000	1,775	11,835	7,785	6,420	500	10,000	7,000	10,000	4,650	705,530	

C. B. S.—Colorado Blue Spruce
 D. Fir—Douglas Fir
 W. Cedar—White Cedar
 Sk. Sp.—Sitka Spruce

Planted by State 1917, 432,625

1918. REPORT OF SHIPMENTS

Name and Address	White Pine					Norway	
	2-0	3-0	2-1	2-2	2-3	3-0	2-1
Henri Pasteau, Webster Grove, Mo.							
Daniel Shilts, Stanley, Wis.				100			
Peter Lee, Deerfield, Wis.							
Paul B. Bierkeng, Beldenville, Wis.				100			
Otta Baeseman, Edgar, Wis.				100			
Tom Blager, Alma, Wis.							
John Etzel, Hartford, Wis.							
James King Nursery, Elmhurst, Ill.							500
B. S. Isaacson, Nye, Wis.							
A. C. Graf, St. Croix Falls, Wis.							
E. Ballinger, Lake Forest, Ill.							
A. Eschewler, North Lake, Wis.							
F. A. Aust, Madison, Wis.				100			
W. D. Lawrence, Mondovi, Wis.				1,000			
V. B. Negard, Northfield, Wis.				200			
Art Markley, Kennan, Wis.				75			
Ben Meier, Coon Valley, Wis.				100			
E. J. Schroeder, Waubesa, Wis.							500
W. H. Dahms, Bonduel, Wis.				500			
Jos. Donges, Mequon, Wis.							
Frank C. Klode, care Fisher Furniture Co., Milwaukee, Wis.							
Ben Durkee, Wild Rose, Wis.*							
J. H. Fieburg, Plymouth, Wis.				100			
Wis. Conserv. Comm., Spooner, Wis.*				250			
Henri Pasteau, Webster Groves, Mo.							
A. E. Doolittle, Sturgeon Bar, Wis.*							
H. J. Svensen, Amery, Wis.							
Avid Leaf, St. Croix Falls, Wis.							
Mil. Co. Park Comm., So. Milwaukee, Wis.				2,000			
S. S. Robinson, St. Croix Falls, Wis.							
J. J. Johnson, Coon Valley, Wis.				200			
B. S. Isaacson, Nye, Wis.							
Wis. Conserv. Comm., Wyalusing, Wis.*				3,000			
L. M. Chatfield, Osceola, Wis.							
Wis. Colonization Co., Radisson, Wis.				1,000			
John M. Briscoe, Orono, Me.							
James Wallace, Amery, Wis.							
Mrs. E. B. Ingram, Eau Claire, Wis.				1,000			
E. A. Forbes, Rhinelander, Wis.							
L. A. Olmsted, Minocqua, Wis.					5		
L. A. Olmsted, Minocqua, Wis.					25		
Wis. Colonization Co., Radisson, Wis.				2,000			
McKay Nursery Co., Waterloo, Wis.		1,000		1,000			
E. Hawse, Woodruff, Wis.							
Tom Mathews, Minocqua, Wis.							
Frank Miller, Minocqua, Wis.							
Cleve. Cliff Iron Co., Sand Island, Munising, Mich.	40,000						
Fred Wolff, Trout Lake, Wis.							
Otto F. Toepfer, Madison, Wis.							
J. B. Walvoord, Cedar Grove, Wis.		400				200	
Mil. Co. Park Comm., So. Milwaukee, Wis.							
R. J. Nye, Superior, Wis.							
C. C. Yawkey, Hazelhurst, Wis.							
Mil. Co. Park Comm., Whitefish Bay Station, Wis.							
Joe Iigs, Manitowish, Wis.							
Wm. Hartwig, Emerald, Wis.					200		
William Hirth, Columbia, Mo.							
E. A. Thieman, Florence, Wis.							
McKay Nursery Co., Waterloo, Wis.		2,500				2,500	
E. Perkins, Woodruff, Wis.							
Robert Burnes, Woodruff, Wis.					5		
C. J. Coon, Trout Lake, Wis.					1,500		
State Island, Saynor, Wis.*					20		
Crystal Brook Club, Spooner, Wis.				900			
E. Ballinger, Lake Forest, Ill.							
Beaudry's Nursery Co., Chicago, Ill.			500				500
E. O. Brown, Rhinelander, Wis.							
University of Michigan, Ann Arbor, Mich.						10,000	
Trout Lake Totals		43,900	500	14,735	1,760	12,700	1,500

FROM TROUT LAKE NURSERY. 1918.

Pine		Scotch Pine		N. Spruce	G. B. Spruce	Douglas Fir		W. Cedar	Red Oak	P. Mugho	Total
2-2	2-3	3-0	2-2	2-2	2-2	3-0	2-1	4-0	2-0	4-0	
			300	300	300	100					1,000
100			100								300
			300								300
	100		100								300
	100			100							300
				50	50						100
			500	500							1,500
			500		500	500					1,500
	25										25
	25										25
	6			6			6				18
100			100	100	100						500
1,000					500	500		500			3,500
	75		50	200	100						500
				1,200	50						250
				500	100	100					1,500
	500			100							1,000
					1,000			1,000			1,000
								1,000			2,000
				375	25	50		50			500
1,000					200						1,250
	100				100	100					400
			500		500	300					250
10,000		20,000	1,000	1,000	1,000		1,000				1,300
	25			100							33,000
	2,000	2,000		1,000	25	1,000					100
50			50	1,000	2,000	1,000		250			50
	400				25			100			10,250
				200	25			200			225
			1,000	1,250	25						1,000
	25				250		250				25
	1,000				25						5,750
					500						50
			10,000								2,500
	1,000		500	500	500	500					10,000
2,000	500		500	500	500						2,000
	5		5	5	5			5			5,000
	5		5	5	5					5	85
2,000											35
			1,000		200						25
		1,000	1,000	2,000	1,000	500		700			5,200
	10		25		10						9,200
			100		25						45
			15		100						125
											115
						5,000					45,000
					500						500
	1,000				1,000						2,000
		100		100	100	100					1,000
									300		300
	1,500		1,500	50	100			100			200
					105			100			3,225
			300	500	1,000	1,000		1,000			3,800
	300		300	100							1,000
				500							500
				200	200						400
						800					5,000
	10		40	10	10						800
	5		5	5	5						100
1,600	1,500		1,500	500	100				10		85
	20		150	10	10			500	5		7,200
	100		200	100	100			10			220
	500			500		100					1,500
			500	500	500	500					1,000
					15						3,000
											30
											10,000
17,850	10,836	3,1000	30,645	23,066	14,265	9,850	2,156	4,805	315	5	191,988

PLANTINGS.

Name and Address	White Pine					Norway	
	2-0	3-0	2-1	2-2	2-3	3-0	2-1
Curtis Planting, Trout Lake, Wis.*					6,825		
Babcock Planting, Trout Lake, Wis.*					800		
Rest Lake Planting, Rest Lake, Wis.*					1,500		
Frank Long, Saynor, Wis.*		6,900		1,600	74,475		
J. B. Cook, Star Lake, Wis.*				500	3,375		
Henry Freund, Oxley, Wis.*					27,825		
Headquarters Planting, Star Lake Road*					5,000		
Trout Lake Grand Totals		50,800	500	16,825	121,560	12,700	1,500
School orders							
Total*							
Tomahawk Lake Total							
1918 Grand total							

1918 SHIPMENTS FROM

State Planting, Tomahawk Lake, Wis.*					10,000		
A. E. Doolittle, Sturgeon Bay, Wis.*					10,000		
John M. Briscoe, Orono, Me.							
Cleve, Cliff Iron Co., Munising, Mich.						35,000	
C. C. Yawkey, Hazelhurst, Wis.							
Brule Park, Brule, Wis.*							
F. W. Davis, Plainfield, Wis.							100
Wm. Wilkens, Wausau, Wis.					300		
Tomahawk Lake Totals							

* State Plantings, 633,020.

