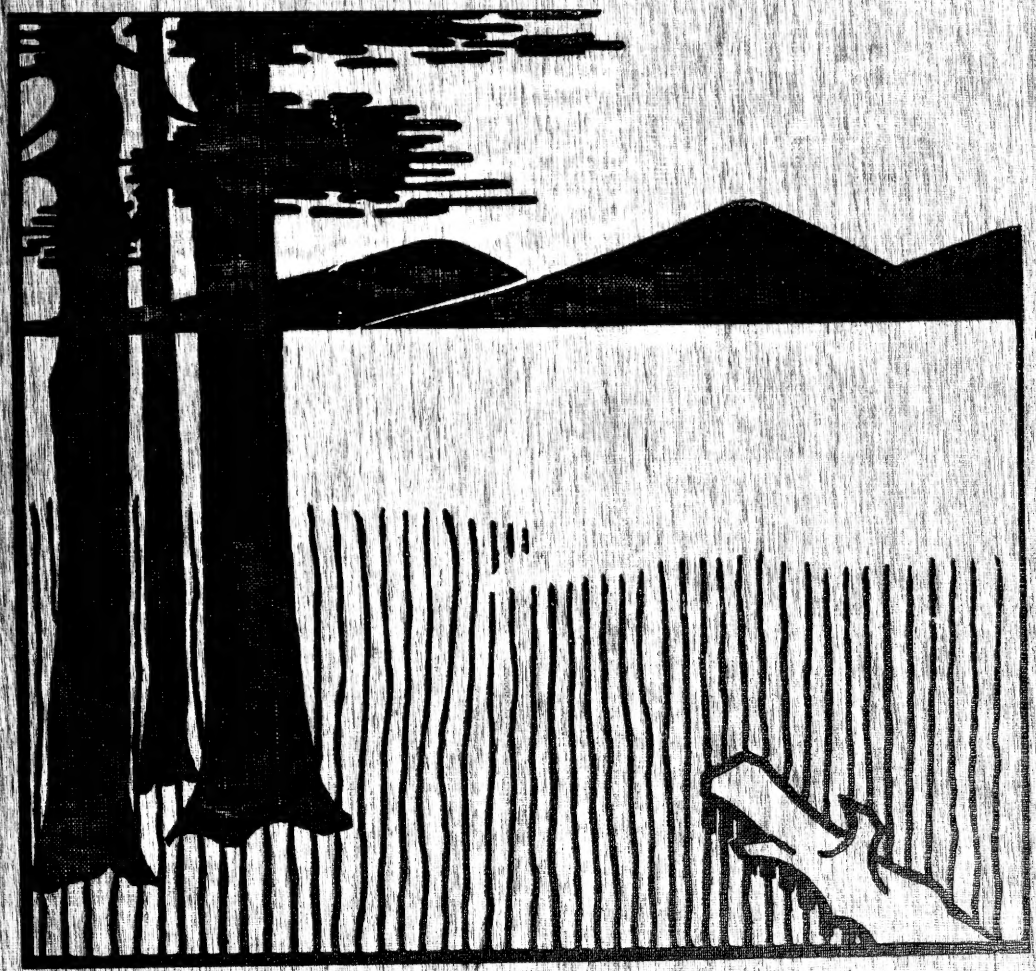
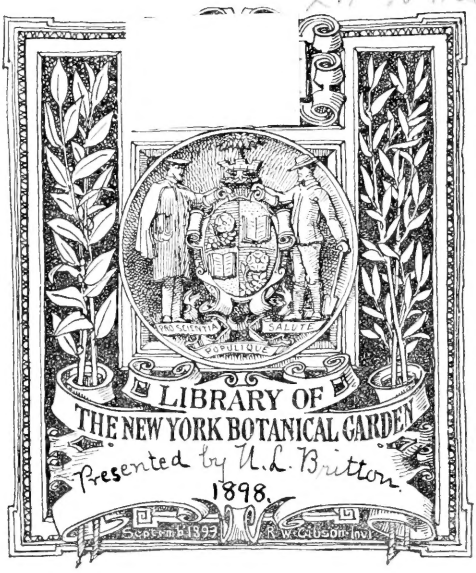
FISHERIES GAME & FOREST COMMISSION

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Second Annual Report

of the

Commissioners of Fisheries,

Game and Forests

of the

State of New York.

WYNKOOP HALLENBECK CRAWFORD CO.,
PRINTERS,
NEW YORK AND ALBANY.
1897.

Second Annual Report

of the

Commissioners of Fisheries, Game and Forests.

Albany, N. Y., January 20, 1897.

Hon. James M. E. O'Grady,

Speaker of the Assembly, Albany, N. Y.:

Sir:—We have the honor to submit herewith, as required by law, the official report of this Board for the year ending September 30, 1896.

We are, sir,

Very truly yours,

Barnet H. Davis,
President.

William R. Weed,

Chas. H. Babcock,

Edward Thompson,

Hendrick S. Holden,

Commissioners of Fisheries, Game and Forests.

State of New York.

Commissioners of Fisheries, Game and Forests.

Barnet H. Davis, President,	Palmyra, N. Y.
Hendrick S. Holden, Commissioner,	Syracuse, N. Y.
William R. Weed, "	Potsdam, N. Y.
Charles H. Babcock, "	Rochester, N. Y.
Edward Thompson, "	Northport, L. I., N. Y.
Charles A. Taylor, Assistant Secretary,	Albany, N. Y.

Standing Committees.

Executive,	Messrs. Holden, Babcock, Davis.
Forest Preserve and State Lands,	Messrs. Weed, Holden, Davis,
Hatcheries, Fish Culture and Game,	Messrs. Babcock, Thompson, Davis.
Shellfish, Licenses and Permits,	Messrs. Thompson, Holden, Davis.
Legislation,	Messrs. Davis, Weed, Babcock.

State Fish Culturist.

A. Nelson Cheney, ... Glens Falls, N. Y.

Superintendent of Hatcheries.

James Annin, Jr., ... Caledonia, N. Y.

Superintendent of Forests.

William F. Fox, ... Albany, N. Y.

Chief Game Protector and Forester.

J. W. Pond,	Albany, N. Y.
William Wolf, Clerk,	Albany, N. Y.

Assistant Chief Game Protectors and Foresters.

John E. Leavitt,	Johnstown, N. Y.
Mannister C. Worts,	Oswego, N. Y.

A. J. Mulligan, Audit and Pay Clerk,	Albany, N. Y.
A. B. Strough, Special Agent,	Albany, N. Y.
M. C. Finley, Special Agent,	Palmyra, N. Y.
J. J. Fourqurean, Stenographer,	Albany, N. Y.

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List of Illustrations.

THE PRINTING OF THIS ENTIRE BOOK, INCLUDING THE COLORED AND ARTOTYPE ILLUSTRATIONS, HALF-TONES AND TEXT, WAS EXECUTED BY

WYNKOOP HALLENBECK CRAWFORD CO.,

ART PRINTING WORKS,

ALBANY AND NEW YORK.

PREFACE.

THE complete reports of the work of the various Departments of the State are often given to the Public a considerable time after the date on which they were formally presented to the Legislature in a preliminary form. The delay is frequently beyond the power of any particular Department to obviate owing to the burden of work of this character to be performed by the public printer. The report of the Fisheries, Game and Forest Commission for the fiscal year ending September 30, 1896, is no exception to what has become almost an established rule in this respect, and the delay must explain any incongruities which may appear in the matter of dates.

The report of the Commission for the year 1896 devotes more space to the department of forestry than to either fisheries or game for the reason that the attention of the people of the State has been especially called to matters pertaining to our forests by recent constitutional provisions and by the active policy of Governor Black to secure a large addition to the acreage of the Adirondack Park, the great health and pleasure resort of our people, thereby to foster the future water supply of our canals and navigable rivers and to preserve the forests which yet remain in something like their primitive condition, and upon which the water supply materially depends.

The colored plates of fishes, which were such a marked feature of our report of last year, are also a feature of the present report. And in addition to the fishes are presented representations in colors of our game birds, oysters, and enemies of the oyster. The colored plates were made from paintings especially prepared for this report by Messrs. S. F. Denton and J. L. Ridgway, artists eminent in this particular field. The half-tone and artotype full-page illustrations are made from photographs also taken especially for this report,

the latter from photographs made and contributed by Mr. Herbert L. Carpenter, explaining and illustrating certain paragraphs relating to the forestry work of the Commission. The head and tail-piece drawings, by Mr. Harry S. Watson, are some of the best examples of this artist's work, and are highly commendable for their truthfulness to nature and accuracy of detail.

Last year the report of the Commission contained the fish and game laws of the State, but it was deemed advisable to omit the laws this year, for the reason that the laws in force at the time the material for the report was given to the printer would be amended by the Legislature before the volume could be printed and given to the public, and therefore the laws are printed in pamphlet form separate from the report, as provided by an act of the Legislature.

The thanks of the Commission are due to Dr. John Duncan Quackenbos, of Columbia University, for the original article on the American Saibling or Sunapee Trout, which has been introduced into the waters of the State during the year; to Mr. H. A. Surface, of Cornell University, for an original article on Three Most Important Game Birds; to Mr. George W. Rafter, of the State Engineer's office, for the use of an important article on Stream Flow in Relation to Forests; and to Dr. Tarlton H. Bean, for advance proofs of an article entitled Notes Upon New York Fishes.

Owing to the delay in publication of this report, the recommendations of the Superintendent of Forests in relation to establishing a forestry experiment station seem belated, and as if made after the suggestions had been adopted.

THE COMMISSIONERS.

REPORT

OF THE

Commissioners of Fisheries, Game and Forests.

To the Honorable the Legislature of the State of New York:

THE MASCALONGE JUMPS.

IN accordance with section 8 of chapter 395 of the Laws of 1895, we have the honor to submit herewith a report of the official operations of this department for the fiscal year ended September 30, 1896.

The following rules and regulations, which were adopted by the Commission May 29, 1895, have been observed in the transaction of the business of the department during the year:

1. Regular meetings of the Board shall be held on the second Tuesday of January, April, July and October, at the office of the Commission, in Albany, and at such other times and places as the same may be called.

2. Special meetings of the Board may be called at any time by the President, or, in case of his disability, by the Executive Committee, or upon the written request of any three Commissioners. Written notice of all special meetings must be given at least 24 hours previous thereto.

3. A majority of the Board shall constitute a quorum for the transaction of business, and all questions shall be determined by a majority of those present, a quorum voting.

4. The presiding officer and all other members present shall vote upon all questions unless excused by the Board.

5. The presiding officer shall determine all questions of order; and, in case of an appeal, a majority present may overrule his decision.

6. The President shall preside at all meetings when present. In the absence of the President, the Board shall elect one of their number to preside.

7. The order of business of the Board shall be:

(1.) Roll-call.
(2.) Reading and correction of minutes of last meeting.
(3.) Report of Shellfish Commissioner.
(4.) Report of State Fish Culturist.
(5.) Report of Engineer (Superintendent of Forests).
(6.) Report of Chief Protector.
(7.) Secretary's report.
(8.) Report of Auditing and Pay Clerk.
(9.) Report of Standing Committees.
(10.) Reports of Special Committees.
(11.) Miscellaneous and unfinished business.

8. The following standing committees of three each, of which the President shall be one, shall be appointed by the President:

Committee on Forest Preserve and State Lands.
Committee on Hatcheries, Fish Culture and Game.
Committee on Licenses, Permits and Shellfishery.
Executive Committee.
Committee on Legislation.

9. It shall be the duty of the Committee on Forest Preserve and State Lands to consider and report upon all matters of land purchases and business incidental thereto, including the examination of offers which may be submitted, questions of land value, the extent and nature of timber-thieving and measures which should be adopted to suppress it; also to consider and suggest plans for the better organization of the Firewarden system, and other matter arising out of the business connected with the forest and State lands in the care and custody of the Commission.

10. It shall be the duty of the Committee on Hatcheries, Fish Culture and Game to have charge of all matters pertaining to the hatching, culture and distribution of

fish; repairs and improvements to hatcheries; also, to look after the business and interests of the Commission in reference to the protection and preservation of fish and game.

11. The Committee on Licenses, Permits and Shellfish shall formulate and submit the rules for licensing net-fishing, as provided by law, and also for granting permits; and shall from time to time examine all licenses and permits granted, and ascertain whether the terms and conditions of the same have been abused or violated. They shall also have general charge of matters pertaining to the shellfish department not specially delegated to the Shellfish Commissioner by law.

12. The Executive Committee shall examine and audit all accounts, bills and pay-rolls and indorse the same with their approval, when passed; and no bills or accounts shall be paid until so approved; examine and check all books and accounts; examine and check all regular and special reports of employes as often as once in each month and report the result of such examination to the Commission at its first meeting thereafter. They shall also have a general supervision of the business of the Commission and care and control of its interests when the Board is not in session.

13. The Committee on Legislation shall look after the necessary legislation of the Commission; shall examine and consider all proposed amendments or changes in the fish, game and forestry laws or new laws affecting these interests, and shall submit to this Board their opinion upon matters which, in their judgment, require legislative action.

14. The foregoing rules may be altered or amended by vote of a majority of the Commission, upon ten days' notice being given, which notice may be in open meeting and entered on the minutes or by serving written notice.

Commissioner Lyman, having been appointed by the Governor to the office of State Commissioner of Excise, was succeeded on this Commission by Hendrick S. Holden, of Syracuse, April 8, 1896. Mr. Holden was appointed to fill the vacancies in the several standing committees caused by the retirement of Mr. Lyman.

The committees are as follows:

STANDING COMMITTEES.

Forest Preserve and State Lands.—William R. Weed, Hendrick S. Holden, Barnet H. Davis.

Executive.—Hendrick S. Holden, Charles H. Babcock, Barnet H. Davis.

Hatcheries, Fish Culture and Game.—Charles H. Babcock, Edward Thompson, Barnet H. Davis.

Legislation.—Barnet H. Davis, William R. Weed, Charles H. Babcock.

Chapter 169, Laws of 1896, passed March 31, 1896, to amend chapter 395 of the Laws of 1895, under which this Commission was appointed, provided, among other things, for the compensation and expenses of the Commissioners; for the designation of one of the Board to act as Secretary thereof; for the lease of an office in the city of New York or Brooklyn for the transaction of business connected with the leasing of lands under water, as provided by law; and for the appointment of an assistant secretary.

Under the act referred to, an office was opened May 1, 1896, at No. 1 Madison avenue, New York city, for the shellfish department of the State, and Charles A. Taylor was appointed assistant secretary of the Commission.

The following is a summary of the financial transactions of the Commission for the fiscal year:

Financial Statement for the Fiscal Year Ending September 30, 1896.

APPROPRIATIONS FOR GENERAL MAINTENANCE.

Receipts.

Balance October 1, 1895,		$4,638 37
Appropriation under chapter 1009, Laws of 1895,		50,000 00
Appropriation under chapter 950, Laws of 1895:		
For Commissioners' salaries and expenses,		10,535 00
Secretary, Engineer and office help,		9,866 66
Fish, Game and Forest Protectors,		27,030 00
Expenses of Shellfish Commissioner's office,		2,000 00
Hatcheries and hatching stations,		36,666 66
Office expenses,		4,542 90
Building and equipping pond at Pleasant Valley,		3,245 00
Exterminating billfish, Chautauqua Lake,		1,000 00
Exterminating billfish, Black Lake,		500 00
Acquiring water rights at Caledonia,		5,000 00
Payment of Firewardens' claims,		2,500 00
		$157,524 59

Disbursements.

For maintenance of hatcheries and hatching stations and collection and distribution of fish and fish fry,	Schedule "A,"	$43,033 84	
Fish, game and forest protectors' salaries, and expenses,	" "B,"	34,560 64	
Salaries of officials and clerical force,	" "C,"	24,587 61	
Traveling and other expenses of officials,	" "C,"	6,133 80	
Office expenses,	" "D,"	9,637 25	
Office expenses, Shellfish Commissioner's office,	" "E,"	1,968 75	
Completion of Pleasant Valley hatchery,	" "F,"	249 15	
Building and equipping ponds at Pleasant Valley,	" "G,"	3,090 07	
Exterminating billfish, Chautauqua Lake,	" "H,"	240 69	
Exterminating billfish, Black Lake,	" "I,"	254 48	
Firewardens' claims,	" "J,"	2,232 21	
			$125,988 49
Balance, October 1, 1896,			31,536 10
			$157,524 59

Schedule "A."

Hatchery Expenditures.

Adirondack Hatchery:

1895.				
Sept.	A. W. Marks,	labor,	$57 00	
	Joseph Otis,	"	57 00	
	W. D. Oviatt,	"	45 50	
	" "	disbursements,	8 81	
	John G. Roberts,	salary,	75 00	
	" "	expenses,	16 45	
	" "	"	2 98	
	Walton, Starks & Co.,	hardware,	9 35	
	Eugene Keet,	harness repairs,	3 50	
	Walker & Madison,	meat chopper,	6 00	
	Saranac Inn,	lumber,	17 33	
	" "	hardware, etc.,	30 64	
				$329 56
Oct.	Joseph Otis,	labor,	$7 50	
	Ames Bros.,	board bill,	8 00	
	Wm. Ames,	labor and use of horse,	33 50	
	Joseph Otis, Sr.,	labor,	58 90	
	" " "	expenses,	5 90	
	A. W. Marks,	labor,	58 90	
	W. D. Oviatt,	"	50 75	
	" "	expenses,	1 13	
	Alonzo Lamerie,	board bill, team hire,	8 75	
	M. A. Roberts,	labor,	34 20	
	" "	expenses,	1 04	
	Milo Otis,	labor,	54 25	
	" "	expenses,	2 24	
	John G. Roberts,	salary,	90 00	
	" "	board bill,	15 50	
	" "	expenses,	17 97	
	E. M. Weston,	expenses, board,	16 00	
	A. W. Marks,	expenses,	28 50	
				493 03
Nov.	J. G. Roberts,	salary,	$90 00	
	Saranac Inn,	supplies,	14 58	
	John G. Roberts,	board bill,	13 00	
		Forward,	$117 58	$822 59

		Brought forward,	$117 58	$822 59
Nov.	John C. Roberts,	expenses,	11 27	
	W. D. Oviatt,	labor,	57 00	
	" "	expenses,	4 00	
	Mose Minnie,	labor,	20 00	
	Peter St. Germain,	board and livery,	7 25	
	Will S. Ames,	labor,	21 00	
	Ames Bros.,	board bill,	2 50	
	A. W. Marks,	labor,	57 00	
	" "	expenses,	11 90	
	Wallace Murray,	hotel bill,	4 50	
	S. F. Haywood,	hand grenades,	5 00	
	Branch & Callanan,	lumber,	105 00	
	Milo Otis,	labor,	45 00	
	" "	expenses,	1 38	
	M. E. Roberts,	labor,	57 00	
	Ray Stone,	"	31 50	
	Lewis Knowles,	"	42 00	
	Joseph Otis,	labor,	57 00	
	" "	expenses,	10 56	
	Joseph Otis, Jr.,	labor,	13 75	
				682 19
Dec.	M. A. Roberts,	labor,	$43 70	
	W. D. Oviatt,	labor and expenses,	60 01	
	Milo Otis,	" " "	47 11	
	Walton, Starks & Co.,	sundries,	16 54	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	48 18	
	A. W. Marks,	labor and expenses,	86 55	
	Joseph Otis,	" " "	61 05	
				453 14
1896				
Jan.	A. W. Marks,	labor,	$53 20	
	M. A. Roberts,	"	55 10	
	Joseph Otis,	"	55 10	
	W. E. Oviatt,	"	49 40	
	John C. Roberts,	salary,	90 00	
	" "	expenses,	19 60	
				322 40
		Forward,		$2,280 32

		Brought forward,		$2,280 32
Feb.	D. W. Riddle,	sundries,	$12 67	
	A. W. Marks,	labor and expenses,	58 17	
	M. A. Roberts,	labor,	41 80	
	Joseph Otis,	labor and expenses,	49 58	
	W. D. Oviatt,	labor,	58 90	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	25 78	
	A. R. Fuller,	board, men and service,	15 75	
	O. S. Lawrence,	oats,	34 00	
				386 65
Mch.	Wm. Austin,	labor,	$4 50	
	A. W. Marks,	labor,	57 00	
	Joseph Otis,	"	58 90	
	M. A. Roberts,	labor,	58 90	
	Walker & Matherson,	cans,	47 50	
	Schuler Sons,	wire cloth,	5 40	
	Walton, Starks & Co.,	hardware,	8 40	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	4 34	
	Tuffield Latour,	hay,	48 00	
				382 94
April	M. A. Roberts,	labor and expenses,	$57 50	
	Joseph Otis,	" " "	61 75	
	A. W. Marks,	" " "	60 50	
	Milo Otis,	labor,	30 00	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	11 97	
	Riverside Inn,	hotel bill,	5 00	
	Saranac Inn,	supplies,	30 72	
	Crittenden & Co.,	fish food,	15 00	
				362 44
May	M. A. Roberts,	labor and expenses,	$72 76	
	A. W. Marks,	" " "	70 20	
	Joseph Otis,	" " "	40 00	
	Milo Otis,	" " "	54 00	
	Joseph Otis, Jr.,	team work,	7 00	
	John G. Roberts,	salary,	90 00	
		Forward,	$333 96	$3,412 35

		Brought forward,	$333 96	$3,412 35
May	John G. Roberts,	expenses,	5 64	
	Lobdell & Gattan,	painting, etc.,	75 00	
				414 60
June	A. W. Marks,	labor,	$57 00	
	Milo Otis,	"	45 00	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	5 14	
	Walton, Stark & Co.,	hardware,	13 88	
				211 02
July	Crittenden & Co.,	fish food,	$3 33	
	Milo Otis,	labor,	46 50	
	A. W. Marks,	"	50 90	
	John G. Roberts,	salary,	90 00	
	" "	expenses,	7 04	
	Upper Saranac Association,	sundries,	22 59	
				228 36
Aug.	Crittenden & Co.,	fish food,	$1 86	
	American Net and Twine Co.,	nets,	40 94	
	L. W. Noble,	hay,	18 00	
	Milo Otis,	labor,	46 50	
	John G. Roberts,	salary and expenses,	95 59	
				202 89
	Total Adirondack,			$4,469 22

Beaverkill Hatchery:

1895.				
Sept.	H. E. Annin,	salary,	$75 00	
	" "	expenses,	50	
				$75 50
Oct.	Johnston & Albie,	hardware,	$7 38	
	N. Y., O. & W.,	freight,	55	
	Adams Express Co.,		90	
	James Fitzgerald,	coal,	7 15	
	H. C. Dodge,	fencing and cartage,	60 75	
	S. F. Haywood,	hand grenades,	5 28	
	C. B. Laraway,	labor,	24 00	
	H. E. Annin,	salary and expenses,	76 20	
				182 21
		Forward,		$257 71

		Brought forward,		$257 71
Nov.	M. R. Dodge,	livery,	$49 00	
	Aharia Green,	board and cartage,	6 00	
	Johnston & Albie,	hardware,	5 69	
	Campbell & Co.,	"	1 80	
	A. Shaver,	trout eggs and board,	265 09	
	W. D. Marks,	expense account and labor,	32 68	
	George Lawson,	expenses and labor,	50 65	
	Willis Twist,	labor, Alder Lake,	39 00	
	Elmer Austin,	" " "	18 75	
	Charles Laraway,	labor, Beaverkill,	45 00	
	H. E. Annin,	salary and expenses,	83 80	
	H. C. Dodge,	team work,	6 17	
	H. Gage,	labor,	3 75	
	James Willis,	"	11 25	
	Adams Express Co.,		3 40	
				622 03
Dec.	H. C. Dodge,	carting,	$14 35	
	A. Beekman,	lumber,	28 31	
	James Fitzgerald,	coal,	13 04	
	J. T. Watson,	lumber,	7 66	
	M. R. Dodge,	livery and carting,	9 50	
	Aharia Green,	board,	19 00	
	Johnston & Albie,	hardware,	27 28	
	Willis Twist,	labor,	21 00	
	A. E. Shaver,	trout eggs and board,	145 33	
	George Lawson,	labor,	54 25	
	William Ball,	labor and expenses,	41 26	
	Charles Laraway,	labor,	46 50	
	H. E. Annin,	salary,	75 00	
	" "	expenses,	10 45	
				512 93
1896.				
Jan.	William Ball,	labor and expenses,	$10 36	
	George Lawson,	" "	34 82	
	A. E. Shaver,	trout eggs and board,	173 40	
	M. R. Dodge,	livery,	6 00	
	Aharia Green,	board and cartage,	5 42	
	Johnston & Albie,	hardware,	4 04	
		Forward,	$234 04	$1,392 67

		Brought forward,	$234 04	$1,392 67
Jan.	James Fitzgerald,	coal,	7 46	
	Charles Laraway,	labor,	46 50	
	H. E. Annin,	salary,	75 00	
	"	expenses,	6 07	
				369 07
Feb.	Roscoe Manufacturing Co.,	slabs, etc.,	$3 47	
	James Fitzgerald,	coal,	10 08	
	Charles Laraway,	labor,	43 50	
	H. E. Annin,	salary and expenses,	76 66	
				133 71
Mch.	James Fitzgerald,	coal,	$8 61	
	Charles Laraway,	wages, labor,	46 50	
	H. E. Annin,	salary and expenses,	75 73	
				130 84
April	Aharia Green,	cartage,	$2 00	
	James Fitzgerald,	coal,	3 15	
	Charles Laraway,	labor,	45 00	
	H. E. Annin,	salary and expenses,	79 07	
				129 22
May	M. R. Dodge,	cartage,	$5 00	
	Aharia Green,	"	5 75	
	Charles Laraway,	labor,	46 50	
	H. E. Annin,	salary,	75 00	
	"	expenses,	9 13	
				141 38
June	H. E. Annin,	salary,	$75 00	
	"	expenses,	1 53	
	M. R. Dodge,	livery,	3 00	
	Charles Laraway,	labor,	21 00	
				100 53
Aug.	J. G. Miller,	cartage,	$3 75	
	W. E. Hall,	board,	7 00	
	Johnson & Albie,	hardware,	3 35	
	H. E. Annin,	salary and expenses,	95 55	
				109 65
		Total Beaverkill,		$2,507 07

Caledonia Hatchery:

1895.				
Sept.	Frank Redband,	salary,	$90 00	
	George Stewart,	labor,	42 00	
	William Johnson,	"	49 00	
	John N. Upton,	"	49 00	
	George Lawson,	"	49 00	
	W. D. Marks,	"	56 00	
	Sylvester Sellick,	"	42 00	
	George Reband,	mason,	8 75	
	Johnathan,	labor,	12 50	
	Henry W. Mason,	"	6 25	
	William Ball,	carpenter,	6 25	
	William Ball,	"	33 25	
	Wells Fargo Express,	on meat,	10 00	
	C. Klinck,	fish food,	25 00	
	McCabe Bros.,	"	3 85	
	F. W. Miller,	lumber,	15 90	
	Jamie Annin,	carting cans,	4 60	
	W. J. Williams,	lumber,	102 00	
	Walker & Matterson,	hardware,	35 07	
	C. A. Tighe,	brooms,	2 50	
	R. J. Myers,	books,	5 25	
				$648 17
Oct.	Frank Redband,	salary,	$90 00	
	"	expenses,	80	
	George Stewart,	labor,	30 00	
	William Johnson,	"	50 75	
	George H. Lawson,	"	50 75	
	W. D. Marks,	"	58 00	
	Sylvester Sellick,	"	30 00	
	C. Cooper,	team labor,	6 00	
	Wells Fargo Express,		12 05	
	American Express Co.,		70	
	C. Klinck,	fish food,	32 40	
	McCabe Bros.,	"	2 23	
	J. C. Annin,	cartage,	1 75	
	W. R. McArthur,	gravel,	1 60	
		Forward,	$367 03	$648 17

		Brought forward,	$367 03	$648 17
Oct.	Schuler & Sons,	wire cloth,	31 89	
	Thos. Gallagherm,	brushes,	2 00	
	F. H. Chase,	clock,	13 50	
	James Field,	twine,	53	
	Richard Reed,	box irons,	3 75	
	Freeman Bros.,	coal,	8 25	
	A. T. Campbell,	paint,	15 47	
	W. J. Williams,	lumber,	82 30	
	S. F. Haywood,	hand grenades,	5 69	
	R. R. Brown,	painting boats,	3 00	
	Norton Chase,	paint and putty,	1 47	
	William Ball,	carpenter labor	28 12	
				563 00
Nov.	Frank Redband,	salary,	$90 00	
	" "	expenses,	4 38	
	George Stewart,	labor,	52 59	
	Daniel Troy,	"	13 13	
	William Johnson,	"	49 00	
	Sylvester Sellick,	"	40 50	
	George Lawson,	"	12 25	
	Samuel Sloan,	sundries,	6 67	
	J. R. Chamberlain,	rubber tubing,	2 40	
	Holden & Son,	coal,	78 20	
	McCabe Bros.,	fish food,	2 90	
	W. J. Williams,	lumber,	32 25	
	A. P. Campbell,	white leaf,	3 28	
	American Express Co.,		27 95	
	Walker & Madison,	hardware,	59 85	
	C. Klinck,	fish food,	25 40	
	Wells Fargo Express,		18 15	
	Caledonia Fishing Club,	coal,	123 20	
	J. C. Pulliback,	cartage,	6 15	
	Jamie Annin,	"	5 70	
	A. K. Fowler,	alcohol,	12 03	
				665 98
Dec.	Frank Redband,	salary,	$90 00	
	" "	expenses,	2 49	
	George Stewart,	labor,	45 75	
		Forward,	$138 24	$1,877 15

		Brought forward,	$138 24	$1,877 15
Dec.	William Johnson,	labor,	50 75	
	Sylvester Sellick,	"	43 50	
	W. D. Marks,	"	58 00	
	" "	expenses,	22 81	
	John A. Upton,	labor and expenses,	61 87	
	Daniel Troy,	"	12 25	
	J. C. Annin,	cartage,	4 00	
	C. Klinck,	fish food,	29 50	
	McCabe Bros.,	"	4 31	
	Wells Fargo Express,		10 15	
	American Express Co.,		22 65	
	A. K. Fowler,	alcohol,	13 96	
	J. E. Harvey,	supplies,	3 93	
	Henrich & Co.,	lamps, etc.,	9 75	
	Thomas W. Ford,	heater for hatchery,	295 00	
	Gordon & McCabe,	office furniture,	139 28	
	George Weldon & Co.,	shades,	8 80	
	C. F. Hall,	trout,	406 25	
				1,335 00
1896.				
Jan.	Frank Redband,	salary and expenses,	$90 60	
	George Stewart,	labor,	43 50	
	William Johnson,	"	50 75	
	Sylvester Sellick,	"	43 50	
	W. D. Marks,	"	58 00	
	John A. Upton,	" and expenses,	69 04	
	George Lawson,	"	26 25	
	J. C. Annin,	cartage,	4 50	
	McCabe Bros.,	fish food,	4 43	
	William Armstrong,	team labor,	17 25	
	William Ball,	labor,	3 00	
	Wells Fargo Express,		14 35	
	American Express Co.,		2 50	
	A. K. Fowler,	alcohol,	29 11	
	Walker & Matterson,	hardware,	30 22	
	A. H. Collins,	printing,	1 25	
	Samuel Sloan,	plumbing,	4 00	
		Forward,	$492 25	$3,212 15

		Brought forward,	$492 25	$3,212 15
Jan.	Burke Fitzsimmons Co.,	netting,	1 50	
	C. Dorflinger & Sons,	jars,	15 85	
	S. F. Denton,	mounting specimens,	20 00	
				529 60
Feb.	Frank Redband,	salary,	$90 00	
	"	expenses,	8 80	
	George Stewart,	labor,	40 50	
	William Johnson,	"	47 25	
	Sylvester Sellick,	"	40 50	
	W. D. Marks,	"	54 00	
	"	expenses,	56 64	
	John A. Upton,	labor and expenses,	85 96	
	George Lawson,	"	47 25	
	J. C. Annin,	cartage,	2 60	
	Wells Fargo Express,		10 10	
	American Express Co.,		4 80	
	Henry Sage,	board and room,	15 00	
	A. R. Campbell,	paints,	9 75	
	C. Klinck,	fish food,	66 30	
	W. J. Williams,	lumber,	11 90	
	G. W. Gillis,	pictures,	7 80	
	W. F. Lawson,	carting fish,	14 00	
	Will Garbitt,	ice,	40 00	
				653 15
Mch.	Frank Redband,	labor,	$90 00	
	" "	expenses,	32 10	
	George Stewart,	labor and expenses,	63 30	
	William Johnson,	expenses,	54 25	
	Sylvester Sellick,	labor,	46 50	
	W. D. Marks,	labor and expenses,	95 10	
	George Lawson,	labor,	54 25	
	J. C. Annin,	cartage,	3 20	
	American Express Co.,		4 90	
	Wells Fargo Express,		10 35	
	W. F. Lawson,	cartage,	11 25	
	J. E. Harvey,	sundries,	4 05	
	Walker & Matterson,	hardware,	14 46	
	Salter Bros.,	bulbs,	22 83	
		Forward,	$506 54	$4,394 90

		Brought forward,	$506 54	$4,394 90
Mch.	Schuler Sons,	brass wire,	6 60	
	McCabe Bro.,	fish food,	6 10	
	G. H. Croughton,	negatives,	9 00	
				528 24
April	Frank Redband,	salary and expenses,	$103 69	
	George Stewart,	labor and expenses,	80 98	
	John A. Upton,	" " "	80 80	
	William Johnson,	labor,	52 50	
	Sylvester Sellick,	"	49 50	
	Geo. H. Lawson,	"	57 00	
	H. R. Cotcherfer,	"	46 75	
	Wm. Corphey,	"	34 50	
	A. Baldeck,	"	24 00	
	H. N. Kendall,	"	20 30	
	Wm. Armstrong,	team labor,	54 25	
	Nick Haas,	labor,	21 75	
	Geo. Henderson,	"	20 25	
	J. C. Annin,	cartage,	3 40	
	Crittenden & Co.,	fish food,	12 76	
	C. Klinck,	fish food,	33 80	
	"	" "	33 80	
	R. Pullybank,	cartage,	5 75	
	John C. Pullybank,	carting,	3 75	
	W. F. Lawson,	"	13 75	
	W. Robertson,	planting trees,	6 75	
	C. Dorflinger & Sons,	jars,	53 78	
	Mattherson & Son,	carting fish,	20 00	
	Wells Fargo Express,		79 44	
	American Express Co.,		6 80	
	Westcott Express,		3 70	
	Salter Bros., florists,		2 65	
	A. H. Collins,	circulars,	2 50	
	C. W. Blackman,	meat cutter,	8 00	
				936 90
May	Frank Redband,	salary and expenses,	$98 09	
	George Stewart,	labor and expenses,	85 86	
	John A. Upton,	" "	35 45	
	William Johnson,	labor,	54 25	
		Forward,	$273 65	$5,860 04

		Brought forward,	$273 65	$5,860 04
May	Sylvester Sellick,	labor,	51 15	
	George Lawson,	"	58 90	
	H. R. Cotcherfer,	"	18 00	
	William Corphey,	"	39 00	
	A. Baldeck,	"	40 50	
	H. N. Kendall,	"	31 50	
	William Armstrong,	team labor,	84 00	
	Nick Haas,	labor,	31 50	
	George Henderson,	"	35 25	
	J. C. Annin,	cartage,	7 00	
	Crittenden & Co.,	fish food,	16 83	
	C. Klinck,	"	30 50	
	McCabe Bros.,	"	15 03	
	R. Pullybank, Jr.,	cartage,	6 50	
	A. H. Collins,	tags,	2 50	
	Walker & Matterson,	hardware,	26 82	
	J. E. Harvey,	salt,	7 20	
	A. K. Fowler,	alcohol for specimens,	36 01	
	A. B. Campbell,	sundries,	11 49	
	American Express Co.,		8 20	
	Wells Fargo Express,		15 00	
	Geo. Cutterson,	board man,	4 50	
	Schuler Sons,	wire cloth,	6 78	
	S. F. Denton,	specimens,	30 00	
				887 81
June	Frank Redband,	salary and expenses,	$90 55	
	George Stewart,	labor and expenses,	65 00	
	John A. Upton,	labor,	44 00	
	Wm. Johnson,	"	52 50	
	Sylvester Sellick,	"	49 50	
	Geo. H. Lamson,	"	57 00	
	H. R. Cotcherfer,	"	45 00	
	W. Corphey,	"	38 25	
	Alfonso Baldeck, gardner,		36 00	
	W. Armstrong,	team labor,	84 00	
	Nick Haas,	labor,	30 75	
	George Henderson,	"	41 50	
	J. C. Annin,	cartage,	5 90	
		Forward,	$639 95	$6,747 85

		Brought forward,	$639 95	$6,747 85
June	W. N. Oviatt,	labor and expenses,	21 70	
	W. D. Marks,	" " "	27 64	
	C. Dorflinger & Sons,	jars,	6 20	
	Scranton & Wetmore,	stationery,	10 75	
	C. Klinck,	fish food,	31 00	
	McCabe Bros.,	" "	8 00	
	A. H. Collins,	printing,	1 50	
	E. B. McKay,	cedar posts,	2 43	
	S. W. Voorhees,	drilling well,	35 00	
	Wm. McNaughton,	carpenter,	15 50	
	J. F. Ward,	florist,	57 37	
	Wm. F. Lawson,	carting cans,	1 25	
	A. J. Pickerd,	board men,	4 35	
	Wells Fargo Express,		19 42	
	American Express Co.,		5 05	
	A. K. Fowler,	alcohol and glycerine,	16 12	
				903 23
July	Frank Redband,	salary and expenses,	$91 20	
	George Stewart,	labor and expenses,	70 30	
	John A. Upton,	" " "	27 80	
	William Johnson,	labor,	54 25	
	Sylvester Sellick,	"	51 15	
	Geo. H. Lawson,	"	58 90	
	H. R. Cotcherfer,	labor and expenses,	58 66	
	William Curphey,	labor,	36 00	
	A. Baldeck,	"	40 50	
	William Armstrong,	team labor,	142 30	
	Nick Haas,	labor,	10 50	
	G. Henderson,	"	36 00	
	Grant Christie,	labor and expenses,	32 79	
	J. C. Annin,	cartage,	26 07	
	R. Pullybank,	"	18 00	
	John Pullybank,	"	14 00	
	S. F. Denton,	mounted shad,	25 65	
	Crittenden & Co.,	fish food,	27 75	
	" "	" "	29 68	
	C. Klinck,	" "	40 50	
	Service & Hoffman,	wallcase,	35 00	
		Forward,	$ 927 00	$7,651 08

		Brought forward,	$927 00	$7,651 08
July	C. W. Dodge,	extra water,	30 00	
	A. P. Campbell,	paints,	17 45	
	M. W. Rundell,	frame and map,	4 39	
	W. J. Williams,	lumber,	96 59	
	J. E. Harvey,	salt,	17 60	
	Ball & Donohue,	"	16 00	
	Walker & Madison,	hardware,	99 18	
	E. Reist,	coal,	213 53	
	William McNaughton,	carpenter,	5 50	
	Westcott Express Co.,		10 15	
	American Express Co.,		3 00	
	Wells Fargo Express,		17 65	
	Wyckoff Seaman Co.,	repairs typewriter,	5 50	
	Schuler Sons,	wire screens,	2 60	
				1,466 14
Aug.	Frank Redband,	salary and expenses,	$100 55	
	George Stewart,	labor,	61 34	
	John A. Upton,	"	62 65	
	William Johnson,	"	54 25	
	Sylvester Sellick,	"	51 15	
	George H. Lawson,	"	58 90	
	H. R. Cotcherfer,	"	43 50	
	William Curphey,	"	1 50	
	A. Baldeck,	"	39 00	
	George Henderson,	"	1 50	
	William McNaughton,	"	11 00	
	J. C. Annin,	cartage,	5 50	
	R. Pullybank,	"	5 00	
	John Pullybank,	"	11 56	
	Crittenden & Co.,	fish food,	35 85	
	C. Klinck,	" "	39 00	
	McCabe Bros.,	" "	7 78	
	M. W. Rundell,	picture frames,	6 42	
	Scranton & Wetmore,	office supplies,	6 90	
	Schuler Sons,	wire cloth,	9 80	
	W. A. Holden,	coal,	96 69	
	J. E. Harvey,	salt,	4 00	
		Forward,	$713 84	$9,117 22

		Brought forward,	$713 84	$9,117 22
Aug.	Wells Fargo Express,		25 28	
	Silver Lake Ice Co.,	ice,	17 15	
			— —	756 27
	Total Caledonia,			$9,873 49

Cold Spring Hatchery:

1895.				
Sept.	A. L. Wright,	telegrams,	$2 99	
	M. Abrams,	fish food,	68 40	
	Long Island Express Co.,		12 25	
	C. H. Walters,	expenses,	6 57	
	E. A. Cooper,	labor,	52 50	
	Peter Gorman,		52 50	
	F. Van Ausdale,	labor,	52 50	
	C. L. Walters,	foreman,	90 00	
	Notary fee,		25	
				$337 96
Oct.	A. Ford,	lobster eggs,	$10 00	
	D. P. Van Wickel,	" "	10 00	
	Peter Morgan,	" "	10 00	
	Estey Wire Works,	egg trays, etc.,	37 20	
	Long Island Express Co.,	freight,	1 05	
	M. Abrams,	fish food,	84 80	
	Long Island Express Co.,		12 90	
	S. F. Haywood,	hand grenades,	5 28	
	Long Island Express Co.,	freight,	75	
	American Net and Twine Co.,	nets,	6 92	
	Long Island Express Co.,	freight,	25	
	William H. Stoyle,	spawning pans,	5 60	
	J. C. Totten,	cartage,	10 50	
	W. D. Marks,	expenses,	32 04	
	C. H. Walters,	"	11 62	
	Peter Gorman,	labor,	54 25	
		Forward,	$293 16	$337 96

		Brought forward,	$293 16	$337 96
Oct.	F. Van Ausdale,	labor,	54 25	
	E. A. Cooper,	"	54 25	
	C. H. Walters,	foreman,	90 00	
	Notary fee,		25	
				491 91
Nov.	American Net and Twine Co.,	nets,	$24 00	
	Long Island Express Co.,	freight,	14 70	
	S. C. Brown,	hatching jars,	161 00	
	Freight on jars,		1 10	
	S. D. Wood,	repairing pond,	7 50	
	J. C. Totten,	carting,	15 50	
	R. H. Baldwin,	freight on engine,	55 20	
	T. T. O'Neil,	coal,	31 30	
	M. Abrams,	fish food,	83 00	
	A. P. Dodge,	hardware,	4 20	
	E. A. Cooper,	labor,	52 50	
	Peter Gorman,	"	52 50	
	F. Van Ausdale,	"	52 50	
	C. H. Walters,	salary,	90 00	
	Mail boy,		1 00	
	Notary fee,		25	
				646 25
Dec.	J. C. Totten,	express,	$13 75	
	M. Abrams,	fish food,	74 80	
	Bingham & Brush,	coal,	21 00	
	W. H. Stoyle,	engine fixtures,	4 73	
	J. T. Mahan,	machinist,	10 00	
	Edward Holmes,	ice house,	252 16	
	W. R. Bingham,	material for ice house,	55 65	
	Peter Gorman,	labor,	54 25	
	F. Van Ausdale,	"	54 25	
	E. A. Cooper,	"	54 25	
	O. V. Rogers, labor,	"	35 00	
	C. H. Walters,	expenses and salary,	94 00	
				723 84
1896.				
Jan.	Peter Gorman,	expenses with fish,	$38 98	
	M. Abrams,	fish food,	78 80	
		Forward,	$117 78	$2,199 96

		Brought forward,	$117 78	$2,199 96
Jan.	A. P. Dodge,	sundries,	4 58	
	D. W. Trainor,	"	1 90	
	J. C. Totten,	cartage,	14 50	
	F. T. O'Neil,	coal,	13 88	
	J. C. Totten,	express,	17 75	
	E. A. Cooper,	labor,	54 25	
	O. V. Rogers,	"	54 25	
	F. Van Ausdale,	"	54 25	
	Peter Gorman,	"	54 25	
	C. H. Walters,	salary and expenses,	98 36	
				485 75
Feb.	Peter Gorman,	expenses,	$14 10	
	J. C. Totten,	cartage,	3 00	
	W. W. Wood,	coal,	11 00	
	E. A. Cooper,	expenses,	15 48	
	Crane Co.,	iron gates,	9 32	
	W. R. Bingham,	filling ice house,	50 00	
	Long Island Publishing Co.,	tags,	3 50	
	Peter Gorman,	expenses,	1 95	
	M. Abrams,	fish food,	82 00	
	L. K. Express Co.		22 65	
	E. A. Cooper,	expenses,	2 00	
	Grant Christie,	painting,	9 75	
	O. V. Rogers,	labor,	50 75	
	Peter Gorman,	"	50 75	
	F. Van Ausdale,	"	50 75	
	E. A. Cooper,	"	50 75	
	C. H. Walters,	salary and expenses,	104 73	
	Walker & Madison,	fish cans,	47 50	
				579 98
Mch.	Estey Wire Works,	screens,	$26 72	
	Walker & Madison,	fish cans,	47 50	
	American Net and Twine Co.,	seine,	8 82	
	W. W. Wood,	coal,	22 00	
	M. Abrams,	fish food,	79 20	
	J. C. Totten,	freight,	21 50	
	E. A. Cooper,	labor,	54 25	
	"	expenses,	78 12	
		Forward,	$338 11	$3,265 69

		Forward,	$338 11	$3,265 69
Mch.	O. V. Rogers,	salary,	54 25	
	F. Van Ausdale,	labor,	54 25	
	Peter Gorman,	"	54 25	
	C. H. Walters,	salary and expenses,	100 73	
	Blackfords,	fish cans,	43 75	
				645 34
Apr.	E. A. Cooper,	labor and expenses,	$168 55	
	Peter Gorman,	" " "	133 33	
	Hay Cooper,	" " "	76 24	
	O. V. Rogers,	" " "	105 14	
	A. L. Wright,	telegraph,	15 75	
	M. Abrams,	fish food,	85 80	
	J. C. Totten,	expressage,	47 47	
	James Oats,	horse hire,	26 50	
	F. Van Ausdale,	labor,	52 50	
	C. H. Walters,	salary and expenses,	110 02	
				821 30
May	M. Abrams,	fish food,	$90 60	
	A. P. Dodge,	hardware,	2 64	
	W. W. Wood,	shading ponds,	75 92	
	Peter Gorman,	salary and expenses,	71 72	
	E. A. Cooper,	labor and expenses,	102 29	
	J. C. Totten,	cartage,	30 00	
	Long Island Express Co.,	freight,	23 60	
	James Oats,	horse hire and cartage	7 50	
	F. T. O'Neil,	sundries,	5 58	
	F. Van Ausdale,	labor,	54 25	
	O. V. Rogers,	"	54 25	
	John T. Mahan,	"	21 00	
	C. H. Walters,	salary and expenses,	95 00	
				634 35
June	J. C. Totten,	cartage,	$9 50	
	Wm. O'Hara,	decorating grounds,	50 00	
	W. W. Wood,	hatching lobster,	63 94	
	W. H. Stoyle,	hardware,	13 78	
	Long & Bunce,	labor and fixtures,	26 61	
	A. L. Wright,	telegraphing,	9 11	
		Forward,	$172 94	$5,366 68

		Brought forward,	$172 94	$5,366 68
June	Lefferts, Jarvis & Co.,	windows,	7 83	
	S. C. Brown,	jars,	10 50	
	M. Abrams,	fish food,	89 20	
	J. C. Totten,	express,	21 11	
	E. A. Cooper,	labor and expenses,	55 00	
	Peter Gorman,	" " "	55 10	
	O. V. Rogers,	labor,	52 50	
	F. Van Ausdale,	"	52 50	
	John F. Mahan,	"	52 50	
	C. H. Walters,	salary and expenses,	115 75	
				684 93
July	A. E. Cooper,	labor and expenses,	$61 83	
	M. Abrams,	fish food,	96 60	
	J. C. Totten,	express,	14 95	
	W. W. Wood,	sundries,	19 50	
	A. T. Dodge,	"	6 98	
	H. C. Bunner,	tank,	5 00	
	William Bingham,	cartage,	5 00	
	Bingham & Brush,	sundries,	10 17	
	Peter Gorman,	expenses,	2 70	
	O. V. Rogers,	labor,	54 25	
	John T. Mahan,	labor,	47 25	
	F. Van Ausdale,	"	54 25	
	C. H. Walters,	salary and expenses,	102 50	
				480 98
Aug.	Standard Oil Company,	collecting lobster eggs,	$27 52	
	A. Ford,	lobster eggs,	10 00	
	Fred Morlenson,	" "	10 00	
	Peter C. Moreton,	" "	10 00	
	James Oats,	cartage,	6 00	
	William H. Lewis,	mill work,	12 57	
	W. W. Wood,	lumber,	107 13	
	M. Abrams,	fish food,	107 00	
	J. C. Totten,	express,	16 45	
	S. D. Wood,	labor,	22 50	
	James Wheeler,	cartage,	12 50	
	J. T. Mahan,	labor,	47 25	
		Forward,	$388 92	$6,532 59

			Brought forward,	$388 92	$6,532 59
Aug.	E. A. Cooper,	labor,		54 25	
	F. Van Ausdale,	"		54 25	
	O. V. Rogers,	labor,		54 25	
	C. H. Walters,	salary and expenses,		95 57	
					647 24
	Total Cold Spring,				$7,179 83

Fulton Chain Hatchery:

1895.					
Sept.	J. H. Neeper,	fish food,		$10 20	
	American Net and Twine Co.,	net,		25 55	
	George Deer & Son,	lumber,		18 51	
	W. H. Burke,	labor,		45 60	
	J. A. Wood,	"		55 10	
	F. S. Marks,	"		49 40	
	E. L. Marks,	salary,		90 00	
	"	stamps,		75	
	"	traveling expenses,		5 13	
					$300 24
Oct.	W. H. Burke,	labor,		58 90	
	J. A. Wood,	"		58 90	
	Sabin & Harvey,	coal tar,		15 46	
	Nicholas Ginther,	freight,		6 25	
	F. S. Marks,	labor,		58 90	
	E. L. Marks,	salary,		90 00	
	"	expenses,		4 42	
	S. T. Haywood,	fire grenades,		5 28	
	H. D. Ross,	hatchery totals,		5 50	
					303 61
Nov.	American Net and Twine Co.,	netting,		$8 31	
	Ed. Arnold,	labor,		38 00	
	W. H. Burke,	"		57 00	
	"	expenses,		9 52	
	J. A. Wood,	labor,		57 00	
		expenses,		66	
	F. C. Marks,	labor,		57 00	
			Forward,	$227 49	$603 85

		Brought forward,	$227 49	$603 85
Nov.	E. L. Marks,	salary,	90 00	
	"	expenses,	17 60	
	J. A. Harvey,	hardware,	10 81	
				345 90
Dec.	J. H. Sprague,	freight,	$5 00	
	T. R. Clark,	delivery,	1 50	
	F. C. Marks,	labor,	58 90	
	W. H. Burke,	"	58 90	
	E. L. Marks,	salary and expenses,	100 54	
				224 84
1896.				
Jan.	J. H. Neefer,	fish food,	$4 75	
	Deis & Sons,	lumber,	4 44	
	N. Ginther,	freight,	1 75	
	F. C. Marks,	labor,	41 80	
	W. H. Burke,	"	58 90	
	E. L. Marks,	salary and expenses,	105 49	
				217 13
Feb.	D. W. Codling,	fish food,	$9 73	
	Sabin & Harvey,	hardware,	6 25	
	F. S. Marks,	labor,	55 10	
	W. H. Burke,	"	55 10	
	E. L. Marks,	salary and expenses,	90 80	
				216 98
Mch.	Dodge & Snyder,	paints,	$12 46	
	David Sharbonneau,	team work,	14 00	
	N. Ginther,	freight,	3 55	
	W. H. Burke,	labor,	58 90	
	F. C. Marks,	"	58 90	
	E. L. Marks,	salary and expenses,	92 16	
				239 97
April	N. Ginther,	freight,	$7 35	
	W. H. Burke,	labor and expenses,	58 75	
	F. C. Marks,	"	57 00	
	W. D. Codling,	fish food,	4 89	
	E. L. Marks,	salary and expenses,	94 40	
				222 39
		Forward,		$2,071 06

			Brought forward,	$2,071 06
May	N. Ginther,	freight,	$5 00	
	D. W. Codling,	fish food,	1 86	
	Deis & Sons,	lumber,	11 32	
	F. C. Marks,	labor,	58 90	
	W. H. Burke,	labor and expenses,	65 53	
	E. L. Marks,	salary and expenses,	92 00	
				234 61
June	D. W. Codling,	fish food,	$5 07	
	James Fields,	flag,	10 68	
	N. Ginther,	freight,	4 88	
	F. C. Marks,	labor,	57 00	
	William H. Burke,	"	57 00	
	E. L. Marks,	salary and expenses,	91 00	
				225 63
July	Crittenden & Co.,	fish food,	$5 30	
	N. Ginther,	freight,	9 50	
	J. A. Harvey,	hardware,	3 03	
	Deis & Sons,	lumber,	7 16	
	F. C. Marks,	labor,	58 90	
	William H. Burke,	labor and expenses,	66 85	
	E. L. Marks,	salary and expenses,	95 00	
				245 74
Aug.	Crittenden & Co.,	fish food,	$10 38	
	Deis & Sons,	lumber, etc.,	47 76	
	J. A. Harvey,	hardware,	8 85	
	William H. Burke,	labor,	58 90	
	"	expenses,	5 90	
	E. L. Marks,	salary and expenses,	90 50	
				222 29
	Total Fulton Chain,			$2,999 33

Pleasant Valley Hatchery:

1895.				
Sept.	F. C. Hunniston,	labor,	$28 75	
				$28 75
Oct.	S. C. Brownell,	hardware,	$60 22	
	F. L. Ramsdell,	salary,	75 00	
	"	expenses,	12 60	
		Forward,	$147 82	$28 75

		Brought forward,	$147 82	$28 75
Oct.	Gould & Nolan,	plumbing,	329 59	
	Grant Christie,	painting dwelling,	22 50	
	Wm. Ball,	carpenter work,	35 00	
	F. C. Hunniston,	labor,	40 50	
	George Stewart,	"	13 50	
	" "	expenses,	4 12	
	F. C. Hunniston,	board men,	9 00	
	S. Sellick,	labor,	13 50	
	"	expenses,	4 12	
	S. W. Dickson,	labor team,	15 00	
	H. Garvey,	labor,	7 50	
	George Garvey,	"	7 50	
	Walter Garvey,	"	6 00	
	A. Aldridge,	board of men,	16 00	
	A. Beekman,	lumber,	136 26	
				807 91
Nov.	A. Beekman,	lumber,	$225 05	
	Gould & Nolan,	pike, etc.,	33 99	
	C. S. Brownell,	paints,	30 29	
	F. L. Ramsdell,	expenses,	2 45	
	S. T. Haywood,	hand grenades,	5 56	
	V. R. Barrett,	mason work,	12 50	
	G. Christie,	painting labor,	27 00	
	"	expenses,	8 24	
	F. L. Ramsdell,	salary,	75 00	
	Wm. Ball,	labor,	62 50	
	"	expenses,	3 81	
	F. C. Hunniston,	labor,	38 25	
	S. W. Dixon,	team labor,	13 50	
	A. Aldridge,	board of men,	25 25	
				593 39
Dec.	W. Garvey,	labor,	$6 00	
	Henry Garvey,	"	6 00	
	H. McLaughlin,	"	6 00	
	George Garvey,	"	6 00	
	Oscar Johnson,	"	6 00	
	F. C. Hunniston,	"	39 00	
	F. L. Ramsdell,	salary and expenses,	76 10	
	Wm. Ball,	expenses,	2 31	
		Forward,	$147 71	$1,430 05

		Brought forward,	$147 71	$1,430 05
Dec.	Kirkham & Platt,	lumber,	7 69	
	M. Bowes & Co.,	coal,	8 25	
	A. Beekman,	lumber,	40 80	
	C. S. Brownell & Co.,	hardware,	3 75	
	Gould & Nolan,	plumbing, etc.,	53 67	
	A. Aldridge,	board of men,	3 00	
	Wm. Ball,	labor,	15 00	
				279 87
1896.				
Jan.	James Crans,	ice,	$39 97	
	C. S. Brownell & Co.,	hardware,	5 96	
	M. Bowes & Co.,	coal,	8 25	
	John A. Upton,	expenses,	31 40	
	F. C. Hunniston,	labor,	40 50	
	F. L. Ramsdell,	salary and expenses,	78 65	
				204 73
Feb.	Gaylon Johnson,	labor,	$3 75	
	Schuler Sons,	wire cloth,	4 80	
	W. Sutherland,	iron work,	26 15	
	F. L. Ramsdell,	salary and expenses,	81 35	
	C. S. Brownell & Co.,	hardware,	18 22	
	A. Aldridge,	board two men,	17 17	
	M. Bowes & Co.,	coal,	8 25	
	F. C. Hunniston,	labor,	40 50	
	Wm. Ball,	"	70 71	
				270 90
Mch.	Terine & Davidson,	material for bedding,	$10 95	
	Frank Platt,	furniture,	45 00	
	M. Bowes & Co.,	coal,	8 25	
	E. A. Brownell,	hardware,	11 25	
	W. Sutherland,	tinning roof,	15 75	
	Wm. Ball,	labor and expenses,	51 75	
	F. C. Hunniston,	labor,	46 50	
	Grant Christie,	labor and expenses,	68 25	
	Wm. H. Hall,	wood,	2 50	
	W. D. Oviatt,	labor and expenses,	74 20	
	E. W. Dixon,	cartage,	8 00	
	A. Aldridge,	board men,	28 00	
		Forward,	$370 40	$2,185 55

		Brought forward,	$370 40	$2,185 55
Mch.	R. Cotcherfer,	expenses,	9 50	
	C. W. Blackman,	meat cutter,	8 00	
	J. A. Smith,	moulding,	5 25	
	A. Beekman,	lumber,	47 77	
	"	"	67 30	
	E. R. Coffin,	wallpaper and labor,	36 45	
	Crittenden & Co.,	fish food,	3 25	
				547 92
April	F. J. Dixon,	labor,	$19 50	
	O. S. Johnson,	"	25 50	
	Richard Buckley,	"	25 50	
	F. W. Dixon,	"	23 50	
	M. Bowes & Co.,	coal and cement,	15 05	
	A. B. Beekman,	lumber,	60 66	
	F. C. Hunniston,	labor,	45 35	
	A. Aldridge,	board men,	23 75	
	Hiram Osterhouse,	labor,	13 50	
	A. Booth,	"	22 50	
	H. Garvey,	"	22 50	
	H. McLocklin,	"	22 25	
	Van E. Barrett,	mason work,	10 00	
	William Ball,	labor and expenses,	43 55	
	M. Sutherland,	tinning,	42 39	
	Brownell & Co.,	hardware,	27 35	
	Kirkham & Platt,	lumber,	21 48	
	Gould & Nolan,	plumbing,	19 92	
	W. D. Oviatt,	labor,	68 80	
	R. Cotcherfer,	expenses,	16 75	
	Grant Christie,	labor and expenses,	26 61	
				596 41
June	Walker & Madison,	set blocks,	$2 50	
	James Field,	American flag,	8 00	
	A. Beekman,	lumber,	37 36	
	Kirkham & Platt,	"	33 08	
	F. C. Hunniston,	labor,	52 50	
	H. Hunniston,	"	22 50	
	R. Buckley,	"	36 00	
	S. W. Dixon,	labor with team,	48 75	
		Forward,	$240 69	$3,329 88

		Brought forward,	$240 69	$3,329 88
June	Brownell & Co.,	hardware,	9 72	
	G. W. Peck Company,	"	6 25	
	Crittenden & Co.,	fish food,	18 80	
	R. Cotcherfer,	services and expenses,	258 45	
				533 91
July	F. C. Hunniston,	labor,	$54 25	
	H. Hunniston,	"	23 25	
	R. Buckley,	"	43 50	
	A. D. Booth,	"	32 25	
	S. W. Dixon,	tram labor,	42 50	
	Brownell & Co.,	hardware,	5 70	
	W. D. Oviatt,	labor and expenses,	80 48	
	Crittenden & Co.,	fish food,	15 69	
	J. Annin, Jr.,	board Oviatt,	8 00	
	R. Cotcherfer,	services and expenses,	91 90	
				397 52
Aug.	R. R. Flynn & Co.,	salt,	$4 25	
	F. C. Hunniston,	labor,	54 25	
	Herbert Hunniston,	"	23 25	
	R. Buckley,	"	42 00	
	Crittenden & Co,,	fish food,	22 77	
	American Net and Twine Co.,	twine,	2 93	
	R. Cotcherfer,	salary and expenses,	90 01	
				239 46
	Total Pleasant Valley,			$4,500 77

Sacandaga Hatchery:

1895.				
Sept.	J. E. Morrison,	labor,	$15 75	
	Burnham & Lavery,	supplies,	3 32	
	E. F. Boehm,	salary and expenses,	93 25	
	American Net and Twine Co.,	net,	10 22	
	Addison C. McIntyre,	labor,	26 25	
	E. H. Phister,	"	52 50	
	Asa Bird,	lumber,	7 95	
	John F. Boyce,	blacksmith,	1 35	
		Forward,	$210 59	

		Brought forward,	$210 59	
Sept.	William Ball,	expenses,	19 33	
	William Ball,	labor,	35 00	
	G. N. Brown,	drugs,	2 00	
				$266 92
Oct.	M. B. Hawley & Co.,	grain,	$13 82	
	E. C. Patterson,	supplies,	3 10	
	Burnham & Lavery,	"	3 90	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	4 65	
	George H. Phister,	labor and expenses,	56 25	
	M. Floyd,	labor,	8 00	
	A. C. McIntyre,	"	54 25	
				233 97
Nov.	Haywood & Co.,	fire grenades,	$5 28	
	I. Brasser,	cartage,	6 00	
	Mrs. Hawley,	hotel,	2 50	
	J. A. Logan,	"	3 50	
	A. C. McIntyre,	labor,	28 00	
	M. B. Hawley & Co.,	grain,	6 05	
	J. F. Boyce,	blacksmith,	9 25	
	George H. Phister,	labor,	60 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	19 45	
				230 03
Dec.	T. A. Lyon,	hotel and livery,	$8 00	
	Burnham & Lavery,	supplies,	9 35	
	George H. Phister,	labor,	62 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	11 27	
				180 62
1896.				
Jan.	Schuler & Sons,	wire cloth,	$3 60	
	E. C. Chase,	royalty on jars,	8 25	
	Hawley & Co.,	grain,	13 94	
	G. H. Phister,	labor,	62 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	1 10	
				178 89
		Forward,		$1,090 43

			Brought forward,	$1,090 43
Feb.	C. T. Straight,	express,	$6 00	
	J. F. Boyce,	blacksmith,	1 95	
	G. H. Phister,	labor,	52 00	
	E. F. Boehm,	salary,	90 00	
				149 95
Mch.	Ostrander & Cofine,	hardware,	$5 26	
	W. W. Burnham,	hay,	30 00	
	George H. Phister,	labor,	62 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	1 25	
				188 51
April	M. B. Hawley & Co.,	grain,	$17 40	
	Ostrander & Cofine,	hardware,	4 98	
	C. F. Straight,	express,	9 95	
	M. Abrams,	fish food,	23 92	
	G. H. Phister,	labor,	60 00	
	E. F. Boehm,	salary,	90 00	
				206 25
May	J. F. Boyce,	blacksmith,	$4 60	
	G. H. Phister,	labor,	62 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	2 00	
				158 60
June	M. B. Hawley & Co.,	grain,	$7 59	
	G. H. Phister,	labor,	60 00	
	E. F. Boehm,	salary,	90 00	
				157 59
July	George H. Phister,	labor,	$62 00	
	E. F. Boehm,	salary,	90 00	
	"	expenses,	5 25	
				157 25
Aug.	Crittenden & Co.,	fish food,	$4 96	
	Ostrander & Cofine,	hardware,	8 75	
	American Net and Twine Co.,	netting,	11 42	
			Forward, $25 13	$2,108 58

		Brought forward,	$25 13	$2,108 58
Aug.	Crittenden & Co.,	fish food,	4 33	
	George H. Phister,	labor,	46 50	
	E. F. Boehm,	salary and expenses,	79 80	
				155 76
	Total Sacandaga,			$2,264 34

Disbursements on account of gathering fish eggs at Clayton, N. Y.:

1895.				
Oct.	Mead Hayes,	labor,	$15 00	
	D. G. Ryder,	"	15 00	
	James H. Hanes,	sail boat,	16 00	
	J. G. Miller,	use of horse,	6 50	
	M. B. Hill,	labor,	52 50	
				$105 00
Nov.	M. B. Hill,	labor,	$75 00	
	"	expense account,	59 49	
	William A. Hill,	labor,	45 00	
	G. C. Putnam,	board,	28 50	
	W. Davis,	taking spawn,	1 00	
	S. Failing,	ten gallons spawn,	20 00	
	Lucas Bros.,	hardware,	1 50	
	William Graves,	spawn,	2 00	
	S. B. Williams,	boat and spawn,	5 00	
	Mahar & Fitzgerald,	coal,	10 50	
	D. G. Ryder,	labor,	12 50	
	John C. Baker,	boats, trap nets, etc.,	101 85	
	J. G. Miller,	trips to hatchery with eggs,	28 35	
				390 69
Dec.	W. E. Hall,	board of men,	$18 00	
	William A. Hill,	labor,	46 50	
	M. B. Hill,	"	62 00	
				126 50
			Forward,	$622 19

			Brought forward,	$622 19
1896.				
Jan.	M. B. Hill,	labor and expenses,	$66 48	
	William A. Hill,	labor,	46 50	
	J. M. Hungerford,	sundries,	5 95	
	Mahar & Fitzgerald,	coal,	21 50	
				140 43
Feb.	M. B. Hill,	labor,	$58 00	
	William A. Hill,	"	43 50	
	J. G. Miller,	labor and expenses,	12 50	
				114 00
Mch.	M. B. Hill,	labor,	$77 50	
	William A. Hill,	"	46 50	
	J. F. Colon,	hauling fish,	7 50	
	John Ball,	" "	4 50	
	E. Corbin,	" "	7 50	
	Dennis Cannell,	" "	12 00	
	John A. Upton,	labor and expenses,	133 15	
	B. Cotchefer,	"	36 25	
				324 90
April	J. G. Miller,	carting whitefish,	$37 00	
	J. M. Hungerford,	meat chopper,	6 75	
	Robert Robinson,	cartage,	9 00	
	George W. Morse,	labor,	22 50	
	William A. Hill,	"	45 00	
	M. B. Hill,	"	25 83	
				146 08
May	M. B. Hill,	labor,	$52 50	
	William A. Hill,	"	46 50	
	J. G. Miller,	cartage,	4 00	
	G. E. Crum,	fish food,	3 41	
	Filo Clark,	cartage,	3 00	
	John Colon,	"	3 00	
	Robert Robinson,	"	7 50	
	John A. Upton,	labor and expenses,	76 10	
	H. R. Cotchefer,	"	56 01	
				252 02
			Forward,	$1,599 62

			Brought forward,	$1,599 62
June	M. B. Hill,	labor,	$75 00	
	Norman Hill,	"	6 00	
	W. D. Hill,	"	6 75	
	Robinson,	cartage,	1 50	
	G. E. Crum,	express,	1 88	
	M. W. Stage,	cartage,	5 00	
	H. B. Kendall,	labor and expenses,	73 95	
	John A. Upton,	"	53 63	
	John F. Colon,	cartage,	7 50	
				231 21
July	M. B. Hill,	labor and expenses,	$86 10	
	"	labor,	4 90	
	M. W. Stage,	ice,	50	
	G. E. Crum,	liver,	82	
				92 32
Aug.	M. B. Hill,	labor and expenses,	$77 90	
	Charles Classon,	fish food,	2 00	
				79 90
	Total Clayton,			$2,003 05

Disbursements collecting mascalonge eggs at Chautauqua Lake:

1896.				
Mch.	R. R. Brown,	labor and team,	$12 75	
	"	freight and labor,	42 78	
	"	lumber, etc.,	23 66	
	American Net and Twine Co.,	two nets,	167 32	
				$246 51
April	John A. Upton,	labor and expenses,	$20 80	
	W. J. White,	fifty poles,	5 00	
	Schuler Sons,	wire screens,	37 08	
	C. C. Wildman,	lumber,	17 93	
	George W. Brown,	labor,	42 00	
	James Seymour,	hardware,	11 59	
	R. R. Brown,	labor and expenses,	72 40	
	A. J. Pickard,	board of men,	16 35	
				223 15
			Forward,	$469 66

		Brought forward,		$469 66
May	Randall R. Brown,	labor and expenses,	$77 75	
	John Bemis,	rent of hatchery site,	10 00	
	George E. Winchester,	labor and expenses,	44 25	
	James Seymour,	sundries,	2 68	
	G. W. Brown,	labor,	60 00	
	H. Schofield,	"	6 00	
				200 68
	Total Chautauqua,			$670 34

Disbursements on account of hatching shad at Catskill, N. Y:

1896.				
May	O. V. Rogers,	delivery shad fry,	$78 63	
	E. A. Cooper,	" "	30 85	
	C. H. Walters,	" "	29 34	
	Edward Hallenbeck,	labor,	36 00	
	A. H. Hart,	"	36 00	
	John Pender,	boat and men,	292 50	
	E. Lampman & Sons,	lumber, etc.,	234 25	
	Day & Holt,	hardware,	44 84	
	"	"	2 45	
	W. Kortz,	furniture,	25 25	
	L. N. Decker,	carpenter,	13 75	
	William Ball,	"	60 11	
	L. S. Hart,	board of men,	54 27	
	W. D. Oviatt,	labor and expenses,	74 68	
	Johnston & Co.,	plumbing,	65 28	
				$1,078 20
June	W. Kortz,	springs,	$3 00	
	A. H. Hart,	labor,	41 00	
	John J. Pender,	taking spawn, use boat,	266 50	
	W. D. Oviatt,	labor and expenses,	65 98	
	E. H. Hallenbeck,	labor,	45 00	
				421 48
		Forward,		$1,499 68

		Brought forward,	$1,499 68
Aug.	For water furnished fish hatchery from May 12 to June 18, estimated quantity per day 14,400 gallons, at 20 cents per thousand,	$75 00	
			75 00
	Total Catskill,		$1,574 68

Disbursements on account of gathering fish eggs at Constantia, N. Y.:

1896.				
April	M. B. Hill,	labor and expenses,	$63 77	
	J. D. Black,	hardware,	8 47	
	Arthur Brown,	labor,	12 00	
	William Halliday,	"	18 00	
	Charles Vander Werken,	"	9 00	
	G. W. Beebe & Co.,	rope,	1 21	
	Charles Whipple,	labor,	21 00	
	Charles Pennoyer,	"	28 00	
	E. L. Whitney,	merchandise,	8 22	
	D. K. Winne,	labor and expenses,	24 50	
	Henry Wooldridge,	labor,	13 00	
	Charles Marcellius,	"	34 00	
	Henry B. Kendall,	labor and expenses,	26 50	
	John H. Cole,	board,	10 72	
	G. G. Scriber,	labor,	32 25	
	Charles Halliday,	"	12 00	
	Sanford Woodward,	carting,	5 25	
	William Dobson,	labor,	22 00	
	Charles Myers,	"	9 00	
	David Winne,	"	6 00	
	E. Pickett,	"	14 00	
	D. C. King,	labor and board,	58 53	
	H. F. York,	labor,	18 00	
	James Andrews,	"	27 00	
	Ben. Phillips,	"	10 00	
	Peter Coleman,	"	19 00	
	D. L. Sweet,	"	2 00	
	L. Gardiner,	"	17 50	
	A. A. Beardsley,	making tanks,	33 05	
				$563 97
		Forward,		$563 97

			Brought forward,	$563 97
May	M. B. Hill,	labor and expenses,	$25 75	
	H. B. Kendall,	"	3 [illegible]	
	John H. Cole,	board,	6 80	
	George M. Williams,	rent of hatchery site,	100 00	
	G. W. Coey,	ice,	8 48	
	D. C. King,	labor and expenses,	31 90	
	Charles Marcellius,	labor,	18 00	
	Sanford Woodward,	cartage,	7 35	
	J. D. Black,	sundries,	89	
				229 27
	Total Constantia,			$793 24

Disbursements on account of gathering salmon eggs in Lake Michigan:

1895.				
Oct.	Jonathan Mason,	labor,	$77 50	
	" "	expense account,	167 36	
	Harry Mason,	labor,	38 75	
	" "	expense account,	48 88	
	John A. Upton,	labor,	54 25	
	" "	expense account,	55 40	
	Joe Plant,	labor,	54 00	
	" "	expense account,	40 16	
				$536 30
Nov.	H. W. Mason,	labor,	$35 00	
	J. Mason,	"	70 00	
	Joe Plant,	"	56 00	
	S. M. Rose,	"	50 00	
	John A. Upton,	"	52 50	
	" "	expenses,	53 27	
	L. S. See & Co.,	groceries,	48 52	
	L. A. Bartholomew,	hardware,	9 64	
				380 91
			Forward,	$917 21

			Brought forward,	$917 21
Dec.	J. Mason,	labor and expenses,	$250 92	
	Henry Mason,	" " "	60 90	
	S. M. Rose,	" " "	37 00	
	Cole Kendall,	" " "	26 00	
	Joe Ruebior,	use of tug,	35 00	
	Joe Plant,	labor and expenses,	41 50	
				451 32
	Total Lake Michigan,			$1,368 53

Disbursements collecting whitefish eggs, Onondaga Lake:

1895.				
Nov.	W. D. Marks,	labor,	$38 00	
	" "	expenses,	15 22	
	Alonzo Goddard,	board men,	20 00	
	Ignatius Zeuglar,	labor,	9 00	
	Total,			$82 22

Disbursements distributing black bass fry from Clayton, N. Y.:

1896.				
July	J. G. Miller,	cartage,	$28 20	
	W. E. Hall,	board of men,	25 25	
	H. E Annin,	labor and expenses,	116 00	
	Wm. Dick & Harvey Warner,	catching bass,	120 00	
	John A. Upton,	labor and expenses,	98 48	
	Total,			$387 93

Disbursements on account of fish car "Adirondack," repairs, fish cans, etc.:

1896.			
Jan.	To Union Car Co., Buffalo, N. Y., for material and labor expended in repairing and repainting fish car "Adirondack,"	$1,711 04	
			$1,711 04

MISCELLANEOUS.

1895.			
Dec.	C. Dorflinger & Sons, hatching jars for various hatcheries,	131 56	
Aug.	R. M. Myers, books, etc.,	17 20	
	Total,		$148 76
1895.			
Oct.	To advance for contingent expenses to James Annin, Jr., Superintendent,	$500 00	
			$500 00

SUMMARY OF HATCHERY DISBURSEMENTS, FROM OCTOBER 1, 1895, TO SEPTEMBER 30, 1896.

	Salary of Foremen.	Wages of Men.	Improvements.	Miscellaneous Expenses.	Total.
Adirondack Hatchery,	$1,065 00	$2,451 58	$354 06	$598 58	$4,469 22
Beaverkill "	825 00	657 52	151 54	873 01	2,507 07
Caledonia "	1,080 00	3,643 03	2,183 56	2,966 90	9,873 49
Cold Spring Harbor,	1,080 00	2,497 60	1,028 92	2,573 31	7,179 83
Fulton Chain,	1,080 00	1,535 13	167 95	216 25	2,999 33
Pleasant Valley,	775 00	886 90	2,429 13	409 74	4,500 77
Sacandaga,	1,065 00	864 50	71 33	263 51	2,264 34
Clayton Station, collecting eggs,	.....	1,340 46	.....	662 59	2,003 05
Chautauqua Lake Station, collecting eggs	.....	349 75	262 58	58 01	670 34
Catskill Station, collecting eggs,	.....	258 00	445 94	870 74	1,574 68
Constantia Station, collecting eggs,	.....	533 25	49 74	210 25	793 24
Lake Michigan, collecting eggs,	.....	637 50	.....	731 03	1,368 53
Onondaga Lake, collecting eggs,	.....	47 00	.....	35 22	82 22
Distribution Black Bass,	.....	125 00	.....	262 93	387 93
Repairs to fish car "Adirondack," fish cans, etc.,	.....	.....	1,859 80	.....	1,859 80
Advance to Jas. Annin, Superintendent,	.....	.....	500 00	.....	500 00
	$6,970 00	$15,827 22	$9,504 55	$10,732 07	$43,033 84

Schedule "B."

FISH, GAME AND FOREST PROTECTORS' SALARIES AND EXPENSES FOR FISCAL YEAR ENDING SEPTEMBER 30, 1896.

	Salaries.	Expenses.	Total.
J. W. Pond, Chief Protector,	$2,000 00	$894 23	$2,894 23
Ackley, J. L., Protector,	332 59	305 88	638 47
Beede, F. S., "	440 78	381 16	821 94
Brooks, E. I., "	290 93	261 88	552 81
Carver, Geo., "	499 92	449 94	949 86
Clock, S. T., "	186 65	137 13	323 78
Donnelly, T. H., "	320 09	268 19	588 28
Emmons, L. S., "	499 92	449 50	949 42
Elmendorf, Ira, "	298 24	263 92	562 16
Ferguson, John, " (Oyster),	350 00	163 93	513 93
Helms, D. G., "	84 64	76 20	160 84
Hathway, Eugene, "	541 58	352 05	893 63
Hawn, Spencer, "	541 58	488 53	1,030 11
Hicks, Edgar, " (Oyster),	1,083 29	791 39	1,874 68
Hesbach, Sebastian, " (Oyster), 15 months,	1,500 00	482 34	1,982 34
Kidd, Willet, "	499 92	424 71	924 63
Klock, A. B., "	367 31	331 88	699 19
Lamphere, J. H., "	327 02	294 38	621 40
Lawrence, J. D., "	324 00	252 15	576 15
Littlejohn, J. W., " 15 months,	624 93	502 25	1,127 18
Leavitt, J. E., Assistant Chief Protector,	1,200 00	520 36	1,720 36
Lobdell, E. J., Protector, 13 months,	541 58	487 50	1,029 08
McCollum, B. H., "	438 08	384 60	822 68
Morrill, B. S., "	145 12	113 17	258 29
Northup, Jos., "	499 92	437 15	937 07
Potter, F. M., "	187 47	66 14	253 61
Potter, O. S., "	394 71	255 12	649 83
Prouty, S. N., "	368 69	333 46	702 15
Pomeroy, D. N., "	499 92	450 00	949 92
Reed, W. L., "	499 92	449 21	949 13
Rush, R. M., "	340 59	320 00	660 59
Salisbury, Barnard, " 13 months,	522 76	412 52	935 28
Smith, Geo. B., "	328 44	300 63	629 07
Ten Eyck, W. A., "	145 12	129 10	274 22
Winslow, Alvin, "	541 60	487 51	1,029 11
Forward,	$17,767 31	$12,718 11	$30,485 42

	Salaries.	Expenses.	Total.
Brought forward,	$17,767,31	$12,718 11	$30,485 42
Worts, M. C., Assistant Chief Protector,	1,200 00	536 34	1,736 34
Holmes, Jas., Protector,	145 81	89 46	235 27
Brown, Robt., "	13 88	12 50	26 38
Kennedy, Matthew, "	83 32	97 29	180 61
Muir, Arch., "	83 32	69 26	152 58
Hutchins, Carlos, "	166 64	150 00	316 64
O'Brien, J. H., "	72 61	63 50	136 11
Shaul, Nicholas, "	157 21	141 54	298 75
Hazen, E. A., "	111 88	66 53	178 41
Wolf, Wm., Clerk to Chief Protector,	300 00	.....	300 00
Finley, M. C., Special Agent,	333 32	51 10	384 42
Palmer, S. J., Special Services,	54 50	.....	54 50
Haywood, L. M., "	16 00	.....	16 00
Newton, J. M., "	20 00	.....	20 00
Barber, C. H.,	39 21	.....	39 21
Total,	$20,565 01	$13,995 63	$34,560 64

Schedule "C."

SALARIES AND EXPENSES OF OFFICIALS AND CLERKS FOR FISCAL YEAR ENDING SEPTEMBER 30, 1896.

	Salary.	Expenses.	Total.
Barnet H. Davis, President,	$4,166 64	$837 37	$5,004 01
Henry H. Lyman, Commissioner,	583 31	586 26	1,169 57
William R. Weed, "	1,625 00	687 79	2,312 79
Charles H. Babcock, "	1,416 66	765 99	2,182 65
Edward Thompson, "	1,416 66	792 79	2,209 45
Hendrick S. Holden, "	784 74	251 09	1,035 83
A. N. Cheney, State Fish Culturist,	3,000 00	487 66	3,487 66
Jas. Annin, Jr., Superintendent of Hatcheries,	2,499 96	1,480 75	3,980 71
William F. Fox, Engineer and Superintendent State Forests,	1,999 92	83 77	2,083 69
F. B. Mitchell, Secretary,	1,166 62	68 93	1,235 55
Charles A. Taylor, Assistant Secretary,	571 00	63 38	634 38
A. J. Mulligan, Auditor,	1,500 00	.....	1,500 00
Forward,	$20,730 51	$6,105 78	$26,836 29

	Salaries.	Expenses.	Total.
Brought forward,	$20,730 51	$6,105 78	$26,836 29
A. B. Strough, Special Agent,	1,200 00	7 36	1,207 36
J. J. Fourqurean, Stenographer,	1,000 00	.....	1,000 00
John Liberty, Clerk to Chief Protector,	400 00	.....	400 00
William Wolf, " " "	866 00	20 66	886 66
M. C. Finley, Special Agent,	391 10	.....	391 10
	$24,587 61	$6,133 80	$30,721 41

Schedule "D."

Office Expenses.

Stationery and Printing:		
Weed Parsons Printing Co., printing,	$866 57	
Hudson Valley Paper Co., "	280 93	
Sherman F. Denton, drawings,	181 95	
Jas. B. Lyons, printing	100 04	
D. S. Walton & Co., engraving,	30 00	
Stewart Warren & Co., "	17 03	
S. G. Spier, stationery,	13 10	
A. H. Clapp, "	8 65	
Albany News Co., "	20 58	
Riggs & Co., "	9 00	
A. F. Werner, "	6 50	
Banks Bros., "	7 00	
Smith Premier Co., "	4 00	
J. McDonough, "	2 50	
		$1,547 85
Telegraph and Telephone:		
Western Union Telegraph Co.,	$302 08	
Postal Cable Telegraph Co.,	19 05	
Hudson River Telephone Co.,	338 74	
Metropolitan Telephone Co., New York,	143 47	
		803 34
Expressage:		
American Express Co.,	$296 84	
National Express Co.,	206 08	
		502 92
To postage stamps and box rent,	$621 76	
		621 76
	Forward,	$3,475 87

Miscellaneous Expenses.

			Brought forward,	$3,475 87
1895.				
Oct.	Samson Murdock Co.,	directory,	$3 00	
	A. F. Curtis,	files,	6 00	
	National Press Intelligence Co.,	clippings,	14 25	
	J. McDonough,	books,	28 35	
	O'Neil & Hale,	insurance,	37 00	
	T. B. Cloyes & Co.,	"	30 00	
Nov.	W. Berriam,	rent New York office,	250 00	
	Rogers & Co.,	supplies,	10 70	
	Spier & Co.,	"	10 00	
	Milton Clark,	insurance,	165 00	
	J. Bien & Co.,	maps,	37 50	
Dec.	W. Wolf,	New York expenses,	22 80	
	Pyrke & McClaskey,	books,	4 48	
	Lang Stamp Works,	rubber stamps,	32 75	
	Geo. Eland,	typewriting,	3 25	
	Banks Bros.,	books,	3 50	
	J. McDonough,	"	1 45	
	G. P. Andrews,	janitor service, New York,	25 20	
	W. Berrian,	rent New York office,	83 32	
	John Liberty,	notary fees,	5 00	
	G. A. Burch,	spring water,	2 60	
1896.				
Jan.	G. P. Andrews,	services New York office,	58 55	
	Frazer & Kelly,	freight,	13 50	
	G. H. Rison,	photographic work,	48 00	
	J. W. Law,	printing,	20 40	
	J. Green,	surveying,	15 00	
	Little Falls Journal,	subscription,	8 26	
	Wm. Wolf,	expenses New York,	22 75	
	F. Helwig,	keys,	2 50	
	J. J. Fourqurean,	notary fees,	5 00	
	C. Donovan,	services deer park,	54 25	
	G. A. Burch,	water,	2 60	
	W. A. Atkins,	carting feed for deer,	8 50	
Mch.	J. G. Myers,	lamps,	9 90	
	Smith Premier Co.,	repairs,	7 50	
		Forward,	$1,052 86	$3,475 87

		Brought forward,	$1,052 86	$3,475 87
Mch.	Forest and Stream,	subscription,	4 00	
	Garden and Forest,	"	4 00	
	S. G. Spier,	supplies,	9 70	
April	G. A. Burch,	spring water,	2 50	
	Pyrke & McClaskey,	books,	5 40	
	J. McDonough,	"	25 35	
	C. H. Buck,	subscription,	1 60	
	Lang Stamp Works,		8 65	
	E. S. Sterry,	photos,	4 00	
	Hughes, Simpson & Co.,	cartons,	54 60	
	M. E. Dell,	typewriting,	6 50	
	H. H. Adams & Co.,	lumber,	13 50	
	Century Publishing Co.,		1 00	
	A. V. Smith,	subscription,	2 12	
	American Fisheries Association,	expenses,	250 00	
	G. Wicks,	photographic work,	30 00	
	E. Thompson,	sundries New York office,	78 77	
	G. A. Burch,	water,	5 25	
	Pyrke & McClaskey,	books,	8 10	
	Pure Water Co.,		1 00	
				1,558 90

Expense Account—Advertising.

1895.				
	Deer Protection:			
Oct.	New Paltz Independent,		$2 00	
	Athens News,		2 00	
	The Ensign,		3 50	
	Sullivan County Democrat,		4 20	
	The Record,		4 00	
	The Freeman,		1 50	
	The Argus,		6 00	
	Oyster Land Leases:			
Oct.	Kings County Journal,		227 50	
	Excise Herald,		381 25	
		Forward,	$631 95	$5,034 77

		Brought forward,	$631 95	$5,034 77
Dec.	Kings County Journal,		655 20	
	Uptown Weekly,		808 60	
Jan.	Uptown Weekly,		143 00	
	Richmond County Herald,		26 00	
	Richmond County Democrat,		22 00	
	Uptown Weekly,		45 50	
	Kings County Journal,		143 00	
				2,475 25

EXTRA LABOR.

Chas. A. Taylor, extra accountant,	$940 00	
Leonard Jaycox, collecting shad statistics,	300 00	
E. A. Fay, compiling land applications,	200 00	
H. D. Leslie, collecting shellfish statistics,	392 00	
F. W. Allen, Custodian Lake George Islands,	200 00	
Helen B. Franklin, typewriting,	42 73	
J. W. Lick, special services, Staten Island,	37 50	
Geo. W. Lewis, special services, Catskills,	15 00	
		2,127 23
Total office expenses,		$9,637 25

Schedule "E."

DISBURSEMENTS ON ACCOUNT OF SHELLFISH DEPARTMENT.

1896.				
June 16.	Metropolitan Life Insurance Co.,	rent,	$133 34	
	F. D. Clark,	furniture,	84 00	
	W. J. Sloan,	carpets, etc.,	72 38	
	A. B. Booth,	stenographer,	2 65	
	G. W. Beck,	printing,	11 25	
				$303 62
July 13.	Edward Thompson,	sundry expenses,	195 13	
Aug. 6.	Gas Engine and Power Co.,	naphtha launch	1,450 00	
Sept. 11.	" " " " "	fixtures,	20 00	
				1,665 13
	Total,			$1,968 75

Schedule "F."

ADDITIONAL LANDS AND COMPLETING PLEASANT VALLEY HATCHERY.

1895.				
Oct. 8.	R. D. Lynn,	legal services,	$25 00	
	Frank Campbell,	map of land,	10 00	
				$35 00
Dec. 10.	Frank Gale,	labor,	7 50	
	Wm. Townsend,	"	9 37	
	Charles Bates,	"	11 62	
	Monroe Allison,	"	11 62	
	Hanford Skinner,	"	5 25	
	Wm. Palmer,	"	2 62	
	V. T. Barrett,	"	12 37	
	H. Garry,	"	33 37	
	George Garry,	"	30 37	
	Walter Garry,	"	33 37	
	H. McGlachlen,	"	28 87	
	Oscar Johnson,	"	25 87	
	Kirkland & Platt,	nails, etc.,	1 95	
				214 19
	Total,			$249 15

Schedule "G."

PLEASANT VALLEY, CONSTRUCTION AND EQUIPMENT OF PONDS.

1896				
May	C. Van Secten,	plants for grounds,	$18 10	
	Harry McLocklin,	labor,	15 00	
	Ambrose D. Booth,	"	15 00	
	Henry Garvey,	"	15 00	
	Hiram Osterhout,	"	15 00	
	O. S. Johnson,	"	39 75	
	F. J. Dixon,	"	30 00	
	Richard Buckley,	"	48 00	
	S. W. Dixon,	team labor,	64 00	
	Wm. Bull,	expenses and labor,	29 56	
	Alonzo Aldridge,	board of men,	18 00	
	F. C. Hunniston,	labor,	54 25	
		Forward,	$361 66	

		Brought forward,	$361	66	
May	Herbert Hunniston,	labor,	23	25	
	Crittenden & Co.,	fish food,	7	51	
	Schuler Sons,	wire netting,	7	74	
	Brownell & Co.,	hardware, paint, etc.,	52	99	
	Kirkham & Platt,	lumber,	26	05	
	Grant Christie,	labor and expenses,	46	61	
	R. Cotchefer,	expenses,	16	05	
					$541 86
June	Kirkham & Platt,	lumber,	100	67	
	O. S. Johnson,	labor,	39	00	
	F. J. Dixon,	"	26	62	
	Hiram Osterhout,	"	27	75	
	Henry Garvey,	"	33	38	
	Harry McLocklin,	"	36	37	
	Ambrose D. Booth,	"	32	62	
	Wm. Ball,	labor and expenses,	67	85	
	Grant Christie,	labor,	58	50	
	Schuler Sons,	wire screens,	12	25	
	Brownell Co.,	hardware,	21	87	
	A. Beekman,	lumber,	176	53	
					633 41
July	A. Beekman,	"	122	11	
	Gould Nolan,	tire,	161	40	
	Henry Garvey,	labor,	39	00	
	O. S. Johnson,	"	39	00	
	F. J. Dixon,	"	26	25	
	Hiram Osterhout,	"	36	00	
	Brownell Co.,	hardware,	24	00	
	Harry McLocklin,	labor,	31	50	
	Wm. Ball,	carpenter, labor,	78	00	
	Galen Johnson,	labor,	37	50	
	Kirkham & Platt,	lumber,	147	30	
	Grant Christie,	labor,	40	50	
	W. D. Oviatt,	labor on ponds,	38	25	
					820 81
Aug.	Brownell Co.,	hardware,	46	00	
	Schuler Sons,	wire screens,	7	20	
	Kirkham & Platt,	lumber,	212	43	
	Henry Garvey,	labor,	36	00	
		Forward,	$301	63	$1,996 08

			Brought forward,	$301 63	$1,996 08
Aug.	A. D. Booth,	labor,		36 00	
	Hiram Osterhout,	"		24 00	
	O. S. Johnson,	"		39 00	
	Galen Johnson,	"		39 00	
	Harry McLocklin,	"		28 50	
	F. J. Dixon,	"		33 75	
	S. W. Dixon,	"		75 00	
	Wm. Ball,	carpenter,		73 05	
	Grant Christie,	labor,		62 75	
	W. D. Oviatt,	"		72 80	
	A. Beekman,	lumber,		308 51	
					1,093 99
					$3,090 07

Schedule "H."

EXTERMINATING BILLFISH, CHAUTAUQUA LAKE.

1896				
Aug. 6.	American Net & Twine Co.,	nets,	$169 42	
	P. R. Brown,	paints, etc.,	10 21	
Sept. 9.	Jas. Annin, Superintendent,	expenses,	61 06	
	Total,			$240 69

Schedule "I."

EXTERMINATING BILLFISH, BLACK LAKE.

July 16.	American Net & Twine Co.,	nets,	$27 20	
Aug. 6.	G. A. Monk,	labor and expenses,	61 75	
Sept. 1.	Paid Wm. F. Fox,	expenses,	165 53	
	Total,			$254 48

Schedule "J."

FIREWARDEN FUND.—DISBURSEMENTS ON ACCOUNT OF PRINTING, POSTAGE, POSTING NOTICES, FIGHTING FOREST FIRES, ETC.