1918 Private Shipments, 229,041.

1918 REPORT OF SCHOOL ORDERS SHIPPED FROM TROUT LAKE NURSERY.

Name and Address	County	Total						
		W. Pine	N. Pine	S. Pine	N. Spruce	C. B. Spruce	Douglas Fir	W. Cedar
C. F. Koch, Brillion	Calumet		15		15	15	15	5
H. E. Polley, Oshkosh	Winnebago		5	5		5	5	
School Board, New Auburn	Chippewa	10	10		10	10		
O. A. Reetz, Edgar	Marathon	20	10	20	20	25	20	25
J. C. Ferguson, LaFarge	Vernon	15	15	15	20	15	20	20
L. E. Weiland, Westby	Vernon				10	20	20	20
F. W. Hein, So. Milwaukee (715 Hawthorne Ave.)	Milwaukee	75	75	75	75	75	75	75
J. M. Hammer, Roberts	St. Croix		25	25	25	25		25
E. F. Brown, Rib Lake	Taylor	5	5	5	5	5	5	5
E. A. F. Kuehl, Coleman	Marinette	50			50	50		
Williams Bay Consolidated School Williams Bay	Walworth	10	5	5	20	5	5	5
F. J. Mealey, Holeombe	Chippewa				10	50	50	50
L. W. Petersen, Markesan	Green/Lake	150	40	50	30	10		
W. R. Bussewitz, Horicon	Dodge	10	10					
N. B. Smith, Holeman	LaCrosse				20	10	10	10
Montello High School, Montello	Marquette	15			15	5	15	
Dr. W. E. Hallock, Juneau	Dodge	5	10	5	10	25	5	360
Milwaukee Union Free High School Milwaukee	Polk	125	25	100	25	25		200
J. A. Case, Oshkosh, (898 Main St.)	Winnebago	25	50	25	50	10	20	20
Golfax High School, Golfax	Dunn	6	6	6	6	6	6	6
W. W. Morris, Kohler	Sheboygan	50	50	50	50	50	50	50
H. G. Lapman, Pepin	Pepin	15	5	5	10	10	10	10
E. J. Hughes, Randolph	Dodge and Columbia				200	200	100	
L. G. VanGordon, Baldwin	St. Croix		10	10	10	10	10	
C. L. Rohinson, Tripoli	Lincoln	25	10	10	10	10	10	25
J. W. Klingman, Fairchild	Eau Claire		15	15	15	15	15	
R. B. Theil, Plainfield	Waukhara	200	100	50	100			50
C. H. Bachhuber, Port Washington	Ozaukee	10	10	20	10	10	20	
C. I. Coates, Lake Beulah	Walworth	6	6	6	6	6	6	6
P. M. Brown, Hartland	Waukesha					15	10	40
H. A. Cook, Pardeeville	Columbia				10	10	10	
F. B. Jaegers, Blanchardville	LaFayette	50						450
Board of Education, Owen	Clark	150	125		35		25	125
E. N. Robinson, Augusta	Eau Claire				25		25	
Ellen Hammond, Neilsville	Clark		25		25	25		
W. C. Hansen, Milltown	Polk		250	50	100	25	25	50
Wm. McCord, Whitewater	Rock and Jefferson		10		10	10	10	
J. H. McNeill, Beloit	Rock		25		25	25		25
N. J. Probert, Dousman	Waukesha	100	100	200	100			
O. G. Glebert, Milwaukee (Dover St. School)	Milwaukee					100		100
St. John's Institute, St. Francis	Milwaukee	200	50	50	50	50	50	50
Alice A. Quade, Rochester	Racine				10	10		250
St. Joseph's Orphan Home, Superior	Douglas		50		100	100	100	100
S. B. Tobey, Wausau	Marathon	100				25	25	25
Jac. Elzel, Sussex	Waukesha					90		
N. G. Lytle, Ogdensburg	Waupaca		10		10	10	10	10
C. W. Monty, St. Croix Falls	Polk		10		25	25		25
John Miller, Jr., St. Nazianz	Manitowoc	25	25	25	25	25	25	25
M. N. Michels, Kenosha	Kenosha	20	20	20	20	20	20	20
John J. Theme, Sheboygan	Sheboygan		10			10		
R. J. O'Hanlan, Milwaukee (28th and Clarke St.)	Milwaukee	100	100	100	100		100	
Rev. Ph. J. Klein, St. Francis (Sacred Heart School)	Milwaukee							300
Park St. School, Milwaukee (Park and Hanover Sts)	Milwaukee				100	100		100
Milwaukee Country Day School (Whitefish Bay)	Milwaukee	100	30	30	30	250	30	30
J. A. Gronowski, Gresham	Shawano	50	50	50	50	50	50	50
Hanover Street School, Milwaukee (Hanover near Mitchell)	Milwaukee			12		12		
Arthur R. Williams, Cambria	Columbia	6	6	6	6	6	6	50
St. Mary's School, St. Francis	Milwaukee	10	10	5	25	50	50	350

1918 REPORT OF SCHOOL ORDERS SHIPPED FROM TROUT LAKE NURSERY—
Continued

Name and Address	County	W. Pine	N. Pine	S. Pine	N. Spruce ¹	C. B. Spruce	Douglas Fir	W. Cedar	Total
Thas. A. Cherney, Luxembourg.....	Kewaunee..	5	5					15	25
Lena M. Weltzien, Milwaukee.....	Milwaukee..	25	25						50
(5th Ave. School)									
P. Sievers, N. Milwaukee.....	Milwaukee..	2	2	3	3		3		13
T. Klug, Cedar Grove.....	Sheboygan..	6	6	3	12				30
C. VanKongnenburg, St. Croix Falls	Polk.....		15	5					20
St. Francis Seminary, St. Francis.....	Milwaukee..	100	80	80	80	50	50		440
J. M. Richard, Milwaukee, 103 30th St.	Milwaukee..	10	10	10	10	10	10		60
Leile F. Boersier, Curtis.....	Clark.....	20	20	20	20	20	20		180
Geo. Koepfel, Milwaukee.....	Milwaukee..	30	30	50	30	30	30		200
(21st St. School)									
Henry Greibe, Plymouth.....	Sheboygan..	6			6		6		18
Alots Grimm, Cassville.....	Grant.....						175		175
Alots Grimm, Cassville.....	Grant.....						175		175
Rev. J. F. Barbien, St. Francis.....	Milwaukee..	50	50	50	50	50	50		300
H. H. Engelking, Sheboygan, R.R. 1	Sheboygan..			10	50	25	10		95
H. C. Brockens, Bagley.....	Grant.....	50		50					100
St. Francis Assisi School, St. Francis.	Milwaukee..				50	75	25		150
Board of Education, Park Falls.....	Price.....				50	50	50		100
7th Ave. School, Milwaukee.....	Milwaukee..			50	50		200		300
27th Ave. & Mitchell St.									
Maryland Ave. School, Milwaukee..	Milwaukee..	10	10	25	200	10	20		275
Cor. Prospect & Maryland Aves.									
Frank E. Moore, Belmont.....	LaFayette..	50						410	50
Anne Bonke, Star Lake.....	Vilas.....			20		10			40
W. P. Colburn, Rhinelander.....	Oneida.....	57	56	23	35	138	64	80	453
N. I. Nelson, Manitowoc, (R. 4).....	Manitowoc..	12	10	10	10	10	10		62
Jos. Lucius, Solon Springs.....	Douglas....	125	225	50	25	225	50	225	250
Louise Creech, St. Croix Falls.....	Polk.....		8						8
H. E. Pffiffenberger, Twin Lakes.....	Kenosha....	15					15		30
R. H. Martin, Juda.....	Green.....			10	5	15	10	60	100
Emma J. Gardner, Milwaukee.....	Milwaukee..	10		50	10				70
(Bartlett Ave. School)									
Sarah J. Carroll, Milwaukee.....	Milwaukee..			50					50
Brown St. School, Cor. 20th St.)									
Sub totals		2,201	1,745	1,617	2,424	2,148	2,016	3,212	
		125	225			225		435	
Grand total.....									15,473

¹Mugho Pine.
²Sitka Spruce.
³White Spruce.
⁴Red Oak.



FIRE LOOKOUT STATION. FOREST RESERVE.

FOREST FIRE PREVENTION PLAN

BY

Chief Ranger, E. M. WEAVER.

Under the Weeks Law the National Government cooperating with the state for fire protection on the headwaters of navigable streams, appropriated \$4,500 for the salaries of patrolmen employed during the fire season, April 1, to December 1. These patrolmen with the state rangers and general laborers, constitute the fire fighting force. They are men of experience and knowledge of fire fighting. During the season when there is no danger of fire they are employed in building roads, fire lines, improving and repairing telephone lines.

In the year 1917 we confined our protective work principally to the proposed forest reserve area; Vilas, Oneida, Forest and east part of Iron county. This territory is the headwaters of the Wisconsin and Chippewa rivers and is well covered with timber and a good stand of reproduction. Within this territory we had forty-four fires which burned over an area of 16,252 acres with a damage of \$11,650 to timber and improvements.

In July and August of this year the Government called for volunteer engineers to aid in the prosecution of the war and eight of our men, without urging, immediately answered the call. Their enlistment in the National Army crippled our organization but fortunately weather conditions were such that we suffered little from fires, but our construction work was hampered considerably due to scarcity of help and high wages paid in all fields of labor.

The forest area was divided into 17 patrol districts varying in size from 60,000 to 138,000 acres with a ranger or patrolman in complete charge of each district and held responsible to the head ranger for the efficiency of the fire fighting force under his command. It was the duty of each man in charge of a district to keep posted on general conditions and affairs within his district that had a bearing on the fire situation, take care of the fire fighting apparatus and oversee all important work, such as road building, fire lines and trail construction, telephone lines, maintenance and inspection. He was responsible for all state property and was required to make reports once a week of work done each day and forward to head ranger. After each fire he must make a report of cause of fire, location and area burned over, amount of timber destroyed and all other loss of property; what steps were

GOING FISHING?

THE FINEST TROUT STREAMS AND LAKES, THE BEST HUNTING GROUNDS AND THE MOST BEAUTIFUL CAMPING PLACES IN AMERICA ARE TO BE FOUND IN WISCONSIN

PRESERVE THE FISHING AND HUNTING IN THE NORTH WOODS BY HELPING US PREVENT FOREST FIRES

LIGHTED MATCHES, CIGARS AND CIGARETTES ARE DANGEROUS. PUT OUT YOUR CAMP FIRES BEFORE LEAVING

KEEP THE FORESTS GREEN

DON'T BUILD BONFIRES

Wisconsin Conservation Commission

DO NOT LEAVE YOUR
CAMP FIRE
 UNTIL YOU ARE
 SURE IT IS COMPLETELY
 EXTINGUISHED

Wisconsin Conservation Commission

USE THE SAME
CARE WITH FIRE
 IN THE
FOREST
 THAT YOU DO IN
 YOUR OWN HOME OR IN THE CITY

Wisconsin Conservation Commission

U. S. Forest Service

taken to extinguish the fire, number of men employed and expenses incurred. These facts are submitted to the head ranger who compiles a yearly report of all fires. Inspection is made each year by the Federal Forest Service to determine how effectively the state is handling the cooperation. Inspectors make a point of not only getting in touch with the Conservation Commission by going through the Week's Law file and making a critical examination of the fire fighting plan, but of meeting personally as many of the rangers and patrolmen as necessary to determine the effectiveness of the protection and efficiency of the personnel. It was on his tour of inspection in October of 1917, he recommended protecting a greater area by giving patrolmen a larger district. In April of 1918, when the fire season began we secured seven federal patrolmen, five of which were located off the proposed forest reserve area and each were given three counties as a district to patrol. The districts were as follows:

- No. 1. Douglas, Bayfield and Burnett counties.
- No. 2. Ashland, Iron and Price counties.
- No. 3. Lincoln, Taylor counties and north half of Marathon.
- No. 4. Forest, Florence and Marinette counties.
- No. 5. Langlade, Shawano and Oconto counties.