1896.			
July 16.	By postage account,		$100 00
Aug. 6.	Weed Parsons & Co.,	printing,	215 00
" 20.	Paul Smith Hotel Co.,	labor,	10 00
	J. M. Wardner,	"	11 00
	M. Moody,	"	63 00
	C. C. Brown,	"	4 00
	J. H. Bintz,	"	8 00
	J. M. Richards,	"	20 00
	A. R. Turner,	"	6 00
	Wm. F. Bellin,	"	12 00
	G. B. Warren,	"	20 00
	E. Fisher,	"	4 00
	E. B. Hobbs,	"	8 00
	A. C. Farr,	"	8 00
	John Hinkson,	"	8 00
	Childwold Park Hotel,	"	27 00
	Frank Holmes,	"	22 00
	E. P. Gale,	"	12 00
	F. W. Abrams,	"	32 00
	Robt. Hanley,	"	6 00
	Patrick Hanley,	"	18 00
	Daniel Schuyler,	"	2 00
	Henry Willin,	"	9 00
	Chas. Schuyler,	"	9 00
	Wm. Hunter,	"	9 00
	Herbert Snell,	"	40 00
	F. D. Brown,	"	26 00
	O. H. Cross,	"	26 00
	B. F. Merwin,	"	88 15
	J. G. Thompson,	"	254 50
	Wm. W. Merrill,	"	63 50
	A. N. Jenks,	"	36 00
	Morgan Gerring,	"	24 00
	E. Russell,	"	2 00
	Bert Jenks,	"	8 00
		Forward,	$1,211 15

		Brought forward,	$1,211 15
Aug. 20.	Geo. E. Jenks,	labor	12 00
	Fred Jenks,	"	10 00
	Bert Russell,	"	16 00
	Herb. Monroe,	"	8 00
	E. M. Jenks,	"	20 00
	Ed. Sheehan,	"	6 00
	A. O. Ingraham,	"	36 00
	John Wakeley,	"	16 00
	G. M. Swan,	"	29 00
	J. D. Gates,	"	16 00
	H. D. Stone,	"	7 50
	Frank Shaw,	"	2 00
	L. Taylor,	"	2 00
	W. Menze,	"	2 00
	Frank D. Stone,	"	2 00
	L. E. Dayton,	"	2 00
	John Agan,	"	2 00
	Geo. Kingsley,	"	3 00
	Guy Howe,	"	3 00
	Ralph Howe,	"	3 00
	H. D. Howe,	"	3 00
	O. S. Kingsley,	"	4 00
	John Kingsley,	"	4 00
	James Howe,	"	3 00
	Wallace Reed,	"	4 00
	Frank Anderson,	"	3 00
	John Howe,	"	3 00
	Melvin Howe,	"	3 00
	Chas. Bartlett,	"	6 00
	Calvin Blanchard,	"	3 00
	Geo. Dodge,	"	2 00
	Geo. Donovan,	"	2 00
	John Forbes,	"	2 00
	Francis Bruce,	"	4 00
	Byron Blanchard,	"	2 00
	Alex. Blanchard,	"	1 00
	Peter Blanchard,	"	50
	Thomas Madden,	"	50
		Forward,	$1,458 65

		Brought forward,	$1,458 65
Aug. 20.	Jas. Maynard,	labor,	5
	Nath. Dodge,	"	50
	David Allen,	"	5
	Chas. Poole,	"	5
	Henry Beeman,	"	50
	Benj. Dodge,	"	50
	Jas. Umber,	"	2 00
	Wm. Beeman,	"	4 00
	Allen McLean,	"	50
	E. C. D. Wiley,	"	18 00
	John Mea,	"	10 00
	C. A. Jordan,	"	6 00
	Elbert Daniels,	"	3 00
	Ira Daniels,	"	3 00
	Alex. Parseneaux,	"	3 00
	Jas. Patten,	"	14 00
	C. Winch,	"	8 00
	Arthur Morehouse,	"	2 00
	Albert Morehouse,	"	2 00
	S. T. Thomas,	"	4 00
	Jos. Thomas,	"	4 00
	Geo. T. Thomas,	"	2 00
	John Davidson,	"	4 00
	Benjamin Balcom,	"	2 00
	Samuel Balcom,	"	2 00
	D. M. Armstrong,	"	2 00
	Frank Robbins,	"	2 00
	Benj. Whipple,	"	4 00
	Walter Taylor,	"	8 00
	M. D. Pascoe,	"	6 00
	E. M. Pascoe,	"	6 00
	J. A. Pascoe,	"	6 00
	Golbert Pascoe,	"	2 00
	Samuel Pascoe,	"	2 00
	William H. Johnson,	"	4 00
	Charles Dunkley,	"	2 00
	William Montgomery,	"	4 00
	Stephen Colvin,	"	2 00
		Forward,	$1,605 15

		Brought forward,	$1,605 15
Aug. 20.	Thomas Rist,	labor,	6 00
	E. Ross,	"	4 00
	E. J. Hitchcock,	"	2 00
	Lankey Dunkley,	"	2 00
	Taylor Ross,	"	2 00
	M. Burke,	"	4 00
	Ira Ross,	"	2 00
	E. Whitney,	"	2 00
	E. Hitchcock,	"	2 00
	Watson Bartman,	"	8 00
	David Russell,	"	8 00
	Charles Russell,	"	6 00
	David Millington,	"	6 00
	Truman Millington,	"	6 00
	Clarence Dunkley,	"	2 00
	Ellis Dunkley,	"	2 00
	James Piper,	"	4 00
	Fred. Hitchcock,	"	2 00
	Freeman Hammond,	"	2 00
	Charles Baker,	"	2 00
	A. H. Jenks,	"	2 00
	W. H. Reese,	"	2 00
	Harvey Hitchcock,	"	2 00
	John Hitchcock,	"	2 00
	Luke Rist,	"	2 00
	H. Bryant,	"	4 00
	Harvey Bryant,	"	2 00
	Edwin Hall,	"	2 00
	George Hodgkins,	"	2 00
	Bert Jenks,	"	2 00
	F. W. Marshall,	"	2 00
	Lee Somerville,	"	2 00
	E. J. Hitchcock,	"	2 00
	Melvin Wilcox,	"	2 00
	Freeman Madison,	"	3 60
	N. Barnet,	"	1 40
	William Lewis,	"	3 60
	Harrison Balcom,	"	3 20
		Forward,	$1,720 95

		Brought forward,	$1,720 95
Aug. 20.	John Newton,	labor,	3 40
	A. Shattuck,	"	1 20
	Clayton Waters,	"	1 60
	George Duell,	"	2 40
	H. Sexton,	"	2 00
	E. Shattuck,	"	1 00
	A. Ward,	"	1 20
	E. Decker,	"	1 00
	Leroy Balcom,	"	1 80
	J. N. Kelley,	"	2 20
	Henry Balcom,	"	3 20
	W. J. Miller,	"	1 00
	Charles Davis,	"	1 00
	H. W. Hall,	"	1 20
	E. Decker,	"	1 20
	A. Armstrong,	"	1 00
	Claude Shattuck,	"	1 20
	Noble Waters,	"	2 00
	W. Brown,	"	2 20
	A. E. Rand,	"	1 00
	J. C. Leech,	"	1 00
	Hiram Rand,	"	1 00
	Franklin Spaulding,	"	1 00
	John Hall,	"	2 20
	E. T. Ackerman,	"	1 00
	Amos Ross,	"	4 00
	W. W. Delorm,	"	3 60
	M. Decker,	"	1 20
	Neth. Putnam,	"	2 80
	J. B. Frazen,	"	4 20
	E. M. Bosford,	"	4 10
	J. A. Balcomb,	"	5 95
	E. B. Suddard,	"	4 00
	M. Hastings,	"	5 00
	E. J. West,	"	2 00
	C. S. Wood,	"	8 00
	O. Hammond,	"	2 00
	Turman Hammond,	"	2 00
		Forward,	$1,808 80

		Brought forward,	$1,808 80
Aug. 20	Fred. Murray,	labor,	2 00
	Fred. Stanton.	"	2 00
	C. J. Russell,	"	2 00
	K. V. Whitmore,	"	4 00
	B. E. Whitmore,	"	4 00
	Mead Ellsworth,	"	4 00
Aug. 31.	E. M. Rickert,	"	8 00
	Scott West,	"	2 00
	Fred. Jenks,	"	4 00
	Fred. Wicks,	"	2 00
	Leslie Bailey,	"	2 00
	Gustave Wickham,	"	8 00
	Lloyd Brown,	"	4 00
	William West,	"	2 00
	John H. Guire,	"	20 00
	L. Hayford,	"	2 00
	Ramson Sage,	"	4 00
	A. Hayford,	"	4 00
	Caleb Barker,	"	2 00
	C. A. Wright,	"	2 00
	W. A. Harris,	"	6 00
	M. Harris,	"	2 00
	A. Harris,	"	2 00
	O. Harris,	"	2 00
	A. Smith,	"	2 00
	Martin Smith,	"	2 00
	Jonas Guire,	"	8 00
	Charles Reynolds,	"	6 00
	O. Knowlton,	"	8 00
	G. W. Cobb,	"	4 00
	Chas. Guire,	"	8 00
	J. J. Guire,	"	12 00
	William Sage,	"	6 00
	O. Harris, Jr.,	"	6 00
	Leigh Knowlton,	"	10 00
	M. Boh,	"	4 00
	Christian Frank,	"	2 00
	Frank H. Krebs,	"	2 00
		Forward,	$1,984 80

		Brought forward,	$1,984 80
Aug. 31.	A. M. Romanda,	labor,	6 00
	A. M. Boh,	"	2 00
	D. E. Call,	"	14 00
	Joseph Delomb,	"	6 00
	George F. Allen,	"	8 00
	J. F. Oliver,	"	3 00
	Fred. Mohker,	"	4 00
	Frank Burbank,	"	6 00
	George Harrington,	"	4 00
	Wallace Cary,	"	8 00
	C. Clark,	"	3 00
	Joseph Russell,	"	6 00
	William Warrungton,	"	8 00
	Lee Harrington,	"	6 00
	Alvah Harrington,	"	6 00
	Loomis Huntley,	"	7 00
	H. Rawson,	"	4 00
	Elmer Butler,	"	4 00
	R. M. Oliver,	"	1 00
	N. Whitley,	"	6 00
	A. J. Mulligan,	"	24 41
	M. H. Tyrell,	"	4 00
	A. Warren,	"	7 50
	N. Russell,	"	1 00
	Eli Taylor,	"	2 00
	J. Whitley,	"	6 00
	E. Knox,	"	5 00
	A. King,	"	1 00
	A. Taylor,	"	2 00
	M. Bradley,	"	6 00
	Shea Oliver,	"	3 00
	O. Cross,	"	44 00
	A. B. Ackerman,	"	1 00
	William R. Weed, Chairman, balance on hand,		28 50
	Total,		$2,232 21

Forest Preserve Fund.

Receipts.

1895.			
Oct. 1.	To balance brought over,		$78,215 83
Nov. 7.	Received of Agnes Renger, rental, State lands,		50 00
	A. L. Judson, rental, State lands,		50 00
1896.			
Jan. 6.	Received of Morgan Lumber Company, proceeds from sale, logs cut on undivided lands,		375 00
June 2.	Received of A. H. Manierre, rent, State land,		150 00
	E. & B. Manierre, rent, State land,		150 00
July 2.	Received of W. B. Mason, rent, State land,		150 00
	J. Lapham, rent, State land,		75 00
	W. D. Mann, rent, State land,		50 00
	C. P. Kirby, rent, State land,		50 00
	A. C. Gerster, rent, State land,		200 00
Aug. 1.	Received of D. Bloodgood, rent, State land,		75 00
	T. H. Stott, rent, State land,		20 00
Sept. 1.	Received of T. P. Wicks, rent, State land,		30 00
	William A. Wait, rent, State land,		30 00
	F. B. Mitchell, rebate on bill for examining Adirondack land, 1895,		11 75
Mar. 26.	Received interest on deposits,		592 52
Sept. 11.	Received interest on deposits,		149 25
			$80,424 35

Disbursements.

Expenditures for purchase of lands in Essex County, as per chapter 1009, Laws of 1895,	$3,901 86
Expenditures for purchase of lands in Warren County, as per chapter 1009, Laws of 1895,	17,500 00
Expended for purchase of lands in Hamilton and Herkimer counties, as per chapter 561, Laws of 1896,	50,000 00
Expended in examining lands preliminary to purchase, surveying, maps, etc.,	3,282 50
	$74,684 36

Receipts and Disbursements on Account of Trespass on State Lands.

RECEIPTS.

1896.			
Jan. 25.	People vs. D. L. Woodworth,	$225 00	
Aug. 21.	People vs. A. Lyndecker,	35 00	
	People vs. H. Young,	35 00	
			$295 00

DISBURSEMENTS.

1896.			
Aug. 21.	Moiety to E. J. Lobdell,	$25 00	
	Moiety to A. B. Klock,	25 00	
	Legal costs paid,	6 30	
Sept. 30.	Balance in State Bank, Albany,	238 70	
			$295 00

Shellfish Franchise Account.

RECEIPTS.

1895.			
Dec. 2.	Received of E. P. Doyle, former secretary, on account,	$1,819 93	
1896.			
Jan. 22.	Received of E. P. Doyle, former secretary, on account,	14 28	
	Received of E. P. Doyle, former secretary, on account,	55 67	
Feb. 20.	Received of Commissioner Thompson, for sale of franchises and rental on leases,	269 74	
Aug. 20.	Received of Commissioner Thompson, for sale of franchises and rental on leases,	194 57	
			$2,354 19

DISBURSEMENTS.

1895.			
Dec. 2.	By check to Comptroller Roberts,	$1,819 93	
1896.			
Jan. 22.	By check to Comptroller Roberts,	14 28	
	By check to Comptroller Roberts,	55 67	
Feb. 20.	By check to Comptroller Roberts,	269 74	
Aug. 20.	By check to Comptroller Roberts,	194 57	
			$2,354 19

Summary of Fish-net Licenses Issued During the Year Ending September 30, 1896.

Hudson River,	271	
Lake Erie,	183	
Lake Ontario,	70	
Oneida Lake,	117	
Otsego Lake,	42	
Onondaga Lake,	40	
Mill Site Lake,	16	
Niagara River,	12	
Twelve-Mile Creek,	5	
Other waters,	5	
Wappinger Creek, Wallkill Creek, Ten-Mile River,	18	
Perch Lake,	1	
Newburgh Water Commissioners,	1	
Total,		781
Fees received for same,		$788 00

PAYMENTS.

1895.				
Nov.	7.	By license fees refunded on cancelled licenses,	$5 00	
1896.				
Feb.	19.	By check to James A. Roberts, Comptroller,	23 00	
	20.	By check to James A. Roberts, Comptroller,	235 00	
Mar.	17.	By check to James A. Roberts, Comptroller,	27 00	
June	10.	By check to James A. Roberts, Comptroller,	360 00	
Sept.	30.	By cash in State Bank, Albany,	138 00	
				$788 00

Report of Fish Caught in Licensed Nets for the Year Ending September 30, 1896.

LAKE ERIE.

	POUNDS.
Sturgeon,	58,410
Other fish of all kinds,	189,902
Total,	248,312
Reported value of same,	$8,348 12

LAKE ONTARIO.

	POUNDS.
Sturgeon,	20,420
Other fish of all kinds,	46,438
Total,	66,858
Reported value of same,	$3,099 49

ONEIDA LAKE.

	POUNDS.
Bullheads,	51,491
Eels, suckers, sunfish, pumpkinseeds, mullets, ling,	56,243
Total,	107,734
Reported value of same,	$4,309 36

OTSEGO LAKE.

	POUNDS.
Suckers,	1,145
Whitefish and frostfish,	22,139
Total,	23,284
Reported value of same,	$2,051 87

MILL SITE LAKE.

	POUNDS.
Ciscoes,	35,333
Reported value of same,	$413 33

PERCH LAKE.

	POUNDS.
Suckers, eels, rock bass, sunfish and bullheads,	8,113
Reported value of same,	$447 10

ONONDAGA LAKE.

	POUNDS.
Whitefish, bullheads, suckers and sunfish,	2,785
Reported value of same,	$173 64

HUDSON RIVER.

	POUNDS.
Shad,	139,649
Herring,	265,155
Bullheads, catfish, eels, pickerel, perch and carp,	119,120
Total,	523,924
Reported value of same,	$13,393 56

NIAGARA RIVER.

	POUNDS.
Perch, eels, suckers, pike, bullheads, etc.,	10,109
Reported value of same,	$170 05

OTHER WATERS.

	POUNDS.
Bullheads, dogfish, catfish, suckers, eels, pickerel, peach and carp,	36,237
Reported value of same,	$126 00
Total number pounds of fish,	1,062,689
Total value of fish,	$32,532 52

Statement of Fines and Penalties Account from October 1, 1895, to September 30, 1896.

RECEIPTS.

1895.				
Oct. 1.	Balance on hand in State Bank, Albany,		$1,281 58	
8.	People vs. Sprague & Penny,		23 00	
16.	" P. Brennan,		35 00	
	" Shelly,		9 00	
	" Albert Seager,		10 50	
	" Samuel Burns,		3 10	
17.	" Fonda & Saulspaugh,		20 00	
	" George Outman,		8 00	
	" C. B. Creig,		21 05	
	" Sidney Cole,		10 25	
	" Marston et. al.,		66 00	
26.	" Daniel Miller,		49 00	
	" William Knope,		6 30	
	" Robert Flousburg,		10 00	
	" John Labarge,		21 95	
	" Benjamin Glimpse,		7 75	
	" Patrick Brown,		50 00	
31.	" Frank Adams,		100 00	
				$1,732 48
Nov. 8.	People vs. Constable & Bartlett,		$92 40	
	" Henry Yeager,		26 65	
	" W. E. Wilcox,		26 25	
	" F. Cooper,		26 65	
	" C. Potter,		41 25	
	" Seymour & Baker,		40 00	
9.	" J. H. Bean,		75 00	
	" James Frank,		100 00	
11.	" Fenn, Clark, et. al.,		150 00	
12.	" Constable, Yeager & Wilcox,		51 80	
20.	" Baker & Seymour,		10 00	
26.	" William O'Neil,		5 00	
25.	" John Leaf,		24 00	
	" William Roberts,		10 00	
	" Leroy Smith,		10 00	
		Forward,	$689 00	$1,732 48

		Brought forward,	$689 00	$1,732 48
Nov.	25.	People vs. Joseph Spohr,	10 00	
		" Frederick Bagoe,	190 08	
	27.	" H. E. Hall,	50 00	
	29.	" W. E. Cole,	32 25	
		" E. P. Doyle, on account,	1,195 00	
			—	2,166 33
Dec.	3.	People vs. E. P. Doyle, on account E. T. McCormack,	$72 21	
		" E. P. Doyle, on account B. C. Roup,	13 95	
		" E. P. Doyle, on account M. Kennedy,	40 00	
		" E. P. Doyle, on account Frank Joy,	135 20	
		" E. P. Doyle, on account error Joy check,	30 00	
		" Frazer & Allen,	19 00	
	4.	" Horton & Horton,	19 00	
		" Robert Burnhart,	16 00	
	5.	J. W. Pond, refund on Bagoe case,	100 00	
		People vs. Lent,	25 00	
	10.	" Edmund Utter,	40 00	
		" D. J. Brown,	50 00	
	13.	" Joseph Finn,	10 00	
		" Peter Gosner,	15 00	
		" Frank Rose,	25 00	
		" George Gerivodo,	25 00	
		" John Barnard,	30 00	
		" E. Costello,	30 00	
		" Berna Benola,	10 00	
		" Conrad Seigel,	10 00	
		" Julius Frank,	10 00	
		" Emil Nodine,	20 00	
		" Gerald McGuire,	4 00	
	18.	" J. C. Carter,	2 50	
		" E. Keyser,	10 00	
		" G. Kohler,	10 00	
		" William Cleveland,	10 00	
		" John Miller,	10 00	
		" Henry Minch,	10 00	
		" Armstrong & Heffer,	10 95	
	24.	" Hollister,	50 00	
		" Moak,	40 00	
		Forward,	$902 81	$3,898 81

			Brought forward,	$902 81	$3,898 81
Dec.	28.	People vs. Wooden,		92 00	
		" Bishop,		30 00	
		" Redge,		30 00	
					1,054 81
1896.					
Jan.	2.	People vs. Salem Towne,		$23 20	
		" H. Washband,		75 00	
		" F. Osterley,		31 10	
		" J. E. Livingston,		23 70	
		" Edward Carr,		20 00	
		" George Bard,		20 00	
		" A. Bailey,		2 00	
		" L. Wilcox,		20 00	
		" W. Hill,		10 00	
		" George E. Sellick,		12 55	
	7.	" George W. Clark,		44 00	
		" T. F. Held,		5 00	
		" J. Bonfeldt,		5 00	
		" Schultz,		5 00	
		" George Rogers,		10 00	
	8.	" N. Valand,		27 00	
	10.	" John Shrimer,		5 00	
		" J. Bentline,		5 00	
	13.	" W. Phillips,		25 00	
		" G. B. Rathbone,		88 35	
		" H. W. Eldridge,		10 40	
		" H. Gould,		38 10	
		" Henry Rathbone,		88 10	
		" G. Flint,		85 50	
		" L. Lawrence,		9 00	
		" George Vroman,		22 00	
	20.	" T. Gennegow,		15 32	
		" F. Schwartzman,		15 33	
		" B. Silvey,		98 50	
	25.	" E. Pickard,		35 00	
		" D. Hughes,		37 30	
		" B. Hopler,		40 00	
		" B. Alberton,		14 70	
					966 15
			Forward,		$5,919 77

			Brought forward,	$5,919 77
Feb.	4.	Check from E. P. Doyle, on account,	$1,000 00	
	6.	" " "	514 82	
		People vs. Grenock,	20 00	
		" G. Fisher,	5 15	
		" George Cocheron,	15 50	
		" S. McPherson,	51 00	
	12.	" M. W. Doxtader,	58 00	
		" Sueper,	13 00	
	26.	" Bishop,	56 00	
		" H. Earley,	40 00	
		" J. J. Levy,	50 00	
			—	1,823 47
Mar.	2.	People vs. A. C. Talbot,	$9 00	
		" G. B. Talbot,	9 00	
		" Leon Talbot,	9 00	
		" Perry Talbot,	9 00	
		" Art Talbot,	9 00	
		" O. C. Gardner,	9 00	
		" Henry Light,	9 00	
		" C. F. Munson,	9 00	
		" E. B. Gregory,	9 00	
		" J. H. Bingham,	9 00	
		" B. Holdridge,	9 00	
		" William Broder,	9 00	
		" Thomas Ellerson,	9 00	
		" Bert Bailey,	9 00	
		" W. Burdick,	9 00	
		" William Norton,	9 00	
		" C. Arnold,	9 00	
		" C. Bennington,	9 00	
		" L. D. Hopkins,	9 00	
		" C. E. Chase,	9 00	
		" L. Button,	9 00	
		" D. Robinson,	9 00	
		" C. Person,	9 00	
		" D. Arnold,	9 00	
		" J. B. Parker	9 00	
		" W. J. Cook,	85 00	
			Forward, $310 00	$8,053 24

		Brought forward,	$310 00	$8,053 24
Mar.	2.	E. P. Doyle, check, on account,	300 00	
	18.	People vs. Wallace & McDonald,	53 90	
		" Cavanagh,	25 00	
		" Dunning,	10 00	
		" M. Parker,	9 00	
		" Henry Park,	9 00	
		" William Holscher,	9 00	
		" James Sweet,	9 00	
		" W. E. Kidder,	9 00	
		" G. Sponibal,	10 00	
		" George Kane,	10 00	
		" G. Meeker,	10 00	
		" A. J. Walker,	10 00	
		" B. F. Arnold,	10 00	
		" W. E. Meeker,	10 00	
		" H. P. Davis,	10 00	
		" E. J. Johnston,	10 00	
		" J. J. Rose,	10 00	
		" A. N. Johnson,	10 00	
		" J. K. Armstrong,	10 00	
		" William Cross,	10 00	
		" H. Harrington,	10 00	
		" E. C. Miller,	10 00	
		" G. H. Chase,	10 00	
		" Wm. H. McHarvey,	10 00	
		" J. C. Chapin,	10 00	
		" John Carncross,	66 75	
	26.	E. P. Doyle, check, on account,	300 00	
		People vs. D. C. Badger,	100 60	
			— —	1,381 25
Apr.	2.	People vs. W. Lee,	$105 00	
		" Henry Jones,	24 25	
		" George Raub,	8 65	
	10.	" C. E. Gardner,	22 25	
		" J. Brazie,	13 40	
	15.	" Sisson & Thompson,	32 90	
		" F. L. Collins,	7 65	
		E. P. Doyle, check, on account,	380 19	
		Forward,	$594 29	$9,124 49

			Brought forward,	$594 29	$9,124 49
Apr.	21.	People vs. P. Alfred,		85 50	
		" Garret & Brown,		150 00	
	23.	" M. Brady,		15 00	
					844 79
May	1.	People vs. Bauer,		$8 00	
		" Dollie,		15 00	
		" Young,		3 80	
		" Smith,		6 85	
		" Briggs,		1 40	
		" Whitbeck,		6 85	
		" Dunham,		50 00	
	2.	" Angelo,		15 00	
		" Aversa,		10 00	
		" Mandbond,		20 00	
		" Marono,		10 00	
		" Palladine,		20 00	
		" Bennett,		20 00	
		" Palmer,		20 00	
		" London,		25 00	
		" Piola,		10 00	
		" Conjonya,		10 00	
		" Metzges,		10 00	
	5.	" DuBois,		10 00	
		" Young,		17 50	
	9.	" Welch & Forbes,		20 00	
		" Doyle & Decker,		20 00	
		" Davis & Tinklepaugh,		17 40	
		" Burton & Jones,		15 20	
		" Hudson & Armstrong,		32 75	
	11.	" Sutton,		18 25	
	12.	" Walrath,		7 80	
		" Stebbins & Ryder,		10 30	
		" Hoag & Thompson,		46 25	
		" Pettit & Davis,		47 93	
	16.	" Free,		42 45	
		" Whitford,		15 00	
		" Patterson,		36 90	
		" Fitzmorris,		5 85	
			Forward,	$625 48	$9,969 28

			Brought forward,	$625 48	$9,969 28
May	16.	People vs. Potter,		22 10	
		" Lobdell,		15 00	
	18.	" Van Etta & Haley,		14 90	
	20.	" Riley,		26 60	
		" Waring & Snyder,		11 75	
		" Deal, Hagen & Kohn,		19 00	
	23.	" Wicks, Ellis et al.,		38 00	
		" Naylon, Klepsie et al.,		40 00	
	28.	" Fronley and Malard,		20 00	
		" Hermon & Klinetop,		11 40	
	29.	" Marathon et al.,		100 00	
		" Walhouser,		14 40	
		" E. Sage,		8 00	
					966 63
June	1.	People vs. Smith,		$83 00	
	6.	" Richeson,		24 00	
		" Herrick et al.,		15 00	
		" Dobson,		16 25	
		" Olivette,		8 00	
		" Wormwood,		35 00	
		" Ham & Haynor,		11 75	
		" Belnap & Landers,		12 00	
	13.	" Demetzer et al.,		18 00	
	15.	" Anibal et al.,		44 50	
		" Strong & Co.,		75 00	
		" Browning,		2 90	
		" Boehm,		10 95	
		" Smith,		20 00	
		" Potts & Coobs,		10 65	
		" Thomas & Osborn,		20 00	
	23.	" Dubois,		7 00	
		" Jones,		49 00	
		" Darling,		5 80	
		" Hull, Dibble & Martin,		29 00	
	30.	" Wisner, Sothern et al.,		19 40	
		" Corey,		5 45	
		" Simmons,		5 45	
					528 10
			Forward,	$11,464 01	

			Brought forward,		$11,464 01
July	1.	People vs. Edgar Kemp,	$5 20		
		" T. Greenough,	25 00		
		" George Myers,	8 00		
		" J. Jones,	5 30		
	6.	" Charles Argus,	50 00		
		" Peifer, Saul et al.,	50 00		
		" J. W. Osborn	5 75		
		" Gardner,	7 00		
		" H. Simon,	25 00		
		" F. Donovan,	10 00		
		" Peck & Mosher,	75 00		
		" J. A. Quick,	50 00		
		" Graber et al.,	10 00		
		" G. A. Yates,	31 00		
		" Stevens & Parkhurst,	20 00		
		" Sheldon et al.,	30 00		
		" Horace Lewis,	48 00		
		" Lewis Cornwall,	10 00		
	28.	" George T. Beck,	17 35		
		" Byron Harris,	20 00		
		" Wardell & Trask,	15 00		
		" Dennis & Crosley,	13 40		
		" George W. Seil,	9 00		
		" A. Ward,	1 00		
		" Barnard Brink,	10 00		
		" Mark Sherman,	49 00		
		" D. C. Marsh,	5 00		
		" Seager,	15 00		
					620 00
Aug.	5.	People vs. R. Miller,	$38 45		
		" Henry Miller,	39 05		
		" Henry Drego,	10 00		
		" D. E. Bonner,	27 50		
		" D. J. Day,	16 05		
		" William Nash,	20 00		
		" M. Hathaway,	24 00		
		" Beese Car,	26 90		
	6.	" L. E. Woodbury,	8 12		
			Forward,	$210 07	$12,084 01

			Brought forward,	$210 07	$12,084 01
Aug.	6.	People vs. M. Talbot,		10 [illegible]	
		" C. E. Smith,		55 15	
	8.	" Edson Beede,		25 [illegible]	
	10.	" W. & N. Cady,		16 85	
		" Thomas Watts,		50 [illegible]	
	12.	" C. W. Ingalls,		25 [illegible]	
	14.	" E. B. Knox,		50 [illegible]	
	19.	" S. Shattuck,		10 [illegible]	
		" Oscar Curtis,		8 [illegible]	
	28.	" Alpine & Bowen,		20 [illegible]	
	29.	" C. Strevell,		10 [illegible]	
		" Crouch et al.,		100 [illegible]	
	31.	" Moxam, Shields & Beeldeton,		40 [illegible]	
		" A. Richardson,		10 [illegible]	
		" W. Miller,		15 [illegible]	
					655 07
Sept.	2.	People vs. Ellis,		$18 [illegible]	
		" Brosch,		7 65	
		" A. Call,		24 [illegible]	
		" F. Bell,		5 [illegible]	
		" H. Hicks,		10 [illegible]	
		" Jennings, Turner & Wyant,		17 [illegible]	
		" Holdridge & Bell,		12 [illegible]	
		" Knowles & Everton,		13 [illegible]	
		" Agaard & Rasmussen,		20 00	
	10.	" W. H. Coon,		10 [illegible]	
	11.	" Arthur Depee,		5 00	
	12.	" Comstock & Drenned,		21 [illegible]	
	14.	" Robinson & Holcomb,		20 [illegible]	
		" Britton & Young,		20 [illegible]	
		" Peter Patterson,		25 00	
		" Ross Springsted,		7 15	
	16.	" C. A. Conant,		39 00	
	19.	" James McClear,		12 75	
	22.	" Edward Benjamin,		23 00	
	23.	" L. Holmes,		20 80	
	25.	" C. D. Dowler,		21 90	
			Forward,	$352 50	$12,739 08

		Brought forward,	$352 50	$12,739 08
Sept.	26.	People vs. John Morris,	10 00	
	30.	" Fred. Derman,	10 00	
				372 50
		Total receipts, fines and penalties account,		$13,111 58

DISBURSEMENTS.

1895.				
Oct.	3.	H. C. Carr,	moiety, Mitchell case,	$5 00	
		H. C. Carr,	" Crosser & Mapes,	15 00	
		Frank Joy,	" Alger,	12 50	
		John E. Leavitt,	" Saltsman,	5 90	
		Thomas C. Welch,	attorney services,	35 00	
	5.	D. N. Pomeroy,	moiety, Ehrenfield,	7 50	
		William A. Ten Eyck,	" Spcigel,	11 50	
	16.	A. B. Klock,	" Hull et al.,	10 00	
		N. W. Conger,	" Hunter et al.,	12 50	
		George Carver,	" Burns,	1 55	
		" "	" Sager,	5 25	
		Joseph Northrup,	" Shelly,	4 50	
		George Carver,	" Cole,	5 12	
		M. Kennedy,	" Fonda et al.,	10 00	
		"	" Brennan et al.,	17 50	
		"	" Morseman et al.,	33 00	
	26.	D. P. Wood,	" Gleckner,	5 58	
		T. C. Welch,	services,	20 00	
		D. N. Pomeroy,	moiety, Miller,	14 50	
		J. H. Lamphere,	" Flousburg,	5 00	
		George Carver,	" Glimpse,	3 87	
		M. Kennedy,	" Brennen,	25 00	
		J. W. Pond,	advance, Dago case,	25 00	
		W. J. Slater,	legal services,	7 50	
	31.	Smith Soule,	" "	10 00	
		W. P. Badger,	" "	18 65	
		A. H. Gardener,	" "	26 24	
		J. W. Pond,	moiety, Bean case,	28 76	
					$381 92
			Forward,		$381 92

			Brought forward,		$381 92
Nov. 9.	E. S. K. Merrill,	legal services,	$27	50	
	M. Kennedy,	moiety, Adams case,	50	00	
	L. S. Emmons,	" Constable et al.,	46	20	
11.	Joseph Sterling,	" Outman,	4	00	
	E. I. Brooks,	" Sprague,	10	53	
	" "	" Knope,	3	15	
	" "	" Labarge,	10	97	
	L. S. Emmons,	" Fenn et al.,	70	75	
	" "	" Potter,	20	62	
	" "	" Yeager,	13	32	
	" "	" Wilcox,	13	12	
	" "	" Cooper,	13	32	
	John H. Olivette,	legal services,	49	60	
	Sammis & Bierck,	" "	27	50	
	R. S. Patterson,	" "	10	00	
	William H. Baker,	costs, Phillips case,	13	22	
	C. Leonard,	legal services,	30	30	
	J. W. Tucker,	" "	30	00	
	E. D. Scribner,	" "	40	00	
	L. C. Orr,	" "	14	90	
	D. C. Martin,	sheriff fees,	20	60	
	J. H. Lamphere,	moiety, Spohr case,	5	00	
	" "	" Roberts,	5	00	
	" "	" Smith,	5	00	
20.	Frank Joy,	" Scott,	36	45	
	" "	" Zehr,	98	75	
					669 80
Dec. 4.	E. Hathway,	moiety, Cole,	$12	50	
	Milton Carter,	legal services,	5	00	
	L. Wallace,	" "	2	25	
	Frank Joy,	moiety, Seymour et al.,	20	00	
	Joseph Northup,	" Frazer et al.,	9	50	
	" "	" Morton et al.,	9	50	
	F. S. Beede,	" Hall,	24	50	
	M. C. Collins,	legal services,	1	00	
	David Aird,		1	95	
	E. J. Lobdell,	moiety, Leaf,	11	02	
	J. W. Pond,	" Bagoe,	151	58	
		Forward,	$248	80	$1,051 72

			Brought forward,	$248 80	$1,051 72
Dec.	4.	I. R. Davenport,	legal services,	140 00	
		T. Suwarrow,	" "	12 45	
		C. Leonard,	" "	3 10	
		A. E. Billings,	" "	14 95	
		S. Crowell,	" "	88 74	
		A. R. Bunce,	" "	25 45	
		W. H. Hilts,	" "	22 20	
		M. J. Noonan,	" "	35 00	
		Tice & Vickery,	" "	68 30	
		D. E. Brong,	" "	46 25	
		C. Barlow,	" "	30 65	
		E. F. Vacheron,	" "	80 00	
		H. B. Hallock,	" "	194 12	
		L. S. Emmons,	moiety, Witter case,	8 77	
		H. P. Becker,	legal costs,	17 45	
		O. F. Lane,	" "	5 00	
		J. W. Lisk,	moiety, Burnhart case,	8 00	
		W. H. Burnett,	" Brown,	25 00	
		W. Kidd,	" Lent,	12 50	
		B. Hurlburt,	" McGuire,	2 00	
		John Fields,	Carthy et al.,	6 25	
		T. C. Welch,	legal services,	25 00	
		D. N. Pomeroy,	moiety, Miller et al.,	7 50	
		J. Canopi,	" Fenn et al.,	12 50	
		"	" Rose et al.,	25 00	
		"	" Bernard et al.,	30 00	
		"	" Bernalo et al.,	10 00	
		"	" Frank et al.,	15 00	
	19.	E. I. Brooks,	" Armstrong et al.,	5 47	
		Raley & Kiley,	legal services,	25 00	
		W. E. McCollum,	" "	38 45	
		George Carver,	" "	5 00	
	20.	Cantwell & Cantwell,	" "	35 00	
	30.	T. C. Welch,	" "	30 00	
		L. S. Emmons,	moiety, Bishop case,	19 65	
		" "	" Ridge,	18 86	
		" "	" Moak,	27 90	
		" "	" Hollister,	27 50	
			Forward,	$1,452 81	$1,051

			Brought forward,	$1,452 81	$1,051 72
Dec. 30.	M. Kennedy,	moiety, Wooden,		46 00	
	C. H. Gallup,	services,		11 50	
	Ira Elmendorf,	costs, Castle case,		10 00	
4.	E. T. McCormack,	protested check, E. P. Doyle,		72 21	
	D. C. Roup,	moiety, E. P. Doyle,		13 95	
	M. Kennedy,	" account, Doyle,		40 00	
					1,646 47
1896.					
Jan. 2.	Paid, J. W. Pond,	costs, Sheron et al.,		$30 00	
	Paid, J. W. Pond,	costs, moiety, Salem Town,		11 60	
4.	F. S. Beede,	moiety, Washban,		40 00	
	L. S. Emmons,	moiety, Bailey,		1 00	
	" "	" Baird,		10 00	
	" "	" Carr,		10 00	
	" "	" Livingston,		11 85	
	E. I. Brooks,	" Osterly et al.,		15 55	
	C. H. Barber,	legal services,		28 75	
	W. H. Anibal,	" "		25 00	
	N. W. Conger,	" "		21 90	
7.	Ella Fuller,	moiety, Frank case,		31 15	
	Joseph Northup,	" Rogers,		5 00	
	M. Kennedy,	" Wilcox & Hill,		8 78	
15.	E. Hathway,	" Valan,		14 50	
	H. Hawn,	" Phillips,		12 50	
20.	S. Marshall,	" Heldt et al.,		12 50	
	L. S. Emmons,	" Rathbone,		44 17	
	" "	Eldridge et al.,		24 25	
	" "	Rathbone,		44 05	
	" "	Flint,		42 75	
	E. J. Lobdell,	Lawrence,		4 50	
	E. I. Brooks,	Donegar et al.,		15 32	
	Joseph Sterling,	Vrooman,		11 00	
	L. S. Emmons,	Silvery,		49 25	
	O. F. Austin,	legal services,		2 50	
	E. J. Lobdell,	witness fees and costs,		105 00	
31.	E. Hathaway,	moiety, Pickard,		18 50	
	L. S. Emmons,	" Hughes,		18 65	
	" "	" Hopler,		22 50	
	E. I. Brooks,	" Albertson,		7 35	
			Forward,	$699 87	$2,698 19

			Brought forward,	$699 87	$2,698 19
Jan.	31.	D. C. Staring,	legal services,	11 75	
		A. B. Gallatin,	" "	10 25	
		E. D. Crosley,	" "	4 34	
		G. W. Hurlbert,	" "	11 00	
		Smith Soule,	" "	10 00	
					747 21
Feb.	4.	V. K. Kellogg,	legal services,	$250 00	
	17.	B. H. McCollum,	moiety, Garnot,	10 00	
		E. Hathway,	" McFarren,	26 00	
		Joseph Northup,	" Sooper,	6 50	
		W. E. Hyde,	legal services,	3 00	
		T. C. Welch,	" "	20 00	
		C. R. Allen,	" "	9 10	
	24.	J. H. Lamphere,	" "	11 84	
	26.	E. J. Lobdell,	moiety, Bishop,	25 00	
		" "	" Early,	20 00	
					381 44
Mar.	2.	L. S. Emmons,	moiety, Talbot case,	$40 50	
		" "	" Ellerson et al.,	72 00	
		J. W. Lick,	" Fisher et al.,	10 32	
		B. H. McCollum,	" Seavy,	25 00	
		J. W. Pond,	" Cook,	42 50	
	17.	O. S. Veber,	" Sellick,	6 27	
		R. Radley,	" Lyons,	5 45	
		J. S. Whipple,	legal sevices,	40 00	
		G. R. Allen,	" "	3 40	
		N. W. Bartlett,	" "	25 00	
		W. L. Reed,	moiety, Cavanaugh,	11 20	
		L. S. Emmons,	" Dunning,	5 00	
		" "	" Parker et al.,	22 50	
		" "	" Sponibal et al.,	85 00	
Apr.	10.	Charles Knox,	" Lee,	52 50	
		George Fazette,	" Wallace,	26 95	
		L. S. Emmons,	" Badger,	50 30	
		E. Hathway,	" Carncross,	33 37	
		"	" Jones,	12 12	
		B. Salisbury,	" Raub,	4 32	
			Forward,	$573 70	$3,826 84

			Brought forward,	$573 70	$3,826 84
Apr.	10.	Smith Soule,	legal services,	10 00	
		J. Starring,	" "	10 00	
		M. Carter,	" "	5 00	
		H. Phelps,	" "	5 00	
		Smith Soule,	" "	10 00	
		G. D. Russell,	" "	5 20	
	15.	Edgar Hicks,	moiety, Gardener,	11 12	
		S. Hawn,	" Brazie,	1 70	
		J. Lisk,	" Sisson,	16 45	
		R. Eddy,	" Collins,	3 87	
		F. Brown,	" Hicks,	16 00	
	22.	L. S. Emmons,	" Alpine,	42 75	
		J. W. Pond,	" Garrett,	50 00	
		A. P. Brown,	legal services,	5 25	
		Carlos Hutchins,	moiety, Wood,	13 30	
		R. F. Thompson,	legal services,	13 69	
		Milton Carter,	" "	7 00	
		M. Kennedy,	" "	4 45	
		C. Knudson,	" "	9 70	
	30.	B. S. McCollum,	moiety, Brady,	7 50	
		W. Chamberlain,	legal services,	25 00	
		E. D. Corsley,	moiety, various cases,	45 00	
		H. Hawn,	" " "	42 50	
		G. W. Ross,	legal services,	5 80	
		W. Kidd,	moiety, Briggs,	17 50	
				—	957 48
May	11.	C. L. Waring,	legal services,	$20 00	
		Joseph Canopi,	moiety,	85 00	
	20.	George Carver,	"	4 00	
		L. S. Emmons,	"	7 50	
		J. E. Leavitt,	"	8 74	
		William Cookingham,	"	20 70	
		S. Hawn,	"	17 50	
		D. N. Pomeroy,	"	8 75	
		C. Van Steenburg,	"	7 70	
		S. Marshall,	"	7 60	
		F. W. Barnes,	"	16 37	
			Forward,	$203 86	$4,784 32

			Brought forward,	$203 86	$4,784 32
May	20.	W. L. Reed,	moiety,	9 12	
		L. S. Emmons,	"	9 05	
		" "	"	23 12	
		Michael McQuinn,	"	23 96	
		F. Brown,	legal services,	5 00	
		D. H. Lake,	" "	3 20	
		W. E. McCollum,	" "	5 20	
		M. Brady,	" "	5 90	
		A. Dopper,	" "	7 00	
		T. C. Welch,	" "	10 00	
		E. T. Stokes,	" "	5 00	
		Root, Orton & Baldwin,	" "	25 00	
		T. E. Trumbull,	" "	15 00	
		Milton Carter,	" "	7 00	
		DeGroot, Rawson & Stafford,	" "	75 00	
		C. B. Owen,	" "	2 10	
		R. Hedley,	" "	130 00	
		William Cookingham,	moiety,	8 70	
	25.	Lewis Denchler,	legal services,	2 10	
		H. V. Ingalls,	" "	25 00	
		Charles Knox,	moiety,	21 22	
		B. H. McCollum,	"	7 50	
		F. S. Beede,	"	18 45	
		T. H. Donnelly,	"	13 97	
		B. H. McCollum,	"	7 50	
		Michael McQuinn,	"	7 45	
		N. Shaul,	"	13 30	
		A. C. Smith,	"	5 87	
		Simon Marshall,	"	9 50	
		L. S. Emmons,	"	19 00	
		D. N. Pomeroy,	"	15 00	
		C. L. Waring,	legal costs,	80 05	
		Milton Carter,	" "	7 22	
	29.	J. H. Lamphere,	moiety,	10 00	
		W. L. Reed,	"	3 20	
		Joseph Northup,	"	50 00	
		George Bush,	"	7 20	
		Henry French,	"	4 00	
					900 84
			Forward,		$5,685 16

			Brought forward,	$5,685 16
June 5.	J. W. Pond,	advance costs,	$150 00	
30.	M. C. Worts,	moiety,	41 50	
	J. W. Littlejohn,	"	12 00	
	William C. Cookingham,	"	7 50	
	E. Hathway,	"	8 12	
	W. Knox,	"	4 00	
	E. Hathway,	"	17 50	
	D. N. Pomeroy,	"	5 87	
	Spencer Hawn,	"	6 00	
	Joseph Northup,	"	9 00	
	E. J. Lobdell,	"	22 25	
	Edgar Hicks,	"	37 50	
	D. N. Pomeroy,	"	1 45	
	" "	"	5 47	
	C. Van Steenburg,	"	5 32	
	J. H. Lamphere,	"	10 00	
	W. L. Reed,	"	3 50	
	F. R. Beede,	"	24 50	
	J. W. Littlejohn,		2 90	
	F. S. Beede,	moiety,	14 50	
	T. H. Donnelly,	"	9 70	
	E. Oakley,	"	2 72	
	C. Van Steenburg,		2 72	
	I. C. Cooley,	legal costs,	50 00	
	C. B. Fisher,	" "	7 15	
	L. Fancher,	" "	20 00	
	Philip Keck,	" "	15 00	
	L. Wallace,	" "	5 50	
	Robert Patterson,		25 00	
	P. Harris,	legal costs,	3 95	
	L. Freeman,	" "	10 00	
	Howard Widener,	" "	11 75	
	Robert Thompson,	" "	5 00	
	F. W. Cavanaugh,	" "	6 50	
	Frank Brown,	" "	19 48	
	G. Van Alstyne,	" "	14 50	
	E. J. Lobdell,	" "	6 60	
	H. Widener,	" "	10 00	
		Forward,	$614 45	$5,685 16

			Brought forward,	$614 45	$5,685 16
June 30.	B. J. Wright,	legal costs,		1 70	
	M. Wheeler,	" "		16 50	
					632 65
July 6.	John Desmond,	legal costs,		$25 00	
					25 00
Aug. 6.	George Crandall,	moiety,		$2 60	
	F. S. Beede,	"		12 50	
	L. S. Emmons,	"		4 00	
	J. L. Ackley,	"		15 90	
	F. J. Fullerton,	"		12 50	
	C. W. Pells,	"		12 50	
	B. Salisbury,	"		2 87	
	L. S. Emmons,	"		3 50	
	Ira Elmendorf,	"		12 00	
	L. S. Emmons,	"		5 00	
	B. H. McCollum,	"		37 50	
	W. L. Reed,	"		2 52	
	J. W. Lisk,	"		5 00	
	L. S. Emmons,	"		15 50	
	A. A. Warren,	"		9 00	
	L. S. Emmons,	"		15 00	
	F. S. Beede,	"		24 00	
	M. C. Worts,	"		5 00	
	E. Hathway,	"		8 67	
	John E. Leavitt,	"		10 00	
	Simon Marshall,	"		5 00	
	Edgar Hicks,	"		5 00	
	F. S. Beede,	"		24 50	
	John L. Ackley,	"		6 70	
	S. M. Prouty,	"		2 50	
	W. H. Hiltz,	legal costs,		11 80	
	C. Miner,	" "		12 65	
	W. L. Reed,	" "		5 00	
	R. F. Thompson,	" "		30 00	
	C. T. Burleigh,	" "		10 55	
	Edwin Young,	" "		5 00	
	H. T. Carr,	" "		6 20	
	G. W. Patterson,	" "		9 95	
			Forward,	$350 41	$6,342 81

			Brought forward,	$35 41	$6,342 8
Aug.	6.	David Aird,	legal costs,	3 00	
		A. H. Gardner,	" "	11 5	
		J. H. Lamphere,	" "	38 84	
		Woods & Smith,	" "	61 00	
		Edwin Young,	" "	4 75	
	7.	N. S. Ackerly,	" "	248 96	
		Ledeux Chem. Laboratory,	costs,	107 96	
		James B. Eagan,	legal costs,	75 00	
	31.	William H. Hull,	" "	1 00	
		Tuttle & Halleck,	" "	22 00	
		Frank Brown,	" "	3 00	
		L. S. Emmons,	moiety,	19 22	
		" "	"	19 52	
		" "	"	5 00	
		Edgar Hicks,	"	13 75	
		J. W. Littlejohn,	"	8 02	
		Simon Marshall,	"	10 00	
		F. S. Beede,	"	12 00	
		J. L. Ackley,	"	13 45	
		E. J. Lobdell,	"	4 06	
		Carlos Hutchins,	"	5 00	
		E. J. Lobdell,	"	27 57	
		F. S. Beede,	"	12 00	
		N. Shaul,	"	8 42	
		Willett Kidd,	"	22 50	
		C. B. Smith,	"	12 50	
		F. S. Beede,	"	24 50	
		S. N. Prouty,	"	5 00	
		J. E. Leavitt,	"	4 00	
		L. S. Emmons,	"	10 00	
		A. B. Klock,	"	5 00	
		James Holmes,	"	27 15	
		A. Winslow,	"	20 00	
		W. L. Reed,	"	3 87	
		" "	"	6 37	
					1,226 38
Sept.	8.	Joseph Rayton,	legal costs,	$8 50	
		Abram Frankie,	" "	7 35	
			Forward,	$15 85	$7,569 19

			Brought forward,	$15 85	$7,569 19
Sept.	8.	U. S. Stevens,	legal costs,	21 85	
		Richard Bell,	" "	30 00	
		Clarence Mathews,	" "	10 00	
		J. K. McDonald,	" "	25 00	
		J. W. Pond,	" "	20 68	
		C. L. Waring,	" "	5 00	
		James Holmes,	moiety,	42	
		Norman Pomeroy,	legal expenses,	19 25	
					148 05
		Total disbursements,			$7,717 24

Receipts,	$13,111 58
Disbursements,	7,717 24
Balance, October 1, 1896,	$5,394 34

During the year considerable publicity was given to the fact that this Commission, at the very outset of its work, found itself much embarrassed by the confused condition of its affairs; its inability at first to obtain possession of important books and records relating to its finances; that with the consent of the Comptroller an accountant had been employed to examine the accounts and copy all vouchers at the Comptroller's office covering disbursements on account of this department; that the reports made to this Commission at various times as the examination progressed showed that moneys appropriated for the use of this department had not been properly expended, and that a shortage amounting to nearly $17,000 was found to exist in the account of moneys received and disbursed by the former Secretary of this Commission.