The other two patrolmen were located in Vilas and Oneida counties. Most of these men used Ford cars to cover their territory. In addition to their patrol duties they carried on a campaign of education among the town chairmen who are town fire wardens and road superintendents, who are assistant fire wardens. Many of the chairmen and road superintendents did not understand what their duties were relative to forest fire protection, but after receiving instructions from patrolmen, were glad to assist in carrying out the provisions of the law and cooperate in every way. It is the duty of patrolmen to post fire signs in conspicuous places, while patrolling their route. Thousands of these are posted each year and we believe they are doing much good. In a dangerous dry time the town fire warden is required to post special warning notices, forbidding the setting of any fire except for cooking food or warming the person. After these notices are posted no person can do any burning without first securing a permit from the town fire warden. When such permits are requested, the patrolman inspects the area to be burned and if found safe, a written permit is granted, but such permit does not release the person doing the burning from liability for damage to other property caused by his fire. We believe that more good can be accomplished by the methods we have pursued this last season than by the intensive methods used in protecting a smaller area in years past.

REPORT OF TOWERMEN 1918

Number of Fires Reported

April	May	June	July	August	September	October	Total
30	36	44	20	10	5	0	195

Number of Days on Lookout Duty

April	May	June	July	August	September	October	Total

The towermen are used on improvement work when not on lookout duty, April, May and June being most dangerous this year on account of but little rain in these months.

FIRE REPORT 1918

Cause

Lightning	Railroads	Lumbering	Brush burning	Campers	Incendiary	Unknown	Total
0	23	4	3	6	1	20	57

Area Burned Over

Under 1/2 acre	1/2 to 10 acre	Over Ten Acres			Total
		Damage under \$100	\$100 to \$1,000	Over \$1,000	
39	7	5	4	2	57

Damage

To Timber	Young Growth	To Improvements	Area Burned Over		Total Acre
			Forest land	Open land	
\$560.00	\$3,370.00	\$3,430.00	4 acres	3.4814	3.4854 A.

The Railroads are responsible for the most fires causes usually by defective spark arresters and ash pans.

PREVENTION AND FIGHTING OF FIRES.

The campaign of education carried on by the patrolmen and rangers is briefly summarized in the following instructions:

TO TOWN CHAIRMEN AND ROAD SUPERINTENDENTS.

Each town chairman by provision of law is town fire warden, and each road superintendent is assistant town fire warden to the chairman. Under the law you are in duty bound to fight such fires and when you are notified of a fire or receive a call for assistance, YOU MUST ACT IMMEDIATELY, irrespective of what work you may be engaged in when you receive such notice or call for assistance.

You have the power of sheriffs to arrest without warrant for any violation of the fire laws. You have the power to demand the assistance of any able-bodied male citizen to help fight fires.

FARMERS AND SETTLERS must not start fires during dry periods. Before burning your brush talk the matter over with either your town chairman or with a road superintendent; these men under the law are town fire wardens. Always help willingly and promptly when called upon to fight fires. You cannot tell what day you may wish the help of your neighbors to save your own home from fire. Do not start back fires until absolutely necessary.

PAYMENT OF FIRE FIGHTERS.

Town chairmen and road superintendents will be paid such a wage for fire fighting as may be determined upon by the town board. All men called out by the fire wardens shall receive not more than twenty (20c) per hour for the time actually employed, which compensation is also to be paid by the town board.

TO FIRE FIGHTERS.

If you discover a fire too large to be put out at once, get help immediately. If necessary, notify the nearest fire warden, or patrolman, or if neither is available any sheriff or deputy sheriff of the county who should notify the fire warden.

Organize and select the best man as leader. When a fire-warden is present he should take charge.

Form a plan of action and stick to it. Consider the rights of property owners, but do not let them back fire to protect their own property unless it will be for the general good. Back fires should be authorized only by the man in charge.

If you believe that a fire will take a considerable time to put out, divide your force into crews, one to relieve the other. Keep some one on the job all the time.

The best tools for fighting fire are the shovels, mattock, ax and wet sacks. Rakes, hoes and brush hooks are also useful.

Sand or earth thrown on a fire is as effective as water.

If possible, stop the fire by means of a trail or trench. Where the fire burns slowly in open timber pinch it out by knocking the burning material back into the burned area. Put out logs and stumps by throwing dirt on them. Never leave burning trees or snags near the fire line. Many fires well under control have broken out again when a little additional work would have made them quite safe.

Work at night or early in the morning, instead of by day, when it is possible. At night a six-inch trail will often hold a fire that would leap a quarter of a mile during the heat of the day. At night less time is wasted carrying water to the fire fighters.

Fire occurring in dense brush or thickets may require back firing. Start your back fire far enough in front so that you will have time to complete your work before the main fire reaches you. Start it from a road, trail or stream if possible. If not, cut a trail, scrape it clean, light your fire and guard your trail.

Back fire along the top or bottom of a ridge rather than half-way up the slope.

See to it that the ends of your back fire are safe. Run them together if possible, thus surrounding the main fire, or else run them into portions that have burnt out, or to a stream or road. A back fire is just as dangerous as the original one unless it is perfectly safe throughout the whole length.

Watch the fire line after the fire is under control. Sparks blown from burning snags, chunks thrown from falling trees, and many other things may cross the fire line. Keep some one on guard.

Use your best judgment in fighting fires when you are in charge as local conditions make it impossible to give any ironclad rules to follow. If some one else is in charge obey his instructions.

Lumber Companies—All lumber companies operating steam railroads must equip their engines with the best fire fighting paraphernalia possible and the following suggestions are made for this equipment and means of combatting fires:

- (1) Proper stacks and screens.
- (2) Barrels of water along steep grades, at intervals, where there are no streams of water that have a steady flow in dry weather.
- (3) Equipment for all engines, such as hose and all attachments necessary to handle water quickly and efficiently, to extinguish fires which start along the railroad.
- (4) Water tank car for emergencies.
- (5) A patrol should be made after all trains in dry weather.
- (6) A careful inspection should be made at regular periods of all equipment.
- (7) Instructions should be issued to all section crews and employees to be on the lookout for fires and just what they should do toward extinguishing same.
- (8) All inflammable material should be removed from along tracks for at least fifty feet on either side.

Railroads—All of the above rules that are practical and possible of enforcement should be used by main line railroads as well as the logging railroads. If the proper officials of all railroads will issue

written instructions to their employees to carry out the provisions of the forest laws applicable to railroads a tremendous improvement can be made and many fires averted. Trackmen should be instructed to clean all rights of way at least twice per year of inflammable ma-

Protect the Fish and Game by Preserving the Forest Cover



DID YOU PUT OUT YOUR CAMP FIRE?

One Tree Will Make a Million Matches;
One Match Will Destroy a Million Trees

WISCONSIN CONSERVATION COMMISSION
United States Forest Service

WANTED
Campers who prevent
forest fires.

WISCONSIN CONSERVATION COMMISSION
United States Forest Service

FOREST FIRE PREVENTION PLACARDS DISTRIBUTED BY THE
CONSERVATION COMMISSION.

terial. Sufficient trackmen should be kept to promptly put out any fires that may occur along the rights of way. All locomotives should be equipped with proper screens to prevent the escape of sparks and hot cinders and with adequate devices to prevent the escape of fire

from ash pans, and a proper inspection should be made of all such devices at short intervals during the dry weather in both spring and autumn. Instructions should be issued to all engineers, conductors and all employees to report fires to the railroad agents as is required by law.

Persons Burning Brush—Before burning brush or clearing land, notify the fire warden. Burn brush in still weather or when the breeze is away from adjacent timber and towards open land. If possible, the best time is in cloudy weather just before a rain storm.

If there is a lookout station in your vicinity notify the lookout watchman so that he will know that you are going to burn your brush, as otherwise he will likely go to the trouble of summoning men to fight what he takes to be a forest fire. Always have plenty of persons close around when burning brush so that in case this fire escapes and gets into woodland you will be able to extinguish it.

Campers, Hunters, Fishermen, etc.—Be careful of your campfire. Never build your campfire larger than is needed, rake leaves and dry wood away from it, and in windy weather dig a shallow hole for it. Never build a fire against hollow logs or trees where it will be hard to extinguish. Never leave camp until you have entirely extinguished the fire with water.

Be careful with matches, cigar or cigarette stubs and burning tobacco, and never throw them where there will be any chance of their igniting leaves or wood.

Rural Mail Carriers—The Post-Office Department of the United States Government has requested all rural and star route carriers to notify the proper authorities when they discover a fire along their route, and fire warden should use every means to secure their hearty cooperation along this line.

Any suggestion as to a possible way to better the system will be given the most careful attention when sent to the Commission.

FINANCIAL STATEMENT OF CONSERVATION COMMISSION

July 1, 1916 to June 30, 1917

OPERATION

Appropriation	\$200,000.00	
Unexpended balance	2,633.97	
Refunds	23.50	
Total disbursements		\$202,657.47
	\$202,657.47	\$202,657.47

REPAIRS AND MAINTENANCE

Appropriation	\$5,000.00	
Unexpended balance	12.70	
Total disbursements		\$5,012.70
	\$5,012.70	\$5,012.70

PROPERTY AND IMPROVEMENTS

Appropriation	\$4,000.00	
Unexpended balance	3.60	
Total disbursements		\$4,003.60
	\$4,003.60	\$4,003.60

CLASSIFICATION OF DISBURSEMENTS

Administration	\$27,990.21	
Forestry	19,580.98	
Parks	9,914.20	
Wardens	110,813.28	
Fisheries	43,375.10	
		\$211,673.77

ADMINISTRATION

Salaries	\$18,721.30	
Traveling expenses	2,649.64	
Printing	4,167.54	
Supplies	558.25	
Postage	1,132.22	
Telephone and telegraph	514.66	
Express and freight	243.25	
Repair tag machine	3.35	
		\$27,990.21

FORESTRY DIVISION

Salaries and labor.....	\$6,081.55	
Supplies	1,708.52	
Equipment	254.00	
Improvements	391.00	
Repairs	14.15	
Employee's expenses	1,608.07	
Insurance	252.26	
		<u>\$10,309.55</u>

FIRE PROTECTION

Salaries and labor.....	\$6,645.10	
Employee's expense	1,299.35	
Supplies	1,304.93	
Equipment	22.05	
		<u>\$9,271.43</u>

PARK DIVISION

PENINSULAR PARK

Salaries and labor.....	\$1,881.50	
Employee's expenses	10.44	
Supplies	321.35	
Equipment	410.25	
Improvements	512.50	
Repairs	1,236.20	
Advertising	63.18	
Insurance	137.60	
		<u>\$4,573.02</u>

DEVIL'S LAKE PARK

Salaries and labor	\$1,513.28	
Employee's expenses	289.42	
Supplies	431.78	
Equipment	17.25	
Improvement	1,050.06	
Repairs	499.40	
Telephone	13.45	
Advertising	63.18	
Insurance	162.39	
		<u>\$4,040.21</u>

INTER-STATE PARK

Salaries and labor	\$918.25	
Employee's expense	14.45	
Supplies	23.33	
Repairs	56.59	
Insurance	3.84	
		<u>\$1,016.46</u>

NELSON-DEWEY PARK

Salary and expense	\$134.51	
		<u>\$134.51</u>

CUSHING PARK

Labor and improvements	\$150.00	
		<u>\$150.00</u>

WARDEN DIVISION

Salaries	\$69,698.00	
Railroad fares	4,564.11	
Hotel expense	16,496.61	
Livery expense	6,204.47	
Other expense	3,194.87	
Equipment	3,733.20	
Auto and motorcycle supplies	1,010.03	
Launch and boat supplies	1,307.10	
Auto and motorcycle repairs	98.70	
Launch and boat repairs	228.75	
Gasoline and oil	769.04	
Game farm	967.19	
Improvements	1,356.71	
Phone	224.46	
Provisions and supplies	646.62	
S. P. Richtman (launch hire)	131.90	
Warden badges	11.36	
Index books	37.20	
Insurance	132.96	
		<u>\$110,813.28</u>

FISHERIES DIVISION

Madison Hatchery	\$5,077.73	
Bayfield Hatchery	8,615.90	
Sturgeon Bay Hatchery	2,698.76	
Delafield Hatchery	2,649.66	
Wild Rose Hatchery	5,267.93	
Sheboygan Hatchery	3,435.77	
Minocqua Hatchery	2,242.53	
Spooner (Sub-Hatchery)	417.74	
Oshkosh (Sub-Hatchery)	2,074.73	
Tenney Park (Sub-Hatchery)	167.25	
Eagle River (Sub-Hatchery)	194.34	
Distribution of fish	4,940.49	
Collecting fish at Neenah dam	492.55	
Collecting pike eggs	2,960.62	
Collecting pickerel eggs	40.07	
Collecting lake trout eggs	1,016.87	
State Fair exhibit	326.05	
Survey trout streams	89.77	
Research work (J N. Lowe)	123.83	
Insurance	542.51	
		<u>\$43,375.10</u>

STURGEON BAY HATCHERY

Salaries and labor	\$1,835.75	
Supplies	277.65	
Water rent	549.96	
Phone	35.40	
		<u>\$2,698.76</u>

DELAFIELD HATCHERY

Salaries and labor.....	\$2,260.45	
Equipment	200.00	
Supplies	145.51	
Phone	43.70	
		<u>\$2,649.66</u>

WILD ROSE HATCHERY

Salaries and labor.....	\$3,233.98	
Fish food	1,248.38	
Equipment	18.25	
Supplies	504.09	
Repairs	235.28	
Phone	27.95	
		<u>\$5,267.93</u>

MADISON HATCHERY

Salaries and labor.....	\$3,336.45	
Fish food	1,058.07	
Equipment	22.15	
Supplies	429.81	
Improvements	11.75	
Repairs	31.45	
Barn supplies	160.05	
Phone	27.00	
		<u>\$5,077.73</u>

BAYFIELD HATCHERY

Salaries and labor.....	\$5,400.55	
Fish food	946.15	
Equipment	209.51	
Supplies	988.70	
Barn supplies	165.40	
Improvements	348.43	
Repairs	521.85	
Phone	35.31	
		<u>\$8,615.90</u>

SHEBOYGAN HATCHERY

Salaries and labor.....	\$1,914.50	
Supplies	398.42	
Water rent	538.66	
Improvements	533.94	
Repairs	9.00	
Phone	41.25	
		<u>\$3,425.77</u>

MINOCQUA HATCHERY

Salary and labor.....	\$1,412.00	
Equipment	240.59	
Phone	88.50	
Supplies	386.02	
Improvements	11.80	
Repairs	52.12	
Collection of breeders.....	51.50	
		<u>\$2,242.53</u>

SPOONER HATCHERY

Labor	\$140.00	
Supplies	277.74	
		<u>\$417.74</u>

OSHKOSH HATCHERY

Labor	234.25	
Supplies	117.21	
Improvements	400.17	
Repairs	1,323.10	
		<u>\$2,074.73</u>

TENNEY PARK HATCHERY

Labor	\$50.00	
Supplies	117.25	
		<u>\$167.25</u>

EAGLE RIVER HATCHERY

Labor	\$121.00	
Supplies	66.54	
Phone	6.80	
		<u>\$194.34</u>

DISTRIBUTION OF FISH

Salaries and labor.....	\$668.75	
Employee's expenses	2,458.27	
Drayage	1,633.93	
Freight and express.....	42.99	
Supplies	62.62	
Car maintenance	66.29	
Phone	7.64	
		<u>\$4,940.49</u>

RECAPITULATION

Salaries and per diem.....	\$128,912.34
Expenses of all employees.....	40,950.95
Supplies and equipment.....	18,695.39
Printing	4,167.54
Postage	1,132.22
Fish food	3,252.60
Freight and drayage.....	2,065.87
Insurance	1,231.56
Telephone and telegraph.....	1,103.95
Game farm	967.19
Collection of breeders	51.50
Advertising	126.36
Property and improvements.....	4,003.60
Repairs and maintenance.....	5,012.70
Grand total	<u>\$211,673.77</u>
Appropriation available for operation.....	\$202,657.47
Appropriation available for property	4,003.60
Appropriation available for repairs.....	5,012.70
	<u>\$211,673.77</u>

PARK PURCHASE FUND

Balance July 1, 1916.....	\$12,695.46	
Receipts for year.....	3,892.00	
Disbursements		\$8,050.00
Balance on hand July 1, 1917.....		8,537.46
	<u>\$16,587.46</u>	<u>\$16,587.46</u>

GOVERNMENT REFORESTATION

Balance July 1, 1916.....	\$9,747.08	
Receipts for year.....	2,188.07	
Disbursements		\$4,442.00
Balance on hand July 1, 1917.....		7,493.15
	<u>\$11,935.15</u>	<u>\$11,935.15</u>

GLENN PARK FUND

Balance July 1, 1916.....	\$4,818.10	
Disbursements		\$4,409.87
Balance		408.23
	<u>\$4,818.10</u>	<u>\$4,818.10</u>

DEVIL'S LAKE PARK FUND

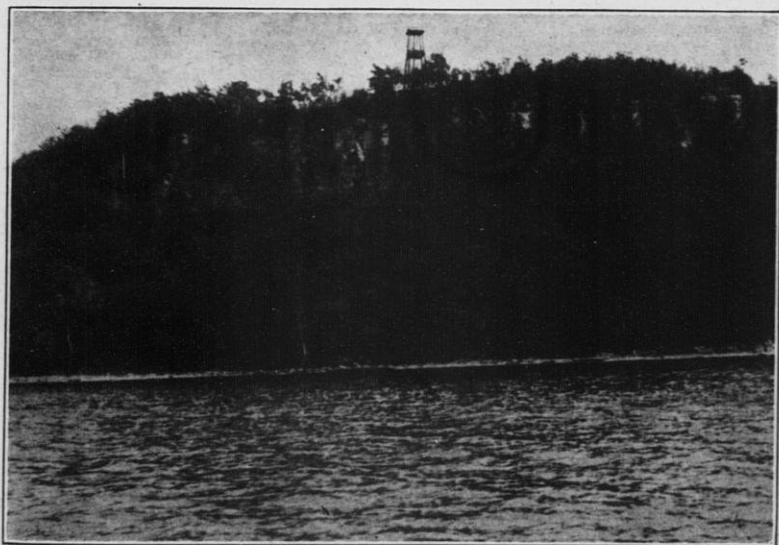
Balance July 1, 1916.....	\$6.96	
Disbursements		\$6.96
	<u>\$6.96</u>	<u>\$6.96</u>

FIRE LOSS BAYFIELD HATCHERY BARN

Insurance on building.....	\$900.00	
Insurance on contents.....	220.60	
Disbursements (rebuilding)		\$1,120.60
	<u>\$1,120.60</u>	<u>\$1,120.60</u>



GOLF GROUNDS.