This matter is fully explained in the following reports:

November 26, 1895.

SPECIAL REPORT OF EXECUTIVE COMMITTEE IN MATTER OF BOOKS AND VOUCHERS OF THE FISH, GAME AND FOREST COMMISSION, AND GENERAL CONDITION OF FINANCES.

This Commission organized April 25, 1895, electing Edward P. Doyle, who had been Secretary to the Fish Commission, which we succeeded, as Secretary. The books of record, account-books, vouchers and official correspondence of the old Fish Commission, excepting a portion of the papers which related to Game Protectors' business, were at 53 Broadway, New York, and in custody of Mr. Doyle as Secretary.

The Forest Commission, which we also succeeded by the consolidation act known as chapter 395, Laws of 1895, had its office in the Capitol, and upon our organization this Commission occupied its old quarters. Its Secretary, before retiring, delivered its books and other property, together with complete files of duplicate vouchers, checks, check-books, stubs, official papers and correspondence.

Upon the organization of this Commission we adopted rules for its government, and divided the work of the Commission among five committees, assigning to each of the five Commissioners the immediate responsibility of looking after the details of the business of his department. As is well known to this Board, it was made the duty of this Committee, in addition to the duties of auditing accounts and the special care of the finances of the Commission, to examine all checks, books and accounts, and report the result of such examination to the Board as often as once a month. The outgoing Fish Commission made no statement of balances or formal transfer of funds or property on hand; an omission which was, perhaps, as much our fault as theirs, as good business principles and common sense require that we should have

demanded this formal transfer, and an exhibit of the assets and liabilities of the Boards, which, by the consolidation act, we were to succeed as legal representatives, before attempting to go on with the business which required, as we have found, the liquidation and settlement of thousands of dollars of debts owing by our predecessors, and the collection of thousands of dollars due the State from various sources, principally on account of fines and penalties and judgments therefor, and on account of sales and leases of oyster franchises.

The only excuse your Committee has to offer for failing to make this demand for an early accounting and delivery of property and funds, is that this Commission had retained in its service the chief executive officer of the Forest Commission, and the Secretary and Engineer of the Fish and Game Commission, who was also its disbursing officer, accountant and manager; also the Chief Game Protector and his clerk, besides having upon this Board two members, one each from the consolidated Commissions.

On May 20th, the Secretary made to us, and entered on our minutes the following report, viz.: "The Secretary informed the Commission that the Comptroller had paid the pay-roll of the old Commission, and that the Secretary had paid personally all outstanding accounts of the late Fish and Forest Commissions." This statement we very soon found to be a mistake by the scores of bills and claims which were presented for payment, some running back as far as 1890. Your Committee then began a thorough examination of the office and found that they had no books of accounts, vouchers, cancelled checks or stubs of the late Fish and Game Commission. Inquiry developed the fact that all books and papers relative to financial transactions, as well as all official correspondence, were kept at 53 Broadway, New York, which had been used as a branch office. Requests were made for their production, but the same were ignored, and thereupon, on June 7th, the following resolution, offered by Commissioner Babcock, of this Committee, was adopted:

"*Resolved*, That all the books, papers and vouchers pertaining to the Commission in the New York office, be removed to this office and turned over to the auditing and pay-clerk within ten days."

Within a few days a box containing some old books, duplicate hatchery accounts, letters, obsolete blank forms and other papers, many of which did not relate to the public business, was received but found not to include the account-books of fines and penalties, oyster franchises and general expenses, nor any of the accounts or duplicate vouchers needed to enable us to liquidate claims against the Fish Commission, or collect outstanding accounts due the State. The most serious difficulties are met with in the department of fines and penalties. Hundreds of people, including justices, protectors, peace officers, lawyers, printers, and others, have presented bills for

services and disbursements, which can be paid only from money belonging to this account. These claims can not be adjusted, while the books containing the account are withheld.

We had no knowledge of the serious condition of things until personal complaints began coming to members of the Committee. A personal request for the books and vouchers met with no better success than the written direction of the Commission, and the existence of the missing books and vouchers was denied.

In October, with the consent and by the courtesy of the Honorable Comptroller, we employed an expert accountant to go to his office and make copies of all vouchers paid within the last fiscal year, and get such memoranda from his books and files as would enable us to make up our accounts for settlement with claimants, and for the purpose of ascertaining how much our funds had been impaired, and also to enable us to make the financial report to the coming Legislature required by law. This gentleman has already made his preliminary report to this Board, dated October 8th, which shows that several thousand dollars of cash advances which was supposed to have been used in liquidation of the indebtedness of this Commission, had not been so applied, and that several thousand dollars in vouchers returned, had not been credited up because of imperfections therein or a misunderstanding of the particular appropriations to which chargeable. These discrepancies are being adjusted and balances collected, and later on the expert will make a supplementary report.

July 9th, the late Secretary resigned, and soon after, by resolution of this Board, a letter was addressed to each of the ex-Fish Commissioners respectively, asking them for such information as they possessed in reference to the missing books and documents. Information was promptly received from ex-Commissioners Bowman and Huntington stating that the books and duplicate vouchers were left by them in the New York office, and volunteering to go with your Committee and examine the office and confer with the late Secretary as to what had become of the books. November 11th we met at the former branch office, as agreed upon, and succeeded in finding there a quantity of duplicate vouchers which we placed in a box for shipment to Albany. We found also several hundred official letters of this Commission which had been mailed to or at least had brought up in the office at 53 Broadway, and had never been seen by this Commission. Many of them were of the nature of complaints as to the negligence of this Board in regard to unpaid and overdue bills, in some instances imputing to us dishonesty and crookedness, and others containing matters of more or less importance, which should have been considered and answered. These we also packed up for shipment to this office. It may be asked how our official correspondence was thus missent. The explanation is simple: First, the old Commission had what they termed a branch office there and nearly all their business was

transacted through their Secretary and general manager; again, this Commission allowed its letter-heads, vouchers, envelopes, applications for fry, etc., to be printed and go broadcast with the statement that 53 Broadway was a branch office still, thereby misleading the public and sending much of our correspondence there, especially that pertaining to bills which had been contracted there, as the public had been educated to look to the Secretary personally for their pay. Mr. Leslie, an employe of the New York office, furnished us with an extract which he had made from the general account-book, showing the franchises account. We requested, of the men in and about the office, an inventory of the public property, but were informed that they could not give it to us without the consent of Mr. Doyle, who had personally employed them. Mr. Leslie informed us that Mr. Doyle had charge of the correspondence and at times there would be as many as two hundred letters awaiting his coming, to be opened.

On the following day your Committee called at the office and met Mr. Doyle, and requested the delivery of the books and documents. He told us that we could not have the books and vouchers as they were the property of the old Commission which, counsel had informed him, was legally dead, and that this Commission had no jurisdiction or control of its official books or papers; that he had sent the oyster franchise account-book, which also contained miscellaneous expenses and some other account, to Mr. Huntington, and the fines and penalties book to Mr. Bowman, and the duplicate vouchers to the Comptroller's office. When informed that the matter so far as your Committee was concerned was ended, except to refer it to the Attorney-General's office or other proper authority, he reconsidered and agreed to produce the books at Albany the next day, which he did.

A casual inspection of the fines and penalties account showed a shortage, admitted by Mr. Doyle, of $1,195, for which he gave a check to the chairman of the Executive Committee, subject to re-examination and further adjustment of the accounts which, with $356, before returned as per report of the chairman of the Executive Committee, November 7th, makes $1,551 repaid upon this account.

Your Committee deem it their duty also to report that the books known as the shellfish accounts and records are very incomplete and do not show the details of payments of money as they should do. They also indicate that there has been a neglect to collect moneys due, and that unless better methods are at once adopted, this Commission will have difficulty in making a proper detailed statement of its receipts from that source and the State will be a loser thereby.

The maps of the whole oyster territory sold and leased by the State are none of them on file in the office of the Secretary of State or Comptroller. To produce these maps has taken years of time and cost the State thousands of dollars, and they,

together with the field-books and other important data showing title to and location of hundreds of irregular parcels of land sold or leased by the State, should be on file in the office of the Secretary of State and become public records in fact as well as in theory. As it is, they are liable to loss or destruction.

In this connection we desire to say that in our opinion the legitimate surveying and mapping of these grounds chargeable to the State should be done by and under the direction of the State Engineer and Surveyor, and at the expense of that department, and that the advertising of the applications for leases should be at the expense of the purchaser.

There has been an expense incurred by this Commission since April 25th of about $2,500 in advertising applications to lease lots for oyster cultivation, and nearly or quite as much more in various kinds of engineering and other expense connected therewith.

These lots are in parcels from one-half acre to eight or ten acres. There is no real competitive bidding, all sales for good, bad and indifferent lands being for twenty-five cents an acre, the minimum price allowed by law. It is claimed that the theory is to give the present occupant a better title and insure them quiet and peaceable possession. It would seem, if this is the only end to be served, that it could be done by act of the Legislature at much less expense to the State and less annoyance and uncertainty to the occupant and owners of the equities therein. Be that as it may, the funds of this Commission will not admit of further wholesale depletion in this direction unless we close some of our hatcheries and withdraw a large part of our protectors from the forests. It is expected that when the amount of shortages found by our expert accountant have been returned to the Comptroller and the Commission, that it will help the condition of our finances somewhat, unless the Comptroller holds that moneys so returned must be credited to the general State fund. We find that several judgments for costs have been entered against the State and certified to us for payment, because of indifference of attorneys in charge, growing out of neglect to answer their communications or settle their bills, and many others are threatening to let cases go by default if some attention is not paid to their claims for services and disbursements.

These complications become very serious for this Commission, especially in view of the fact, as reported by this Committee at your last meeting, that of the $92,750.82 appropriated May 10, 1895, for the maintenance and work of the Commission for the fiscal year ending October 31, 1895, we had, outside of funds specially appropriated for the purchase of lands, but $34,019.31 left October 31st, about one-fifth of which is required at once to liquidate debts incurred by ourselves without considering the obligations contracted by our predecessors. We believe that the Board should decide

at once whether it will, from the funds on hand, pay any more accounts of the old Commission, and if it conclude not to do so, inform every creditor of the fact and why it cannot settle their claims immediately and when they may reasonably expect relief.

And further, that measures should be taken at once to reduce expenses by cutting down the number of our employes and general retrenchment to meet the exigency, otherwise we will have no funds left to hatch and distribute fish or protect forest and game.

We may add that a casual inspection of the oyster franchise book shows a discrepancy on its face of about $1,200. The late Secretary admitted that he expected that account to be found short, but as yet all books and data for checking the accounts are in New York.

Dated, *November* 26, 1895.

H. H. LYMAN,
C. H. BABCOCK,
B. H. DAVIS,
Executive Committee.

FINAL REPORT OF THE EXAMINATION OF THE ACCOUNTS OF EDWARD P. DOYLE, LATE SECRETARY OF THE FISHERIES, GAME AND FOREST COMMISSION OF THE STATE OF NEW YORK.

ALBANY, N. Y., *March* 24, 1896.

To the Honorable Board of Commissioners of Fisheries, Game and Forests, Albany, N. Y.:

GENTLEMEN: In September last I was employed by your Executive Committee to examine the accounts of your department at the office of the State Comptroller, and such other accounts as were kept at the office of your department by Mr. Edward P. Doyle, late Secretary of your Commission.

On the 1st of November, 1895, there was submitted for your information a statement of the condition of the several accounts as shown by the books of the State Comptroller, and December 31, 1895, a supplemental statement was also submitted, showing the amounts paid by the late Secretary in full or partial settlement of shortages on these accounts, and the amounts remaining unpaid at that date. The latter statement mentioned the fact that the examination of the shellfish account, and the maintenance account from June 1st, 1889, to July, 1893, had not been completed.

The examination of the shellfish account was afterwards completed, and a statement of the condition of that account was submitted January 13, 1896. A report on the maintenance account will be found herein.

In addition to the examination of these accounts I was required to copy them for the information and use of your Commission; and to make copies of all papers on file in the Comptroller's office belonging to the accounts of your department.

The work is fully completed. All the items of the several accounts under the various appropriations, including cash advances, vouchers rendered, ascertained shortages, amounts paid in settlement thereof and amounts remaining unpaid to date, have been entered in books provided by your Commission for that purpose. Copies of all abstracts, vouchers and sub-vouchers covering all disbursements on these accounts from June 1889, to July, 1895, have been prepared and are now among the files of your office.

I was also required to prepare for the use of the Assembly a statement of the transactions of the shellfish department of your Commission from January, 1888, to February, 1895, as per resolution of that body, adopted February 4, 1896. The preparation of this statement consumed fifteen days' time, and the completed report comprised thirty-six pages of statistics of the shellfish department.

I have been requested to submit, at this time, an additional and final report, which shall contain a summary of previous reports and any important facts in regard to these accounts not heretofore presented.

The accounts examined at the Comptroller's office are the following:

Hatchery maintenance account, from September 1, 1894, to May 31, 1895.

General maintenance account, from June, 1889, to June 12, 1895.

Also the accounts created under the following appropriations:

Appropriation, $7,750, for shad hatching, surveying, etc., chapter 726, Laws of 1893.

Appropriation, $5,000, for construction of Sullivan County Hatchery, chapter 362, Laws of 1893.

Appropriation, $5,000, for construction of Steuben County Hatchery, chapter 39, Laws of 1893.

Appropriation, $1,500, for shad hatching, surveying, etc., chapter 358, Laws of 1894.

Appropriation, $500, for transportation and distribution of black bass, chapter 758, Laws of 1894.

Appropriation, $1,500, for hatchery maintenance, chapter 358, Laws of 1894.

Appropriation, $1,500, for improving water supply of hatcheries, chapter 358, Laws of 1894.

Appropriation, $2,500, for maintenance Sullivan County Hatchery, chapter 768, Laws of 1894.

Appropriation, $3,000, for completion and maintenance Steuben County Hatchery, chapter 358, Laws of 1894.

Special appropriation, $2,500, for reimbursing Game Protectors, chapter 438, Laws of 1894.

The foregoing are all the accounts of your department which were kept at the office of the Comptroller during the period covered by these examinations.

In addition to these there are the shellfish account and the account of fines and penalties, which are kept in the office of your Commission.

Shellfish Account.

This account was created under the provisions of an act of the State Legislature, chapter 584, Laws of 1887, entitled "An act to promote and protect the cultivation of shellfish within the waters of the State; for the appointment of an additional Commissioner of Fisheries; to authorize the grant of franchises for the use of certain lands under water belonging to the State," etc. By this act the Commissioners of Fisheries were empowered to grant perpetual franchises for the purpose of shellfish cultivation in the lands applied for, for a consideration of not less than one dollar per acre, if the lands were unoccupied or unused, and not less than twenty-five cents per acre if the lands were in present use and occupation.

No grant could be made to any person, firm or corporation in excess of 250 acres, nor could any person, firm or corporation be allowed to hold, at any one time, more than 250 acres. The statute also required that all moneys received for the sale of franchises should be paid forthwith into the treasury of the State.

When the examination of this account began at your office, about November 10, 1895, there was very little to work upon, as the books of account and the records of franchises sold were at the branch office of the Commission in New York city; and, for the purpose of this examination, for the time being, inaccessible.

About November 15, 1895, the late Secretary brought to your office his account of moneys received for franchises and the amount paid by him into the treasury of the State. On examining the books in the Comptroller's office it appears that there was paid into the State Treasury by the late Secretary moneys received for sale of franchises as follows:

During the year 1888,		$728 55
" " 1889,		3,768 36
" " 1890,		475 38
" " 1891,		1,955 52
" " 1892,		1,422 07
" " 1893,		1,476 33
" " 1894,		716 71
" " 1895,		350 00
Total payments into State Treasury,		$10,892 92

The late Secretary's account of the receipts from shellfish franchises is as follows:

Receipts,	$12,712 85	
Paid into State Treasury,	10,892 92	
Balance due State,		$1,819 93

On November 20, 1895, the late Secretary gave the Comptroller his check for the amount thus shown to be due on this account.

On the 10th of December last, by the direction of your Board, the office in New York city was discontinued, and the books, records and papers belonging to the Commission were removed to the office of the Commission in this city; among them being three large books in which the franchises and leases granted for shellfish cultivation are recorded on printed forms specially prepared for the purpose, and in which the number of the lot is stated and its boundaries defined, the number of acres included in each lot, the price per acre, and the amount received for surveying and mapping are given in detail. These franchises are numbered from 1 to 1033; the first one was recorded January 4, 1888; the last one March 14, 1893. Collectively they convey 16,455 acres to 334 individuals and firms.

Comparing the late Secretary's account with the record of franchises and leases, there are found 84 franchises and three leases, showing receipts to the amount of $3,576.41, that do not appear in his account.

The names of the owners of these franchises, and the amount paid by each, the numbers and location of the lots, were given in detail in the report on the shellfish account of January 13, 1896. There is also due the State rentals of leased lands amounting to $2,265.

The total ascertained shortage on this account, therefore, was seven thousand six hundred and sixty-one dollars and thirty-four cents ($7,661.34).

It was not stated in the special report on this account, for the reason that it was not known at the time the report was prepared, that it is claimed by the late Secre-

tary that he did not receive all the money shown to be due on this account, for the reason that a large number of franchises that are recorded could not be delivered, as the purchasers, having decided that the lands were not suitable for shellfish cultivation, refused to accept and pay for the deeds.

A number of the deeds referred to were found among the papers received from the office of the shellfish Commissioner in New York. Obviously, the deeds so found were not delivered to their owners; and yet no evidence is presented to show that they were not paid for. On the contrary, letters received from the purchasers of many of these franchises, in response to circular letters of inquiry sent out by your Commission, show that they own, or did own, the franchises in question, and have paid for the same.

The Fines and Penalties Account.

This account was in a very confused state. The books received from the New York office contained only meagre and inaccurate statements in relation to it. Very much of the data pertaining to the account was obtained from memoranda scattered through the files of your department, such as protectors' reports, cancelled checks, bills for services, receipts for moieties and other disbursements, and by correspondence with Game Protectors, attorneys and others.

The moneys belonging to this account are the proceeds of fines and penalties recovered from persons who have been convicted of violating the State laws for the protection and preservation of fish, game and forests. The account is debited with the amount recovered in each case, less the cost of prosecution. One-half of this net amount is paid to the Game Protector and Forester or other person furnishing the information on which the conviction is obtained. The account is credited with these payments, which are called moieties. The remaining money belonging to this account can be used only to pay the expense incurred in prosecutions for violations of the law for the protection of fish and game. No disbursements of moneys belonging to this account can legally be made except on the certificate of the Chief Protector, who alone is authorized to audit bills belonging to this account.

The examination shows that in the disbursing of moneys belonging to this account the requirements of the statute were not always observed. Numerous cases were found in which the amount recovered was paid over to the late Secretary of your Commission; the moieties and costs, if paid at all, were paid by him without the certificate or the knowledge of the Chief Protector; and in many cases neither the amount received, nor the amount disbursed, was entered in the account. Fifty-one cases of this kind are found, showing receipts amounting to two thousand six hundred and nine dollars and sixty-eight cents ($2,609.68).

The total shortage on this account is four thousand nine hundred and eighty-six dollars ($4,986).

In addition to the amount found to be due the State on this account, there were numerous outstanding claims for protectors' moieties and attorneys' fees which were supposed to have been paid by the late Secretary. These claims have been presented to your Commission from time to time, and the amounts found to be due have been collected from the late Secretary and paid through your Commission. The aggregate of these claims thus paid is five hundred and ninety-eight dollars and forty cents ($598.40). There are other outstanding claims payable from this account that have not been adjusted as yet.

Maintenance Account.

The maintenance account is the account of moneys appropriated and disbursed for the general expenses of the Commission, and includes, in addition to the personal expenses of the Commissioners, large disbursements for printing, advertising, stationery, stenographic work and typewriting, office furniture, supplies for hatcheries, and, occasionally, salaries and expenses of hatchery employes, shad hatching, surveying, etc. Disbursements for the last two purposes should have been charged to the special appropriations for those purposes.

There is also another account of cash advanced under appropriations "For the salary of the Secretary and the maintenance of his office."

These two accounts appear to have been kept separate by the Comptroller's office only with respect to the cash advanced. Vouchers belonging to one have been charged to the other, and *vice versa*. For this reason, in the examination of those two accounts, they have been considered as one and the same account, and wherever the maintenance account is referred to in these reports it is understood to include all disbursements made under the two appropriations referred to.

The shortage on this account was $2,043.66; all of which has been collected by your Commission and turned over to the Comptroller.

Special Appropriation, Chapter 438, Laws of 1894.

This act appropriated two thousand five hundred dollars ($2,500) for the purpose of reimbursing certain Game Protectors for expenses incurred by them in excess of the amount allowed by chapter 577, Laws of 1888.

The amount of this appropriation was at first apportioned among nine (9) claimants.

Afterwards, and before any of the claimants had been paid, it was discovered that the estates of two other protectors, then deceased, were entitled to share in the distribution. This made another apportionment necessary.

Your Commission, therefore, decided that the money should be distributed as follows:

Robert Brown,	$262 32
Isaac Kenwell,	226 12
S. C. Armstrong,	53 33
George Moyer,	146 54
Matthew Kennedy,	88 48
S. F. Snyder,	276 61
Willett Kidd,	391 08
John Sheridan,	241 26
Thomas Bradley, deceased,	320 18
P. R. Leonard, deceased,	157 41
Henry C. Carr,	336 67
	$2,500 00

On September 8, 1894, the late Secretary drew from the Comptroller on this appropriation two thousand one hundred and forty-five dollars and twenty-four cents ($2,145.24), leaving a balance of three hundred and fifty-four dollars and seventy-six cents ($354.76) in the hands of the Comptroller.

It appears that all the claimants except John Sheridan, and the estates of the two deceased protectors, were promptly paid. On November 26, 1894, Mr. Sheridan wrote to the late Secretary requesting him to remit the amount due him, having filed a receipt therefor. To this request Mr. Sheridan received reply saying that all the accounts were "hung up at Albany" until the papers in the cases of the two deceased protectors should be completed.

November 2, 1895, Mr. Sheridan wrote your Commission, stating all the facts in the case and requesting that action be taken in the matter. A few days later, or about thirteen months after the money had been drawn from the treasury, Mr. Sheridan received the late Secretary's check for two hundred and six dollars and sixty-eight cents ($206.68), leaving a balance still due him of thirty-four dollars and fifty-eight cents ($34.58), which was paid by the Comptroller December 21, 1895. In the case of the amount due the estate of Peter Leonard, it appears that Mrs. Leonard was paid one hundred and thirty-five dollars and seventy-five cents ($135.75), November 22, 1894, although a receipt for the full amount ($157.41) had been filed with the late Secretary.

Mrs. Leonard, through her attorney, made demand on your Commission for the balance due her, and on November 9, 1895, the late Secretary forwarded to your Commission his check for the amount.

The amount due the estate of Thomas Bradley was paid by the Comptroller, through your Commission, December 17, 1895.

During the period covered by these accounts large amounts of money were advanced to the late Secretary under the various appropriations for your department.

These advance payments were in sums varying from $125 to $4,875, and were generally made on a letter of requisition signed by the President and Secretary of the former Commission.

The only advance payment made since the organization of the present Commission is $500, paid May 22, 1895.

The total shortage on all accounts, including due and unpaid rentals of oyster grounds, is nineteen thousand two hundred and twenty-five dollars and seventy-six cents ($19,225.76).

The amount collected back from the late Secretary by your Commission to date is ten thousand six hundred and eighty-one dollars and ninety cents ($10,681.90).

The following summary will show the shortage on the various accounts, the payments made thereon and the amount remaining unpaid to date:

RECAPITULATION OF SHORTAGES.

Shellfish account, including $2,265 unpaid rentals,	$7661 34	
Fines and penalties account,	4,986 00	
General maintenance account,	2,043 56	
Steuben County Hatchery, completion and maintenance,	2,772 40	
Hatching, surveying, etc., chapter 726, Laws of 1893,	1,182 65	
Special appropriation, chapter 438, Laws of 1894,	228 34	
Steuben County Hatchery, construction, chapter 39, Laws of 1893,	194 10	
Transportation and distribution of black bass, chapter 358, Laws of 1894,	85 34	
Hatching mascalonge, chapter 358, Laws of 1894,	37 65	
Improving water supply, chapter 358, Laws of 1894,	34 38	
Total shortage,		$19,225 76
Collected back from the late Secretary by the Commission of Fisheries, Game and Forests,		10,681 90
Balance due the State,		$8,543 86

There are vouchers at the Comptroller's office belonging to these accounts amounting to $1,335.94, for disbursements made by the late Secretary, that have not yet been audited by the Comptroller.

I am under obligations to Hon. James A. Roberts, Comptroller, W. E. Merriam, Deputy Comptroller, William G. Shaible and William B. Wemple, of the Comptroller's office, for courteous treatment and valuable assistance.

Respectfully submitted,

CHARLES A. TAYLOR.

Repeated efforts were made by this Commission to collect the balance shown by the foregoing report to be due the State, and close the matter before the expiration of the fiscal year, but without success. As has been already stated, the late Secretary set up the claim that a large number of oyster franchises that had been sold and recorded were not paid for, and that these should be deducted from the amount held to be due the State from him. This claim the Commission could not allow without further investigation.

Of the amount due the State on the shellfish account, $2,145 was owing by the Matinecock Oyster Company, who refused to pay on the ground of alleged irregularities in the sale of the franchise, by which the company was induced to bid a much larger sum than the grounds were worth. A representative of the company came before the Commission at a regular meeting held June 5, 1896, and the matter was fully discussed and finally adjusted to the satisfaction of the Matinecock Oyster Company, and without prejudice to the interests of the State.

For the purpose of effecting a final settlement with the late Secretary, the unsettled accounts were referred to Commissioner Babcock. Certain unaudited vouchers, heretofore mentioned, amounting to $1,335.94, for disbursements made on account of this department, were finally audited by the Executive Committee at $854.52, which amount was placed to the credit of the Secretary. Later, Commissioners Babcock and Holden met the late Secretary at the office of the Shellfish Commissioner in New York city, and a basis of settlement of the account was agreed upon, the late Secretary paying to this Commission the further sum of $2,905.42, and a representative of the New York and Long Island Oyster Company the additional sum of five hundred and ninety-three dollars and twenty-five cents ($593.25).

Credits were allowed for shellfish leases undelivered and presumably unpaid for, services rendered and expenses incurred by the former Secretary for which payment had not been made, amounting in all to $4,190.67, which balanced the account.

The total amount collected by this Commission on account of these shortages is fourteen thousand two hundred and forty-five dollars and fifty-six cents ($14,245,56).

That part of this money belonging to the fines and penalties account, after paying a large number of old claims belonging to the account, has been deposited to the credit of the Chairman of the Executive Committee, by whom it is disbursed, in accordance with law, on the certificate of the Chief Game Protector. The remainder has been paid over to the State Comptroller. The total cost to the State of extra work necessary to the examination of these accounts is nine hundred and forty dollars ($940).

It is believed that the rules and regulations adopted by this Commission for the transaction of its business make it impossible that any misappropriation of its funds can occur in the future, as no payments will be made by the Comptroller on its account except on vouchers that have been audited by the Executive Committee.

The entire work of this investigation and settlement was accomplished by the Commissioners after many weeks of labor under peculiar circumstances without other expense to the State than the services of the expert accountant. This fact is mentioned in this connection that the Commissioners may have credit for bringing to a successful conclusion a difficult task, such as was never before undertaken by a department of the State, other than the Law Department.

Report of the Superintendent of Hatcheries.

To the Commissioners of Fisheries, Game and Forests:

GENTLEMEN: I herewith submit my annual report of the work done at the different hatcheries and collecting stations for the year ending September 30, 1896.

The purpose of the Commission to turn out in future an increased number of yearlings and fewer fry has made it necessary to provide additional facilities, such as nursing ponds and general equipment, which, together with repairs needed at the different hatcheries, have kept the hatchery employes unusually busy during the entire year.

Good reports from the few plants of yearlings already made in the different sections of the State are coming in, and from the numerous letters received from people interested in the stocking of our State waters, it can be readily seen that the people appreciate the efforts of the Commission to send out fingerlings and yearlings instead of the small fry. The reports from the different hatcheries will show the number of fingerlings, yearlings and larger fish that have been turned out during the past year.

These reports will also show that the number of fingerlings turned out during the year exceeds the total previous output of such fish since the organization of the first Fish Commission in this State. When the many improvements now going on are completed, the Commission will be able to turn out each year a largely increased number of these fish.

In view of the good results obtained by the planting of yearlings and fingerlings, and notwithstanding the increased cost of rearing and distributing them, I recommend that, as soon as practicable, the Commission discontinue the practice of planting trout of any kind less than three to eight months old.

Great care has been taken to see that no State fish were planted in private waters. Commissioner Babcock, Chairman of the Hatcheries Committee, has personally scrutinized every application before it has been granted. After it passed from his hands into mine to fill, if I was not familiar with the waters, I made careful inquiries as to all conditions of the same. All applications for fish for private streams have been rejected. I gave our men accompanying the different shipments of fish instructions to see whether the stream, lake or pond was posted or not before depositing the fish,

and the attention of the applicants has been called to the law passed last winter bearing on this subject, and all messengers in charge of fish for planting have been furnished with copies of this law.

The following is a copy of the law referred to:

THE ATTENTION OF ALL APPLICANTS FOR FRY, FOR STOCKING WATERS, FROM STATE HATCHERIES, IS CALLED TO THE FOLLOWING LAW.

CHAPTER 319.

AN ACT to amend chapter four hundred and eighty-eight of the laws of eighteen hundred and ninety-two, entitled "An act for the protection, preservation and propagation of birds, fish and wild animals in the State of New York and the counties thereof," as amended by chapter nine hundred and seventy-four of the laws of eighteen hundred and ninety-five, relative to laying out grounds for private parks.

BECAME a law April 17, 1896, with the approval of the Governor. Passed, a majority being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section two hundred and twelve of article nine of chapter four hundred and eighty-eight of the laws of eighteen hundred and ninety-two, as amended by chapter nine hundred and seventy-four of the laws of eighteen hundred and ninety-five, is hereby amended so as to read as follows:

§ 212. Laying out grounds for private parks.—A person owning or having the exclusive right to shoot, hunt or fish on lands, or lands and water, desiring to devote such lands, or lands and water, to the propagation or protection of fish, birds or game shall publish in a newspaper printed in the county within which such lands or lands and water are situate a notice, once a week for a term not less than four weeks in the county where the lands so described are situated substantially describing the same and containing a clause declaring that such lands or lands and water will be used as a private park for the purpose of propagating and protecting fish, birds and game. Provided, however, that all waters heretofore stocked by the State or which hereafter may be stocked by the State from any of the hatcheries, hatching stations, or by fish furnished at the expense of the State, shall be and remain open to the public to fish therein the same as though the private park law had never existed. But nothing herein contained shall be construed as affecting any rights now existing of persons owning lands or holding leases of private grounds, waters or parks prior to the passage of this act.

§ 2. This act shall take effect immediately.

During the year 191,726,678 fish, including fry, fingerlings, yearlings and older fish of various kinds, have been deposited by the Commission in the waters of the State.

The first work of the year is the collecting of the eggs of the different fall or winter spawning fish. During October, we sent out men to Lake Michigan and the east end of Lake Ontario to secure lake trout, whitefish and cisco eggs, the fish spawning in the order named.

The brook trout and the frost fish are also spawning throughout the Adirondacks at about the same time, and in November all of the trout at our more southern hatcheries commence spawning and continue until a short time after the 1st of January before the run is finally over. Then follows the rainbow or California trout, which is classed as a spring spawner. The salt water tomcods spawn during the month of December, and the smelt spawn in March. About the 1st of April we are obliged to be in readiness so that as soon as the ice goes out of Oneida and Chautauqua lakes we can commence collecting the pike-perch and mascalonge eggs. In May the shad commence to run in the Hudson River, and we continue taking eggs from them until about the 15th of June. During June we capture the small fry of the large mouth, or Oswego black bass, so that during nearly five months of the year, at some point or other, a number of our men are busy taking fish eggs.

During the year many needed improvements have been made at the Adirondack Hatchery, located near Saranac Inn Station, Franklin county, New York.

All of the available spring water at this point that could be brought to the nursery ponds has been turned that way, and even this hatchery will be enabled to turn out a few fingerling trout, something heretofore unknown in its history.

This hatchery is admirably located as a shipping point, and if more good cold water could be procured at the proper levels, so as to feed rearing ponds, large numbers of fingerlings could be annually distributed in the adjacent streams and lakes. There is but one remaining chance of obtaining this water, and that is by running a large iron pipe to Little Clear pond, dropping it down into forty or fifty feet of water, and let it discharge the cold water found at that depth directly to the hatchery below, on the plan of a large siphon. If this can be successfully done it will make the Adirondack hatchery worth more as a producer of fingerlings than any two or three ordinary hatcheries located in the Adirondacks.

During the past year there were turned out from this hatchery 830,000 brook trout fry, 85,000 brown trout fry, 1,508,000 lake trout fry, 4,000,000 frost fish fry, and 250,000 Labrador whitefish.

At the Fulton Chain Hatchery, considerable work was done to improve the condition of the stock or breeding ponds. The same trouble with the water supply exists here as at the Adirondack hatchery. Early in the spring negotiations were opened with the Old Forge Syndicate Company, with a view to obtaining control of an additional small spring brook that empties into Old Forge pond, about half a mile

above Old Forge, but it was September before an agreement could be reached, too late to be of much service this year. This brook is a most desirable one on which to locate rearing ponds, and as soon as we obtained possession, material was ordered, and the foreman in charge was instructed to complete all the rearing ponds that it was possible to build before freezing weather set in. The coming year will probably see many thousands of fingerling brook trout raised and distributed from this new annex to the Fulton Chain hatchery.

Many improvements and repairs have been ordered for the interior of the hatchery, so that more room can be provided for holding the fry until later in the spring before sending them out. All of the fry intended to be raised to fingerlings in the annexed rearing ponds must necessarily have room provided for them in the hatchery, so that for the first two months or more of their existence they can be cared for and fed in the hatchery.

The old plan in vogue at the Fulton Chain hatchery of keeping the breeding ponds stocked, by catching the breeding trout in the adjacent lakes, has been ordered stopped, and hereafter we shall raise stock fish enough to keep our ponds filled to their utmost capacity. Many thousand fingerlings have been sent to the Fulton chain of lakes from the Caledonia hatchery during the past year.

During the year there were turned out from this hatchery 531,000 brook trout fry, 45,000 brown trout fry, 379,000 lake trout fry, 4,000,000 frost fish fry, 2,000 brook trout fingerlings, 500 yearling brook trout, and 75 five-year-old brook trout.

At the Sacandaga Hatchery, located in the town of Lake Pleasant, Hamilton county, but little has been done except to save what stock fish we had at the hatchery. This hatchery is so located that nothing can be done toward increasing its facilities. All efforts on the part of Foreman Boehm (and he is as conscientious and painstaking as any foreman in the State) avails but little. It is impossible for him to more than keep the supply even with that of the preceding year.

This section of the country greatly needs a hatchery, but it is very expensive to maintain one on the present site. It is an impossibility to raise even a few fingerling trout of any kind with the present water supply. The results obtained at this hatchery are very unsatisfactory.

During the year this hatchery has turned out 110,000 brook trout fry, 38,000 brown trout fry, 250,000 lake trout fry, and 2,000,000 frost fish fry.

At the Beaver Kill Hatchery, located at Rockland, Sullivan county, operations were entirely suspended during about three months last summer, and the foreman and help were given other work, or dropped from the pay-roll. This was necessary on account of the water supply not being of the required quality to carry trout during the warm

weather, and until a change for the better is made, I would recommend the closing of this hatchery for at least five months of the year.

The output from this hatchery for the past year was 303,000 brook trout fry, 35,000 brown trout fry, and 40,000 lake trout fry.

At the Pleasant Valley Hatchery, situated about two and one-half miles from Bath, Steuben county, is located one of the three best plants owned by the State.

At the commencement of the year additional land and water privileges were purchased by the State, and $3,245 was obtained by special appropriation for building breeding and rearing ponds, grading and putting the grounds in proper shape, and the close of the year finds this (one of the youngest hatcheries of the State) in the very front rank of production.

The dwelling-house has been extensively repaired and made tenable for the foreman. The grounds were drained and graded from the dwelling-house to the hatchery, and about all the ponds. All of the ponds were built in the most substantial manner possible, and stocked with breeding fish from Caledonia and the Long Island hatcheries. Next year will see this hatchery making almost daily shipments of fry and fingerlings for nearly three months, which certainly speaks well of the location, water, etc. This hatchery ranks second in the number of fingerlings on hand.

The output from this hatchery last year was 239,000 book trout fry, 40,000 brown trout fry, 30,000 rainbow trout fry, 35,000 lake trout fry, 6,000 lake trout fingerlings, and 118 adult black bass, and the ponds now contain nearly 40,000 fingerlings ready for distribution.

At the Cold Spring Hatchery, located at the head of Cold Spring harbor, Suffolk county, N. Y., both fresh and salt water fish are hatched.

During the year many needed improvements and additions have been made at this hatchery; I will name a few of the principal ones.

A lobster hatchery was built on one of the docks in the harbor, and equipped for the work from the main hatchery, a short distance above. The construction of several new breeding ponds and the grading and filling necessary in anticipation of still further enlargement of the ground and ponds in the future, have been accomplished. In the hatchery proper all of the available space has been filled with additional hatching troughs. A hot-water system of heating the building has also been placed in position. With all of these additions, another year will see fish going out from this hatchery, and into the public waters of the State, for nearly six months of the year.

The following figures will show what gratifying results were attained during the year ending September 30, 1896, and there still remain in the ponds for distribution something like 30,000 fingerlings. The output of every kind of fish from this hatchery last year was far above any previous year. It was as follows: 883,000

brook trout fry, 247,000 brown trout fry, 10,000 rainbow trout fry, 1,300 fingerling brook trout, 3,100 yearling brook trout, 5,100 yearling rainbow trout, 300 fingerling brook trout, 400 yearling brown trout, 23,000 steelhead salmon fry, 44,200,000 tomcod fry, 34,000,000 smelt fry, and 4,414,000 young lobsters.

Something over 10,000 yearlings and two or three-year-old trout were sent from this hatchery to Caledonia to restock the ponds at that station, and some were also sent to Pleasant Valley hatchery. Over half a million brook trout eggs were also sent to Caledonia and Pleasant Valley hatcheries, besides about 100,000 brown trout eggs to the Beaver Kill and Adirondack hatcheries.

The Caledonia Hatchery, the oldest in the State, is located in the town of Caledonia, Livingston county. I am often asked why more attention is paid to Caledonia than to other hatcheries. The reason that this is so is that this hatchery is better located than any other as to quantity and quality of water, and also for shipping facilities, being within ten minutes' drive of four railroad stations, that, with their connections, take our fish quickly into all parts of the State.

I would like to say that by January 1, 1897 (I feel warranted in making the statement), the Caledonia hatchery will be the best in this country. For the above reasons more extensive repairs have been made at Caledonia this year than at any other hatchery, but next season's output will fully justify the expense. Unfortunately wood will rot and decay near the water, and this year found the hatchery foundation, floors, troughs, and the ponds and main dam in such shape that it was unwise to let them pass into another year without renewal. They are now being replaced; the ponds and dam being laid up with stone and cement, so that they will last for ages.

At the commencement of the year, and after passing through the terrible epidemic which occurred among the fish in the ponds and hatchery during June and July of 1895, many supposed that the hatchery, meeting with such a serious loss of fish, it would be years before they would be replaced, but to-day the Caledonia hatchery and ponds contain more fish and better fish than at any time since they were established. Less than $500 was expended on restocking. A few thousand fish were bought, a few thousand brought from several of our different hatcheries, and a few thousand were donated.

A year ago the Legislature appropriated $5,000 to secure and improve additional water rights in Caledonia. Unfortunately this desirable property can not be purchased at what it is worth, and the matter will probably be settled by commission. When this is accomplished, any possibility of a repetition of the 1895 epidemic will not be feared.

Considerable work has been done during the past summer, grading and beautifying the grounds. Large inexpensive flower beds have been made, shrubbery and trees

set out, walks and driveways repaired, so that the several acres connected with the hatchery proper present a very attractive appearance befitting State property. The show of fish and the arrangement of the grounds and ponds were greatly appreciated by the many hundreds of people who daily visited the place during the summer and fall season.

The following figures will show the business that has been done in planting fish during the year: 658,000 brook trout fry, 286,000 brown trout fry, 865,000 lake trout fry, 50,000 steelhead salmon fry, 100,000 pike-perch fry, 300 adult black bass, 115,000 shrimp, 3,500,000 whitefish fry, 500,000 frost fish fry, 3,500 yearling rainbow, brown and brook trout, 1,985 one-and-one-half-year-old brown trout, 79,850 fingerling lake trout, 27,450 fingerling brook trout, 11,500 fingerling brown trout, 1,000 fingerling rainbow trout, have been planted in the various waters of the State. In this connection I might give the number of fingerling, or eight-months-old trout, remaining on hand for distribution: 70,000 brook trout, 32,000 brown trout, 8,000 lake trout, 14,000 rainbow trout and about 4,000 land-locked salmon, steelhead and Scotch sea trout.

The Clayton Hatchery is located near the village by that name in Jefferson county.

The State does not own this property, only the apparatus used in the hatchery. The water supply is rather limited, but is much better in quantity and quality than at least four of our hatcheries are supplied with; and with a little more improvement, this hatchery could be turning out a goodly number of fingerling lake and brown trout, as well as attending to the hatching of whitefish, ciscoes and pike. This year I attempted to raise a few fingerlings at this place, and the results show that with careful management on the part of the foreman, fifteen or twenty thousand eight-months-old trout might be easily turned out each year. The output from this place during the year was 7,500,000 whitefish fry, 27,500,000 cisco fry, 9,300,000 pike-perch fry, 23,500 large mouth black bass fry, 1,000 fingerling lake trout and 1,500 bullheads, and there remain about 3,000 fingerling trout for distribution.