SVEN'S TOWER AND CLIFF. PENINSULAR PARK.

FINANCIAL STATEMENT
OF
CONSERVATION COMMISSION

July 1, 1917 to June 30, 1918

OPERATION

Appropriation	\$200,000.00	
Emergency appropriation from operation fund 1918-19	2,142.00	
Total disbursements 1917-18.....		\$201,121.55
Unexpended balance		1,020.45
	<u>\$202,142.00</u>	<u>\$202,142.00</u>

REPAIRS AND MAINTENANCE

Appropriation	\$13,000.00	
Total disbursements		\$12,777.12
Unexpended balance		222.88
	<u>\$13,000.00</u>	<u>\$13,000.00</u>

PROPERTY AND IMPROVEMENTS

Appropriation	\$4,000.00	
Total disbursements		\$3,767.80
Unexpended balance		232.20
	<u>4,000.00</u>	<u>\$4,000.00</u>

CLASSIFICATION OF DISBURSEMENTS

Administration	\$33,448.83	
Forestry	18,080.44	
Parks	11,180.50	
Wardens	108,604.82	
Fisheries	46,174.63	
Muskego dam repairs	177.25	
		<u>\$217,666.47</u>

ADMINISTRATION

Salaries	\$20,455.72	
Traveling expenses	2,608.09	
Printing	6,355.47	
Supplies	710.93	
Postage	2,315.82	
Telephone and telegraph.....	607.23	
Express and freight.....	265.77	
Advertising	129.80	
		<u>\$33,448.83</u>

FORESTRY DIVISION

Salaries and labor.....	\$3,583.65	
Supplies	1,185.83	
Improvements	957.02	
Repairs	1,042.67	
Employee's expense	845.40	
Insurance	318.66	
Telephone	31.15	
		<u>\$7,964.38</u>

FIRE PROTECTION

Salaries and labor.....	\$6,106.44	
Supplies	1,510.81	
Employee's expense	2,469.96	
Telephone	28.85	
		<u>\$10,116.06</u>

PARK DIVISION

PENINSULAR PARK

Salaries and labor.....	\$1,649.70	
Supplies	677.17	
Improvements	147.42	
Repairs	1,656.28	
Insurance	188.45	
		<u>\$4,319.02</u>

DEVIL'S LAKE PARK

Salaries and labor.....	\$1,221.17	
Supplies	90.63	
Improvements	561.13	
Employee's expense	40.57	
Repairs	2,034.38	
Telephone	15.80	
Insurance	208.41	
		<u>\$4,172.09</u>

INTER-STATE PARK

Salaries and labor.....	\$485.00	
Supplies	2.50	
Repairs	69.00	
		<u>\$556.50</u>

NELSON-DEWEY PARK

Salaries and labor.....	\$856.50	
Employee's expense	86.75	
Repairs	1,046.35	
Supplies	117.99	
Improvements	25.30	
		<u>\$2,132.89</u>

WARDEN DIVISION

Salaries	\$70,148.50
Railroad fares	3,938.59
Hotel expense	16,425.12
Livery expense	7,121.66
Other expense	3,722.50
Equipment (Chap. 651-1) app. 1.....	1,000.00
Auto and motorcycle supplies.....	2,062.87
Launch and boat supplies.....	451.36
Auto and motorcycle repairs.....	55.95
Launch and boat repairs.....	326.15
Gasoline and oil.....	957.70
Game farm	726.76
Improvements	325.81
Telephone	253.63
Provisions and supplies.....	558.93
S. P. Richtman (launch hire and repairs)	360.85
Insurance	168.44
	<hr/> <hr/>
	\$108,604.82

FISHERIES DIVISION

Madison Hatchery	\$6,376.90
Bayfield Hatchery	8,300.77
Sturgeon Bay Hatchery	2,977.10
Delafield Hatchery	2,588.53
Wild Rose Hatchery	6,209.42
Sheboygan Hatchery	6,216.28
Minocqua Hatchery	2,423.08
Spooner (sub-hatchery)	234.72
Oshkosh Hatchery	1,251.32
Tenney Park Hatchery.....	11.00
Eagle River Hatchery.....	305.42
Distribution of fish.....	5,222.26
Collecting pike eggs.....	1,571.31
Collecting lake trout eggs.....	1,293.80
State Fair exhibit.....	190.19
Survey trout streams.....	115.41
Collecting fish at Neenah dam.....	887.12
	<hr/> <hr/>
	\$46,174.63

STURGEON BAY HATCHERY

Salaries and labor.....	\$1,910.50
Supplies	395.30
Water rent	550.59
Telephone	34.45
Repairs	53.58
Insurance	32.68
	<hr/> <hr/>
	\$2,977.10

DELAFIELD HATCHERY

Salaries and labor.....	\$2,098.75
Supplies	119.62
Telephone	44.40
Improvements	30.00
Repairs	220.70
Insurance	33.59
Drayage	41.47
	<hr/> <hr/>
	\$2,588.53

WILD ROSE HATCHERY

Salaries and labor.....	\$2,981.75	
Fish food	2,036.96	
Supplies	333.40	
Improvements	331.62	
Repairs	329.50	
Telephone	26.80	
Insurance	47.29	
Drayage	122.10	
		<u>\$6,209.42</u>

MADISON HATCHERY

Salaries and labor.....	\$3,169.75	
Fish food	1,306.93	
Supplies	334.13	
Improvements	65.00	
Repairs	1,242.13	
Drayage	140.00	
Telephone	27.00	
Employee's expenses	8.38	
Insurance	83.58	
		<u>\$6,376.90</u>

BAYFIELD HATCHERY

Salaries and labor.....	\$4,092.70	
Fish food	1,654.05	
Supplies	829.30	
Barn supplies	141.73	
Improvements	909.11	
Repairs	546.75	
Telephone	48.88	
Insurance	78.25	
		<u>\$8,300.77</u>

SHEBOYGAN HATCHERY

Salaries and labor.....	\$2,190.05	
Supplies	433.66	
Water rent	747.30	
Improvements	252.55	
Repairs	2,520.00	
Telephone	36.60	
Insurance	36.12	
		<u>\$6,216.28</u>

MINOCQUA HATCHERY

Salaries and labor.....	\$1,189.50	
Telephone	90.70	
Supplies	436.13	
Improvements	45.06	
Repairs	420.83	
Collection of breeders	44.50	
Barn supplies	144.13	
Insurance	52.23	
		<u>\$2,423.08</u>

SPOONER HATCHERY

Labor	\$80.00	
Supplies	116.52	
Telephone	29.95	
Insurance	8.25	
		<u>\$234.72</u>

OSHKOSH HATCHERY

Labor	\$148.00	
Supplies	77.83	
Improvements	117.78	
Repairs	882.51	
Insurance	25.20	
		<u>\$1,251.32</u>

TENNEY PARK HATCHERY

Supplies	\$1.00	
Storage	10.00	
		<u>\$11.00</u>

EAGLE RIVER HATCHERY

Labor	\$19.00	
Supplies	73.87	
Telephone	5.05	
Repairs	200.00	
Insurance	7.50	
		<u>\$305.42</u>

DISTRIBUTION OF FISH

Salaries and labor	\$753.50	
Employee's expenses	2,506.64	
Drayage	1,400.39	
Freight and express	3.73	
Supplies	267.32	
Car maintenance	157.75	
Insurance	132.93	
		<u>\$5,222.26</u>

SURVEY OF TROUT STREAMS

Expenses	\$115.41	
		<u>\$115.41</u>

STATE FAIR EXHIBIT

Expenses	\$190.19	
		<u>\$190.19</u>

COLLECTING FISH AT NEENAH DAM

Expenses	\$887.12	
		<u>\$887.12</u>

COLLECTING LAKE TROUT EGGS

Expenses	\$1,293.80	
		<u>\$1,293.80</u>

COLLECTING PIKE EGGS

Labor	\$947.25	
Employee's expenses	87.44	
Supplies	347.60	
Drayage	25.00	
Boat hire	145.06	
Miscellaneous	28.96	
		<u>\$1,571.81</u>

RECAPITULATION

Salaries and per diem	\$125,071.18
Expenses of employes	41,016.26
Supplies and equipment	15,296.04
Printing	6,355.47
Postage	2,315.82
Fish food	4,997.94
Freight and drayage	2,245.65
Insurance	1,421.58
Telephone and telegraph	1,323.30
Collection of breeders	44.50
Game farm	726.76
Muskego dam repair	177.25
Advertising	129.80
Property and improvements	3,767.80
Repair and maintenance	12,777.12
Grand total	<u>\$217,666.47</u>
Appropriations available for operation	\$202,142.00
Appropriations available for property	4,000.00
Appropriations available for repairs	13,000.00
	<u>\$219,142.00</u>
Total Disbursements	\$217,666.47
Unexpended Balance July 1, 1918	1,475.53
	<u>\$219,142.00</u>

PARK PURCHASE FUND

Balance on July 1, 1917	\$8,537.46	
Receipts for the year	3,341.19	
Disbursements		\$7,500.00
Balance		4,378.65
	<u>\$11,878.65</u>	<u>\$11,878.65</u>