The principal pike hatching station is located at Constantia, Oswego county, on the shores of Oneida lake. I consider this the best location for a pike-perch hatchery there is in the State, and I would recommend the permanent establishing of a large and extensive plant at this point.

A small creek empties into Oneida lake at this place, which for one-half mile up stream is a natural spawning bed for pike-perch. More eggs were taken in a few days than our present hatchery would accomodate, and through our inability to handle the eggs if taken, many millions remained uncollected. The hatching of fifty per cent. of the number of pike-perch eggs taken is considered a very high percentage; 32,150,000 pike-perch fry were hatched and distributed from this hatchery the past year.

During the year a new hatchery building, and a most important one, has been added to the list. It is located on the west side of the Hudson River, a short distance north of Catskill Landing. This hatchery is used exclusively for the propagation of shad, and the methods employed do away entirely with the old method of hatching in floating boxes, making a great saving in the hatching of the eggs.

The water commission of the village of Catskill kindly allowed the building of the hatchery on their dock and adjoining their pumping station, also allowed us to take water from the water pipes, for which they charged $75 for the little over a month the hatchery was in operation. The cost of the hatchery, piping, hatching tables, etc., was about $600, and we now have here a permanent and substantial hatchery, and at no State hatchery, counting the amount of money expended, can such substantial returns be obtained, and the public so benefited.

The first year of the new hatchery resulted in our taking (all within a mile of the hatchery) about 10,000,000 shad eggs, of which we hatched and turned out 8,690,200 shad fry, and I am sure from my own observations, and the observations of many of the oldest and best shad fishermen on the river, that they were the strongest and healthiest lot of shad ever turned into the river.

The United States Fish Commission donated 2,003,000 shad fry for planting in the Hudson, and our messengers went to their shad hatching station on the Delaware River and transported them to the upper Hudson.

Shad spawn only at night. They are from three to ten days in hatching, all depending upon the temperature of the water. This means constant work and watchfulness night and day during the shad spawning season.

In this connection I would say that it is of the greatest importance that the shad in the Hudson River be better protected by legislation. The number of days that nets are allowed in the river should be shortened by at least one or two full days. Statistics show that only about two per cent. of the shad that enter the Hudson River ever reach the spawning grounds. The law at present makes the close time only from Saturday until Monday. The close season should commence Thursday or Friday and continue until the next Monday at sunset. Shad that are taken on Friday night do not reach the New York markets until the opening of the markets for Monday morning's sales, and by that time they are getting quite stale. There is no doubt whatever that with a longer close season every fisherman would get just as good returns, if not better, than he does at present with the short close season If we have but few shad reaching the spawning beds in the upper Hudson, say in the neighborhood of Catskill, we can obtain but few eggs at the best. The more eggs we can get and hatch, the more shad the fishermen will have to catch. I consider this matter of legislation of the greatest importance.

All of the mascalonge hatching is done at Chautauqua Lake. The eggs have always been hatched, and very successfully, in double wire screen boxes that are sunk from one to four feet under the surface of the water. Mascalonge have never been raised from the fry stage artificially; but I firmly believe that they can be raised to fingerlings, and with your permission I would be pleased to make some experiments in this direction the coming season.

The output of mascalonge fry for the year was 1,815,000. More and better protection of the mascalonge is greatly needed at Chautauqua Lake. All spearing through the ice should be stopped.

Black bass have never been hatched artificially. The old methods of netting the adult bass from some favorable point and sending out a very few on each application is a very good but very expensive method, the workings of which are not at all satisfactory to people living in the vicinity where the netting is done. Shorten up the open season so as to cover the spawning season fully, and the bass themselves will do the proper stocking.

This year we captured with nets at Three Mile Bay, Jefferson county, and distributed, on applications from different parts of the State, 2,000 adult small mouth black bass.

During the summer of 1896 I was instructed by Mr. Babcock to make an examination and report as to the number and kind of whitefish found in Canandaigua Lake, with the view of taking whitefish eggs there, if they were to be found in sufficient quantities. Several specimens were secured and identified by Dr. Bean, who pronounced them the Labrador whitefish (*Coregonus labradoricus*), one of the best whitefish found in this country, and I feel very confident that we will be enabled to take a large number of eggs there the coming fall and winter. If so, it will be something new in the history of the Fish Commission of the State of New York. The whitefish eggs have never before been taken from any of our inland lakes, but men have always been sent to Lake Michigan and the east end of Lake Ontario to secure the stock, where it is secured under great expense and uncertainty.

Respectfully submitted,

JAMES ANNIN, Jr.,

Superintendent of Hatcheries.

OYSTER STEAMER WITH "MOP" HANGING AT GANGWAY.

Report of the Shellfish Commissioner.

To the Commissioners of Fisheries, Game and Forests:

GENTLEMEN: I have the honor to present herewith a report of the work of my department for the year ending September 30, 1896. This work is divided as follows:

First. Surveying, mapping and leasing of land under water for the purpose of shellfish culture.

Second. The protection and preservation of the beds of oysters of natural growth located in the waters of the State.

Third. The patrol of the oyster territory for the purpose of preventing the pollution of the water and the protection of the planted oyster beds from the depredations of oyster pirates.

In each department the work has been satisfactory.

The work of surveying and mapping and granting leases has been almost exclusively confined during the year to Jamaica Bay, very little work having been done in Raritan Bay or Long Island Sound. I thought best, although many applications for franchises in other localities were pending, to confine the work to the locality mentioned, in order that I might be able to finish the work of mapping and selling leases in this bay during the present year. In this I have succeeded, and the entire area of Jamaica Bay suitable for the cultivation of shellfish has been leased to planters. In addition, I have made some surveys in bays adjoining Jamaica Bay, and have sold several leases. This territory, because of its peculiar location, is among the most valuable of the lands owned by the State under water suitable for oyster culture. The famous Rockaway oysters, so-called, are almost exclusively grown in this and adjoining bays. Seed oysters are purchased usually from Long Island Sound, and are planted in these bays during the spring. The crop is harvested the succeeding fall. Jamaica Bay is very shallow, the beds becoming exposed at low tide, the water is easily warmed, and as the bay contains enormous quantities of food for oysters, their growth is extremely rapid, and their flavor excellent. For this reason the land available is very valuable, and was readily sold.

I did not encourage much competition in the sale of these leases, for the reason that most of the applicants had been for years in possession of the grounds, obtaining the title from the town of Flatlands. In many instances the applicants have paid large sums, believing that they were securing a perfect title, and a large price per

year rental to the State would have been a real hardship, and to some extent an injustice. I propose the coming season to finish the survey of Sheepshead Bay and the lands under water adjacent thereto, and shall sell leases for such territory.

As I stated in the opening of this report, but little work was done in Raritan Bay or Long Island Sound during the past season. A number of applications are pending, and I hope to complete their surveys and sell the leases at as early a date as possible next spring.

In addition, I shall cause the survey of Long Island Sound, finished at present to a point east of Mount Sinai Harbor, continued to Orient. This survey is rendered especially necessary by the discovery of a large bed of oysters of natural growth off Horton's Point. It is my duty under the law at once to cause this bed to be accurately mapped and to preserve it. To do this, I shall be obliged to complete our system of signals as far east as Orient, which I shall do at the earliest opportunity.

The amendment made last winter to the oyster law providing that leases should be advertised in the town clerk's office, instead of in the newspapers, has materially aided in lessening the expense of my department. The cost of the work will be shown in my financial statement, and is a great reduction over the cost of this branch of the work in previous years. During the year seventy-nine applications for leases for one to three acres of lands under water were received. One hundred and nine lots were surveyed and 109 leases were sold, the proceeds of which amounted to $304.29, and were turned over to the State Treasurer. Mr. Charles Wyeth, who has been recently transferred to the State Engineer's office, has been in immediate charge of this work. Duplicate copies of all our maps are being prepared by him, and when completed will be placed on file with the State Engineer.

The second branch of my work—the protection and preservation of the beds of oysters of natural growth located in the waters of the State—has been more particularly under my direction assisted by State Oyster Protector, Edgar F. Hicks. I have caused the beds to be carefully watched, and by constant patrolling have prevented the use of illegal devices for taking oysters or other shellfish on these beds. The beds themselves are in only ordinary condition, and but two of them are very thoroughly worked. The bed in Staten Island Sound has produced the largest crop of seed during the past year of any bed in the State, and has afforded an excellent means of livelihood to from 500 to 750 oystermen. The seed found a ready sale, the larger portion of it having been purchased for the San Francisco trade. This bed, which occupies the bottom of the channel between Staten Island and New Jersey, is about eight miles long, and varies in width from 800 to 3,000 feet. It is a never failing source of supply of seed oysters, and has produced to the people of the State a sum aggregating hundreds of thousands of dollars. It should always be carefully preserved

and protected. The second important bed is located off the mouth of Hempstead Harbor, in Long Island Sound, and is almost entirely a bed of clams, but few oysters being found. This bed is also unfailing, and produces a large amount of shellfish every year. The remaining beds of natural growth are of minor importance, but all of them are carefully protected and preserved. A new bed has been recently discovered off Horton's Point, and if report is true, is one of the most important yet found. As I have heretofore stated, I shall arrange at once in the early spring to have it surveyed, plotted and preserved.

The third branch of my work—that of patrolling the oyster territory of the State—for the purpose of preventing the pollution of the water, and to protect the planted beds, has been in charge of Protector Hicks. This work I believe to have been well done, and I am glad to state that not a single complaint as to the condition of the water has been received at this office. Oystermen generally have expressed themselves as greatly pleased with the state of the waters, and oysters have been abundant and of good flavor. In August, 1896, a naphtha launch was purchased for the use of my department, and I directed the State Oyster Protector to patrol daily the oyster territory of the State with it. This he did, with very satisfactory results. The pollution of the waters ceased, and there has been but little disturbance by the so-called oyster pirates of oysters legally planted. The region patrolled by the Oyster Protector is a very large one, and requires constant vigilance. As I have stated in the report, the Protector has not only to guard the planted beds, but also to watch carefully the beds of oysters of natural growth, and see that only legal devices are used thereon for the purpose of taking or catching shellfish.

The question as to what constitutes a bed of oysters of natural growth is a very difficult one to determine, and I am glad to say that my decisions during the year have been uniformly satisfactory, and no appeal has been taken.

The Protectors were notified at the beginning of the season to enforce the law against the possession and sale of small clams, and a large number of arrests have been made and convictions had. A number of arrests of persons engaged in illegally disturbing beds of oysters legally planted have also been made, and the result of all such cases will be found in the report of the Chief Fish and Game Protector.

For the work of surveying and mapping the eastern end of Long Island Sound, I shall require an appropriation of $5,000, and I would ask that your honorable body recommend that an item for that amount be placed in the supply bill. I would also recommend that a commission be appointed by the State to locate and mark out by proper monuments and buoys the boundary line between the States of New York and Connecticut, in lands under water, in Long Island Sound. This boundary line was determined upon by Commissioners appointed from the respective States a number of

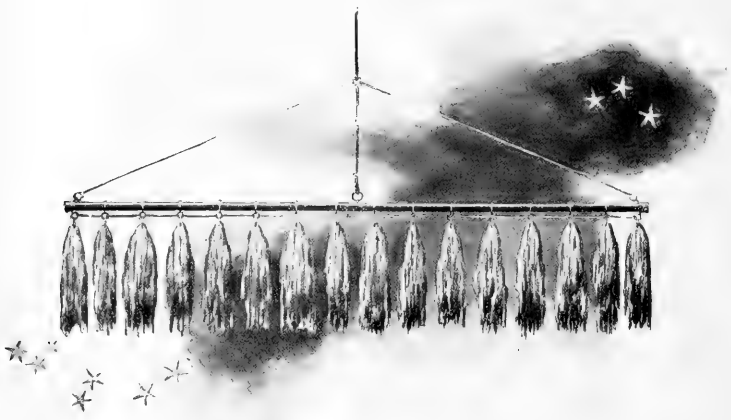
years ago, and runs from a point off the Byron River, in Westchester County, to the end of Fishers' Island Sound, off the coast of Rhode Island. Nothing has ever been done, however, to mark this line, and it exists only as matter of official record. As a result, I believe that lands under water in the State of New York of great value to oyster culture have been sold by the State of Connecticut to Connecticut planters, and are now being used by them. As these lands grow more valuable every day, disputes will constantly arise, and a determination should be had at once in the matter. Long Island Sound is comparatively shallow, and it is entirely practicable to plant a line of range buoys that will accurately locate the line, so that an oysterman can tell at once whether he is in the State of New York or the State of Connecticut. The work would cost not to exceed $5,000.

The oyster business of the State is a growing one, and is in a flourishing condition. While the price remains low, the methods of cultivation are being improved and cheapened, and the planters are fairly prosperous.

Very repectfully,

EDWARD THOMPSON,

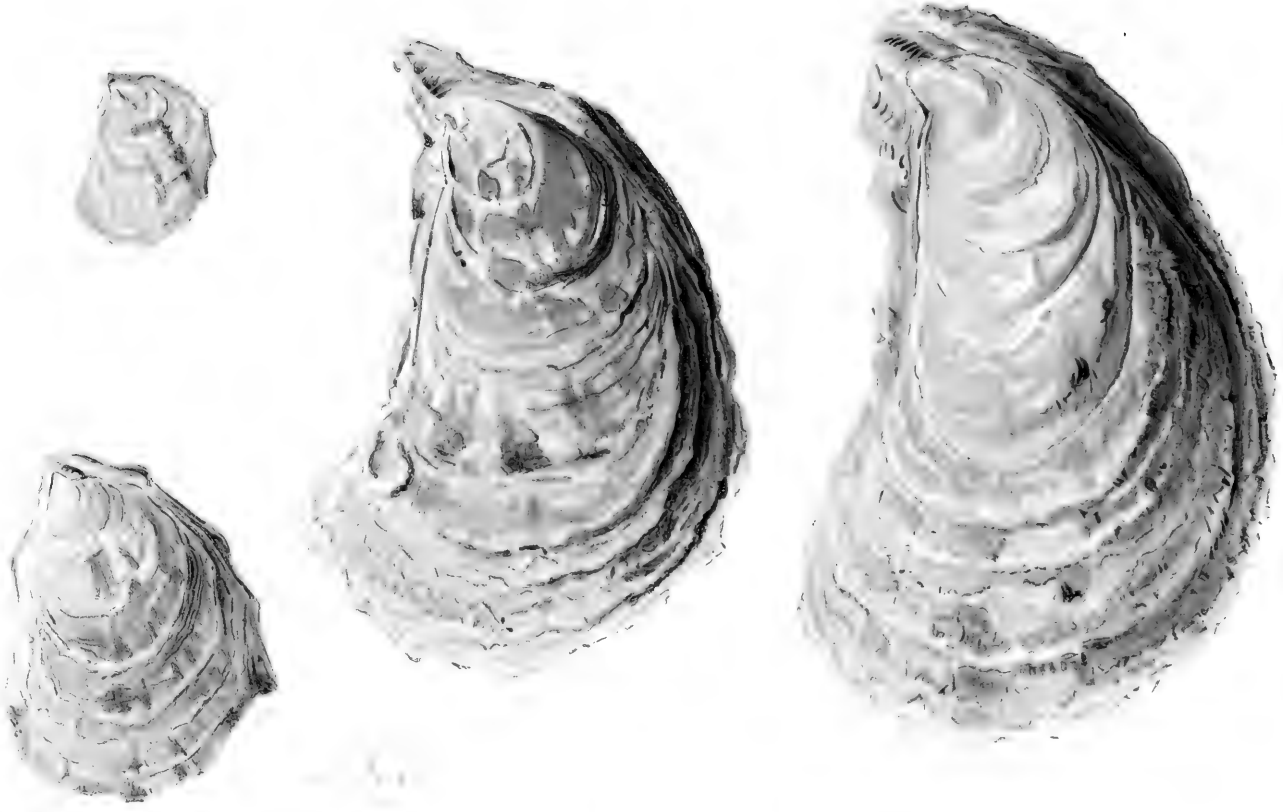
Shellfish Commissioner.



STAR FISH MOP.

STEAM OYSTER DREDGE.

Dredge in Gangway after Dumping Oysters on Deck.



(1. One year old. - 2. Two years old. - 3. Six years old. - 4. Eight years old.)

The Forest Preserve.

IN addition to other duties and responsibilities "the care, custody, control and superintendence of the Forest Preserve" now devolves by law on this department. The members of the Commission have accordingly devoted to this branch of their work the attention constantly required in the management of this property, the largest and most valuable belonging to the Commonwealth. They fully appreciate, in addition to its intrinsic value, the great economic conditions dependent on the proper management of this tract.

IN THE FOREST.

Acting under direction of members of the Board designated as the "Committee on Forestry," the various officials of the department have labored zealously and industriously to protect the forest areas belonging to the State. Their efforts have been rewarded by satisfactory results. There has been a marked decrease in forest fires; and of the fires that occurred in the Adirondack and Catskill regions, less than five per cent. of the burned or damaged area belonged to the State.

But our forestry law directs that this Commission shall "have charge" of various "public interests," among which it especially includes "forest fires in every part of the State." We have accordingly endeavored to impress on the minds of the fire-wardens and town supervisors the necessity of protecting from fire *all* woodlands, private as well as public, and have called their attention to the general interests that require the preservation of forest areas irrespective of any question of ownership.

Ten years' experience in the matter has demonstrated that the present law relating to the protection of our woodlands from fire is a practical one. We have reason to believe that the widespread and disastrous fires which threatened the existence of our forests at one time will not recur. We expect that small burnings on private lands

will continue to occur, and so there remains the difficult task of properly regulating the use of fire by land owners on their own property. In this work we are assisted by public sentiment in the forest towns, due to the law which provides that each town must pay half the expense of fighting and extinguishing woodland fires. There has, accordingly, arisen in each town a sort of censorship on the part of the citizens and taxpayers which acts as a deterrent in the careless use of fire by the thoughtless and ignorant members of the community.

Trespasses.

During the year there have been some trespasses on the Preserve caused by petty thieving of timber. In some cases, also, a small amount of timber has been cut by lumbermen, the trespass being an unintentional one, due to erroneous, disputed, or poorly marked lines; or, as in some instances, to the absence of any line whatever, the interior lots of the township never having been "run out" by the surveyor.

It should be understood that the lot lines which are so distinctly shown on our Adirondack map are not always so apparent in the forest itself, where, at the best, they can be traced only by the occasional faint "blaze," made in most cases fifty, and perhaps ninety years ago,—marks discernible only by those experienced in this peculiar woodcraft. In fact, the boundaries of the 160 or 200-acre lots in some townships never existed except on the map of some early surveyor who, having surveyed the outer lines, contented himself with making a "paper allotment," and doing nothing further in the way of surveying and marking these interior lines on the ground itself. And yet these lots are assessed, taxed, sold and transferred, under their lot numbers, although their owners have never seen them and would be unable to find them if they felt disposed to do so.

This is not said by way of apology for the lumbermen whose evident and conceded duty it is to ascertain and plainly mark their lines, whether the State does so or not. On some doubtful lines where the lumbermen have gone to the expense of surveying and marking the State boundaries, they have furnished the information themselves that their choppers had cut over the line by mistake, and were anxious to settle the damage at any price without delay or suit.

But the timber cutting during the year, whether through theft or mistake, has been limited to a few cases, and the amount taken was small. In each case, without exception, whether unintentional or not, the matter has been turned over to the Attorney-General and suit has been brought. The cases of willful thieving were prosecuted to the full penalty of the law, while in others the measure of damages was placed high enough to prevent any further carelessness on the part of the defendants.

The foresters have displayed a commendable activity in patrolling their districts. Wherever any timber cutting occurred it was stopped by them before any serious damage was done. At the same time some trespasses of a trivial character may have escaped their notice. Occasionally a forester finds, while traveling through the woods, some place where a few trees have been cut; he may have well-founded suspicions as to the offender; but unless he has positive evidence, unless he can come upon the offender unawares while at his work, it would be useless for him to make an arrest.

The "natives" living in the vicinity may know all about the matter, and may have seen their neighbor when he was cutting the State timber; but they are loyal to each other, and never furnish evidence except when they have had a quarrel and seek revenge.

The State has only ten foresters in the Adirondack counties. Their combined districts include over 6,000 square miles of forest territory. Of this area the State owns less than one-fourth, but as its holdings are scattered throughout the entire region the foresters in their wood ranging have to travel through the whole territory Worse than all, the Forest Preserve includes thousands of acres in small, isolated lots scattered through the farming region, situated ten to forty miles distant from the main forest, and these outlying lands must be watched by the foresters also.

Under such circumstances the present force is entirely inadequate to a thorough protection of the land. Still, the foresters do all in their power to prevent timber cutting, their vigilance being stimulated and assured by the wise provision of the law passed at the previous session, which gives the forester a share of the penalties collected for timber cutting.

Litigation.

The prosecution of trespassers for cutting timber on the Preserve is but a small part of the litigation in which this department finds itself involved, and which calls for no small amount of care and attention on the part of the Commissioners. Important suits, on whose issue depends the title to several hundred thousand dollars' worth of State land, are now pending, the conduct of which devolves largely on the Commission as well as the attorneys.

It would seem that legal contests over land titles should be outside the province of this department. But in many suits brought for trespass or ejectment the defendants plead that the State does not own the land, and the Commission in order to win the suit, to punish the timber thief or eject the squatter, must defend the State's title.

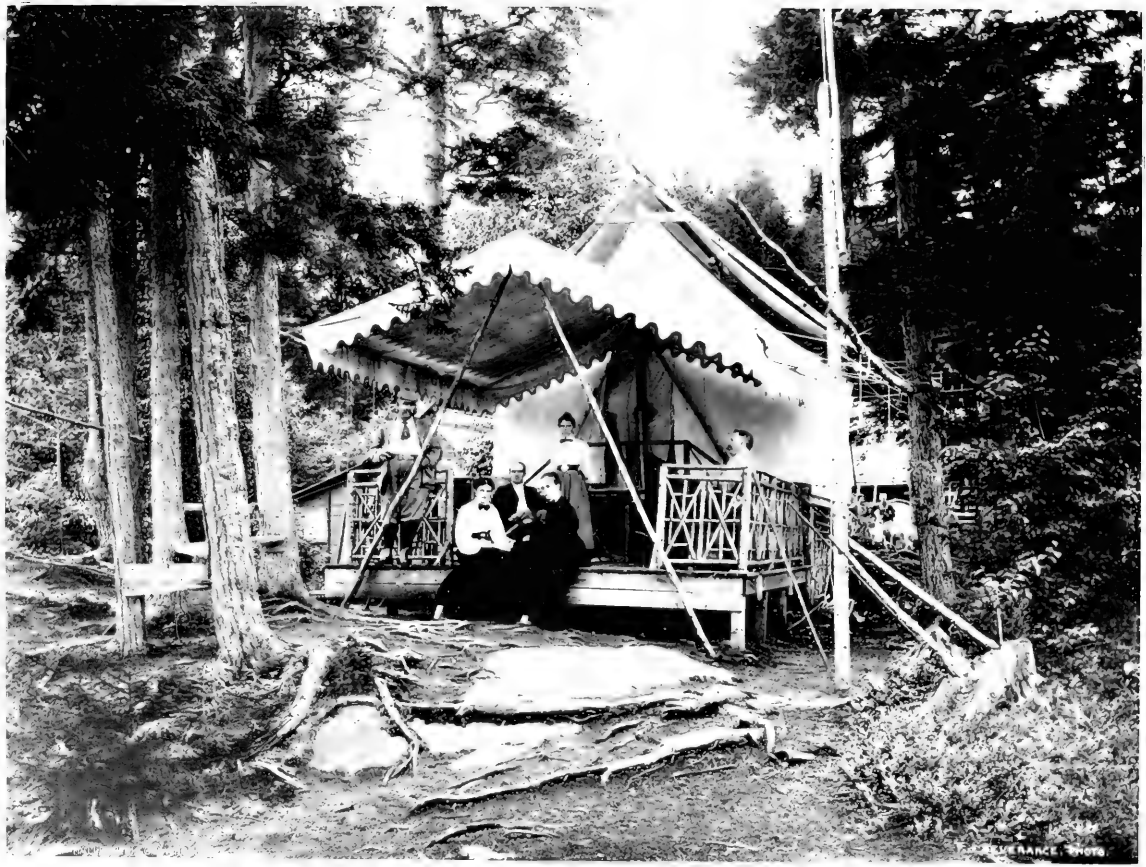
Thus, some prosecutions commenced originally for a comparatively trivial offence have resulted in contests in which the State's title to large and valuable forest areas are imperiled.

In 1886 a forester seized a pile of logs on the southeast quarter of Township 24, in Franklin county, a tract of 7,500 acres belonging to the Preserve. The Forest Commission sued the lumberman who cut them, who in turn set up the defense that the State's tax title was not a valid one. This litigation has been in the courts ever since. It has become widely known as a celebrated case, and is one of the many suits whose management and perplexities were bequeathed to us by our predecessors in office.

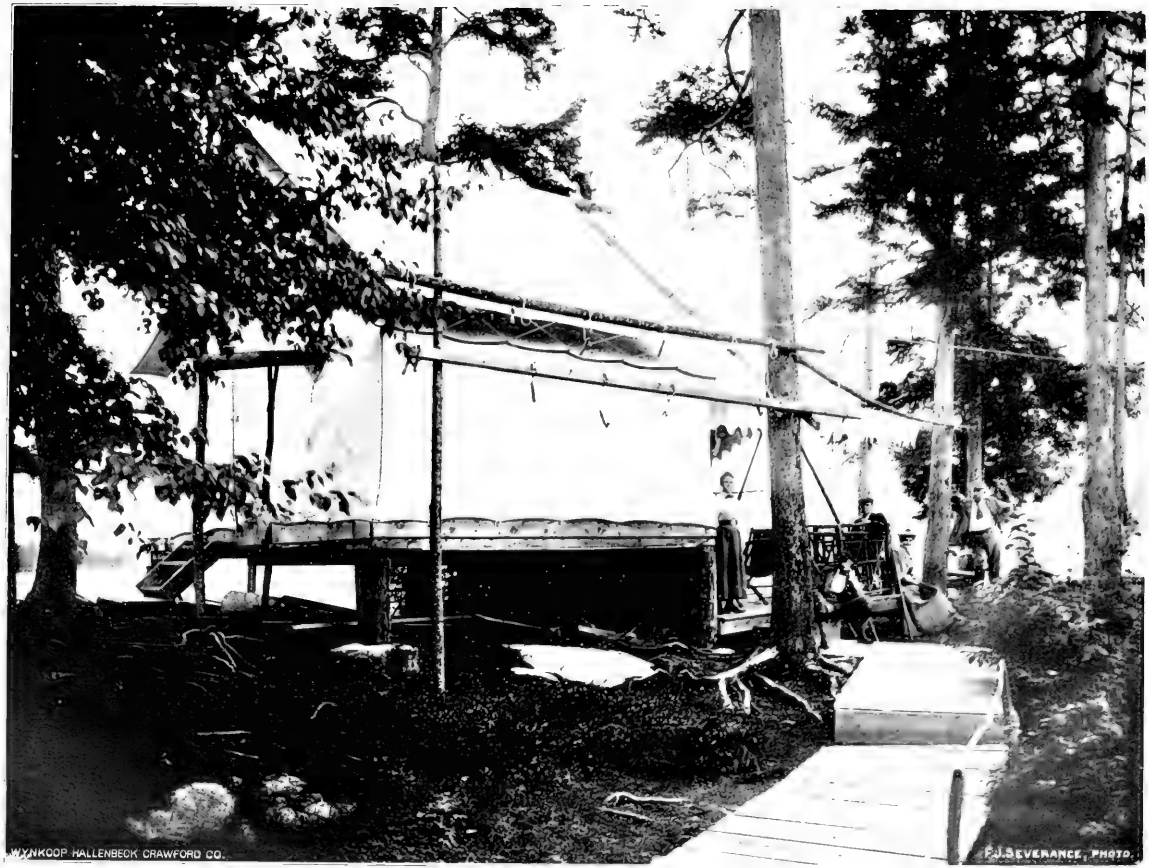
As yet, the State has not lost any of these land cases. The more important ones, at present, are in the hands of the Attorney-General. They are also under the general care of the Superintendent of Forests, who, by reason of his connection with the Forestry Department since its inception, is familiar with the evidence and acquainted with the witnesses necessary in carrying on each suit. One of these cases—State vs. Benton Turner—after being carried up by the defendant through all the State courts, including the Court of Appeals, is now on the calendar of the United States Court at Washington, in which the constitutionality of the "Law of 1885" will be tested. Two other suits brought, respectively for the possession of Lower Saranac Lake and Raquette Lake and for the townships in which they are situated, are also pending in the United States Court.

This constant litigation is due to the fact that while the State holds the land under tax sale titles, other parties have the deeds. As the latter would come into full possession of the property in case a jurisdictional defect could be shown in the levy of the tax, there is always a strong inducement to hunt up irregularities, real or alleged, and plead them in court.

Within the last ten years the State has expended in the litigation of these matters more money than would have been necessary to buy these deeds or so-called "bottom titles." There is good reason for believing that the State might do so yet, and save money by such transactions. In accordance with a suggestion in the Governor's recent message, some special appropriations made by the Legislature for this purpose might be intrusted to the Attorney-General and Comptroller, who undoubtedly could acquire deeds to certain lands for less money than it will take to defend the State's title. These deeds once obtained there could be no further litigation, the titles would be quieted, and the State ownership respected by all. The thieves and squatters who have hitherto operated under cover of these disputes would cease their annoyance.



TENT LIFE IN THE ADIRONDACKS.



CAMPING ON THE LOWER SARANAC.

Occupants of State Lands.

Reference has been made here to squatters on the Preserve. From a written report made to us recently by the Superintendent of Forests, it appears that there are ninety-eight cases of occupancy, in each of which there is a building of some kind—a cottage, farmhouse, or log cabin, and in many instances large barns or other buildings—erected on State land.

These persons are not all squatters in the usual meaning of the term. Three-fourths of them lived on the land before it became the property of the State. Many of them are farmers who have occupied the premises as homes for over thirty, and, in many instances, forty years. In one case there is a large, comfortable farmhouse and good barns on a lot near Lake Placid, Essex County, land which reverted to the State in 1853; and, yet, the farmer has lived there ever since and paid his taxes annually on the farm and buildings. It should be mentioned here that all the territory within the Adirondack Park is not forest land, areas of cleared land and farms being scattered through the entire region.

In the vicinity of the Boreas River, in Township 30, Essex County, there is a small community of French Canadian farmers living on the road running from Newcomb to Schroon River. Nearly all of them, with their houses and barns, are on land now belonging to the State. Some of these houses are painted frame buildings, and many of the barns are large, substantial structures. Each farmer has cleared up from twenty to eighty acres, on which small crops of hay, oats or buckwheat are raised. The occupants are quiet, respectable people, who have lived on these farms and paid taxes on the property for thirty years or more. They bought these lands originally of a Glens Falls lumberman, paying only part of the purchase money down and receiving a contract instead of a deed. The man from whom they bought had neglected to keep his taxes paid, and subsequently failed in business. The lands passed into the possession of the State at the tax sale of 1877, and belong to it now, the occupants having failed to redeem through ignorance of the sale or lack of money.

On the lands bought recently by the State, there are some residents—guides, hotel-keepers or summer cottagers—who occupied places before the property was thus purchased, and by the permission of the previous owners. On Raquette Lake there are some beautiful, expensive cottages which were built there before the organization of the Forest Commission in 1885. On some of the Lake George islands are summer residences, whose owners received permission from the State Board of Land Commissioners to occupy the premises as custodians.

This matter of occupancies has also received the care and attention of the Commissioners. It has given rise to some perplexing questions, for in some cases the long-

continued residence has raised the question of adverse possession. Each one of these occupants was ready and anxious to take out a five-acre lease from the State and waive all claims to ownership, but under the forestry clause of the new Constitution this remedy was denied.

Ejectment suits have been commenced in two cases on Raquette Lake, and one on Eighth Lake. Others will follow soon. These three were selected as a beginning, because they were aggravated cases, two of the parties having built their cottages with timber cut from the adjoining State forests. These three parties have each put in a defense alleging that the State has no title.

Arrangements have been made for posting every lake and stream on the Forest Preserve with notices forbidding the erection of any building, no matter how small, the notices stating further that any one erecting a house will not only be dispossessed, but will be prosecuted as a trespasser.

Lands Purchased.

The lands acquired during the year were:	ACRES.
W. S. Webb Purchase,	75,377
Wm. McEchron Purchase,	17,354
John Brown Farm,	243
	92,795

In the Webb Purchase the State acquired, in addition to the 75,377 acres in fee, an easement on 15,000 acres of forest in Township 8, John Brown's Tract, Herkimer County, which, under the terms of the contract, are to be held permanently as a public forest—one where the people shall have a right of way over the trails and the privilege of hunting and fishing.

The lands known as the Webb Purchase were bought of Dr. William Seward Webb, of Shelburne, Vt. The tract is situated in the northern part of Herkimer County, a small portion extending into Hamilton. It is well watered and contains several small lakes, some of them unsurpassed in beauty and scenery by any in the Wilderness. Part of this forest has been lumbered or is subject to a timber right; but this right reserves only the softwood timber, which includes less than fifteen per cent. of the trees. It forbids the felling of any tree less than ten inches in diameter on the stump, a provision that protects the young evergreens which elsewhere are removed for pulpwood. But the greater part of the tract—about 50,000 acres, including all north of the Beaver River—is a primitive forest, in which no cutting has been done and on which no timber rights were reserved. The price paid by the State for the

entire tract was $600,000, which included the settlement of Dr. Webb's claim against the State, amounting to $184,350.60, for damages caused by the overflow or back water from the State dam on the Beaver River.

The McEchron Purchase of 17,354 acres embraced a solid tract of contiguous forest in Townships 10 and 29, Totton and Crossfield, and is situated in both Hamilton and Warren Counties. The spruce, pine and hemlock have been removed; but the remaining hardwoods, which constituted more than eighty per cent. of the trees, still furnish a good forest cover, and make the tract a desirable one at the price. It is an unbroken forest, with the exception of a narrow strip of meadow land in the valley bordering the Sacandaga River, and a small burned area of about sixty acres which has already reforested itself with poplar of promising size. The price paid for this tract was $26,031.32, or about $1.50 per acre.

The John Brown farm, once owned by John Brown of Harper's Ferry and Kansas fame, and where he was buried soon after his execution, was acquired through a deed of gift made to the State by an association of twenty persons who had bought this farm and homestead several years ago for the purpose of preserving it. It is situated in North Elba, Essex County, and contains 243 acres, forty of which have been cleared. The farmhouse and barn erected by John Brown are still standing and in good preservation. The former custodian of the property was retained by this Commission, and he still resides in the farmhouse. The deed of gift was formally accepted, July 21st, at a meeting held on the farm. It was made the occasion of a flag raising, oration, and interesting exercises at the grave, which were attended by a large concourse of people.

The details relating to each of these purchases, including the reports of the preliminary examination of the lands, and account of the exercises at the acceptance of the John Brown property, will appear in the supplementary part of this communication.

Area of the Forest Preserve.

The area of the Forest Preserve at this time is:	ACRES.	
Adirondack Preserve, ...	801,473	
Catskill Preserve, ...	49,332	
Total, ...		850,805

The area of the proposed Adirondack Park, or territory within the "blue line," is 2,807,760 acres. Of this territory the State owns 655,450 acres. The remainder of the State holdings—146,023 acres—are situated outside the park, much of it in isolated lots scattered through farming regions many miles from the forest itself.

Scientific Forestry.

The criticism has been made that this Commission has done nothing in the way of forest improvement; that no scientific work similar to the methods governing European forest management has been inaugurated; that the valuable matured timber is allowed to decay, blow down and rot, while diseased trees and worthless species are allowed to remain and propagate to the exclusion or repression of more valuable and desirable timber; and that our forests, instead of being a source of public revenue, are a burden of expense.

We admit the facts, but protest against any stricture making this department responsible in any way for this state of affairs.

The scientific forestry which in other countries improves the forest and increases its yield of timber, which makes the public woodlands a source of immense, perpetual revenue to the Commonwealth, cannot be carried on without the use of the axe. In the work of forest improvement there must be a thinning of timber, and removal of trees that are diseased or infested with destructive insects.

But all work of this kind in our State is prohibited by law. Moreover, this law was made fundamental and incorporated in the new State Constitution, although every experienced, professional forester protested against the false economy involved in such legislation. The American Forestry Association, representing the best thought on the forestry question in the United States and Canada, at a large meeting held in the White Mountains at the time this matter was pending in the Constitutional Convention, passed a resolution unanimously condemning the proposed forestry clause in the Constitution.

But aside from this matter of revenue and forest improvement, we believe that the Empire State with its great forest domain should take the lead in this country in developing forestry methods and sound ideas. The woodlands of New York through proper exploitation should become an object lesson for all America.

Although the Forest Preserve, a large part of which is primitive forest where the axe of the lumberman has never swung, is rendered unavailable by our State Constitution for any such plan, something might be done to relieve the State from the anomalous condition in which its forestry work has been placed. In view of the proposed purchase of large areas of woodlands, a special appropriation might be made for acquiring some tract of virgin forest in the Adirondacks, to be set apart especially as an experiment station where the practicability of carrying on scientific forestry work with profit might be demonstrated. The tract thus set apart and specially dedicated to the purpose mentioned should be placed under the sole management of skilled, professional foresters, who should be afforded every opportunity for carrying on

whatever technical work could be undertaken without loss. With a forest thus donated and free from an interest account the experiment should be self-sustaining. The maintenance of the work without any call on the State treasury for assistance would be the test of success; and we believe it would be successful.

The experiment would soon demonstrate that a forest under the improved methods of management can be made more productive than one left in its natural condition; and that a perpetual revenue could be obtained over and above the cost of maintenance without any diminution of its area.

We have reason to believe also that, with such an enterprise fully inaugurated, a forest academy, well endowed from private resources, would soon follow. The school would be located on the experiment tract, where the undergraduates would have every opportunity for witnessing skilled forestry work in all its technical details. We heartily commend this suggestion to the attention of the members of the honorable Legislature, trusting that the matter will receive your careful and thoughtful consideration.

Proposed Legislation.

Some slight changes in our forestry law seem advisable. In section 281, relating to fallow fires, there is a clause providing that when a firewarden, after viewing the ground, gives a farmer permission to start a fallow fire, the firewarden shall "remain until it is extinguished." This section should be amended by striking out the words quoted. As it is, an opportunity is afforded for creating an unnecessary expense. In burning a fallow, the fire may last several days, but it would not be necessary for the firewarden to hang around the premises under pay during this time. Some provision should also be made limiting the amount payable in one year to a firewarden for posting the rules and regulations and going to fallows.

The law authorizing the taxation of lands in the Forest Preserve provides that "wild or forest land" only shall be taxed. The cleared lands in the Preserve have been assessed, hitherto, to the occupants, who have always urged the town assessors to do so, and include the levy in the resident tax. It would be better for the State if it paid the taxes on these cleared lands as well as its forests. The combined area of these clearings is small, and the amount of the tax would be a trifling matter. It would prevent any further cloud on the title to many tracts and stop a practice which puts this property in jeopardy. The law should be amended so that no assessor can assess any land in the Forest Preserve* except to the State.

The town assessors in all towns containing taxable State lands should be furnished with books of uniform size and ruling of the descriptive columns. One column should

* The Forest Preserve and the Adirondack Park are different. The State owns all the land in the Preserve, but not all in the Park.

be reserved for a classification of the land, in which each parcel should be described as forest, lumbered, burned, waste, water or cleared, whether in the resident, non-resident or State list. Some such classification is necessary in order that the forestry officials can determine whether the State lands are assessed at the same rate as other property in the town. The Comptroller has already introduced this system; but some legislation seems necessary to make the town assessors comply with his requirements in this respect.

The State lands in the towns of Altona and Dannemora, Clinton County, contain about 9,000 acres in the aggregate, but are not in the Forest Preserve, having been excepted in the original law of 1885, under which the Preserve was established. This exception was made in order that these forests might be reserved for the use of Dannemora prison. In the meantime, these lands have been cared for by an agent of the Comptroller. We would suggest that, with the approval of the Comptroller, these woodlands be included in the Forest Preserve, provided that the amendment necessary to such transfer contains some clause reserving a timber right in favor of the prison, permitting the use of timber for prison work only.

The Commissioners are willing to defend all suits in which the title to the State forests is attacked or involved, although such matters add to its duties and responsibilities. But the legal expenses which may be incurred in carrying on this class of litigation are necessarily quite large. Attorneys competent to manage these cases successfully command large fees, aside from the expenses for witnesses, surveys, obtaining evidence, and working up the cases. These expenditures are outside the province of our appropriation, which is available only for the regular work of the department. Thus far, these land suits have been carried on largely through the able assistance of the Attorney-General's office and the use of funds appropriated for the use of that department. It would seem advisable that some appropriation should be made by the Legislature that will enable this Commission to defray the legal expenses incurred in carrying on certain prosecutions, for the successful conduct of which the public persist in holding this Commission responsible.

For several years the Forestry Department of the State has annually urged the Legislature to appropriate money for the purchase of forest land in the Adirondack and Catskill regions, but these recommendations have thus far proved fruitless. Impelled by a sense of duty, we would respectfully renew them at this time. In view of previous disappointments, we do not care to rehearse the many reasons which make such action on the part of the Legislature positively necessary to the welfare of public interests. The matter has been so fully discussed in previous reports, and the necessity widely known and fully understood by all our citizens, that we make the recommendation and transmit it here without further comment or argument.

Suggestions and Recommendations.

During the fiscal year ending September 30, 1896, this Commission has hatched and planted in public waters in the State 191,726,678 fish of various kind, all the eggs having been taken from stock fish at the hatching station ponds, or secured from wild waters in the State. The fish were hatched and distributed at a total cost of 19.6 cents per thousand. The cost per thousand in previous years has been as follows: 1894, 30 cents; 1893, 48 cents; 1892, $1.11.

One of the most important items in the cost of hatching and distributing fish is the rearing of fingerlings (eight months old) and older fish.

Within the year we have reared and planted 130,400 trout of eight and ten months of age and 14,585 trout from twelve to eighteen months of age, or a total of 144,985 trout of or above the age of what are commonly called fingerlings. Previous to the date of the organization of this Commission, the printed reports of the fisheries work in the State made scarcely any mention of the rearing of fingerling fish, as practically all the fish hatched were planted in the fry stage as soon as they were hatched, and before they required to be fed. In addition to the fish hatched and distributed from the State hatcheries, the United States Fish Commission contributed to the State 27,417,533 fish and eggs, the eggs being hatched at the State hatcheries, making a grand total of 219,144,211 fish of all kinds planted in State waters during the year.

In our last report, for a part of the year 1895, we recommended that an appropriation of $25,000 be made to establish a hatching station or stations on one or more of the interior lakes for the purpose of hatching what are termed the commercial fishes, the site or sites of such hatching station or stations to be selected by the Commissioners. That this was a wise and necessary recommendation we have ample evidence from the demands made upon us by the interior lake region, and the western part of the State, for increased facilities to largely augment the output of food fishes, so called. In 1895 the output of commercial fishes from the State hatching stations combined with contributions from the United States Fish Commission amounted to 187,619,932, and this year the output of the same class of fishes from the State hatcheries alone amounted to 187,198,700.

In other words, the increase in the output of commercial fishes from the State hatcheries for 1896 was more than 34,000,000 over that of 1895 For the first time a systematic attempt has been made to cultivate the Labrador whitefish, one of the most delicious of the white fishes, and 250,000 eggs were taken at a temporary station at Canandaigua Lake and hatched at Caledonia.

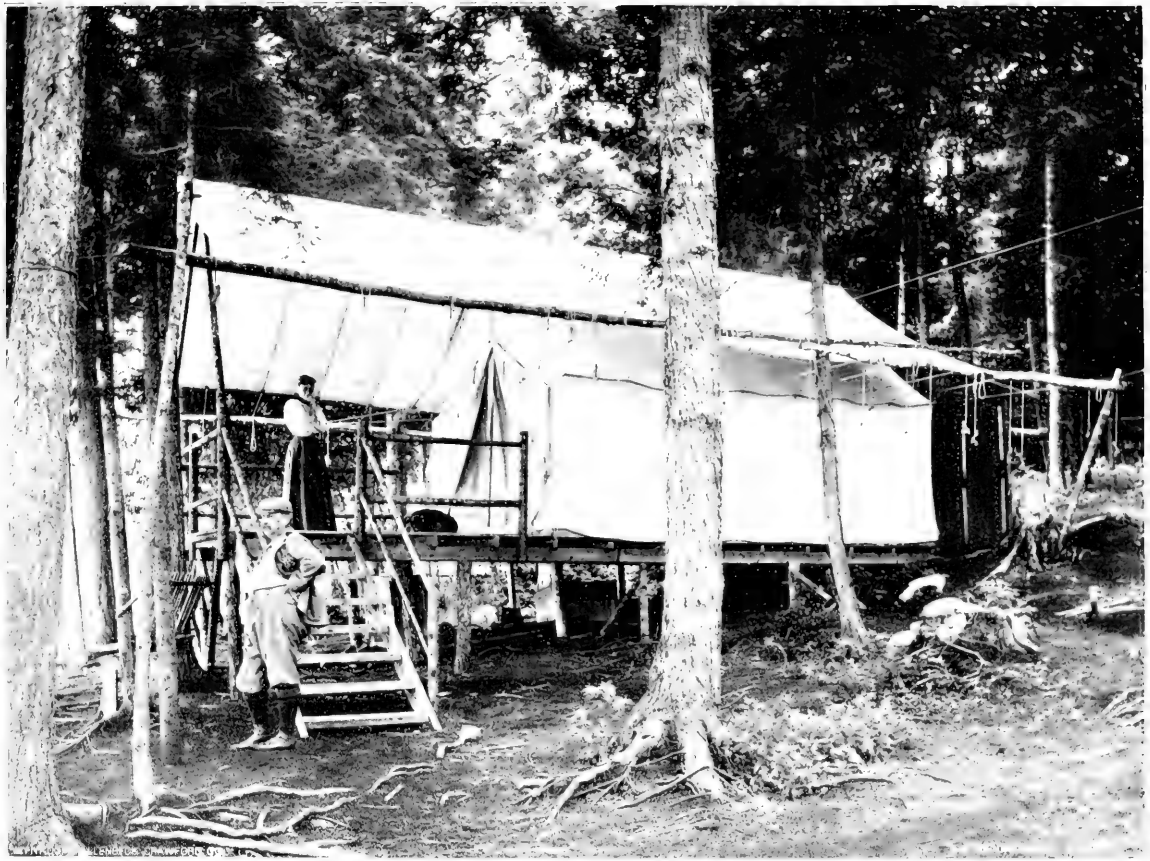
Since the close of the fiscal year, further operations have been conducted at Canandaigua Lake on a greater scale, and 13,160,000 whitefish were hatched at Caledonia

from eggs taken in this lake, showing the possibilities of this branch of fish culture, should a perfectly appointed hatching station be erected.