GOVERNMENT REFORESTATION FUND

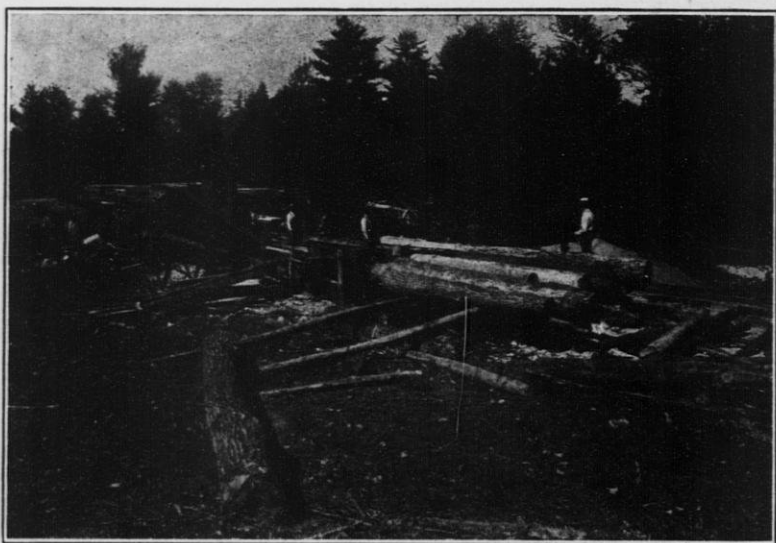
Balance on July 1, 1917	\$7,493.15	
Receipts for year	4,485.45	
Disbursements		\$8,025.22
Balance		3,953.38
	<u>\$11,978.60</u>	<u>\$11,978.60</u>

GLENN PARK FUND

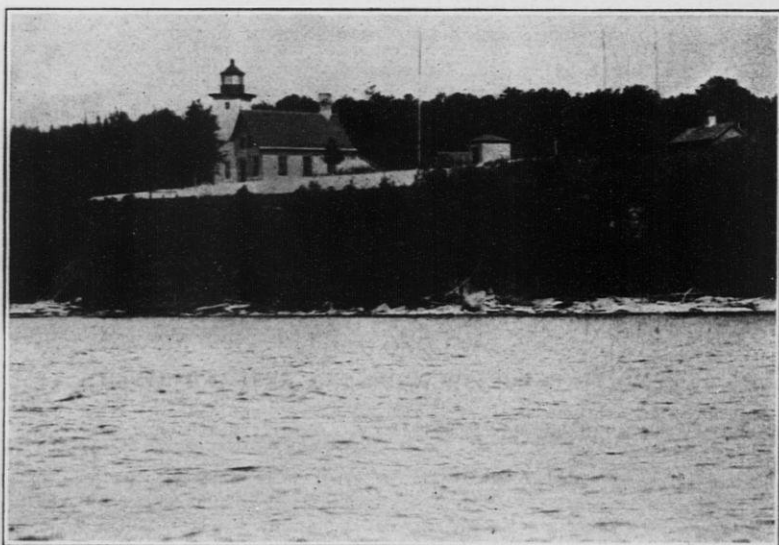
Balance July 1, 1917	\$408.23	
Disbursements		\$344.77
Balance		63.46
	<u>\$408.23</u>	<u>\$408.23</u>

FUND TO RELOCATE AMERICAN REFRACTORY CO.

Appropriation available July 1st, 1917	\$5,000.00	
Appropriation available March 1, 1918	25,000.00	
Disbursements		\$4,750.00
Balance		25,250.00
	<u>\$30,000.00</u>	<u>\$30,000.00</u>



CUTTING UP FALLEN AND MATURE TIMBER.



EAGLE LIGHT.

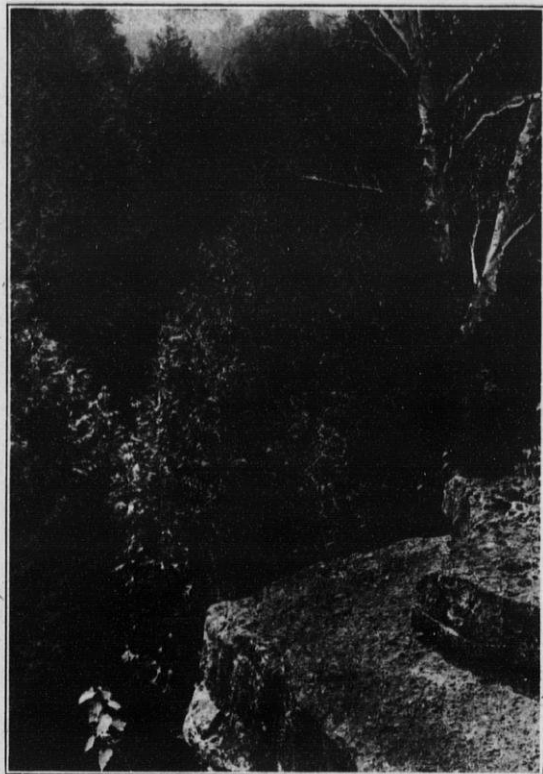
CLASSIFICATION OF RECEIPTS

July 1, 1916 to June 30, 1917.

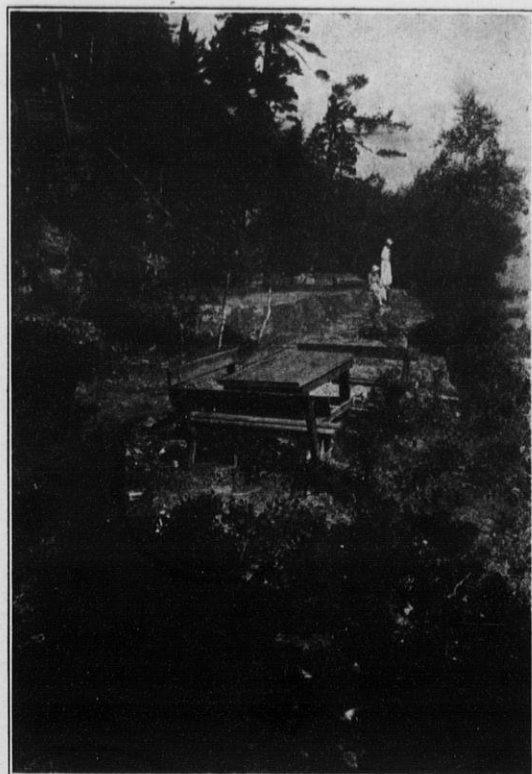
Nonresident Anglers' licenses	\$19,643.75
Lake Michigan, Superior & Green Bay licenses	3,922.75
Lake Pepin, St. Croix & Miss. River licenses	3,115.75
Rough Fish (Winnebago county waters)	1,481.59
Rough Fish (Other waters)	6,688.29
Resident hunting licenses	123,999.40
Nonresident hunting licenses	11,960.00
Duplicate licenses	142.00
Settlers' licenses	507.00
Confiscations	3,079.57
Wardens' fees	1,078.89
Set line licenses	1,691.70
Game farmers' licenses—registration fees, etc.	2,011.32
Concession from park lands	2,342.00
Money held in trust (released)	1,550.00
Island leases and nursery stock sales	2,188.07
Nonresident clamming licenses	550.00
Fines imposed (Credited to School fund)	16,595.00
Total	\$202,547.08

July 1, 1917 to June 30, 1918.

Nonresident Anglers' licenses	\$20,502.12
Lake Michigan, Superior & Green Bay licenses	7,481.04
Lake Pepin, St. Croix & Mississippi river licenses	2,826.50
Rough Fish (Winnebago county waters)	1,083.80
Rough Fish (Other waters)	15,276.55
Resident hunting licenses	108,330.50
Nonresident hunting licenses	6,400.50
Duplicate licenses	170.00
Settlers' licenses	514.00
Confiscations	5,082.87
Wardens' fees	1,011.89
Set line licenses	1,302.15
Whitefish & Cisco licenses, registration fees, etc.	1,213.17
Concessions from park lands	1,791.19
Money held in trust (released)	1,550.00
Island leases and nursery stock, land sales	4,485.45
Resident trapping license	22,240.31
Nonresident clamming licenses	3,050.00
Guides licenses	650.00
Beaver trapping licenses	250.00
Deer tags	5,359.34
Fines imposed (Credited to School fund)	33,453.34
Total	\$244,024.22



LIMESTONE CLIFFS AND BEAUTIFUL CEDAR. PENINSULAR PARK.



A PLEASANT PLACE FOR PICNICKING. PENINSULAR PARK.