We would again most earnestly recommend that power be given to this Commission to close waters for a term of years, not exceeding five, when in the judgment of the Commissioners it is necessary to close streams for nursery purposes or to establish or re-establish fish in such waters. Already similar commissions in sister States have this power by posting printed notices on the banks of waters it is desired to close.

During the past year the Commission has obtained from the New Hampshire Fish Commission a number of adult Sunapee trout, and planted them in public waters in this State. This is a famed fish, found only in two lakes in New Hampshire, and one in Maine, and is the highest type of game fish, and one of the most delicate of food fishes. We have also obtained from the United States Fish Commission 75,000 eggs of the steelhead trout from the Pacific coast, and hatched and planted them in State waters. Another new fish obtained during the past year, from a lot of eggs sent to the National Government by the Swiss Government, is the Swiss lake trout. These three new species, having been obtained and planted in the waters of the State since the last session of the Legislature, have no protection under the law, and it is most desirable that a close season be provided for them similar to the close season already provided for the native brook and lake trout.

Since the year 1882, plants of Atlantic salmon fry and yearlings have been made in the waters of the upper Hudson River annually, until the total plantings amount to about 3,500,000, and the Government has furnished 100,000 eggs to be hatched and planted the coming spring. Dams and falls in the river have prevented the salmon on their return from the sea ascending to their natural spawning grounds where they were planted as baby fish, and they have been obliged to seek clear water and gravel beds wherever they could be found together for spawning purposes. Where these spawning grounds were located was not determined until last autumn, when it was found by this Commission that salmon were running up Livingston Creek on the left branch of the Hudson, below Linlithgo station of the New York Central Railroad, where they found clear, cold water and gravel bottom in what was once a famous trout stream. It is the intention of the Commission to visit this stream when the spawning season of the salmon again comes around and capture the fish on their spawning beds, now plainly to be seen, and take the eggs artificially for the purpose of hatching them and planting the young higher up the main river. In spite of the law to the contrary, it has been found that the salmon were speared on their beds or while making their way up Livingston Creek to their beds, and it is recommended that the stream be closed to all fishing for a term of years to enable the Commission to use it for the purpose of a nursery stream for young salmon and breeding ground for the adult fish.



AT HOME IN THE FOREST.

In this connection, it is again urged that means be provided to open the upper Hudson River to the salmon by building fishways in the dams and over the falls between Troy and Luzerne. Already two fishways are in operation at Mechanicville and Thomson's Mills, but above and below these points obstructions exist. With the present method of fishway building, these passages for fish may be built without injury to the dams. The building of fishways will also aid materially in keeping up the stock of shad, as the young shad may then be planted farther up stream where they will find good pasturage, comparatively free from predaceous fish, and the fishways will enable the adult fish to return to points higher up stream than they do at present, as has been demonstrated by the building of fishways in the Delaware River, which opened seventy-five miles of the upper river to the shad, where they were not known after the dams were erected until the fishways were constructed.

All acts heretofore passed for the erection of fishways have provided that they shall be erected and maintained by the Superintendent of Public Works, under the direction of this Board, but no provision has been made for funds to keep them in repair, and as a consequence in a few years they become dilapidated and fail of their purpose. The State now has a number of fishways costing thousands of dollars, and it will require but a small sum annually to keep them in perfect repair so that fish can pass through them, as was intended when they were constructed.

Fish of all kinds are spawn eaters to a greater or less extent, but the eel is more destructive of spawn than any other fish, as it does not spawn in fresh water and is ready to prey upon both the fall and spring spawning fishes.

At night, when the lake trout are spawning on a shoal in mid-lake, the eels are present in vast numbers to eat the spawn as fast as it is deposited by the trout. Section 143 of the Game Law provides that "eel-pots of a form and character such as may be prescribed by the Commissioners of Fisheries may be used in any waters not inhabited by trout, lake trout, salmon trout or land-locked salmon." We would ask that this Commission have power to use or authorize the use of eel-pots in all waters, whether inhabited by trout or not, for it is in trout waters particularly that eels are proving destructive to young fish.

Already, this Commission has begun a vigorous policy of stocking the waters of the State with fish food, for without proper food the fish will not thrive, no matter how or where they may be planted, and in our last report we endeavored to show how the people may materially assist the Commission in its work of intelligently stocking or restocking our lakes, ponds and streams by determining what the waters contain in the way of food.

It is impossible, without extended investigation, for the Commission to aquaint itself with the food and temperature conditions of all State waters, but it is within the

power of each applicant for fish to conform to the requirements of the application blanks and ascertain the temperature of the water which it is desired to plant and the kinds of fish food which the water contains. Once the water conditions are ascertained with reasonable accuracy, a record is kept of that particular pond or stream for future reference, but it is rare for a blank to be filled out understandingly in this respect, and, therefore, the replies to the questions are too often valueless for the purposes for which they were intended. Every year the applications call for more fish than the State can raise, and individual applicants ask for more fish than the water to be planted can by any possibility sustain.

Section 101 of the Game Law gives power to this Commission or its agents to net predaceous fish that are preying on food fishes or their food. Where this has been done, in a few instances, fault has been found with the Commission by those who do not understand the necessity for such work.

Small fishes of some species multiply so rapidly that they must be reduced in numbers, because they feed on the food of other and better fishes. The fishes so destroyed are not in themselves food fishes, nor do they serve as the best food for food fishes, but act chiefly as fishfood destroyers and, in some cases, as spawn eaters.

Whenever trout are netted in public waters for the purpose of propagating the young of the species, a large proportion of the eggs are returned to the water in the shape of fry or older fish. At one of the hatching stations the people have an idea that all the eggs should be returned to the water as fry and none used for stocking other waters. This is out of the question, for the State has a vast area of water to stock with comparatively few waters to draw upon for stock fish, but in every instance where the State has netted fish for their eggs the water so netted has received greater benefit than if the fish had been left to spawn naturally, for at least fifty per cent. of the eggs have been returned as fry or yearlings, while by natural methods not above five per cent. would arrive at the fry stage, and even this is, probably, a big estimate.

Within the next year it is expected that the hatching stations will have in their stock ponds a sufficient number of breeding fish without resorting to netting public waters.

By artificial methods over ninety per cent. of the eggs of the salmon family are hatched, and owners of private lakes who understand the matter are quite willing to have their preserves netted for trout eggs if the State will return twenty per cent. and sixteen and two-thirds per cent. respectively to their ponds and keep the balance for public waters.

The policy of the Commission in planting fingerlings and older fish so far as their means and facilities will permit, is already bearing fruit, as shown by the operations during the past year and by letters received from the people. By a system of

changing the stock fish and young fish from the water of one station to that of another, and by crossing the fish of one station with the fish of another to obtain fresh blood (of course of the same species), stronger and more vigorous as well as more rapid-growing fish have been obtained.

Judging from the reports which have come to us, there never has been such a small percentage of loss in the transportation of young fish as during the past year.

We would again most earnestly recommend the absolute necessity for a longer close season for black bass if the fish is to be saved from practical extermination in State waters. The applications each year call for millions of bass, and the supply is limited to a few thousands. Black bass spawn through the month of June, and the present open season begins on May 30th. Not satisfied with catching black bass in June when they are spawning or brooding their young, a comparatively new mode of destruction is being practiced by fishermen. As cold weather approaches black bass congregate on shoals in deep water where they partially hibernate during the winter months, and there the fishermen resort and catch the fish, stupid from the low temperature, in vast numbers. We would recommend that the close season begin on October 15th and extend to July 1st following. We would also recommend that the law which now applies to the waters of the St. Lawrence River be made to apply to all other waters in the State, namely, that no black bass shall be taken under ten inches in length and that not more than twelve black bass shall be taken or possessed by one person in one day; or twenty-four bass by two persons fishing together.

Black bass can not be propagated like trout and pike-perch; and there is no opportunity for getting stock fish except from waters which already show the effects of over-fishing and which the Commission is now called upon to restock. It is only by protecting the black bass during their spawning season and by other restrictions and having the law rigidly enforced that we can hope to preserve this fish from practical extermination.

We deem it our duty to recommend a law to protect fish in State nets when taken for spawning purposes. Fish so confined have been removed from the nets by other than employes of the State.

In our report submitted to the Legislature last year we had occasion to refer to the heat and drouth in western New York which dried up the springs at the head of Spring Creek (generally known as Caledonia Creek), on which the principal hatchery of the State is situated, and which poisoned the water in the pond above the State property and eventually killed the young fish in the hatchery and rearing boxes and the stock fish in the ponds.

At the time this seemed to the general public like a calamity to be deplored, but we said of it: "Except for a temporary embarrassment at the hatchery, and perhaps

a decrease the coming year in the number of young fish that will be furnished from the station for planting in other waters, the loss was a blessing in disguise, from the fact that the different species of fish had been crossed and recrossed in years past until hybridism was the rule, and pure-bred fish the exception in the State ponds. The loss has been made good in part with young, vigorous pure-bred fish; and all the stock ponds will soon contain their full quota of breeding fish of pure lineage, better adapted for producing fry and yearlings for planting than fish with a taint of hybridism." This promise has been more than fulfilled. To-day this station is second to none in the United States in equipment and quality of work performed. It has a capacity for hatching 5,000,000 trout fry, 10,000,000 whitefish and 20,000,000 pike-perch, and in its rearing boxes and races 800,000 fingerling trout can be reared annually. There are now at this station twenty-five stock ponds—one a wild pond. The dam has been rebuilt and laid in cement so that there is no waste of water whatever. Four of the stock ponds have been rebuilt, laid in cement with cement copings and improved in form for the better aeration of the water. Four hundred and sixty barrels of cement and 250 loads of sand were used in the repairs. The hatching troughs have all been replaced with new ones of cypress, and the piping is all of wrought iron with brass gates.

On the 1st of October when the inventory of fish on hand at this station was completed it was found in place of the hybrid fish destroyed by the water mould in June, 1895, that the station could boast of the following vigorous, pure-bred fish:

Brook trout, five to eight years old,	45
Brook trout, two and one-half to three and one-half years old,	3,000
Brook trout, one and one-half years old,	5,000
Brown trout, five to twelve years old,	1,500
Brown trout, three to four years old,	300
Brown trout, one to two years old,	300
Lake trout, ten to fifteen years old,	25
Rainbow trout, five years old,	40
Rainbow trout, three years old,	500
Rainbow trout, one to two years old,	400
Red throat trout, one and one-half years old,	1,900
Brook trout, eight months old,	70,000
Brown trout, eight months old,	32,000
Lake trout, eight months old,	8,000
Land-locked salmon, eight months old,	2,500
Scotch sea trout, eight months old,	750
Rainbow trout, six months old,	14,000
Steelhead trout, five months old.	650
Total,	140,910

Thus a total of 140,910 fish of all kinds were on hand October 1, 1896, in place of 36,700 turned over in May, 1895, by the old Commission, according to the report of 1894, practically all of which were lost by the flow of poisened water in June following.

The Legislature has already passed a law limiting the catch of black bass to be taken by one person in one day; and we would recommend that a similar law be passed to regulate the number of pounds of trout to be taken in one day by one person, so that not to exceed ten pounds of brook trout nor twenty pounds of lake trout may be taken or possessed by one person in one day.

Section 249 of the Game Law should be repealed as it puts a premium upon crime in sister States that have non-export game laws, as most of them have, and is a menace to the game in our own State, and makes it difficult to convict game-law violators who kill our game out of season. This section permits the sale of game at any season of the year, if it can be proved that the game "was shipped from a point at least 300 miles distant from the State of New York." All that is necessary to traffic in game under this section is to violate the laws of other States, for the close season of all the States is practically the same, and once the game is within our borders it can be sold openly for twelve months in the year. Not only is the State in the position of a receiver of stolen goods, but the law operates against our own game. Courtesy and justice to other States, and the difficulty of protecting our own game with this law in force, demands its repeal, and we earnestly recommend that it be striken from the statutes.

Net-fishing within the mile limit should be absolutely prohibited throughout Lake Ontario. Chaumont Bay and adjoining bays at the head of the St. Lawrence River are natural spawning grounds for black bass and other fishes and act as feeders to and nurseries for the St. Lawrence River, and we know of nothing that would do more to improve the fishing of the St. Lawrence than to protect these waters a mile from the main land and islands at that end of the lake. There is no good reason why exceptions should be made of any portion of the water within the mile limit. On the other hand, there is every reason why these waters should be protected as well if not better than at any other point on the lake.

We also recommend that the open season for deer shall not exceed forty-five days, and that hounding and jacking be prohibited. Although the hounding season was shortened one-half last year, there were probably as many deer killed as during the year before, and we believe the only way to preserve the deer is to prohibit hounding entirely, at least for a term of years.

We further recommend that the woodcock and grouse season shall not open before September 1st in each year, and that it shall close not later than November 30th.

The present law provides the same close season for black and gray squirrels, hares and rabbits. We would recommend that a separate section be provided for squirrels and that the season for hunting shall begin September 1st and close December 1st.

We would recommend that fishing for lake trout and black bass from steam crafts be prohibited in Lake George; and we would also recommend that section 330 be amended to read: "In case any angler or person fishing in the waters of the *State*," etc., substituting "State" for "Thousand Islands."

Last year several most desirable amendments to the Game Law advocated by this Commission were defeated because they were incorporated in a bill which compelled the shad fishermen to take up their nets on Friday night at sundown and keep them up until Monday morning at sunrise. This amendment to the Shad Law is of the utmost importance if a supply of spawning fish is to be obtained in the upper Hudson River by this Commission to carry on its shad work, and we would again urge the passage of a law to open the Hudson to the upward passage of the shad unimpeded by nets from Friday night until Monday morning.

As we have pointed out in a previous report to your honorable body, the State of New York is the second of the Middle Atlantic States and third of the States in the Union in the value of her fishing products, and this enviable position can be maintained only by liberal appropriations to second her best fish cultural efforts, and adequate laws to protect the fish during the season of reproduction and until the young fish reach a marketable size.

The Commissioners in conclusion desire to express their thanks to the United States Fish Commission for liberal contributions of fish and fish eggs, and to the railroads of the State, notably the Delaware and Hudson Canal Company, the New York Central and Hudson River Railroad system, the New York, Ontario and Western Railroad, the Delaware, Lackawanna and Western Railroad, the Buffalo, Rochester and Pittsburg Railroad, and the Lehigh Valley Railroad, for their continued courtesy in hauling the State car and transporting messengers, fish and fish cans free.

The State Reservation upon and along the St. Lawrence River.

Pursuant to the Provisions of chapter 802, Laws of 1896, entitled "An act for the establishment of a State reservation upon the St. Lawrence River, in the State of New York," we have the honor to submit the following suggestions:

The purpose of the above-named law, as indicated by the wording thereof, is to create a State reservation on the St. Lawrence, and to place the same in charge of this Commission. And it especially imposes upon us the duty of reporting to this Legis-

lature such additional enactments as we deem necessary for the government of such reservation with a view to making the same the most useful to the people as a part of an international park on the St. Lawrence River.

As the subject matter of this plan is somewhat foreign to the duties placed on us by the act under which this Commission was appointed, it was deemed necessary to make a tour of said reservation and investigate as to the circumstances and needs of that locality.

Accordingly in the month of September, 1896, we personally went to said river and along the shores thereof and among its islands and found the circumstances as follows:

This river has become during the last few years a great summer or water resort for the people of the State of New York and of the Dominion of Canada. The boundary line between the two countries divides the Thousand Islands therein located nearly equally between Canada and this State. Nearly all of the smaller islands and many of the points of land on the large islands and on the main shores of that river have been built upon. In many instances improvements have been made by individual owners to the extent of hundreds of thousands of dollars and the aggregate outlay would amount to several millions. The State of New York does not own any islands nor any main land there. The Dominion of Canada has already parted with the possession of many of its islands on its side of the line and does not own any of the main shore. The healthful climate and attractive fishing offered by this great body of pure, cold, fresh water, brings to this section annually thousands of seekers of health and pleasure, not only from the State of New York, but from the Southern and Western States, and many prominent people from Europe also stop there, a few days at least, to fish and have an outing while making a tour of the country.

The best fishing is remote from the great resorts and boarding-houses, and there are no suitable camping places for canoeists, excursionists, camping parties, anglers and the people generally, who desire to spend a few days or a longer time at the desirable points, and we, therefore, urge the propriety of providing small pieces of land at convenient places to be owned by the State and to be kept free for the public use, and to provide boat landings, camping and picnic sites, etc.

The Canadian Government, under a mutual understanding that this State would reciprocate, has already set aside twenty-five of the islands for unrestricted use of boating and picnic parties of both countries. It is quite generally understood by our Canadian friends that our people will provide, for similar uses, several islands or pieces of land along the shore of the St. Lawrence River, and it is also understood by the people of that locality that if our State does not provide such public places, then the right to use the Canadian islands, by our people, will be withdrawn.

Should the Canadian government take this action, the natural result will be that many fishermen and summer visitors to that resort will go across the national line and stop at Canadian hotels and be obliged to employ foreign oarsmen. This would mean that the hotel business at that great resort would be seriously injured and our oarsmen driven to Canada to reside. Our people, not from this State only, but from many other States, that are now spending their money in our midst would spend it in a foreign country. They would be driven from home. Uniform fish laws for this locality have already been enacted by Canada and the State of New York, in pursuance of the mutual understanding that a park would be provided for public use.

In view of all the circumstances, it is our opinion that places for public use should be provided by the State. This can only be done by an appropriation being made to purchase islands and places along the shores.

The State should appropriate a sum sufficient to acquire several islands or points that will provide places for the free use of the people who visit this great health resort. It seems to us that the sooner this provision for park purposes is made the cheaper it will be, or rather that the same amount of money will buy more now than it will even in the near future, for the reason that all the desirable places are being purchased and built upon, and in a little while but few, if any, places will be in the market at a price that can be called reasonable. Whatever amount the Legislature in its judgment sees fit to appropriate for this purpose will be carefully and economically invested. Except as herein mentioned, any further legislation does not seem to be needed for the control of said Reservation for the present.

THE DRINKING POOL.

Distribution of Fish.

Schedule of Waters Stocked for Year Ending September 30, 1896.

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
E. D. Delamater et al.,	Columbia,	Bay Brook, etc.,	Brook	Fry	8,000
A. N. Cheney,	Warren and Washington,	Half Way Brook,	"	Yearling	200
" "	" " "	" " "	Brown	"	200
V. R. Merrihew,	Ulster,	Esopus Creek,	"	Fry	20,000
G. C. Morey,	Oneida,	Red Creek, etc.,	Brook	"	8,000
Charles Bryant,	Franklin,	Lyon Brook,	"	"	5,000
D. S. Frink,	Chenango,	Canasawasta Creek,	"	"	5,000
W. B. Martin,	Ulster,	Bushkill,	"	"	8,000
James C. Sturgis,	Hamilton,	Whitney Lake, etc.,	Lake	"	25,000
" "	"	" "	Brown	"	10,000
F. T. Huxley,	Fulton,	Tributaries Kennite Creek,	Brook	"	8,000
William Cowles,	Hamilton,	Piseco Lake,	Lake	"	75,000
William N. Courtney,	"	Tea Lake, etc.,	Brook	"	10,000
A. K. Lawrence,	"	Three Cedar Lakes,	Brown	"	10,000
" "	"	" " "	Lake	"	20,000
F. A. Cline,	Ulster,	Esopus Creek,	Brook	"	10,000
C. W. Backus,	Clinton,	Upper Chataugay,	"	"	15,000
Robert Lafontaine,	"	Roaring Brook,	"	"	10,000
Watson Lamont,	Schoharie,	Mill Creek,	Brown	"	50,000
Charles Moon,	Clinton,	Deep Inlet Brook,	Brook	"	10,000
A. J. Simpson,	Ulster,	Muddy Brook, etc.,	"	"	10,000
Albert Weed,	Essex,	Trout Brook,	"	"	10,000
W. E. Sanders,	Franklin,	Ocher Pond,	"	"	5,000
Ed. H. Lavery,	Saratoga,	Indian Brook,	"	"	8,000
Rev. J. K. Hoadley,	Lewis,	Brantingham Lake,	Rainbow	Yearling	250
Charles A. Fish,	Cattaraugus,	Bear Hollow Brook,	Brook	Fry	10,000
" "	"	Whig Street Creek,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Charles A. Fish,	Cattaraugus,	Big Red Horse Creek,	Brook	Fry	20,000
" "	"	Christian Hollow Brook,	"	"	10,000
" "	"	Bay State Creek,	"	"	10,000
Robert Lenox Banks,	Warren,	Lake George,	Lake	Fingerling	3,500
" " "	"	" "	"	Fry	300,000
John T. Lynch,	Westchester,	Miamus River,	Brown	"	10,000
John A. Cole,	Hamilton,	Tributuries Stony Creek,	Brook	"	20,000
Wellington Kenwell,	"	North Branch Moose River,	"	"	20,000
H. C. Allen,	Madison,	Upper Otselic Creek,	"	"	5,000
" "	"	" " "	Brown	"	10,000
Mathias Burgher,	Ulster,	Bushkill Stream,	Brook	"	5,000
James Walton,	"	Woodland Stream,	"	"	10,000
J. B. Hart,	Franklin,	Leddie Pond,	"	"	10,000
Charles Stickney,	"	Meed Pond,	"	"	5,000
Ira Martin,	Sullivan,	Willowemoc,	"	"	15,000
J. M. Case,	Schoharie,	Manor Kill, etc.,	"	"	15,000
Fred. Klosmer,	Lewis,	Alder and Fish Creek,	"	"	5,000
J. J. Brome,	Franklin,	Upper Saranac Lake,	Lake	"	100,000
N. Bogue,	Genesee,	Oak Orchard Creek,	Brown	"	3,000
James E. Baker,	Queens,	Brook Farm Stream,	Brook	"	2,000
Dell Case,	Sullivan,	Sheldrake Lake,	Brown	Yearling	200
William T. James,	Queens,	Kissing Lake,	"	Fry	10,000
E. P. Bodine,	Seneca,	Seneca Lake,	Lake	"	40,000
M. D. McNeil,	Chenango,	Eight small brooks,	Brook	"	10,000
Fred. B. Sawyer,	Tompkins,	Fall Creek,	"	"	10,000
T. W. Reilly,	Onondaga,	Butternut Creek,	Brown	"	5,000
J. Simpson,	Monroe,	Garbutts Pond,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
E. W. Davitt,	Rensselaer,	Red Mill,	Brown	Fry	5,000
E. L. Fisher,	Genesee,	Tributaries Black Creek,	"	"	5,000
D. J. Daughty,	Ontario,	Streams, Town Naples,	Brook	"	10,000
Fisheries, Game and Forest Com.	Herkimer,	Third Lake Creek,	"	Yearling	600
" " " " "	"	Sixth and Seventh Lake Inlet,	"	"	600
" " " " "	"	Big and Little Spring Brook,	"	"	300
Theo. Seeber,	"	North Branch Moose River,	"	"	500
J. A. Harvey,	"	First and Second Lakes,	"	"	75
D. I. DeMilt,	Suffolk,	Crystal Lake,	"	"	5,000
Virgil Palen,	Ulster,	Mectlekan, etc.,	Brown	"	10,000
" "	"	"	Brook	"	10,000
A. H. Fowler,	Tompkins,	Six Mile Creek, etc.,	"	"	20,000
W. W. Imus,	Erie,	Trout Brook,	"	"	5,000
R. M. Clark,	Chenango,	Guilford Lake,	Brown	"	200
" "	"	Cold Brook,	Brook	Fry	8,000
Judson N. Smith,	St. Lawrence,	Big Trout Pond,	Brown	"	5,000
" "	"	" " "	Brook	"	5,000
" "	"	" " "	Lake	"	5,000
Dr. J. W. King,	Erie,	Sedge Creek,	Brown	"	5,000
August Lack,	Queens,	Locks Stream,	Brook	"	5,000
W. S. Norton,	Onondaga,	Furnace Brook,	"	"	5,000
E. J. Prickett,	Franklin,	Plumadore Pond,	"	"	10,000
Ira Elmendorf,	Ulster,	Esopus Creek,	Brown	"	15,000
W. J. Mitchell,	Schuyler,	Catlin Brook,	"	"	10,000
" "	"	" "	Brook	"	3,000
P. A. Purdy,	Chenango,	Five streams, etc.,	"	"	20,000
H. E. Heyworth,	Clinton,	Little Ausable River,	Brown	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
A. J. Bennett,	Clinton,	Furnace and Arnold Brook,	Brook	Fry	5,000
Orlando Kellogg,	Essex,	Boquet and tributaries,	"	"	25,000
Sandy Hill Fish and Game Com.	Washington,	Muler and Cold Brook,	"	"	15,000
" " " " " "	"	Bond Creek,	California	Yearling	250
" " " " " "	"	Babcock Brook,	Brown	Fry	15,000
G. S. Van Gorder,	Wyoming,	Wiscog Creek,	Brook	"	10,000
W. A. Brownson,	"	Watts Brook,	"	"	15,000
O. D. Lyon,	"	Vincent Brook,	"	"	5,000
N. S. Burton,	"	Jomer Brook,	"	"	5,000
F. H. Lyon,	"	Griffiths Brook,	"	"	5,000
A. W. Smith,	"	Arnold Brook,	"	"	5,000
E. D. Crosley,	Onondaga and Cortland,	Cold Brook Stream,	"	"	8,000
" "	" " "	Skaneateles Lake,	Lake	"	100,000
H. S. Holden,	" " "	" "	"	Fingerling	5,000
Charles H. Furness,	Fulton,	Stony Creek,	Brook	Fry	15,000
" "	"	" "	Brown	"	20,000
Thomas Glen,	Lewis,	Black and Balsam Creek,	Brook	"	5,000
William Ferris,	Cattaraugus,	Ischua Creek, etc.,	"	"	5,000
E. F. Reed,	"	Mansfield Creek, etc.,	"	"	10,000
Charles E. Whitney,	"	Wrights Creek, etc.,	"	"	10,000
William Ferris,	"	Ischua Creek,	Brown	"	10,000
Samuel Dunakin,	Herkimer,	Cary Pond Outlet,	Brook	"	10,000
David G. Helmes,	Hamilton,	Clear and South Ponds,	Lake	"	75,000
E. C. M. Rand,	Rockland,	Naurausham Stream,	Brown	"	2,000
Fisheries, Game and Forest Com.	Herkimer,	Forge Pond, etc.,	Brook	Yearling	500
Lewis Huller, Sr.,	Onondaga,	Lowville and Manlius,	"	Fry	5,000
Mrs. J. D. Jones,	Queens,	Nuqua Lake,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
J. Thomas Jones,	Suffolk,	Brooks Head of St. Johns Lake,	Brook	Fry	10,000
Frank Cantrell,	"	Pond, no name,	"	"	20,000
D. C. Conklin, Jr.,	Cattaraugus,	Eleven brooks,	"	"	20,000
Orrin Dunning,	Hamilton,	Gilman Lake,	Lake	"	15,000
" "	"	" "	Brook	"	10,000
Joseph B. Mills,	Warren,	Schroon Lake,	Lake	"	75,000
" "	"	Trout Brook, etc.,	Brook	"	10,000
J. D. W. Decker,	Sullivan,	Willowemoc,	"	"	10,000
C. S. Tallcott,	Oswego,	Salmon Creek, etc.,	"	"	10,000
" "	"	" "	Brown	"	10,000
Milo E. Bull,	Herkimer,	Pine Creek, etc.,	Brook	"	10,000
William Dart,	"	Second Lake, etc.,	Lake	"	20,000
" "	"	North Branch Moose River,	Brook	"	15,000
E. T. Gilliland,	Clinton,	Salmon River,	"	"	5,000
C. T. Thompson,	Cortland,	Otter Creek,	"	"	10,000
Garret S. Miller,	Madison,	Cowansselor Creek,	"	"	5,000
Will Osborn,	Hamilton,	Lake Pleasant,	Lake	"	25,000
Claud Wilson,	Herkimer,	Woodhull Reservoir,	Brook	"	10,000
" "	"	" "	Lake	"	20,000
Milo C. Bull,	"	Fourth Lake,	"	"	25,000
M. E. Brimmer,	Rensselaer,	White Creek,	Brook	"	15,000
E. W. Adams,	Essex,	Mink Lake,	Lake	"	10,000
" "	"	Mink Lake Inlet,	Brook	"	15,000
W. A. Parker,	Chenango,	Wylie and Wilkins,	"	"	10,000
E. E. Billings,	Schoharie,	Schoharies and tributaries,	Brown	"	10,000
M. E. Brimmer,	Rensselaer,	Walloomsac River,	"	"	15,000
W. B. Dunlap,	Fulton,	McQueens Creek, etc.,	Brook	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
J. H. Kincaid,	Washington,	Mettomee River,	Brown	Fry	15,000
Eber Furlow,	Chautauqua,	Bemis Creek,	"	"	5,000
D. W. Codling,	Herkimer,	First and Second Lakes,	Lake	"	20,000
Charles E. Brush,	Suffolk,	Brush Ponds,	Brown	"	5,000
" "	"	" "	Brook	"	5,000
J. E. Ball,	Herkimer,	Mt. Creek,	"	"	20,000
M. D. Skinner,	Chenango,	Quarter Brook,	"	"	2,500
E. J. Schafer,	"	West Bainbridge Creek,	Brown	"	8,000
" "	"	Stockwell Creek,	"	"	8,000
E. J. Codling,	Herkimer,	First Lake Creek,	Brook	"	10,000
J. S. Kirby,	Franklin,	Lower Chataugay,	"	"	20,000
J. C. Anderson,	Sullivan,	Stewarts Brook,	"	"	20,000
" "	"	Sprague Brook,	"	"	20,000
" "	"	Little Beaverkill,	"	"	20,000
" "	"	Russell Brook,	"	"	25,000
" "	"	Horse Brook,	"	"	20,000
" "	"	Hortons Brook,	"	"	25,000
F. I. Woodward,	Cortland,	Labrador Creek,	Brown	"	5,000
A. R. Miller,	"	Proughreiogas River,	"	"	5,000
B. F. Sperry,	Herkimer,	Little Spring Hole,	Brook	"	5,000
D. F. Sperry,	"	Big Spring Hole,	"	"	5,000
J. M. Wardner,	Franklin,	Rainbow Lake, etc.,	"	"	25,000
Peter Ossont,	Lewis,	Crystal Creek,	"	"	5,000
Laura Thompson,	Herkimer,	Beaver Meadow Brook,	"	"	8,000
H. F. Titus,	Essex,	Toof Brook,	"	"	10,000
M. Mullin,	Sullivan,	Ten Mile River,	"	"	10,000
N. E. Herrington,	Rensselaer,	Otter Creek,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Paul Smith Hotel Company,	Franklin,	Upper St. Regis Lake,	Lake	Fry	50,000
" " " "	"	Lower St. Regis Lake,	Brook	"	25,000
T. J. Arnold,	Dutchess,	East Branch, Croton River,	"	"	5,000
J. M. Wardner and A. Lincoln,	Franklin,	Rainbow Lake,	Lake	"	75,000
J. Miller,	Orange,	Mount Ellis Lake,	Brook	"	5,000
F. H. Parker,	Franklin,	Inlet Chain Pond,	"	"	5,000
S. W. Barnord,	Delaware,	Lyon Brook,	"	"	5,000
Peter Thompson,	Hamilton,	Murphy Lake Stream,	"	"	10,000
" "	"	Willis Lake,	Lake	"	15,000
L. H. Canfield.	Sullivan,	Spring Brook,	Brook	"	15,000
S. L. Stewart,	Orange,	Fostertown Creek,	Brown	"	5,000
G. W. Frederick,	"	Artificial Pond,	Brook	"	5,000
George W. Little,	"	Willow Brook,	"	"	5,000
George McCarter,	Essex,	Lincoln Brook,	"	"	15,000
W. Crawford,	Orange,	Satterlytown Creek,	"	"	5,000
Mack Wilson,	Franklin,	Hough Brook,	"	"	25,000
Duncan Cameron,	Essex,	McKenzie Lake,	Lake	"	100,000
" "	"	Ray and Wolf Brooks,	Brook	"	40,000
D. W. Jones,	Madison,	Public streams,	"	"	10,000
E. I. Rice,	Onondaga,	Butternut Creek,	"	"	5,000
Charles E. Taylor,	Lewis,	White and Sugar Rivers,	"	"	5,000
David Bush,	Columbia,	Vader Brook,	Brown	"	10,000
D. M. Haley,	Warren,	Mud Pond and streams,	Brook	"	10,000
Nathan Barnard,	Franklin,	Trout River,	"	"	10,000
William H. Shear,	Albany,	New Salem and Fly Creek,	"	"	5,000
A. Branch,	Franklin,	Ampersand Pond,	"	"	20,000
W. J. Gillespie,	"	Nigger Brook,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Fred. D. Holdridge,	Madison,	Smith Brook,	Brook	Fry	10,000
A. Jay Thompson,	Otsego,	Cherry Valley Creek,	"	"	10,000
S. Phillips and G. S. Case,	Dutchess,	Close Creek,	Brown	"	5,000
William O. Buell,	Washington,	Owl Kill,	"	"	15,000
A. H. Burrell,	Steuben,	Bennets Creek, etc.,	"	"	25,000
C. T. Leland,	Essex,	Schroon Lake,	Lake	"	50,000
Theodore Tice,	Sullivan,	Fall Brook, etc.,	Brown	"	15,000
Newel T. Hodge,	"	Conklin Brook, etc.,	Brook	"	10,000
O. S. Gorchen,	Essex,	Silver Lake,	Lake	"	25,000
" "	"	" "	Brook	"	20,000
Charles H. Stevens,	Cortland,	Cold and South Brook,	"	"	10,000
George Le Fevre,	Columbia,	Ancram Mines Stream,	"	"	5,000
Barton & Hoysradt,	"	Punch Brook,	"	"	5,000
George A. Dukelow,	St. Lawrence,	Horse Shoe Pond, etc.,	"	"	15,000
George F. Lee,	Dutchess,	Tabor Brook,	"	"	5,000
Jesse Dreeland,	Orange,	General Distribution,	Brown	"	5,000
H. D. Pixley,	Oneida,	Oriskany Creek,	Brook	"	8,000
E. H. Johnson,	Hamilton,	Little Tupper Lake,	"	"	20,000
David Aird,	"	Fiddler Lake,	"	"	15,000
Dr. H. M. Lincoln,	Saratoga,	Schermerhorn Brook, etc.,	"	"	10,000
George P. Langford,	Oneida,	Dilker Brooks, etc.,	"	"	8,000
D. A. Devendorf,	Saratoga,	Hagadorn Creek,	"	"	10,000
George Boyd,	Lewis,	Salmon River,	"	"	10,000
S. H. Gariss,	Orange,	Shinglekill,	"	"	5,000
John P. Samson,	Genesee,	Allens Creek,	Brown	"	5,000
S. H. Corbin,	Madison,	Manse Brook,	Brook	"	5,000
J. W. Parker,	Rensselaer,	Cold Brook, etc.,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
E. F. Trustan,	Herkimer,	Eureka Pond,	Brook	Fry	8,000
W. F. Hughes,	"	Oneonta Creek,	"	"	8,000
W. H. Manwaring,	"	Lake Stafford,	"	"	8,000
James H. Pierce,	Essex,	Trout Pond, etc.,	Lake	"	75,000
J. K. Grant,	Delaware,	West Branch, Delaware River,	Brook	"	10,000
L. E. Carman,	Suffolk,	Clarendon Stream,	"	"	5,000
William N. Spurge,	"	Nissequogue River,	"	"	10,000
C. H. Wright,	Queens,	Factory Pond,	"	"	5,000
H. S. Carman,	Suffolk,	Crystal Stream,	"	"	5,000
Austin Bussey,	Ulster,	Shin Creek,	"	"	10,000
G. F. Underwood,	Essex,	Shroon River,	"	"	10,000
W. C. Witherbee,	"	Mullen Brook, etc.,	"	Yearling	500
F. J. Heuber,	Onondaga,	Limestone,	"	Fry	5,000
John S. Bauer,	"	Mud Creek, etc.,	"	"	5,000
Dr. W. J. Werfelman,	"	White Bottom Brook,	"	"	5,000
Dr. H. M. Lincoln,	Saratoga,	Washburn Creek, etc.,	"	Yearling	150
J. S. Cochran,	Green,	Winter Cove, etc.,	"	Fry	10,000
Edward Haight,	Dutchess,	Highland Brook,	"	"	5,000
H. F. Pulver,	"	Punch Brook,	"	"	5,000
H. O. Cronkite,	Washington,	Stevens Brook, etc.,	"	"	8,000
W. D. Stevenson,	"	Gillis Brook, etc.,	Brown	"	10,000
" "	"	Moses Kill, etc.,	Brook	"	10,000
Charles Sull,	Chenango,	Ludlow Creek, etc.,	"	"	10,000
George W. Cushman,	Franklin,	Lake Titus,	Brown	"	10,000
" "	"	" "	Brook	"	10,000
C. R. McArthur,	"	Rice Pond, etc.,	"	"	15,000
O. F. Hulser,	Oneida,	Long Lake,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Philip Studor,	Oneida,	White Lake,	Lake	Fry	25,000
R. H. Canfield,	Sullivan,	Sandburgh Stream,	Brook	"	15,000
Chazy Lake Hotel Company,	Clinton,	Chazy Lake,	"	"	20,000
Emil Murer,	Herkimer,	Mountain Stream,	"	"	15,000
David G. Helms,	Hamilton,	South Clear Pond, etc.,	"	"	25,000
E. M. Reynolds,	Tioga and Tompkins,	West Creek,	"	"	5,000
Fred. D. Barton,	Tioga,	Oswego Creek,	"	"	8,000
Honeoye Falls Angling Ass'n,	Monroe,	Deep Pond,	Brown	Yearling	250
" " " "	"	" "	Lake	Fry	5,000
Charles E. Hyde,	Livingston,	Duncan Run, etc.,	Brook	"	5,000
John Hyland,	"	Big Mill Creek,	Brown	"	10,000
David G. Cronk,	Franklin,	Little Green Pond,	Lake	"	20,000
" "	"	" " "	Brown	"	5,000
Erastus Stafford,	Clinton,	Ashley Arnold Brook,	Brook	"	5,000
C. W. Baker,	"	Signor Brook,	"	"	5,000
Moses F. Nelson,	Orange,	Buttermilk Falls Brook,	Brown	"	5,000
William Winter,	Delaware,	Seven Brooks,	Brook	"	25,000
B. W. Philbrick,	Dutchess,	Sawkill, etc.,	"	"	10,000
H. P. Denison,	Onondaga,	Butternut Creek,	"	"	5,000
John Bartholomew,	Fulton,	Union Mills,	"	"	8,000
Ferd. W. Chase,	Franklin,	Loon Lake,	"	"	10,000
" "	"	" "	Lake	"	50,000
M. S. Ives,	Lewis,	Twin Creek, etc.,	Brook	"	8,000
P. H. Willey,	Livingston,	Mill and Van Doran Creek,	"	"	50,000
" "	"	Canaserago Creek,	Brown	"	10,000
Steuben Co. Fish and Game Ass'n	Steuben,	Six Brooks, etc.,	Brook	"	60,000
" " "	"	Michigan, etc.,	Rainbow	Yearling	250

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Steuben Co. Fish and Game Ass'n	Steuben,	Hornby Creek,	Brown	Fry	30,000
F. Hyatt,	Westchester,	Brook near railroad,	Brook	"	5,000
D. J. Hennessy,	Herkimer,	Buck Pond,	"	"	10,000
S. R. Fuller,	"	Black River,	Lake	"	15,000
C. M. Barrett,	"	Third Lake Creek,	Brook	"	10,000
" "	"	Third Lake,	Lake	"	10,000
Black River Fish and Game Ass'n	Oneida,	Nine Creeks,	Brook	"	40,000
Charles S. Nesbit,	Saratoga,	House Creek, etc.,	"	"	8,000
A. A. Lewis,	Greene and Fulton,	Cold Creek, etc.,	"	"	5,000
Frank E. Kuran,	Greene,	Batavia Kill,	"	"	10,000
Charles W. Marvin,	Onondaga,	Coffin Brook,	"	"	5,000
F. F. Smith,	Franklin,	Outlet Loon Lake,	"	"	5,000
John Homan,	Dutchess,	Homan Brook,	"	"	5,000
Herman S. Mase,	"	Hopewell Brook,	"	"	5,000
H. F. Whittenhall,	Chenango,	Wheeler Brook, etc.,	"	"	20,000
Saratoga Co. Fish and Game Ass'n	Saratoga,	Various streams,	"	"	10,000
J. H. Lamphere,	Cayuga,	Owasco Lake,	Lake	"	100,000
" "	"	Cold Spring Brook,	California	Yearling	150
R. M. Shults,	Clinton,	Upper Chateaugay Lake,	Lake	Fry	100,000
Chazy Lake Hotel Company,	"	Chazy Lake,	"	"	100,000
Benjamin F. Germain,	"	King Brook,	Brook	"	10,000
F. Sanger,	"	Upper Chateaugay Lake,	"	"	15,000
Canandaigua Rod and Gun Club	Ontario,	Canandaigua Lake,	Lake	Fingerling	10,000
" " "	"	" "	"	Fry	150,000
Julius Burres,	Essex,	Bouquet River,	Brook	"	10,000
L. W. Emerson,	"	Six Brooks, etc.,	"	"	25,000
J. E. Pond,	"	Black Brook, etc.,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
George A. Stevens,	Essex,	Tributaries Lake Placid,	Brook	Fry	20,000
" "	"	Lake Placid,	Lake	"	100,000
" "	"	Cowery Pond,	"	"	20,000
" "	"	Mirror Lake,	"	"	25,000
D. H. Abrams,	Hamilton,	Cherry Brook,	Brook	"	10,000
" "	"	Lake Pleasant,	Lake	"	75,000
Albert Danforth,	"	Whitney Lake,	Brook	"	10,000
Addison McIntyre,	"	Shanty Brook,	"	"	10,000
Isiah Perkins,	"	Mason Lake,	"	"	10,000
Julius Burres,	Essex,	Chappel Pond,	Brown	"	10,000
E. J. Jerry,	Steuben,	Otter Creek,	Brook	"	5,000
Frank C. Parker,	Essex,	Bouquet River,	"	"	10,000
A. E. Bradley,	Chenango,	Dark Hollow Brook,	"	"	5,000
" "	"	North Norwich Brook,	"	"	10,000
Greenwich Rod and Gun Club,	Washington,	Hartshorns, Lashers,	"	"	10,000
W. F. Myers,	Montgomery,	Rogers Creek,	"	"	10,000
J. W. Candee,	Herkimer,	Beaver River,	"	"	8,000
D. N. Riddle,	Franklin,	Folmsby, Rollins, etc.,	Lake	"	100,000
" "	"	Hoel, Long, etc.,	Brook	"	25,000
H. W. Leonard,	Oneida,	Cobb Brook, etc.,	"	"	10,000
H. H. Hinman,	St. Lawrence,	West branch St. Regis River,	"	"	15,000
F. J. Inderlied,	Broome,	Dudley Creek,	"	"	8,000
F. M. Moore,	Oswego,	Spring and trout brooks,	"	"	10,000
J. W. Pond,	Franklin,	Ragged Lake,	"	"	20,000
" "	"	" "	Rainbow	Yearling	400
William A. Miles,	Columbia,	Bash, Bish, etc.,	Brook	Fry	10,000
James E. Carney,	Sullivan,	Neversink River,	"	"	15,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
N. D. Bartlo,	Chenango,	Cold Brook, etc.,	Brook	Fry	10,000
G. H. Hawkins,	Sullivan,	Beaverkill,	"	"	15,000
Joel Kimball,	"	Little Beaverkill,	"	"	8,000
Joe Davidson,	Delaware,	Various streams,	"	"	15,000
E. K. Tee,	"	Trout Creek,	"	"	15,000
W. H. Wright,	Delaware and Columbia	Pickham, etc.,	"	"	10,000
Charles W. Baker,	Ulster,	Stony Brook, etc.,	"	"	8,000
James M. Keinted,	Sullivan,	Mongaup, etc.,	"	"	10,000
J. A. Crawford,	Delaware,	Various streams,	"	"	10,000
W. S. Davis,	Ulster,	Vernopkill,	"	"	10,000
L. R. Benedict,	"	Fountainkill,	"	"	10,000
A. Constable,	"	Beerkill,	"	"	10,000
George Ramsdell,	"	South Gulley, etc.,	"	"	10,000
S. E. Hornbeck,	"	Sandburgh Stream,	Rainbow	Yearling	200
H. L. Butterfuss,	Sullivan,	Neversink River,	Brook	Fry	10,000
J. W. Shepardson,	Chenango,	Ackley, Fly, etc.,	"	"	15,000
G. F. Close,	"	Ackley Stream,	"	"	8,000
T. O. Porter,	Sullivan,	Chestnut Creek,	"	"	10,000
J. K. Gardner,	"	Simpson Brook,	"	"	10,000
M. Schafer,	"	Middle Mongaup,	"	"	10,000
I. Post,	"	Kinsmere Brook,	"	"	8,000
J. D. Davidson,	"	Beaverkill, etc.,	"	"	10,000
B. G. North,	Chenango,	Third and Beers Brooks,	"	"	20,000
G. P. Beers,	"	West Brook, etc.,	"	"	10,000
Charles Herring,	"	East Marius Brook,	"	"	10,000
Walter Peak,	"	Trout Brook,	"	"	15,000
Seth A. Walley,	"	Dryden Creek, etc.,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
James A. Fulton,	Sullivan,	Ogg Stream, etc.,	Brook	Fry	20,000
J. H. Briggs,	"	Shin Creek, etc.,	"	"	5,000
E. F. Davidson,	"	" " "	"	"	5,000
J. A. Darbee,	"	Hollow Brook,	"	"	8,000
E. R. Sprague,	"	Shin Creek, etc.,	"	"	5,000
O. Finch,	Columbia,	Buse Brook, etc.,	Brown	"	10,000
Howard Tillotson,	Sullivan,	Mongaup, etc.,	Brook	"	10,000
Ed. Barnes & Carr,	"	Stony Brook,	"	"	10,000
Marsh C. Pierce,	Onondaga,	Onondaga Creek,	"	"	5,000
Emil Murer,	Herkimer,	Moose Lake,	Lake	"	10,000
Arthur Witherell,	Wyoming,	Cattaraugus Creek,	Brook	"	10,000
R. W. Jones,	Onondaga,	Monte Fredic Brook,	"	"	5,000
E. D. Keeney,	Cattaraugus and Wyoming,	O'Neil Brook, etc.,	"	"	10,000
F. M. Wilson,	Suffolk,	Parker's Pond, etc.,	"	"	5,000
A. D. Heath,	St. Lawrence,	Grasse River,	"	"	10,000
Embury Moston,	Warren,	North Creek,	"	"	10,000
" "	"	Mill Creek,	Brown	"	10,000
Henry Felton,	Queens,	Felton Stream,	Brook	"	5,000
Saratoga Co. Fish and Game Ass'n	Saratoga,	Several streams,	"	"	5,000
William H. Bartlett,	Dutchess,	" "	"	"	8,000
Hulett Scudder,	Suffolk,	Scudder Brook,	"	"	4,000
J. D. Parker,	Chenango,	Otselic Creek,	Brown	"	10,000
Louis Will,	Onondaga,	Fabius Brook, etc.,	Brook	"	8,000
Constantia Angling Association,	Oswego,	Scriba Stream, etc.,	"	"	5,000
J. S. Underhill,	Sullivan,	Underhill Pond,	"	"	15,000
S. W. Cable,	Delaware,	Cable's Pond,	"	"	5,000
C. E. & E. S. Childs,	Fulton,	Mayfield Brook, etc.,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
George H. Harris,	Saratoga,	Peter Nigg Pond, etc.,	Brook	Fry	8,000
David Douglas,	Clinton,	Silver Lake,	Lake	"	40,000
J. W. Hutton,	"	Upper Chateaugay Lake,	Brook	"	15,000
B. F. Vail,	Orange,	Saubkeld, etc.,	"	"	5,000
Timothy Lean,	Cattaraugus,	Riot and Stony Brooks,	"	"	10,000
H. G. Campbell,	Delaware,	Campbell Brook,	"	"	8,000
E. B. Wells,	Madison,	Oriskany Creek,	"	"	10,000
F. C. Wilson,	Monroe,	Thomas Creek,	"	"	5,000
C. A. Farnam,	Allegany,	Fords Brook,	Brown	"	10,000
F. H. Church,	"	" "	Brook	"	10,000
Charles A. Ball,	"	Genesee River,	"	"	10,000
Charles H. Sisson,	St. Lawrence,	Bog River,	"	"	25,000
C. E. & E. S. Child,	Fulton,	Mayfield and Stony Creek,	Brown	"	10,000
J. W. Hutton,	Clinton,	Upper Chateaugay Lake,	"	"	20,000
E. L. Thompson,	Essex,	Boquet River, etc.,	Brook	"	10,000
Mrs. E. M. Weston,	"	Cascade Lake,	"	"	20,000
W. H. Walker,	Livingston,	Christie's Creek,	"	"	1,000
" "	"	" "	"	"	2,000
R. S. Coleman,	Warren,	Lake George,	Rainbow	Yearling	500
E. K. Ford,	Delaware and Otsego,	Charlotte, Otsego,	Brook	Fry	15,000
James S. Barrett,	Monroe,	Barrett Stream, etc.,	"	"	5,000
T. E. Krumblay,	Essex,	Echo Pond,	"	"	10,000
A. B. Parker,	Sullivan,	Stream,	"	"	15,000
F. D. Kilburn,	Franklin,	Indian Lake,	"	"	5,000
" "	"	" "	Lake	"	8,000
F. A. Holmes,	Oneida,	West Branch Unadilla,	Brook	"	10,000
F. G. Smith et al.,	Franklin,	Lake Kushaqua,	"	"	10,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
F. G. Smith et al.,	Franklin,	Lake Kushaqua,	Lake	Fry	15,000
Webb Harrison,	Sullivan,	Loch Sheldrake,	"	"	20,000
" "	"	Pleasant Lake,	"	"	20,000
Fisheries, Game and Forest Com.	Herkimer,	Twitchell Lake,	Brook	"	15,000
" " " " "	Yates and Steuben,	Lake Keuka,	Lake	"	35,000
" " " " "	Hamilton,	Sixth Lake,	Brook	"	10,000
" " " " "	"	Seventh Lake,	"	"	10,000
" " " " "	"	Eighth Lake,	"	"	10,000
A. N. Cheney,	Warren and Washington,	Half-way Brook,	Brown	"	20,000
L. P. Taylor,	Oswego,	Carpenter's Creek,	"	"	20,000
" "	"	Three-mile Creek,	"	"	20,000
John Wilkins,	Orange,	Brooks, etc.,	"	"	10,000
H. B. Warring,	Westchester,	Troublesome Brook,	"	"	5,000
" "	"	" "	Brook	"	5,000
W. A. Noyce,	Dutchess,	Big Spring Brook,	"	"	10,000
Oakleigh Thorne,	"	Lithgow Brook,	"	"	10,000
T. D. Huested,	Westchester,	Sol Pew Creek,	"	"	10,000
H. S. Cookingham,	Dutchess,	Soxkill Stream,	"	"	15,000
Moses Johnson,	Washington,	Scott's Lake,	Brown	"	10,000
H. F. Davis,	Essex,	Peet's Creek,	"	"	10,000
J. W. Bristol,	Wyoming,	Gainesville Creek,	"	"	10,000
H. J. Fuller,	"	Laird & Dudley Creek,	Brook	"	5,000
Fisheries, Game and Forest Com.	Ontario,	South End Canandaigua,	"	"	25,000
Dr. Isaac Rice,	Franklin,	Big Clear Pond,	"	"	25,000
Fisheries, Game and Forest Com.	Livingston,	Hemlock Lake,	California	"	50,000
H. M. Champlain,	Steuben,	Cold Spring Creek,	Brook	"	7,500
Fisheries, Game and Forest Com.	Hamilton,	Brook below Sacandaga Hatchery	Brown	"	18,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Fisheries, Game and Forest Com.	Hamilton,	Brook above Sacandaga Hatchery	Brook	Fry	5,000
" " " " "	Ontario,	Canandaigua Lake,	Lake	"	100,000
Andrew Smith,	Ulster,	Coxton Creek,	Rainbow	"	10,000
Albert Morse,	Oswego,	Shingle Mill Creek,	Brook	"	5,000
M. A. Lynch,	Tioga,	Owego Creek,	"	"	8,000
E. O. Eldridge,	"	East Branch, Owego Creek,	"	"	5,000
F. E. Darling,	Tompkins,	Fall Creek,	"	"	10,000
B. L. Robinson, M. D.,	"	Fall Creek, etc.,	"	"	5,000
Dr. J. E. Leonard,	Cortland and Tioga,	Spring Brook, etc.,	"	"	8,000
Reuben Loucks,	Fulton,	North Creek,	"	"	5,000
L. R. Ryckman,	Chautauqua,	Burr & Kelley Brooks,	"	"	8,000
G. W. Laurent,	Ulster,	Esopus Creek,	Rainbow	Yearling	1,000
A. J. Dixon,	Otsego,	Butternut Creek,	Brown	Fry	15,000
A. L. Giteau,	Oneida,	Steuben Creek,	Brook	"	10,000
A. A. Pope,	Otsego,	Fly Creek, etc.,	"	"	10,000
Sherburne Fish and Game Ass'n	Chenango,	Lathrop Stream, etc.,	"	"	10,000
G. B. Smith,	"	Sing Sing Brook,	"	"	10,000
J. G. Stevens,	Sullivan,	Little Beaverkill,	"	"	10,000
Amos M. Johnson,	Broome,	Bull Creek,	"	"	10,000
Pliney A. Robbins,	Hamilton,	Little Tupper,	"	"	10,000
Hiram Benham,	Franklin,	Pine Pond,	"	"	5,000
Fayette C. Nichols,	Clinton,	Little Chazy River,	"	"	5,000
S. W. Scott,	Delaware,	Pollykill, etc.,	"	"	15,000
T. W. Jenkins,	Schoharie,	Reservoir,	Brown	Yearling	200
J. C. Brevort,	Essex,	Sanborne Brook, etc.,	Brook	Fry	15,000
Dr. Isaac Rice,	Franklin,	Lake Clear,	Lake	"	50,000
Derrick Kennedy,	"	" "	"	"	50,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
D. M. Roberts,	Franklin,	Grass Pond, etc.,	Brook	Fry	10,000
William T. O'Neil,	"	Quebec Pond,	"	"	10,000
Alex. McDonald,	"	Little Wolf Pond,	"	"	10,000
W. J. Alford,	"	Madawaska Pond,	Brown	"	15,000
N. S. Loomis,	Oneida,	Sanguoit Creek,	Brook	"	10,000
W. J. H. Parker,	Cayuga,	Dutch Hollow Creek,	"	"	8,000
" "	"	Dresserville Creek,	"	"	8,000
Willett Kidd,	Orange,	Trout Brook,	"	"	15,000
G. W. Austin,	Franklin,	Little Salmon River,	Brown	"	15,000
L. Swinger,	"	Riley Pond,	Lake	"	50,000
Derrick Kennedy,	"	Lake Clear, etc.,	Brook	"	10,000
O. H. Budd,	Schuyler,	Seneca Lake,	Lake	Yearling	5,000
H. H. Cory,	Herkimer,	Constable Creek, etc.,	Brook	Fry	15,000
P. H. Willey,	Livingston,	Big Mill Creek, etc.,	Brown	Yearling	200
H. M. Champlain,	Steuben,	Keuka Lake,	Lake	Fingerling	3,000
Fisheries, Game and Forest Com.	Monroe,	Allen's Creek, etc.,	Brown	Fry	10,000
" " " " "	"	Spring Creek,	"	"	1,000
" " " " "	"	" "	Brook	"	15,000
E. R. Eaton,	Essex,	Bemis Brook,	"	"	5,000
William Dart,	Herkimer,	North Branch Moose River,	"	"	15,000
James R. Draper,	Rensselaer,	Crystal Brook,	Brown	Fingerling	2,500
Charles A. Ball,	Allegany,	Baldwin Brook,	Brook	"	2,500
David Tice,	Niagara,	Eighteen-mile Creek,	Brown	Yearling	1 0
F. R. Whaley,	Wyoming,	East Branch Buffalo Creek,	Brook	Fry	5,000
Fisheries, Game and Forest Com.	Herkimer,	Nicks Lake,	"	"	10,000
" " " " "	"	Gibbs Lake,	"	"	5,000
" " " " "	"	Indian Spring Hole Creek,	"	"	5,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Fisheries, Game and Forest Com.	Herkimer,	Tributaries North Branch,	Brook	Fry	5,000
" " " " "	"	North Branch,	"	"	10,000
" " " " "	"	Joy Spring Low, North Branch,	"	"	5,000
" " " " "	"	Fulton Chain Outlet,	"	"	10,000
" " " " "	"	Eagle Creek,	"	"	5,000
" " " " "	"	Johns Lake,	"	"	10,000
" " " " "	"	Tributaries to Fourth Lake,	"	"	5,000
" " " " "	"	Two Hellgate Lakes,	"	"	5,000
" " " " "	"	Limekiln Lake,	"	"	10,000
" " " " "	"	Bug Lake,	"	"	10,000
" " " " "	"	Justin B. Meadow Brook,	"	"	5,000
" " " " "	Sullivan,	Beaverkill River,	Brown	"	15,000
D. G. Hackney,	Fulton and Montgomery,	North Creek,	Brook	"	5,000
Fisheries, Game and Forest Com.	Hamilton,	Eighth Lake,	Lake	"	34,000
" " " " "	Herkimer,	First Lake,	"	"	15,000
" " " " "	Hamilton,	Seventh Lake,	"	"	50,000
" " " " "	Herkimer,	Fourth Lake,	"	"	70,000
" " " " "	Hamilton and Herkimer,	Limekiln Lake,	"	"	30,000
" " " " "	" "	Third Lake,	"	"	20,000
" " " " "	" "	Second Lake,	"	"	15,000
Peter Flint,	Essex,	Buck Mt. Brook, etc.,	Brook	"	5,000
Edward Thompson,	Suffolk,	Nissequogue River,	Steelhead	"	13,000
A. N. Cheney,	Warren,	Lake George,	"	"	50,000
George W. Little,	Orange,	Willow Brook,	Brook	Yearling	200
Fisheries, Game and Forest Com.	Franklin,	Upper Saranac Lake,	Lake	Fry	50,000
" " " " "	"	Outlet Little Clear,	Brown	"	20,000
" " " " "	"	Little Clear Pond,	Lake	"	90,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
W. Brown,	Otsego,	Waters,	Brook	Yearling	200
Fisheries, Game and Forest Com.	Steuben,	Wheeler Creek,	Rainbow	Fry	5,000
" " " " "	"	" "	"	"	25,000
" " " " "	Herkimer,	North Branch Moose River,	Brown	"	5,000
" " " " "	"	Third and Fourth Lakes,	"	"	10,000
J. H. Perkins,	Suffolk,	Peconic River,	Steelhead	"	5,000
William J. Youngs,	Queens,	Cove Brook,	"	"	5,000
Fisheries, Game and Forest Com.	Livingston,	Cold Spring Creek,	Brook	Yearling	1,250
George H. Dormire,	Cattaraugus,	Farmersville Creek,	Brown	Fingerling	2,000
F. T. Huxley,	Saratoga and Fulton,	Shaw Creek, etc.,	Brook	"	3,000
Charles S. Nesbit,	" " "	Black Brook, etc.,	"	"	500
E. D. Keeney,	Wyoming and Cattaraugus	Cheney Brook,	"	"	2,000
James Rafferty,	Wyoming,	Hall Stream, etc.,	"	"	500
Fisheries, Game and Forest Com.	"	Tributaries Beaverkill River,	"	Fry	2,000
" " " " "	Livingston,	Hemlock Lake,	Lake	Fingerling	4,000
" " " " "	"	Spring Creek,	Brown	17 months	1,000
D. G. Doughtey,	Ontario,	Canandaigua Lake,	Lake	Fingerling	3,000
Fisheries, Game and Forest Com.	Herkimer and Hamilton,	Fulton Chain Lakes,	"	"	13,350
H. R. Phillips,	Yates,	Keuka Lake,	"	"	3,000
A. H. Fowler,	Tompkins,	Six-mile Creek,	Brown	"	2,500
" "	"	Cayuga Lake,	Lake	"	5,000
Beckley Howes,	Wyoming,	Miscoy Creek,	Brook	"	3,000
Fisheries, Game and Forest Com.	Franklin,	Lower Saranac Lake,	Lake	"	16,750
" " " " "	"	Hoel Pond,	"	"	12,000
" " " " "	"	Green Pond,	Brown	"	3,000
" " " " "	"	Hoel and Turtle Ponds,	Brook	"	3,000
" " " " "	Herkimer,	Justin B. Meadow Brook,	"	"	2,000

DISTRIBUTION OF TROUT FOR YEAR ENDING SEPTEMBER 30, 1896.—CONCLUDED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	VARIETY	AGE	AMOUNT
Samuel B. Ward,	Franklin,	Follensby Clear Pond,	Rainbow	Yearling	3,000
U. S. Grant Cure,	Ulster,	Birch Creek and Alton Creek,	Brook	Fingerling	1,000
P. H. Willey,	Livingston,	Culberson Glen, etc.,	"	"	300
Fisheries, Game and Forest Com.	Herkimer and Hamilton,	Fulton Chain, etc.,	"	"	7,650
" " " " "	Onondaga,	Skaneateles Lake,	Brown	18 months	770
I. D. Rhodes,	Ulster,	Rondout Creek, etc.,	"	Fingerling	300
" "	"	" " "	Brook	"	300
Fisheries, Game and Forest Com.	Monroe,	Spring Creek,	Brown	18 months	215
" " " " "	Franklin,	Lower Saranac Lake,	Lake	Fingerling	750
" " " " "	"	" " "	Brown	"	1,500
" " " " "	"	Upper St. Regis Lake,	"	"	1,000
E. P. Acres,	Clinton,	Davis Lake,	Rainbow	"	1,000
J. A. & G. A. Stevens,	Essex,	Lakes Placid and Mirror,	Brook	"	4,000
Fisheries, Game and Forest Com.	"	" " " "	Lake	"	1,500
M. B. Streeter,	Rensselaer,	Little Hoosick Brook,	Brook	"	1,000
M. S. Northup,	Fulton,	East Canada Lakes,	Rainbow	Yearling	300

DISTRIBUTION OF PIKE-PERCH FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
C. A. Shepard,	Genesee,	Allius Creek,	50,000
Edward Hawn,	Dutchess,	Shaw Pond,	50,000
Matson Lamont,	Schoharie,	Hayneys Pond,	50,000
Leather Stocking Club,	Oswego,	Oswego River,	5,000,000
Charles A. Fish,	Cattaraugus,	Allegany River,	100,000
H. C. Allen,	Madison,	Bradley Reservoir, etc.,	100,000
George Marcellus,	Genesee,	Oatka Creek,	50,000
E. L. Fisher,	"	Black Creek,	200,000
Niagara County Angling Club,	Niagara,	Lake Ontario,	3,000,000
J. F. Stoddard,	Madison,	Hatches Lake,	100,000
Dr. J. W. King,	Erie,	Tonawanda Creek,	200,000
L. A. Strause,	Ontario,	Canandaigua Outlet,	50,000
W. S. Gavitt,	Wayne,	Clyde River, etc.,	100,000
D. C. Conklin, Jr.,	Cattaraugus,	Allegany River,	100,000
A. J. Wood,	Wyoming,	Silver Lake,	500,000
Frank Parmentier,	Montgomery and Schenectady,	Mohawk River,	100,000
R. P. Grant,	Jefferson,	St. Lawrence River,	2,000,000
E. J. Shafer,	Chenango,	Susquehanna River,	50,000
James D. Winslow,	Schoharie,	Schoharie Creek,	50,000
C. T. Knight,	Orange,	Round Pond, etc.,	50,000
William H. Shear,	Albany,	Normanskill,	50,000
J. D. Chamberlain,	Broome,	Chenango River,	300,000
John Hackett,	Onondaga,	Otisco Lake,	200,000
W. H. Breman,	Chenango,	Chenango Lake,	50,000
William O. Buell,	Rensselaer,	Hoosick River,	50,000
A. T. England,	Chenango,	Susquehanna River,	50,000
P. A. Purdy,	"	Watkins Lake,	50,000

DISTRIBUTION OF PIKE-PERCH FOR YEAR ENDING SEPTEMBER 30, 1896. CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Honeoye Falls Angling Association,	Monroe,	Honeoye Creek, etc.,	250,000
Moses F. Nelson,	Orange,	Highland Lake,	50,000
C. W. Smith & Marvin,	Onondaga,	Seneca River,	50,000
John A. Patterson,	Orange,	Four lakes,	200,000
H. F. Whittenhall,	Chenango,	Chenango River,	100,000
Saratoga Fish and Game Pro. Assn.,	Saratoga,	Saratoga Lake,	15,000
Canandaigua Rod and Gun Club,	Ontario,	Canandaigua Lake,	500,000
Greenwich Rod and Gun Club,	Washington,	Lake Cosseyuna,	50,000
Albert Dakin,	Onondaga,	Crooked Lake,	50,000
Edward B. Wells,	Madison,	Madison Lake,	50,000
William H. Bartlett,	Duchess,	Round Pond,	50,000
Howard H. Widener,	Monroe,	Black Creek,	50,000
W. E. Ames,	Chenango,	Chenango River,	100,000
Onondaga County Angling Association,	Onondaga,	Oneida River,	100,000
A. M. Johnson,	Broome,	Otselic River,	50,000
William Morse,	Chenango,	Madella River,	50,000
Eugene Bradt,	Montgomery,	Mohawk River,	1,000,000
Lewis Roth,	Orange,	Wallkill River,	50,000
I. H. Reamer,	Albany,	Thomson Lake,	50,000
D. H. Merritt,	Ulster,	Summit Lake,	50,000
E. L. Jillson,	Madison,	Erieville Reservoir,	250,000
L. F. Briggs,	"	Eatons Brook,	75,000
J. F. Rasch,	Erie,	Little Buffalo Creek,	50,000
W. Dusenbury,	Broome,	Susquehanna River,	200,000
G. R. Traver,	Wyoming,	Silver Lake,	100,000
J. L. Schuyler,	Jefferson,	Three-Mile Bay,	3,000,000
E. Slingerland,	Albany,	Old Orchard Dam,	50,000

DISTRIBUTION OF PIKE-PERCH FOR YEAR ENDING SEPTEMBER 30, 1896.—CONCLUDED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
A. S. Farnham,	Wayne,	Seneca River, etc.,	50,000
Alexander Milne,	"	Mud and Red Creeks,	50,000
R. M. Rush,	Oneida,	West Camden Lake,	25,000
M. V. B. Ives,	St. Lawrence,	Raquette River,	50,000
Fisheries, Game and Forest Com.,	Oswego and Onondaga,	Oneida Lake,	22,000,000

DISTRIBUTION OF BLACK BASS FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	SPECIES	AGE	AMOUNT
A. N. Cheney,	Warren and Washington,	Glen Lake,	Black	Adult	100
Edward Hawn,	Dutchess,	First and Second Mile,	"	"	100
W. B. Dunlap,	Montgomery and Saratoga,	Mohawk River, Schoharie Creek,	"	Fry	2,000
Myron W. Reed,	Montgomery and Schenectady,	Mohawk River,	Oswego	"	20,000
Robert Lenox Banks,	Warren,	Lake George,	Black	Adult	100
A. Lee Wager,	Dutchess,	Stoutenburgh Creek,	"	"	100
E. C. M. Rand,	"	Uptown Lake,	Oswego	Fry	2,000
William H. Chapman,	Warren,	Hudson Pond,	Black	Adult	50
N. Bogue,	Genesee,	Oak Orchard Creek,	"	"	50

DISTRIBUTION OF BLACK BASS FOR YEAR ENDING SEPTEMBER 30, 1896.—CONTINUED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	SPECIES	AGE	AMOUNT
Arthur J. Baldwin,	Ulster,	Lake Minnewaska,	Oswego	Fry	1,000
Mrs. C. A. Rouse,	Essex,	Bouquet River,	Black	Adult	50
L. T. Barney,	Sullivan,	Lord's Lake,	"	"	100
E. L. Fisher,	Genesee,	Black Creek,	Oswego	Fry	1,000
" "	"	" "	Black	Adult	100
R. M. Clark,	Chenango,	North Pond,	Oswego	Fry	1,000
Dr. J. W. King,	Erie,	Murder Creek,	"	"	1,000
" "	"	Sedge Brook,	Black	Adult	100
E. C. M. Rand,	Rockland,	Nauransham Lake,	"	"	50
D. C. Conklin, Jr.,	Cattaraugus,	Olean Creek,	"	"	50
B. F. Dickinson,	Ulster,	Wallkill River,	Oswego	Fry	1,000
M. E. Brimmer,	Rensselaer,	Hoosick River,	Black	Adult	100
M. B. Hope et al.,	Madison,	Oneida Creek,	Oswego	Fry	1,000
Charles T. Knight,	Orange,	Round Pond, etc.,	"	"	1,000
William H. Shear,	Albany,	Normanskill,	"	"	500
J. D. Chamberlain,	Broome,	Chenango River,	Black	Adult	100
W. H. Breman,	Chenango,	Chenango Lake,	Oswego	Fry	1,000
J. M. Case,	Albany,	Crystal Lake,	Black	Adult	100
Jesse Dreeland,	Orange,	Wickham Lake,	"	"	100
Charles W. Griswold,	Steuben,	Smith Pond,	"	"	118
James F. Wood,	Sullivan,	Mud Pond,	"	"	50
Honeoye Falls Anglers' Ass'n,	Monroe,	Deep Pond,	"	"	100
William D. Stevenson,	Washington,	Cassayuna Lake,	"	"	100
F. T. Huxley,	Schoharie and Montgomery	Schoharie Creek,	"	"	100
Charles F. Brown,	Orange,	Orange Lake,	Oswego	Fry	1,000
Saratoga Co. F. and G. Pro. Ass'n	Saratoga,	Saratoga Lake,	Black	Adult	100
Canandaigua Rod and Gun Club	Ontario,	Canandaigua Lake,	"	"	160

DISTRIBUTION OF BLACK BASS FOR YEAR ENDING SEPTEMBER 30, 1896.—CONCLUDED.

NAME OF APPLICANT	COUNTY	WATER STOCKED	SPECIES	AGE	AMOUNT
E. D. Keeney,	Cattaraugus,	Fish Lake,	Oswego	Fry	1,000
Onondaga Co. Anglers' Ass'n,	Onondaga,	Oneida River,	"	"	1,000
Embury Norton,	Warren,	Mill Creek Pond,	Black	Adult	500
B. Merrihew,	Ulster,	Beaver Dam,	Oswego	Fry	500
D. H. Merritt,	"	Miller Lake,	"	"	500
Erieville Fish and Gun Club,	Madison,	Erieville Reservoir,	"	"	500
William T. Wendell,	Suffolk,	Ronkonkoma Lake,	Black	"	100
W. L. Reed,	Ontario,	Mud Creek,	Oswego	"	1,000
C. W. Scharff,	Montgomery,	Mohawk River,	"	"	1,000
James W. Husted,	Putnam,	Sol Pew Lake,	Black	Adult	100
M. F. Collins,	Warren,	Friends' Lake,	"	"	100
C. W. Horton,	Putnam,	Clear Lake,	"	"	100
Fisheries, Game and Forest Com.	Albany,	Hudson River,	"	"	500
E. L. Thompson,	Ontario,	Cedar Pond,	"	"	1,000
E. J. Shaffer,	Chenango,	Bracket Lake,	"	"	500

DISTRIBUTION OF SHAD FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Fisheries, Game and Forest Commission	Albany,	Hudson River,	500,000
" " " " "	Columbia,	" "	525,000
" " " " "	Albany,	" "	978,000
" " " " "	Greene,	" "	6,687,200

DISTRIBUTION OF FROST FISH FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Joseph B. Mills,	Warren,	Schroon Lake,	200,000
J. M. Wardner,	Franklin,	Rainbow Lake, etc.,	300,000
W. F. Cook,	Ontario and Livingston,	Hemlock Lake,	500,000
Fisheries, Game and Forest Commission	Hamilton,	Sacandaga Lake,	500,000
" " " " "	"	Mud Lake,	200,000
" " " " "	"	Lake Pleasant,	100,000
" " " " "	"	Piseco Lake,	300,000
" " " " "	Oneida,	White Lake,	300,000
" " " " "	Herkimer,	First, Second and Third Lakes,	300,000
" " " " "	"	Moose River, etc.,	300,000
" " " " "	"	Big Moose Lake,	500,000
" " " " "	"	Fourth Lake,	1,300,000
" " " " "	"	First Lake,	300,000
" " " " "	"	Fourth Lake,	500,000
" " " " "	"	Seventh Lake,	500,000
" " " " "	Essex,	Lake Placid,	500,000
" " " " "	Franklin,	Loon Lake,	200,000
" " " " "	"	Hoel Pond,	300,000
" " " " "	"	Upper Saranac Lake,	500,000
" " " " "	"	St. Regis Lakes, etc.,	400,000
" " " " "	"	Big Clear Pond,	1,000,000
" " " " "	"	Little Clear Pond,	500,000
" " " " "	"	Little Green Pond,	200,000

DISTRIBUTION OF MASCALONGE FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
E. P. Bodine,	Seneca,	Seneca Lake,	50,000
D. C. Bascom,	Livingston,	Conesus Lake,	100,000
Farmer and Citizens G. and F. Prot. Ass'n	Chautauqua,	Chautauqua Lake,	1,000,000
D. C. Conklin, Jr.,	Cattaraugus,	Allegany River,	50,000
R. P. Grant,	Jefferson,	St. Lawrence River,	500,000
F. G. Seaman,	Seneca,	Cayuga Lake and Outlet,	100,000
Pennsylvania Commission of Fisheries.	State of Pennsylvania.	Pennsylvania State Hatchery,	15,000

DISTRIBUTION OF CISCOES FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Leather Stocking Club,	Oswego,	Lake Ontario,	10,000,000
Niagara County Anglers' Club,	Niagara,	" "	4,000,000
Fred. B. Getman,	Jefferson,	Chaumont,	6,000,000
W. T. Stewart,	"	Three-mile Bay,	6,000,000
Fisheries, Game and Forest Commission	Chautauqua,	Lake Erie,	1,000,000

DISTRIBUTION OF BULLHEADS FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Sandy Hill Fish and Game Club,	Washington,	Hudson River,	1,000
Hatch Bros.,	Madison,	The Old Marsh,	500

DISTRIBUTION OF WHITEFISH FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Leather Stocking Club,	Oswego,	Lake Ontario,	3,000,000
Niagara County Anglers' Club,	Niagara,	" "	1,200,000
Fisheries, Game and Forest Commission	Franklin,	Little Clear Pond,	250,000
Matthews & Servis,	Monroe,	Lake Ontario,	2,300,000
M. A. Barnes,	Jefferson,	Chaumont,	2,000,000
C. M. McKinstry,	"	Three-mile Bay,	2,500,000

DISTRIBUTION OF SHRIMP FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
D. G. Doughty,	Ontario,	Streams of town of Naples,	10,000
A. N. Cheney,	Warren,	Four streams flowing into Lake George,	25,000
W. C. Witherbee,	Essex,	Four streams,	25,000
Fisheries, Game and Forest Commission	Ulster,	Alder Lake,	50,000
Brown & Clinton,	Tompkins,	Six-mile Creek,	5,000

DISTRIBUTION OF SMELT FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
B. S. Weeks,	Richmond,	Lemon Creek,	2,000,000
William H. Grant,	Suffolk,	Headwaters Great Peconic,	3,000,000
Fisheries, Game and Forest Commission	"	Northport Harbor,	4,000,000
" " " " "	"	Centreport Harbor,	1,000,000
" " " " "	"	Huntington Harbor,	2,000,000
" " " " "	Queens,	Oyster Bay,	2,000,000
" " " " "	Queens and Suffolk,	Cold Spring Harbor,	20,000,000

DISTRIBUTION OF TOM CODS FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
Benjamin S. Weeks,	Richmond,	Lemon Creek,	2,000,000
William W. Kenyon,	Suffolk,	Nissequogue River,	1,000,000
Fisheries, Game and Forest Commission	"	Cold Spring Harbor,	26,000,000
" " " " "	"	Centreport Harbor,	1,000,000
" " " " "	"	Northport Harbor,	4,000,000
" " " " "	"	Nissequogue Harbor,	1,000,000
" " " " "	"	Huntington Harbor,	2,000,000
" " " " "	"	Great South Bay,	1,000,000
" " " " "	Queens,	Oyster Bay Harbor,	2,000,000
" " " " "	Westchester,	New Rochelle Harbor,	2,000,000
" " " " "	"	Hudson River,	2,000,000

DISTRIBUTION OF LOBSTERS FOR YEAR ENDING SEPTEMBER 30, 1896.

NAME OF APPLICANT	COUNTY	WATER STOCKED	AMOUNT
B. S. Weeks,	Richmond,	Princes Bay,	90,000
Fisheries, Game and Forest Commission	Suffolk,	Lloyds Neck Reef,	872,000
" " " " "	Queens,	Centre Island Reef,	693,000
" " " " "	Suffolk,	Jones Reef,	604,000
" " " " "	"	Eaton Neck Reef,	940,000
" " " " "	"	Rocky Point Reef,	114,000
" " " " "	Westchester,	Execution Reef,	300,000
" " " " "	Suffolk,	Dentons Reef,	392,000
" " " " "	"	Middle Ground Reef,	172,000
" " " " "	"	Farget Reef,	237,000

Black Bass

And their Distribution in the Waters of the State of New York.

THERE are two species of black bass, the small mouth, with the Latin name *Micropterus dolomieu*, sometimes called the "true black bass;" and the large mouth, *M. salmoides*, improperly called "Oswego" bass. Both species are found in the waters of the State. The small mouth loves clear water, gravel or rock bottom, and the large mouth as a rule is fond of weeds and tastes and smells of the muck. As to their game qualities, there is an honest difference of opinion, but it is safe to say that in this latitude the small mouth is the gamer fish, for he fights like a bulldog to his death, while the other fish does all his hard fighting in the first few rushes after he feels the hook. At times the large mouth will rise to the fly more readily than his cousin, the small mouth, but there are no hard and fast rules to describe the proper conditions for successful fishing for either of the species at all times. The fly or the bait that may lure black bass one day may be ignored the day following when all conditions of wind and water seem to be similar. In a word, the black bass is a capricious fish, and in what follows there will be no attempt to separate the species, but under the general title of "Black Bass," I will explain how the fish came into the waters of the State, show its distribution in part and touch upon some of its habits and peculiarities.

In the beginning of this century there were no black bass in any of the interior waters of the State of New York. Nature ordains most things wisely. Because man by artificial means hatches from ninety-five to ninety-eight per cent. of the eggs of many species of fishes, when by natural processes not more than one or two per cent. of the same kind of eggs are hatched, it does not follow that man can improve upon nature in all things pertaining to fishes. Nature intended the black bass for large bodies of water—waters that afford wide range and abundant pasturage, extensive shoals and bars for breeding, massed boulders for hibernating, gravel for propagating their chief food, the crayfish; grasses and moss to harbor small crustacea, etc. I have not mentioned "minnows" or other small fish as an essential food for black bass, for, contrary to general belief, black bass are not piscivorous fish. They have villiform or brush-like teeth, not cardiform teeth like the pike or pickerel which is a piscivorous fish.

They will eat minnows, to be sure, but they are not their chief diet, as is the crayfish, when they are provided in the water. In small waters, black bass

will practically exterminate minnow food, if nothing else is offered, but they appear to be unable to exterminate crayfish, and for this and other reasons, to be touched upon later, crayfish food should be provided in all waters containing black bass, if they are expected to thrive. In nature's distribution of black bass, New York State was omitted, except in waters having connection with the Great Lakes or the St. Lawrence. The building of the Erie Canal, about 1825, brought black bass from Lake Erie to the Hudson River and to the waterways having connection with the canal throughout the central portion of the State. From the Hudson, black bass were conveyed to Saratoga Lake, near Saratoga Springs, and thereafter this lake became a sort of central distributing point, from which the fish spread well over the north-eastern part of the State. In 1850, Mr. Samuel Tisdale procured black bass from Saratoga Lake and transported them to a pond near East Wareham, Mass., and there this fish made its first appearance in the New England States. The spread of black bass through the waters of New England from the initial plant in Flax Lake, East Wareham, is not subject-matter for this paper, but New England is indebted to the waters of the State of New York for the introduction of black bass through Mr. Tisdale's efforts, for, I believe, it was not until about twenty-five years later that black bass were taken directly to the State of Maine by the late George Shepard Page. In the mean time, the East Wareham fish have spread as far as the southern part of the Pine Tree State.

From Saratoga Lake black bass were conveyed to Effner Lake, in Saratoga County, with an outlet into the Sacandaga River, a tributary of the Hudson. From Effner Lake the bass were taken to Schroon Lake, in Warren and Essex Counties. The dam at the outlet of Effner Lake was destroyed, and the bass found their way into the Sacandaga and down that stream into the Hudson, below Luzerne. Gradually they worked down the Hudson, over dams and falls, until they joined their brethren above and below Troy. The falls at Luzerne proved a bar to their upward movements, but they worked down from Schroon Lake through Schroon River into the upper Hudson, destroying the trout fishing as they advanced, and finally the upper Hudson and its tributaries were as well stocked as the lower river. Then came the era of straw paper, and paper mills sprang up everywhere and poured lime into the streams, and the black bass and other fish were practically destroyed where paper mills held sway.

In the mean time the stocking of small streams and small ponds with black bass was being prosecuted with vigor. It was such a simple matter to catch a few black bass, put them alive in a bucket and carry them to a near-by water and deposit them. There was a black bass craze; waters wholly unfitted to the fish were planted; trout waters were destroyed, for no judgment was exercised in the general black bass

planting. Clear lakes and ponds on mountain tops that had never contained other fish than trout and cyprinidæ suffered from the black bass epidemic or pest. The Black River canal, which taps the Erie at Rome, played its part in spreading the black bass.

In January, 1872, black bass invaded the Adirondack wilderness, when, at the suggestion of ex-Governor Horatio Seymour, one of the State Fish Commissioners, sixty adult black bass were deposited in Raquette Lake to spread into Big and Little Forked Lakes, Shed Lake, Brown's Tract Ponds, Utowana, Eagle and Blue Mountain Lakes. The last named lake, formerly called Tallow Lake and later Emmons Lake, once had the reputation of containing the largest lake trout of any of the interior waters of the State. Schroon Lake stocked Paradox and Brant Lakes, and gradually the trout were forced back and the black bass advanced from the borders to the interior of the Adirondack Wilderness, the original habitat of the brook and lake trout. As the fruit of this indiscriminate stocking of small bodies of water, we have to-day hundreds of ponds that offer no fishing worthy of the name; and this applies not only to trout waters that have been planted with black bass, but to waters planted with the same fish which before contained only coarse fish, so called. The black bass have practically destroyed the food in these waters and are themselves dwarfed, and as food preserves for mankind the ponds are useless. In some instances this state of affairs can be remedied by planting food—not minnows, but crayfish, which breed rapidly and are the natural food of the black bass.

Lake George is believed to be the natural habitat of black bass, and the fish probably found their way at an early period from the St. Lawrence through Lake Champlain into Lake George. The largest individual black bass ever taken from Lake George, up to a few years ago, weighed six and one-half pounds. The Lake contained no crayfish until it was stocked by the State, but since it was stocked with crayfish, which are now abundant and on the increase, black bass of over seven pounds have been taken. Probably the largest black bass of the small mouth species ever taken from any water came from Long Pond in Warren County, now called Glen Lake. I saw one bass caught from this Lake which weighed ten pounds, and another was taken from it which weighed eleven and one-quarter pounds, and one was speared in it which weighed thirteen pounds. Long Pond or Glen Lake was stocked with thirteen little black bass brought from Lake George in a bait bucket. This plant alone has resulted in tons of black bass being taken from the lake.

Once a lake is planted with black bass they are there to stay. They may amount to nothing as food or sport, but it is impossible to get rid of them, for no other fish will exterminate them, and the only remedy for waters containing black bass which have destroyed other fish and are dwarfed themselves is to try and supply

food for them by artificial means. The black bass, the bull head and the sun fish deposit their spawn and watch over it until it is hatched; when the young brood rises, the parent fish, in the case of the black bass and the sun fish it is the male, guards and watches over the brood, driving off all intruders that threaten destruction to the young. The watchful parent bass that fights valiantly to protect its young may in the end turn upon the brood and swallow all that are not quick enough to escape. Like all spring spawning fishes the black bass spawns in a rising temperature, and not until the water is about sixty-five or sixty-six degrees Fahrenheit for a considerable part of the day will the black bass prepare spawning beds. This refers to conditions existing in this State, and the temperature given is similar to the temperature at which black bass spawn in Michigan, as has been determined by close observation in a series of experiments, but I understand that in more southern States black bass will spawn where the water is a few degrees colder.* After the spawning beds are prepared, if there is a lowering of the temperature of the water, the bass will abandon the beds and not return to them until the water again rises to about the figures given. Observation shows that bass after preparing their beds have abandoned them for two weeks because of a lowering of the temperature of the water. It is for this reason that the Fisheries, Game and Forests Commission has advocated a close season extending through the month of June, instead of to the 15th of June, as at present.

If black bass are to be preserved in this State, the close season must be made to cover their breeding season, for black bass cannot be hatched artificially like the trout, salmon, white fish, shad, pike-perch, codfish, smelt, tomcod, etc., etc. It is not necessary for the purposes of this paper to explain in detail why the black bass cannot be treated as other fish named are treated in the State hatching stations, but the impregnated ova of the black bass cannot be obtained for hatching. Nature seems to forbid it; and, although man has tried repeatedly to overcome nature's scruples in this respect, he has not succeeded, and probably never will succeed. When nature elected that the black bass should have different spawning habits from any other of the so-called game fishes, she apparently put the seal of disapproval upon the operation of taking the eggs by hand; at the same time she provided that natural impregnation of black bass eggs should reach to nearly as high a percentage as man had been able to secure by artificial means with other species of fish. In the cold waters of this State black bass mature slowly, but in warmer water of more southern States black bass spawn the season following that in which they are born. It requires a

* While this report was passing through the press I was told by Mr. W. de C. Ravenel, of the United States Fish Commission, of one instance where black bass were known to spawn with the water less than 60° Fahr.

temperature of water approximating sixty-eight degrees Fahrenheit to hatch the food of young black bass (*Cyclops*, *Daphnia*, etc., illustrated in the report of this Commission for 1895), so there is no earthly or watery reason for young bass to be born, before their food is ready for them, for again like all spring spawning fishes, the umbilical sac, with which they are born and on which they feed by absorption, is small and is exhausted in a few days.

The only thing thus far done in the way of rearing young black bass is to provide breeding ponds of small area where the bass can be under the constant observation of

THE LAST FISH FOR THE DAY

those in charge. The breeding fish are placed in the ponds and are there allowed to spawn naturally, although artificial nests or spawning beds are in some instances provided. After the bass have mated and spawned and the young are hatched, the parent fish are removed and the young remain in the pond. With the best of care and feeding, the black bass fry will prey upon one another, the strong eating the weak. When the fry are two to four inches long, they are netted out of the rearing ponds and distributed in like manner as other fish of same size. This is the nearest

that the science of fish culture has come to cultivating black bass artificially. This method of cultivating black bass has been practiced for a number of years by the United States Fish Commission and originated with Maj. Isaac Arnold, United States Army, about 1882 or 1883. Black bass are hardy, long suffering fish. As a boy I made a trade for some live black bass and took them in a flour sack on my back to my home and put them in a tub of water. They revived and swam about the tub, each one coated from nose to end of tail with flour, as white as chalk. Finally I had a glimmering of sense and decided not to put them in my trout pond, and the next day carried them back and made another trade and they lived in the other boy's spring for a long time after. The United States Fish Commission put some black bass in one of the ponds at the carp station in Washington until they could be distributed. Later it was desired to use the pond for young shad and the water was drawn out and the pond left dry until the following spring. Winter intervening the pond was filled from seepage, shad fry were turned into the pond and then it was discovered that larger fish of some kind were feeding on the young shad. Investigation proved that there were black bass in the pond, and their appearance there could be accounted for only by the fact that the bass had burrowed in the bottom of the pond as the water was drawn off and remained all winter, only to reappear when the pond was refilled. This instance will illustrate the difficulty of getting black bass out of a pond or lake once they are introduced. During the early days of artificial fish propagation and planting mistakes were made that will haunt the fish culturist for years to come. The intentions were doubtless always good, but subsequent events proved them to be errors of judgment in the light of greater experience.

The error of planting black bass in waters wholly unfitted for them cannot be charged entirely to fish culturists or those in authority, but following mistakes of this character another great mistake was made in planting the German carp as food for black bass. Waters in which trout at one time abounded were planted with bass and then with carp.

During the past summer I visited one stream which was once as fine a trout brook as can be found in the State. Bass were put in the stream and then carp were planted. To-day the carp infest it like a drove of water hogs. The trout of course are gone, except an occasional one in the very head waters, the black bass are an unimportant factor in the food supply of the stream, but the carp, great big fellows up to thirty pounds in weight, wallow in the pools and back waters, stirring up the mud and defiling the stream with their presence where nature never intended them to be. They cannot be netted, for it is contrary to law to do this; and, until the law is changed to permit a war upon them in waters where they have no business to be, they must remain to the exclusion of better fish. This is another illustration of

the fact that it is much easier to put fish into a water then to get the same fish out afterwards, when they have proven to be unfit for the water. The carp is a good fish in its place, but its place is not in trout or black bass waters. The chairman of the Fisheries Committee of the Tuxedo Club tells me that he has seen large carp push black bass from their spawning beds, while in the act of spawning, in order to eat the spawn.

About ten or twelve years ago I wrote an article in one of the angling journals declaring that black bass changed color at will to conform to the color of their environment, in the same manner as the brook trout. I discovered the fact quite by chance, and published it with a feeling that the statement would be challenged; for it was, so far as I knew, an absolutely new observation, then printed for the first time, and only a little while before an elaborate article had been published on the coloration of the black bass to show that bass in different waters, with different food, etc., were of different colors.

While this is true, as every bass fisherman knows, if all the various colored bass, with vertical bars and lateral bands, finger marks, dark spots, etc., were placed together alive in one vessel, in ten minutes all would become the same color. This I have observed over and over since I first noticed it in the well of a fishing boat in the fall of the year.

In fish cultural operations, for instance with trout, the State takes from a lake a certain quantity of eggs, and when the eggs are hatched twenty per cent. or more of the fry from the eggs are returned to the lake; the benefit to the lake will be greater than if all the eggs were left in the water, to be hatched by natural processes.

This is not the case with black bass. If the State Commission plants black bass, so many fish, adult or fry, must be taken from one water and planted in another, for there is no percentage of the fry to be returned to the parent water. What is gain to one water is dead loss to the other. Under the circumstances, much care is exercised by the Fisheries, Game and Forests Commission in transferring black bass from one water to another, and many of the bass planted in State waters have been obtained from waters without the State. From 1873 to 1894, both inclusive, a period of twenty-two years, the State planted 73,287 black bass in its interior waters, an average of 3,331 bass each year. During the two years of the existence of the present Commission 41,678 black bass have been planted in the State, an average of 20,839 bass each year.

To show the distribution of black bass in State waters by the State would require considerable space, if all the waters were mentioned, and would perhaps serve no good purpose, but I propose to mention some of the waters that have been stocked, to show how widely the distribution has been made.

The Hudson, Mohawk, Genesee, Canisteo, Susquehanna, Delaware, Chenango, Allegany, Chemung, Cohacton, Otsego, Oswegatchie, Walkill, Hoosick, Little Salmon and Unadilla are some of the rivers that have been stocked.