INVENTORY

FISHERIES DIVISION

Madison Hatchery	
63 acres of land, 7 buildings, 17 ponds, 1350 feet of raceway	\$35,000.00
Tools and equipment	4,000.00
Bayfield Hatchery	
502 acres of land, 6 buildings, 26 ponds, 1500 feet of raceway, 6700 feet of pipe line	45,000.00
Tools and equipment	5,000.00
Oshkosh Hatchery	
One city lot, hatchery building, boathouse and dock	7,000.00
Tools and equipment	2,500.00
Delafield Hatchery	
30 acres of land, hatchery building, 6 ponds, 1490 feet of pipe line	27,000.00
Tools and equipment	1,500.00
Minocqua Hatchery	
275 1/2 acres of land, 5 buildings, 7 ponds, 2200 feet of pipe line	25,000.00
Tools and equipment	2,500.00
Wild Rose Hatchery	
59 1/2 acres of land, 5 buildings, 32 ponds, 1035 feet of pipe line	25,000.00
Tools and equipment	1,500.00
Sturgeon Bay Hatchery	
2 city lots and hatchery building	10,000.00
Tools and equipment	1,000.00
Sheboygan Hatchery	
City lot and hatchery building	10,000.00
Tools and equipment	1,000.00
Spooner Hatchery	
City lot and building	1,500.00
Tools and equipment	700.00
Eagle River Hatchery	
City lot and building	1,500.00
Tools and equipment	700.00
Tenney Park Hatchery	
Building	500.00
State Fish Car "Badger No. 2"	13,500.00
Car shed at Wild Rose	1,500.00
Total	\$222,900.00

WARDEN DIVISION

25 Motorcycles	\$2,500.00
Launch "Beda"	1,000.00
Launch "Anna S"	700.00
Launch "Kingfisher"	1,000.00
Launch "Wisconsin"	100.00
Launch "Mississippi"	200.00
Launch "Submarine"	100.00
Launch "Galatea"	2,500.00
14 detachable outboard motors	700.00
15 rowboats	350.00
Automobile	1,200.00
4 Ford cars	1,900.00
Total	\$11,750.00

STATE PARKS DIVISION

Devil's Lake Park	
Buildings	\$20,350.00
1080 acres of land	140,747.00
Peninsula Park	
Buildings and two lookout towers	17,255.00
3190 acres of land	96,182.00
Marquette Park	
Buildings	1,160.00
1671.08 acres of land	46,139.00
Interstate Park	
Buildings	400.00
580 acres of land	20,571.00
Cushing Memorial Park	
8 acres of land	5,000.00
Total	\$347,804.00

FORESTRY DIVISION

Buildings	\$28,690.00
4 Steel lookout towers	550.00
86 miles of telephone line	3,500.00
Trout Lake Nursery (land improvement, etc.) water system, equipment	4,700.00
Tomahawk Lake Nursery (land improvements, water system, equipment, etc.)	2,600.00
Nursery stock (Trout lake)	3,924.50
Nursery stock (Tomahawk lake)	1,100.00
Implements, tools and equipment	4,500.00
2065 acres of forest plantations	13,400.00
Total	\$62,964.50

Recapitulation of Inventory

Fisheries Division	\$222,900.00
Warden Division	11,750.00
State Parks Division	347,804.00
Forestry Division (lands not included)	62,964.50
Grand Total	\$645,418.50

ITEMIZED STATEMENT OF ARRESTS FROM JULY 1, 1916-17 AND
JULY 1, 1917-18

	July 1, 1916, to July 1, 1917	July 1, 1917, to July 1, 1918
Resident hunting without a license.....	32	74
Nonresident hunting without a license.....	1	1
Hunting and killing of deer in closed season.....	34	47
Killing and having doe in possession.....	38	.....
Venison in possession in closed season.....	36	31
Buying and selling venison.....	19	14
Killing more than one deer.....	7	4
Hunting deer with dogs or having dogs in camp.....	17	29
Serving venison in camp to boarders.....	1	7
Dynamiting fish.....	20	29
Unlawful methods of fishing.....	77	80
Using fish trap.....	7	3
Catching and retaining undersized fish.....	19	16
Selling, catching and having game fish in possession in closed season.....	43	34
Catching game fish with a dip net.....	16	9
Shipping more than legal limit of fish.....	8	2
Illegal transportation of game fish.....	3	11
Using snag lines.....	.....	17
Unlawful fishing within 200 feet of a dam.....	13	3
Unlawful use of set lines.....	26	42
Unlawful use of nets and seines.....	169	174
Fishing without license, outlying waters.....	3	5
Fishing with lines unattended.....	1	1
Unlawful transportation of game.....	9	.....
Hunting and killing game birds in closed season.....	35	31
Exceeding bag limit of game birds.....	3	1
Shooting ducks from motor boat.....	.....	4
Shooting ducks in open water.....	58	39
Shooting waterfowl between sunset and sunrise.....	35	12
Buying and selling game birds.....	13	1
Killing harmless birds or disturbing birds' nests.....	23	2
Killing rabbits and squirrels in closed season.....	13	12
Hunting rabbits with a ferret.....	22	8
Trapping in closed season.....	38	46
Trapping without a license.....	3	34
Trapping beaver or having beaver skins in possession.....	6	12
Possessing otter or otter skins.....	1	2
Shooting and spearing of muskrats or mink.....	9	5
Molesting muskrat houses or trapping therein.....	16	.....
Possessing green hides or furs in closed season.....	26	27
Killing racoon in closed season.....	7	3
Interfering with conservation warden.....	2	4
Depositing deleterious substances in streams.....	2	2
Running dogs in closed season for birds.....	5	1
Nonresident fishing without a license.....	12	16
Having venison without coupon attached.....	.....	2
Illegally carrying guns in vehicles.....	.....	6
Exceeding bag limit of fish.....	2	3
Using set gun to kill deer.....	.....	1
Making false affidavit to obtain license.....	.....	8
Leaving camp fire burning.....	.....	1
Guiding without license.....	.....	7
Illegal shipping of fur.....	.....	2
Killing bear in closed season.....	.....	1
Transferring license.....	.....	1
Having deer hide in red coat in possession.....	.....	5
Allen procuring hunting license.....	.....	2
Using decoy ducks without tags.....	.....	2
Shooting wood duck.....	1	1
Catching frogs out of season.....	1	.....
Killing or having moose meat in possession.....	2	.....
Fishing on State hatchery grounds.....	1	.....
Impersonating conservation warden.....	1	.....

	July 1, 1916, to July 1, 1917	July 1, 1917, to July 1, 1918
Fine sentences imposed.....	675	610
Jail sentences imposed.....	39	39
Both fine and jail sentences imposed.....	3	.....
Cases pending	18	67
Acquittals	29	24
Cases dismissed	38	31
Fines suspended on payment of costs.....	59	116
Both fine and costs suspended.....	16	12
Placed on parole or probation.....	20	19
Juvenile court, reprimanded.....	5	1
Indefinitely postponed .....	.....	1
	902	919

AMOUNT OF FINES AND COSTS IMPOSED ACCORDING TO COUNTIES,
FROM JULY 1, 1916 TO JULY 1, 1917

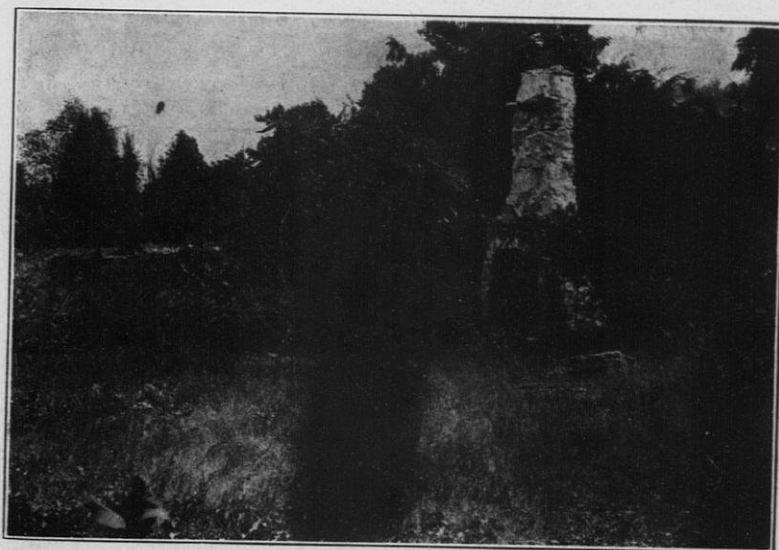
	Fines	Costs		Fines	Costs
Adams	\$75.00	\$36.65	Marquette	55.00	22.00
Ashland	310.00	86.23	Milwaukee	115.00	37.80
Barron	690.00	151.89	Monroe	75.00	9.96
Bayfield	460.00	100.80	Oconto	220.00	24.04
Brown	906.66	220.12	Oneida	895.00	164.18
Buffalo	25.00	2.50	Outagamie	240.00	62.65
Burnett	445.00	44.48	Ozaukee	25.00	9.75
Chippewa	25.00	37.40	Pepin	190.00	11.00
Clark	250.00	169.87	Pierce	15.00	1.62
Columbia	45.00	23.24	Polk	310.00	35.26
Crawford	70.00	5.95	Portage	225.00	57.50
Dane	690.00	148.18	Price	310.00	.....
Dodge	920.00	182.27	Racine	5.00	1.82
Door	75.00	19.63	Richland	100.00	20.14
Douglas	350.00	30.80	Rock	160.00	25.15
Dunn	100.00	7.14	Rusk	385.00	29.80
Florence	305.00	139.70	St. Croix	175.00	10.50
Fond du Lac.....	455.00	108.72	Sauk	515.00	197.27
Forest	100.00	21.55	Sawyer	120.00	23.70
Grant	25.00	2.90	Shawano	250.00	43.81
Green	50.00	3.61	Sheboygan	165.00	36.87
Green Lake	80.00	23.33	Taylor	330.00	39.17
Iowa	200.00	17.15	Trempealeau	60.00	16.93
Iron	215.00	196.25	Vernon	65.00	11.47
Jackson	75.00	22.63	Vilas	560.00	204.44
Jefferson	070.00	245.14	Walworth	195.00	37.65
Juneau	150.00	36.00	Washburn	110.00	12.50
Kenosha	25.00	3.62	Washington	165.00	52.84
La Crosse	55.00	21.07	Waukesha	320.00	114.12
Lafayette	75.00	9.65	Waupaca	324.00	79.13
Langlade	450.00	73.02	Waushara	340.00	67.40
Lincoln	475.00	119.05	Winnebago	290.00	53.18
Manitowoc	615.00	95.60	Wood	25.00	2.50
Marathon	175.00	41.36			
Marinette	430.00	225.87	Totals.....	\$16,595.00	\$4,237.00

Total amount of wardens' fees collected..... \$1,078.89

AMOUNT OF FINES AND COSTS IMPOSED ACCORDING TO
COUNTIES, FROM JULY 1, 1917, TO JULY 1, 1918.

	Fines	Costs		Fines	Costs
Adams	\$250.00	\$47.93	Marquette	50.00	15.00
Ashland	75.00	21.65	Milwaukee	120.00	11.47
Barron	700.00	49.95	Monroe	100.00	5.45
Bayfield	615.00	52.04	Oconto	715.00	74.32
Brown	400.00	69.39	Oneida	2,265.00	333.95
Burnett	350.00	36.08	Outagamie	245.00	52.00
Calumet	150.00	50.75	Ozaukee	50.00	20.07
Chippewa	200.00	40.20	Pepin	50.00	3.50
Clark	450.00	60.66	Pierce	50.00	1.00
Columbia	750.00	49.46	Polk	410.00	87.70
Crawford	460.00	143.95	Portage	250.00	78.31
Dane	1,250.00	186.48	Priee	825.00	91.74
Dodge	915.00	144.44	Richland	250.00	90.27
Door	400.00	25.80	Rock	825.00	78.00
Douglas	875.00	96.74	Rusk	630.00	85.77
Eau Claire	100.00	23.10	St. Croix	50.00	5.30
Florence	50.00	25.20	Sauk	500.00	106.09
Fond du Lac	2,085.00	463.51	Sawyer	325.00	28.25
Forest	550.00	94.90	Shawano	475.00	56.32
Grant	750.00	88.77	Sheboygan	650.00	145.65
Green	100.00	10.00	Taylor	450.00	22.82
Green Lake	800.00	108.94	Trempealeau	150.00	18.90
Iowa	350.00	25.39	Vernon	110.00	21.20
Iron	135.00	42.15	Vilas	1,075.00	78.90
Jefferson	200.00	41.25	Walworth	725.00	99.87
Juneau	650.00	93.22	Washburn	330.00	22.80
Kenosha	250.00	51.08	Washington	320.00	73.52
La Crosse	250.00	35.07	Waukesha	375.00	54.65
Lafayette	400.00	17.15	Waupaca	1,435.00	224.87
Langlade	1,650.00	286.59	Waushara	100.00	13.10
Lincoln	578.34	117.10	Winnebago	560.00	74.54
Manitowoc	600.00	70.83	Wood	100.00	24.31
Marathon	465.00	112.83			
Marinette	1,085.00	402.44			
			Totals.....	\$33,453.34	\$5,254.63

Total amount of wardens' fees collected..... \$1,011.89



THE OLD CHIMNEY LOCATES THE SPOT WHERE YEARS AGO A FISHERMAN
HAD HIS CABIN.

CLASSIFICATION OF CONFISCATION.

	July 1, 1916, to July 1, 1917	July 1, 1917, to July 1, 1918
Doe carcasses	39	.....
Venison in closed season.....	31	28
Venison without coupons attached.....	6	10
Of live deer in closed season.....	1	.....
More than lawful amount of venison.....	1	3
Dogs, running deer.....	2	8
Deer heads or hides.....	28	13
Small game unlawfully in possession.....	8	.....
Beaver hides	4	9
Otter hides	2	5
Illegal furs	57	206
More than bag limit of ducks.....	.....	2
Wild ducks unlawfully in possession.....	8	15
Fish in closed season.....	19	9
Fish illegally transported.....	31	39
Fish illegally caught.....	50	38
Fish undersized	65	30
Illegal nets	113	118
Set lines, illegal.....	10	12
Snag lines	3	1
Boats	28	31
Guns	46	105
Traps	18	16
Spears	18	16
Duck decoys	1	2
Rabbits and ferrets.....	6	4
Wild birds other than game birds.....	1	4
Headlights, jacks, bicycle lights, etc.....	3	18
Partridges	2	5
Bear skins	2	3
Total number of seizures.....	603	750
Amount realized from sale of confiscated goods.....	\$3,079.57	\$5,082.87

STATEMENTS OF ARRESTS AND SEIZURES BY WARDENS.

Warden	P. O. address	1916-1917		1917-1918	
		Arrests	Seizures	Arrests	Seizures
W. E. Berg.....	Rhineland	2	1		
M. L. Berschens.....	Madison	6	2	8	1
George Bennett.....	Tomah	4		2	
I. H. Boomer.....	Oshkosh	4	2	12	18
E. F. Bosworth.....	Merrill	12	6	10	2
John Cadrant.....	Green Bay	17	19	12	20
V. C. Buell.....	Appleton	15	4	6	3
J. B. Carter.....	Rice Lake	10	4	4	4
W. A. Cole.....	Vesper	4		7	3
D. M. Cranston.....	Green Bay	16	15	14	18
P. S. Curtis.....	Viroqua	10	8	9	8
Thomas Devine.....	Spooner	20	3	7	2
Peter Diedrich.....	Milwaukee	22	54	5	20
F. A. Dockham.....	Baraboo	19	6	51	8
John Egan.....	Manitowoc	15	8	16	17
Edward Fess.....	Madison	35	5	9	5
F. W. Fisher.....	Gillett	17	14	22	24
J. W. Foster.....	Wausau	18	2	11	3
John B. Fosnot.....	Tomahawk	12	6	3	
E. W. Gautsch.....	La Crosse	10	6	5	19
W. T. Grey.....	Ashland	11	5	16	22
H. C. Gruebner.....	Sheboygan	19	21	20	16
S. J. Gwiddt.....	Rhineland	29	13	39	33
A. W. Hall.....	Darlington	8	7	15	12
Geo. F. Hall.....	Rubicon	28	7	17	5
A. A. Holmes.....	Trempealeau	2	9	2	3
Andrew Hope.....	Hammond	13	15	5	1
A. I. Hulbert.....	Barron	6	3	17	16
G. F. Hull.....	Wittenberg	10	1		
K. O. Jakoubek.....	Phillips	5	3	20	2
Louis Jeske.....	Fond du Lac	18	11	40	14
J. G. Keeler.....	Bagley	4	3	4	3
J. V. Kelsey.....	Stevens Point	12	5	12	5
W. A. Keys.....	Princeton	16	11	13	10
Mike Kleist.....	Kenosha	17	8	9	65
B. P. Lanning.....	Black River Falls	16	10	11	14
Albert Lee.....	Luck	11	4	25	24
C. S. Little.....	Stanley	8	1	19	3
John Long.....	Mellen	5	1	2	
W. P. Mason.....	Janesville	13	4	24	9
H. W. MacKenzie.....	Antigo	19	9	56	48
G. A. Miller.....	Boscobel	12	9	3	
Jas. McNaughton.....	Superior	2	5	15	1
R. B. Nolan.....	Twin Bluffs	6	3	5	1
H. J. Oberholtzer.....	Eagle River	18	4	15	9
W. D. Pooler.....	Superior (East end)	8	4	12	8
A. W. Powell.....	Bayfield	13	10	7	13
John Pugh.....	Racine	1		1	1
F. C. Pritchard.....	Winneconne	1		2	
Valentine Raeth.....	Milwaukee	14	40	10	14
F. D. Randall.....	Waupaca	7	1	25	12
S. P. Richtman.....	Fontain City	11	18	1	8
A. G. Russell.....	Wabeno	10	1	4	2
Frank Russell.....	Park Falls	15	13	13	8
Andrew Sampson.....	Stoughton	52	6	20	9
Denton Smith.....	Marinette	27	17	63	19
B. J. Shaver.....	Ashland	10	22	8	11
L. M. Soule.....	Ladysmith	18	1	10	6
George Stahl.....	Green Bay	5	2	6	7
M. F. Swant.....	Menomonie	1		1	3
M. C. Thorne.....	Wausau	14	1	20	14
H. C. Tiedemann.....	Thorp	8	11	5	6
E. M. Tuttle.....	Oconomowoc	18	5	11	2
J. D. Worden.....	Plainfield	30	9	27	18
W. W. Wismer.....	Drummond	5	2	1	
W. P. Elliott.....	Whitewater	33	5	15	5
G. O. Hulbert.....	Barron	9	5		
Bruce P. Westcott.....	Kewaskum	7	1	2	1
J. B. Cook.....	Star Lake	3	2		

STATEMENTS OF ARRESTS AND SEIZURES BY WARDENS—
Continued.

Warden	P. O. address	1916-1917		1917-1918	
		Arrests	Seizures	Arrests	Seizures
E. M. Weaver.....	Woodruff	9	7	17	2
James C. Justensen...	Trout Lake	4		2	3
Ira G. Smith.....	Green Bay	6	5		
James J. Justensen...	Wild Rose	11	5	1	4
Frank J. Long.....	Sayner	1	6	2	
Henry Freund.....	Boulder Jet.	1	2	3	1
Roy O. Buck.....	Manitowish		2		1
W. S. Johnson.....	Winneconne		1		
Lloyd D. Mitchell....	Ripon			9	4
Louis Vohs.....	Larson			5	5
C. Clem'ns.....	Durand			1	2
John A. Hill.....	Ripon			12	
H. H. Barker.....	Clinton			1	1
W. T. Sparks.....	Lodi			5	5
Hans Hendrickson....	Two Rivers			1	2
K. T. Knudtson.....	Poynette			2	2
Ed. Apel.....	Marion			2	3
C. D. Neff.....	Pelican Lake			2	1
Unclassified.....	.....		65		43
	Total.....	902	538	919	707



WOODS AVENUE. MANY PLACES THE TREE TOPS REACH ACROSS THE ROAD.