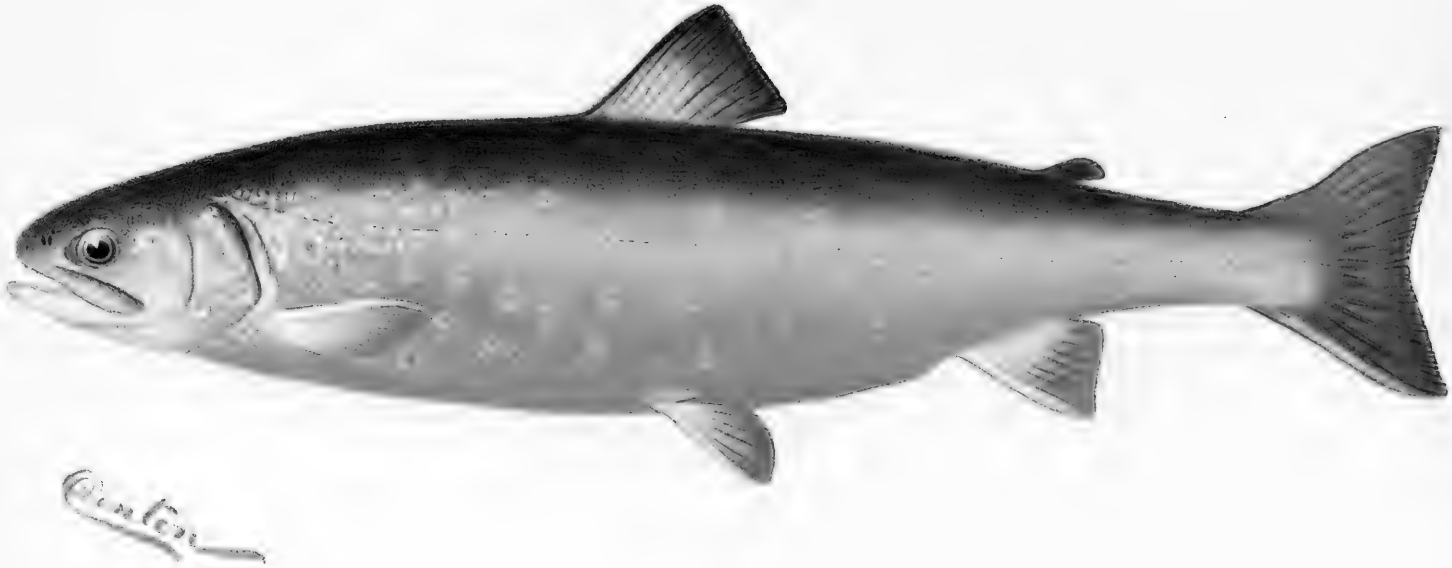
Greenwood Lake, Lake George, Saratoga Lake, Prospect Park Lake, in Prospect Park, Brooklyn; Central Park Lake, in Central Park, New York; Schroon Lake and Paradox Lake are some of the lakes that have received black bass from the State, without being charged to any particular County. Of the smaller bodies of water, or those charged to a particular County, the following will serve as examples:

Allegany County: Lake Cuba, Flanagan's Pond. *Saratoga County:* Round Lake. *Rockland County:* Highland Lake, Rockland Lake. *Madison County:* Madison Lake, Cazenovia Lake. *Erie County:* Oriskany Creek, Cayuga Creek. *Westchester County:* New Rochelle Ponds, Saulpew Pond. *Washington County:* Jackson Pond, Summit Pond. *Otsego County:* Crumhorn Pond, Schuyler Lake. *Seneca County:* Seneca Lake. *Herkimer County:* Fourth Bisby Lake, West Canada Creek. *Franklin County:* Otter Pond. *Hamilton County:* Big Tupper Lake. *Livingston County:* Hemlock Lake. *Rensselaer County:* Kinderhook Lake, Schaghticoke Lake, Sand Lake, Glasshouse Lake, Crooked Lake. *Tioga County:* Spencer Pond. *Schoharie County:* Cobleskill Pond. *Columbia County:* Copake Lake, Lebanon Mountain Lake, Charlotte Lake, Whitney's Pond. *Chenango County:* Geneyhanset Lake, Lake Earlville. *Wyoming County:* Java Creek, Silver Lake, Cattaraugus Lake. *Putnam County:* Central Pond, Toucey Lake, Mahopac Lake. *Ontario County:* Crossman's Pond, Canandaigua Outlet, Flint Creek, Bullhead Pond. *Albany County:* Norman's Kill. *Onondaga County:* Crooked Lake, Jamestown Reservoir. *Steuben County:* Loon Lake, Little Lake, Smith Pond, Lake Salubria. *Chautauqua County:* Cassadaga Lake. *Dutchess County:* Shork Pond, Stissing Pond. *Lewis County:* Bonaparte Lake. *Sullivan County:* Loch Sheldrake, Long Pond, Pleasant Lake, Shandakin Pond. *Delaware County:* Henderson Lake. *Richmond County:* Silver Lake, Arbutus Lake. *Suffolk County:* Mill Pond, Cold Spring, Great Pond. *St. Lawrence County:* Trout Lake. *Oneida County:* Jock's Lake. *Wayne County:* Mud Creek. *Cortland County:* Little York Lakes. *Genesee County:* Black Creek, Lathrop Lake. *Warren County:* Glen Lake, Luzerne Lake. *Orange County:* Orange Lake, Bashaw Lake, Monagan Lake, Shawangum Kill. *Oswego County:* Mud Lake. *Monroe County:* Oatka Creek, Garbutt Pond, Willow Pond, Mendon Pond. *Ulster County:* Cooper Lake, Echo Lake, Esopus Creek. *Montgomery County:* Spring Ponds. *Cattaraugus County:* Isna Creek, Cazenovia Creek, Lime Pond.

More than two-thirds of the counties of the State are here represented in this partial list of waters planted by the State Commission with black bass, and I think it is safe to say that some of the waters of every one of the sixty counties contain black

bass. Counties of the Adirondack Wilderness and the Catskill region, not mentioned in the foregoing list, have black bass in their waters, and the greatest care should be exercised that they do not further invade the home of the brook trout. The Commission realizes the importance of confining black bass to the waters in which they are now found, and entrusts the planting of the fish only to its own men. Desirable as the black bass is, as the universal game fish of the people, the spread of it should be checked, in spite of the desire constantly showing itself to plant the fish in yet new waters, by those who do not understand the harm that may come from it. To all such this is written as a warning.

A. N. CHENEY,
State Fish Culturist.



MALE SUNAPEE TROUT OR AMERICAN SAIBLING

[Salvelinus Alpinus Aureolus . Bean.]

The American Saibling,

or Golden Trout. — *Salvelinus Sunapee* (Webber and Quackenbos, 1886); *Salvelinus Aureolus* (Bean, 1888); *Salvelinus Alpinus Aureolus* (Jordan, 1891).

A LAND-LOCKED SALMON.

IN the summer of 1882, anglers first began to hear of the capture of a large, silvery, deep water trout at Lake Sunapee, New Hampshire. For several years this fish was known as the St. John River trout, on the presumption that it was descended from certain yearlings rumored to have been introduced into Sunapee from the St. John River, New Brunswick, in 1867, but which really came from Grand Lake, Maine, and were ouananiche. The conspicuous development of the under jaw in the males led to the local names of "hawk-bill" and "hook-bill;" the silvery sides of the fish in summer gave rise to that of "white trout."

In October, 1885, George F. Peabody, now of Sunapee, then a resident of the east shore, accidently came upon a mid-lake spawning-bed, an acre or two in area, covered with hundreds of the new trout ranging from three to ten pounds in weight. He promptly notified the Fish Commissioners of his find, and specimens were sent to Washington and Cambridge for identification. They proved to be representatives of a highly variable Alpine charr, distributed through the Dominion of Canada, Labrador, and Greenland, but whose presence in United States waters was unsuspected.

This charr is now believed to be aboriginal to Lake Sunapee, as well as to Flood's Pond, in the town of Otis, near Ellsworth, Maine. The water of both these lakes is deep and exceptionally pure and cold. Lake Sunapee is a true ancient rock-basin, as

shown by the natural granite dam at the outlet. It now discharges into the Connecticut River; but until the receding ice of the last glacial epoch reached, in its sluggish melt toward the north, the lower valley of the Sugar River, the mighty inland sea of primeval times poured into the Merrimack over Newbury Summit, sixty feet higher than the level of the present effluent. Through the Merrimack watershed, while the valley of the Sugar River was as yet choked with glacial ice, the quaternary trout, if of marine ancestry, must have found their way into this mysterious lake, following like man and the higher mammalia, but by watery channels, the retreating ice-fields, and swarming into the basin of Sunapee, excavated anew for their reception by the erosive power of the glacier, and filled with its melting snows. This quaternary charr, or Alpine trout—represented in the saibling of the mountain lakes of Europe from Austria to Spitzbergen, in the Dolly Varden (*Malma*) on both sides of Bering Sea, in the pigmy blue-back of Maine (*Oquassa*), and in the large anadromous or sea-run blue-back of Labrador—is believed to be the ancestral type from which our common brook trout has differentiated. It has simply found in Lake Sunapee and Flood's Pond conditions for its survival—in the *purity* of the water (Sunapee, one and three-tenths grains of solid matter to the gallon), in the *depth* of the water (both lakes over one hundred feet), in the *character of the bottom* (white sand and gravel), in the *temperature of the lower layers* (Sunapee 38° Fahr. to 52° Fahr., according to depth and season), and in the *abundance of crustacean and fish food.*

The distinguishing features of the Sunapee charr are: The presence of a broad row of teeth on the hyoid bone, between the lower extremities of the first two gill arches; the absence of mottling on the dark sea-green back and excessively developed fins; inconspicuous yellow spots, without blue areola; a square or slightly emarginate tail; a small and delicately shaped head, diminutive aristocratic mouth, liquid planetary eyes, and a generally graceful build; a phenomenally brilliant nuptial coloration, recalling the foreign appellations of "blood-red charr," "gilt charr," and "golden saibling." As the October pairing time approaches, the Sunapee fish becomes illuminated with the flushes of maturing passion. The steel green mantle of the back and shoulders now seems to dissolve into a veil of amethyst, through which the daffodil spots of mid-summer gleam out in points of flame, while below the lateral line all is dazzling orange. The fins catch the hue of the adjacent parts, and pectoral, ventral, anal, and lower lobe of caudal, are marked with a lustrous white band. It is a unique experience to watch this American saibling spawning on the Sunapee shallows. Here in all the magnificence of their nuptial decoration, flash schools of painted beauties, circling in proud sweeps about the submerged boulders they would select as the scenes of their loves—the poetry of an epithalamion in every motion—in one direction, uncovering to the sunbeams in amorous leaps their golden-tinctured

sides, gemmed with the fire of rubies; in another, darting in little companies, the pencilled margins of their fins seeming to trail behind them like white ribbons under the ripples. There are conspicuous differences in intensity of general coloration, and the gaudy dyes of the milter are tempered in the spawner to a dead-lustre cadmium cream or olive chrome, with opal spots. The wedding garment nature has given to this charr is unparagoned. Those who have seen the bridal march of the glistering hordes, in all their glory of color and majesty of action, pronounce it a spectacle never to be forgotten. That so conspicuous a game and food fish could have been aboriginal to Lake Sunapee, and for one hundred years have escaped the notice alike of visiting and resident anglers, persistent poachers, and alert scientists, is accounted for:

First, by its habits, which protected it from observation and persecution. The white trout rarely approached the surface, except during the last week of October and the first week in November, when it appeared on the mid-lake reefs to spawn—a *time of year* when angling is out of season, and in *localities* dangerous or impossible of access in the old-style, unseaworthy flat-bottoms during the autumnal wind-storms. The secluded habits of the European charrs explain in like manner the obscurity which has so long involved the life history of those fishes. Moreover, ordinary fishermen recognized no difference between the white and the brook trout, a thing not to be wondered at when ichthyologists failed at first to separate the forms.

Secondly, by the continuous exposure of the species to the ravages of the yellow perch and the miller's thumb. Before the introduction of black bass in 1868, both these enemies of trout were abundant in the lake and the connecting estuaries, and there being at that time no smelt food, subsisted largely on the eggs and fry of the lake-spawning charr. At the spring hatching season, the perch held carnival among the helpless alevins, almost effecting, by their periodic havoc, the extermination of the white trout. But as the black bass increased in number, they fell upon the perch in turn, until the lake was virtually rid of this voracious pest. Thus the saibling, which had been reduced to the verge of annihilation, had a chance to multiply. The black bass do not interfere with it, for two reasons:

First, both bass and trout have an abundance of easily caught and tasteful food in the land-locked smelts, which have increased since their introduction, until now they literally school in millions.

Secondly, bass and trout are not found in the same sections of water at the same time, the trout keeping in a temperature of 42° Fahr. to 50° Fahr. (on the surface in May, sixty feet below in July and August); the bass preferring 65° Fahr. to 70° Fahr. in summer, and hibernating in winter and during the spring hatching time of the trout. Thus freed from persecution on the part of the *uranidea* and the *perca Americana*, the saibling has increased, until it is now present in myriads.

I have just received a most interesting confirmation of this theory—*that the introduction of black bass into a trout lake may improve the trout fishing in that lake*—from Mr. Arthur Merrill, of the Maine Inland Fisheries and Game Commission. Mr. Merrill writes from Monmouth, Maine, under date of September 13, 1897:—

TROUT FOR BREAKFAST.

"The theory that the introduction of black bass changed the natural conditions in Lake Sunapee so that the saibling had a chance to increase, seems to be substantiated by well-known facts in the case of many Maine lakes, notably the Cobbosseecontee and Messalonshee chains, in Kennebec County. These lakes, twenty in number, with an area of 50,000 acres, formerly swarmed with trout; but the introduction of perch and pickerel so reduced the numbers of *fontinalis* that it was apparently exterminated. The introduction of black bass, however, has been followed by an unexpected increase in the number of trout, and now *these lakes afford the best trout fishing obtainable in the settled area of the State.* Lake Cobbosseecontee yielded over 500 brook trout this year, weighing from two to seven pounds each, and the lake was not persistently fished, as its resources were known only to local fishermen."

The Sunapee saibling takes live bait readily, preferring a cast smelt in spring, when it pursues the spawning *osmerus* to the shores. As far as is known, it does not rise to the fly, either at this season, or when on the shoals in autumn. Through the summer months, it is angled for with a live minnow or smelt, in sixty to seventy feet of water, over a cold bottom, in localities that have been baited. While the smelt are

FEMALE SUNAPEE TROUT OR AMERICAN SAIBLING.

(Salvelinus Alpinus Aureolus, Bean.)

inshore, trolling with a light fly-rod and fine tackle, either with a Skinner's fluted spoon, No. 1, or a small smelt on single hook, will sometimes yield superb sport, as the game qualities of the white trout are estimated to be double those of the *fontinalis*. The most exhilarating amusement to be had with this charr, after the first hot June days, is in trolling from a sailboat with a greenheart tarpon rod, 300 feet of copper wire of the smallest calibre on a heavy tarpon reel, and attached to this a six-foot braided leader with a Buell's spinner, or a live minnow on a stiff gang. The weight of the wire sinks the bait to the requisite depth. When the sailboat is running across the wind at the maximum of her speed, the sensation experienced by the strike of a four or five-pound fish bankrupts all description. A strong line under such a tension would part on the instant; but the ductility of the wire averts this accident, and the man at the reel end of the rod experiences a characteristic "give," quickly followed by the dead-weight strain of the frenzied salmonoid. To land a fish thus struck implies much greater patience and skill than a successful battle, under similar circumstances, with a five-ounce six-strip and delicate tackle. The pleasure is largely concentrated in the strike, and the perception of a big fish "fast." The watchfulness and labor involved in the subsequent struggle border closely on the confines of pain. The ductile wire is an essentially different means from a taut silk line. The fish holds the coign of vantage; when he stands back and with bulldog pertinacity wrenches savagely at the pliable metal—when he rises to the surface in a despairing leap for his life—the angler is at his mercy. But, brother of the sleave-silk and tinsel, when at last you gaze upon your captive lying asphyxiated on the surface, a synthesis of qualities that make a perfect fish—when you disengage him from the meshes of the net, and place his icy figure in your outstretched palms, and watch the tropæolin glow of his awakening loves soften into cream tints, and the cream tints pale into the pearl of moonstone, as the muscles of respiration grow feebler and more irregular in their contraction—you will experience a peculiar thrill that the capture neither of ouananiche, nor *fontinalis*, nor *namaycush* can ever excite. It is this after-glow of pleasure, this delight of contemplation and speculation, of which the scientific angler never wearies, that lends a charm all its own to the pursuit of the Alpine trout.

Finally there can be no doubt as to the economic value of the American saibling. It is one of the most prolific of our salmonoids, the female averaging 1,200 eggs to the pound, and casting spawn when only two ounces in weight. It is also a singularly rapid grower where smelt food abounds. The extreme weight proved to have been attained is about twelve pounds, although accounts exist of much larger specimens weighing from fifteen to twenty pounds. As a rule, the greater the altitude, the smaller the fish, but the more intense their coloration. In some of the higher Swiss lakes, the saibling run eight or nine to the pound. This charr is exceptionally hardy

and easy to propagate. The eggs bear transportation over the roughest roads without injury. Superintendent Race of the Green Lake Station, Maine, claims that in the percentage of eggs fertilized and fry hatched, the saibling takes precedence of all congeners. As far as is known, however, it does not breed in confinement, nor under such circumstances affect a brilliant nuptial coloration. Ripe fish taken at Lake Sunapee can not be transferred to the State tanks, one mile from the spawning-beds, without a long and serious delay in their sexual procedures. Instances occur in which females refuse to part with their eggs and carry them over to the next season. Adult saibling have been kept for three years in a cold spring at Holderness; but even when placed among spawning brook trout, they remained passionless, manifesting no perceptible sexual appetite. At death, the reproductive organs of these fish were found conspicuously atrophied.

In regard to the hardiness of the saibling, Mr. Merrill states: "At Green Lake, the temperature of the water runs high in spring, and much loss has been occasioned thereby among the brook trout fry, but the saibling have in such cases remained perfectly healthy. My experience in rearing this fish has been extremely satisfactory, and I believe it to be one of the best subjects for the fish culturist among our salmonidæ, especially where the fry are reared to the yearling stage, as is generally done in Maine. The eggs that I received last winter hatched well, and the fry, in the early stages of development, displayed wonderful hardiness under the most trying circumstances.

"The brook trout, during the spring, suffered from warm water, the temperature rising to 65° F. soon after they hatched. The loss was considerable, but *the saibling fry were not affected by this high temperature.* It would seem that at the time the saibling is hatching on the shoals, and is exposed to great variations of temperature, Nature has rendered the fry immune. My young saibling are persistent hiders; any crevice in the bank or lump of clay on the bottom affords a hiding place. When fed, they will emerge and rise for their food, but will immediately hide again. Trout fed in similar ponds do not at any time hide, but school together, generally at the head of the pond. In feeding, the saibling remain near the bottom, darting up after their food and going back quickly. They are much cleaner feeders than either trout or salmon, picking up all the food that sinks, allowing none to waste. Although they will hide when opportunity offers, the young saibling are much tamer than trout or salmon, approaching more closely the person feeding them, and when in the troughs allowing themselves to be picked up with but little effort to escape. The adult saibling that I carried to the Lake Auburn hatchery from Flood's Pond last November have fed well in the stock ponds and have made a rapid growth. As in the case of my experience with the young fish, they grew very tame and were the favorites to feed

for the entertainment of visitors. Several were exhibited at the Maine State Fair this month, and have endured without appreciable injury the ordeal of river water and close confinement in a glass aquarium.

"*In consideration of the experience which I have had with the American saibling, I would select it in preference to any other fish if I desired a salmonoid to rear from the fry and obtain the best results in size and percentage matured.*"

I most heartily sustain Mr. Merrill in everything he says regarding the desirability of this charr, and confidently recommend it to the attention of State and National commissioners who are presumably interested in placing a valuable and easily propagated food and game fish within reach of the American people. It is *facile princeps*, from its rush at the cast smelt to the finish at the breakfast table.

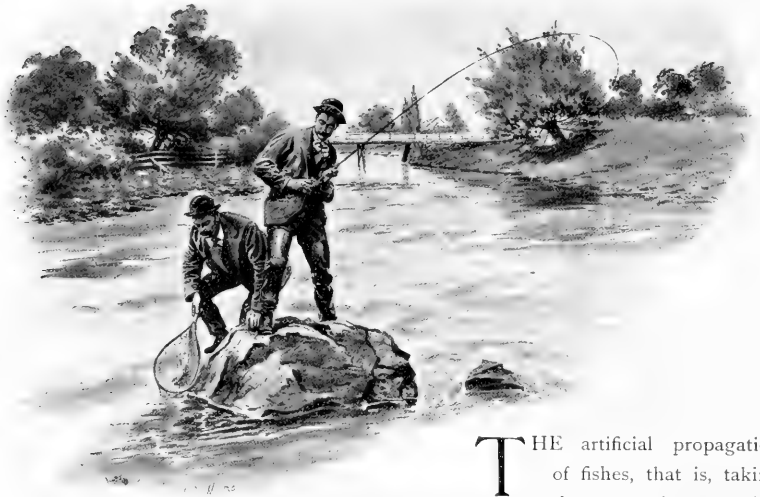
JOHN DUNCAN QUACKENBOS.

COLUMBIA UNIVERSITY, NEW YORK.

GAFFING A LAKE TROUT

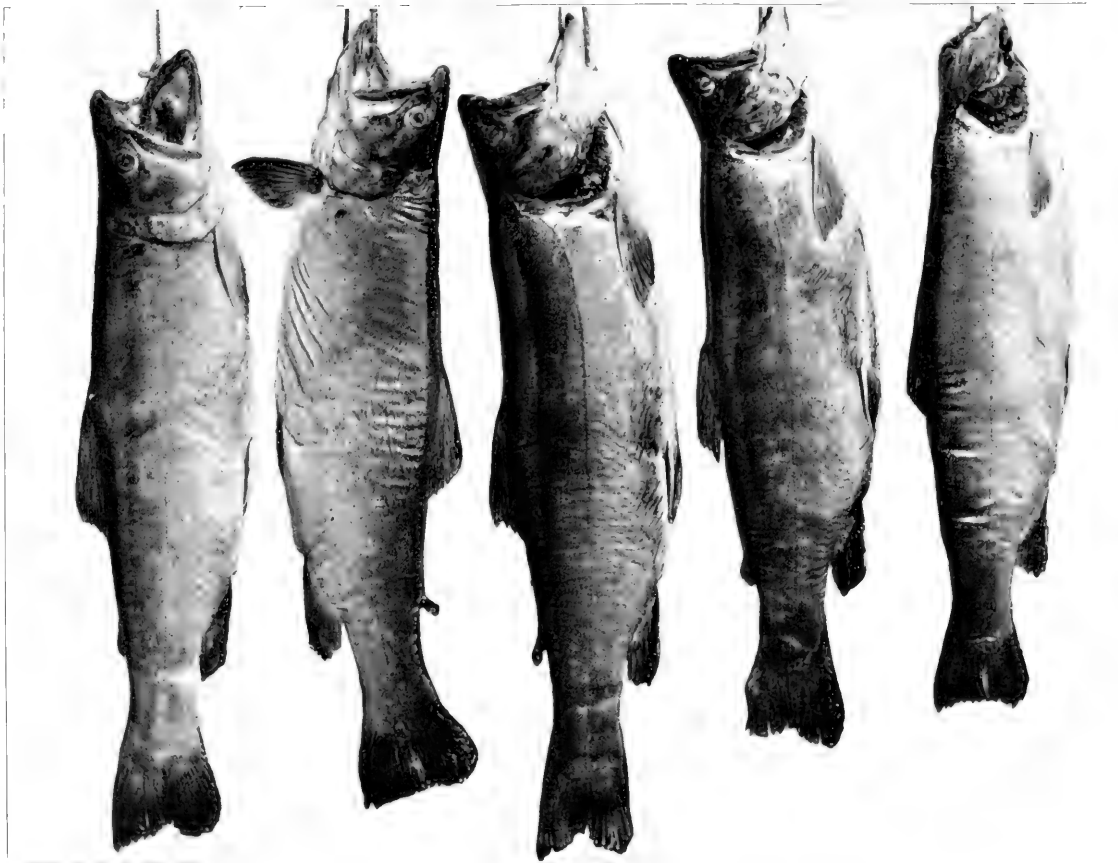
Concerning Brook Trout

And Conditions Favorable to their Propagation.



A CRITICAL MOMENT.

THE artificial propagation of fishes, that is, taking the eggs, impregnating and hatching them by hand, is reduced practically to an exact science, so far as the eggs of most food fishes are concerned; and after that the rearing of fry to yearlings or older in the hatcheries is chiefly a matter of cost of food, water supply and care of the young fish by skilled men. Most fish, too, of all ages are now transported without loss worth mentioning, so the work of actual hatching, rearing, transporting and planting food fishes can be planned in advance and carried out as successfully as the rearing of warm-blooded animals. Beyond the point of planting strong young fish in wild waters, the work may be a success or failure depending upon the conditions existing in the water itself. It may not be an entire success nor an abject failure, but the fish breeder cannot always foresee which it will be with the certainty that he can foretell the results in his hatchery. Wild waters are always presenting problems to be worked out, to insure the success of fish propagation in them, because the conditions are not always constant in any particular water, and conditions change with different waters. In



BROOK TROUT FROM A RESTOCKED ADIRONDACK LAKE.
Five Fish weighing twenty and one-quarter pounds.

planting fish in a territory so extensive as is comprised within the boundaries of the State of New York, it is a most difficult matter to determine in advance what conditions exist in all waters that the State is called upon to stock.

Streams that were once natural trout streams may have become unfit for trout, through lack of shade and the drying up of the fountain head during a part of the season, caused by lumbering operations. A stream well shaded by forest growth may provide water of a temperature for trout, and when the axe has opened the stream to the sun the temperature of the water may rise to such a degree that trout cannot live in it. Not one applicant in fifty who asks for trout fry gives the temperature of the water to be planted with any positiveness. A stream that is a roaring torrent in the spring during the melting of the snows, and is afterward a mere thread of warm water, is not a proper stream for trout of any kind. As a matter of fact, I have seen a brook absolutely dry in the month of August that was planted with trout the preceding May, and probably it was planted in good faith by the person who applied for and obtained the trout from the State.

The State hatches a greater number of fish each succeeding year, but the applications for fish more than keep pace with the increase, and the applications have to be sifted and examined carefully that the best results may be obtained by the Commission in planting fish only in suitable waters, judging from the information furnished. If this information is defective or unreliable, or the exact condition existing unknown, the result of fish planting may be disappointing.

To show what may be done in the way of stocking a pond intelligently with trout fry, an illustration of five trout accompanies this article. Mr. W. C. Witherbee, of Port Henry, obtained 5,000 brook trout fry from the State and planted them in a small pond in Essex County. The pond had once contained trout, but was so thoroughly fished out that no one thought of fishing it at the time. It contained an abundance of fish food, with a fine inlet stream, spring fed, and an ample supply of water. In fact, all the conditions were favorable, as the result shows. The fry were planted and allowed to grow for several years and the pond was not fished for there was no boat on it, and it was not generally known that it was restocked. Mr. and Mrs. Witherbee, concluding that the pond had had time to recuperate, went there for a day's fishing and caught the five trout reproduced from a photograph in the illustration, the weights being four and one-half, four, four, four, and three and three-quarters pounds respectively, or a total for the five trout of twenty and one-quarter pounds. The pond was, of course, public water, and at once it was fished without ceasing. One trout of over eleven pounds was taken from it, taken, too, without regard to the ethics of fair angling; and it is more than suspected that even a larger trout was taken from the inlet stream at the spawning season, a trout of thirteen pounds and three ounces. Here are other

conditions to be considered. After a pond is stocked with fish, and well stocked, water, food and temperature, all being suitable, what rules can be enforced to insure that the pond will be fished with moderation in season and not at all out of season? But that is a matter for the law makers, game protectors and the consciences of the anglers, rather than for the fish breeder; therefore, let us consider a little further the question of temperature of water suitable for trout. Waters that already contain trout that do well in them can be planted, as the fact that trout thrive in them is *prima facie* evidence that the waters are suitable for the fish. In extending the range of trout, or in planting streams that have been fished out, and in which the conditions may have changed, it is safe to plant in waters that never exceed a summer temperature of seventy degrees Fahrenheit. Rainbow and brown trout will thrive in waters of higher temperature than are suitable for brook trout, and brook trout will live in well aerated water above seventy degrees; at the same time water of seventy and five-tenths degrees has killed both brook and brown trout, probably because it lacked vigor, which comes from force and aeration. Trout grow little, if any, when in water below forty degrees, and to be at their best they must have, during a portion of the year, water that ranges from sixty-two degrees to seventy degrees, as this temperature hatches the insect life, which constitutes a large part of the food of trout. While food is all important, trout must have room, also, in which to grow. It is self evident that if trout are planted in numbers to exhaust the food supply, they will not thrive; but aside from that trout must have space to be at their best, for it has been demonstrated that a given number of trout in a certain number of cubic feet of water will do better than the same number of trout in half the quantity of water, both lots of trout being fed the same amount of food.

How far trout may be acclimated to water of higher temperature than that to which they are ordinarily accustomed, has not yet been fully demonstrated. In South Africa the brown trout has been hatched in water as high as seventy-nine degrees, and in this country the rainbow has been found to thrive in swift, well aerated streams that reach eighty-five degrees Fahrenheit. The experiments of Dr. Davy (*Physiological Researches*) to determine the temperature fatal to trout are of interest, and aside from the question of temperature, as they show how trout try to escape when the water becomes too warm. He placed a common European trout (*fario*) or brown trout of this State, of about a quarter of a pound weight, into a good volume of water at sixty-two degrees, which was pretty rapidly raised to seventy-five degrees by additions of warm water, when it became very active and tried to leap out. In an hour the water was increased to eighty degrees, and after a few minutes more to eighty-five degrees, when it became convulsed, and, although transferred to cool water, died. When the water had sunk to seventy degrees a smaller trout and a minnow were put in, and

MALE BROOK TROUT. [Salvelinus fontinalis

although the next morning the temperature had sunk to sixty-seven degrees, the trout was dead, but the minnow had not suffered. A parr of the salmon, about four inches long, was similarly treated, the water in half an hour being raised from sixty degrees to seventy degrees, and now it tried to escape. The water was raised to eighty degrees and it became torpid and convulsed; at eighty-four degrees it seemed to have died. A char of about the same size had the water gradually raised to eighty degrees, when it appears to have succumbed. The trout tried to escape by leaping out of the water, while the char kept to the bottom with its head downwards, as if seeking for a cooler locality.

The common brook trout of this country (*fontinalis*), is a char, and undoubtedly acts as did the European char in the experiment, by seeking cooler water downwards in a pond when the surface water becomes warm, and searching out spring holes in streams, so they may be left to their own devices to find the coldest water provided in any stream or pond in which they are planted; but unless the stream or pond contains the cool water for them to find, *i. e.*, below seventy degrees, and sixty-five degrees would be better, it is useless to attempt to propagate brook trout in it. There are other conditions which operate against the maintenance of trout in a stream. The fish must have gravel in which to make their spawning beds. Even with gravel but a small percentage of eggs deposited naturally are hatched, but if deposited in the soft bottom, they may be lost entirely. During the past season I examined a trout pond at the request of a committee of gentlemen who had stocked it, and found there was very little gravel where springs boil from the bottom, and trout had been in the habit of spawning, and that little had been covered by vegetable growth. I suggested that spawning beds be provided by hauling gravel on the ice in winter, spreading it over the places where the springs came from the bottom, and when the ice melted the gravel would settle evenly over the vegetable growth and provide the only thing which appeared to be needed to make the pond suitable for the propagation of trout, for the water was pure and cool, and there was an abundance of fish food. Streams that are

POSITION OF THE HAND IN STRIPPING A FEMALE TROUT.

subject to sudden and severe freshets may have not only the spawning beds ripped up and destroyed, but the food of the fish may be washed out of the stream and will need to be replaced artificially.

Suckers are very destructive of trout spawn, but after an examination of several small Adirondack lakes, that are natural trout waters, but from which the trout have become practically exterminated, I am of the opinion that bullheads are to be charged with the destruction, more than any other one thing, man always excepted. Bullheads have not, perhaps, the general reputation for destroying trout spawn that the sucker enjoys, nevertheless they are one of the most destructive agents to be found in the water where trout exist.

In the lakes referred to I found that the bullhead fairly swarmed to the exclusion of all other fish, except a few big trout. They had not only destroyed the trout spawn, but had destroyed all the food of the trout, and were themselves dwarfed and starved until they were unfit for food. In other waters the bullheads would have been sought for food, and fishing would have kept them down, but men, as a rule, do not go into the Adirondack Wilderness to catch bullheads, and consequently all the fishing had been for trout, and the bullheads had multiplied unmolested until they monopolized the water to the exclusion of everything else. In one little lake the bullheads were like a solid carpet of fish suspended in the water under the boat, and with a piece of meat tied to a string, about 2,000 were caught in a few hours, as many as seven being lifted into the boat at one time. They were from three to four inches long, and the largest taken was five and one-half inches long, too small to pay for dressing, even had they been fat, which they were not.

On the spawning beds of lake trout in New Hampshire, bullheads were found so gorged with trout spawn that they were lying helpless on their sides, and one of the commissioners who witnessed the sight told me that he was firmly of the opinion that the gorging would have proved fatal to some of the bullheads if the hatchery men had not anticipated such a result.

In waters that do not contain brook trout the bullhead is a most desirable food fish, and it grows to good size and is always in demand. The waters of the State furnish about 200,000 pounds of bullheads annually, so far as returns have been obtained, more than of any other fish except the shad.

The bullhead is a prolific fish and broods its young, and in trout waters where it is not sought as food it has only to breed and multiply, barring such casualties as all fish are subject to in a state of nature.

In trout waters such as I have mentioned, where bullheads have driven the trout to the wall, if fishermen would devote a little time to catching bullheads there would be fewer to devour the spawn of trout and consume their food. There is another remedy

FEMALE BROOK TROUT (Salvelinus Fontinalis)

for this condition of things, but it is one that can be applied only by the Fisheries, Game and Forest Commission or its agents.

Every little while it is discovered by some one that trout contain ova in the summer, and there is a demand that the closed season be shortened. The last complaint of this sort that I have noticed was printed in a paper in the northern part of the State. The writer of the complaint found ripe eggs in some trout he caught in August, and he desired that the law should close the fishing on and after August 1. This gentleman simply made the mistake that others have made, for the eggs were not ripe. If he had examined trout in June or before he would have found spawn in the females, but it would have been undeveloped ova, the same as he found in August, except that the latter was further advanced. In this State brook trout spawn in October, with some variations, depending upon the water, for the colder the water the earlier they will spawn.

At the Adirondack hatching station of this Commission, in Franklin County, they begin to spawn about October 1; at the Caledonia station, in Livingston County, they begin to spawn about October 15, and eggs are taken as late as the following March, and have been taken as late as April 19; at Cold Spring Harbor station, on Long Island, they begin to spawn the last of October, but the height of the season is from November 10 to 30, although a few fish come on in December and as late as January.

In running streams the temperature of the water would follow closely the temperature of the air, and the spawning would be early if the season were cold, except in streams that were largely spring fed, in which case the temperature of the water would not fall so rapidly and the spawning would be prolonged.

Trout spawn when they are "yearlings," but a yearling is more than twelve months old. All brook trout eggs are hatched in the spring, and the period of incubation varies with the temperature of the water. The eggs taken the first of October in Northern New York may be 150 days hatching, while the eggs taken on Long Island the last of November will be only about sixty days in hatching. Say that trout are hatched on Long Island in March, during the following summer they will be fry, and in the fall they will be fingerlings, seven or eight months old. The next season they will be yearlings, and as they spawn in the fall of the second season they will actually be twenty months old at spawning time, although from custom they are called yearlings. Consequently a yearling brook trout at spawning time is from eighteen to twenty months of age, dating from the time it left the egg. A yearling trout may yield from 50 to 250 eggs, the eggs being one-sixth of an inch in diameter, quite different from the mustard seed eggs which the fisherman found in the fish he caught during the summer months of the open season. A trout but four inches long has been known to yield forty ripe eggs. Many yearling trout in wild waters are not six inches

long, and where the six-inch trout law is observed numbers of trout will spawn before they can be legally killed. If there were no six-inch trout law it would be possible to kill the trout before they spawned once, and the stock would have to depend almost entirely upon artificial propagation, with but slight aid from natural processes. A "yearling" trout in one of the State rearing ponds is quite a different fish from a wild trout of the same age, for the State rears yearlings (seventeen months from the egg) that are ten and one-half inches long. Two-year-old trout may yield as many as 500 eggs, and older fish as many as 1,500.

To maintain fair fishing, even in a trout stream, such work as the State may be able to do in the way of planting the water should be supplemented by all the fish that may come from natural reproduction, and the trout should have every possible opportunity to spawn unmolested.

A. N. CHENEY,
State Fish Culturist.

STRIPPING TROUT.

Oysters and their Cultivation.

On the Atlantic coast of the United States we have but one species of oyster, *Ostrea virginiana;* and, unlike the European oyster, which includes both sexes in the same individual, our oysters are male and female, the sexes being separated. In Long Island Sound, oysters spawn during May, June and July, although they have been known to spawn at an earlier date under certain conditions.

According to Dr. Brooks, an average oyster produces 16,000,000 eggs annually, while a large individual may produce 60,000,000. Dr. H. F. Moore, who has made a scientific study of the oyster and its habits, says: "Notwithstanding the great fecundity of the individual oyster, the reproductive power of the beds is not so vast as it is generally supposed. If the oysters are scattered or the number spawning at a given time is small, most of the genital matter will be wasted, as the contact of the male and female cells is entirely dependent upon chance, and the fewer such cells there are in a given body of water the smaller the probability of their meeting and fusing in the manner constituting the act of fertilization. Neither the eggs nor the spermatozoa live long after they are discharged from the parent, and if fertilization is to take place at all, the two elements must be brought into contact promptly; and it will be seen, therefore, that nature must supply a vast number of germ cells to insure the survival of but few. Not only the time of spawning but the quantity of spawn, appears to be affected by the weather conditions. Sudden changes produce very marked results, and a transfer of the oyster from one place to another during the spawning season is almost certain to interfere with reproduction or even absolutely arrest it." Oysters live in waters of widely differing temperature, from freezing to 90° Fahr., and with saline qualities ranging from 1.002 to 1.025, that of Long Island Sound being about 1.022. The food of the oyster is both animal and vegetable in minute particles, and they devour their own eggs and fry. This article is written chiefly, however, to give those living at a distance from the seashore something of an idea of how this shellfish is cultivated, as it constitutes such an important part of our food supply. There is a prevailing belief, I find, in the interior of the State, among the comparative few who give the matter thought, that oysters abound in salt water and the oysterman has only to find them and drag them from the bottom and bring them to market; but oysters have to be cultivated as much as any other crop, and more than some crops; and the oyster business is an industry requiring capital, application and skill, to make it a success, just the same as is required in any other great industry. The natural oyster beds of this State are a thing of the past, as a rule. Occasionally

a natural bed is found, and when it is worked it is soon exhausted. Seed oysters were formerly obtained from natural beds, but they are now largely purchased from those who make a specialty of this branch of the industry, although some oyster planters collect their own seed oysters.

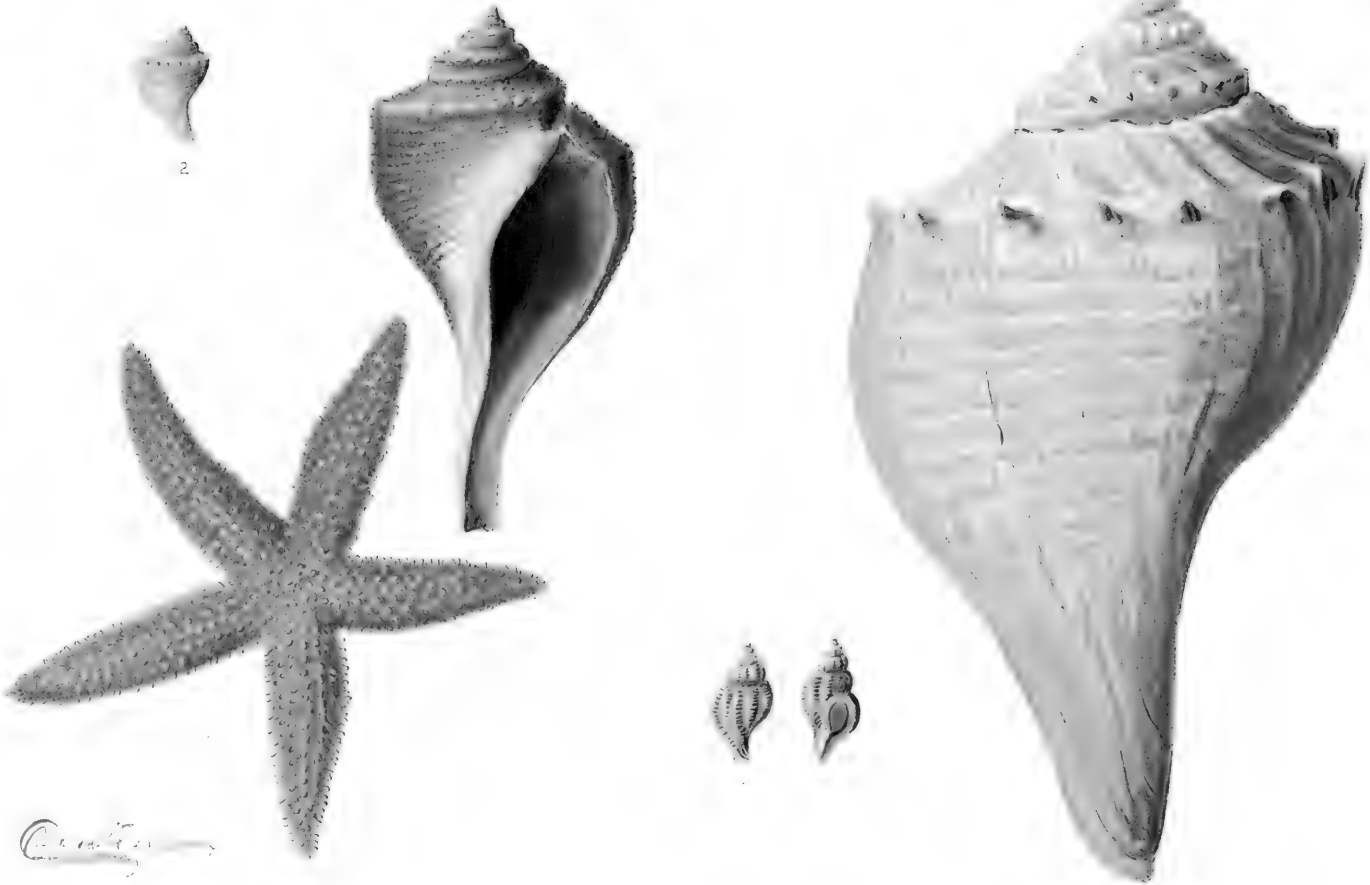
It is only within recent years, comparatively, that the State realized the worth of the oyster beds within its boundaries, and it then began to survey the beds and grant franchises, until now the industry has grown beyond the domestic markets and oysters from New York waters are largely exported.

To prepare an oyster bed, take for instance a piece of ground of fifty acres under the water of Long Island Sound—water from five to ten fathoms deep. First a steamer will be required that will cost from $7,000 to $12,000. The ground is marked out in sections with buoys, and the steamer with steam dredges is set to work to clean up the ground. Everything movable is removed from it, until the ground is perfectly clean and raked or harrowed very much, as a farmer would prepare a field for wheat. This may require months of constant work, simply to prepare the ground. Then there is spread on the ground a quantity of oyster shells or broken stones prepared and sold for this purpose. With this stone or shell oysters are planted during the months of July and August from which to obtain the spawn or spat, as it is generally called. The spat, if it appears at all, will be found from the 15th of September to the 1st of October, when it is apparent to the naked eye. If no set is obtained, which is too frequently the case, the ground is left until another year, when the steamers go over it again and clean it as before. This may continue for several years before a set is obtained. When the set is obtained it is allowed to remain on the ground for about one year; then it is thinned out, some of it being planted on other grounds kept for the growing of oysters for market. A market oyster is from three to five years old, depending upon the size demanded, from box to "cullens" or "cullenteens." By far the greater part of the deep water set is taken up and sold to planters, who remove them to shoal water grounds in the State, such as Great South Bay, Princess Bay, Rockaway, Canarsie, Jamaica Bay and other places. The bays named are not reproductive. The planters buy all their set at the two or three years old size, grow them one season on their own beds and send them to market the following winter. There may be a rotation of crops on a deep water oyster bed divided into four sections; the first section prepared and planted the first year and so on each section in its order annually until the planter returns to the first section to market the oysters from that part of the bed.

The oysterman's life is one of constant exposure, but unremitting attention and careful, painstaking work will insure success in the oyster business. Large oyster companies have been formed in the State, with considerable capital, some of them

STARFISH PICKED FROM THE "MOP."

"MOP" LIFTED INBOARD. STARFISH IN THE TANGLES.



ENEMIES OF THE OYSTER.
(1-Drill or Borer - 2 - Periwinkle - 3 - Starfish.)

successful and some of them have proven unremunerative. Since the State law was changed to provide for leasing oyster beds, instead of granting franchises as formerly, very little ground has been applied for in Long Island Sound, and the reason for this is that a fifteen years lease is not long enough to warrant a man or a body of men in spending the money necessary in cleaning up and preparing the ground for oyster culture. The policy of the State of Connecticut is altogether different. The citizens of that State have a perpetual franchise of the oyster beds, and the industry is carried on to a larger extent than in this State, and I believe that in the near future our Legislature will see the wisdom of this policy and apply it to our own oyster beds, that New York may be second to none in the value of her oyster product.

Of all fish cultivated, the shellfish or oyster is the largest food producer that we have. Not many years ago the oyster was considered a luxury to be indulged in by the few comparatively, the average price being about three cents each for a marketable oyster. They are now three for a cent, I am pleased to say, and if we can impress it upon the minds of the people that they are no longer a luxury, but one of the cheapest articles of food, I think that even more of them will be used. Let no one be deceived into thinking that all that is necessary to obtain a crop of oysters is to secure the spat or set of young oysters that I have mentioned, for such is far from the truth.

"TONGING" OYSTERS.

The oyster from its first appearance has numerous enemies, and I have already related that the oyster itself preys upon its own eggs and fry. For instance, the starfish—and their number is legion—have been known to devour an entire bed of oysters in a single week. The oystermen have within the last few years been able to cope with the starfish to a certain extent by the introduction and use of mops on the beds. The accompanying illustrations show the mop and starfish on the deck of an oyster steamer. The starfish in the illustration came from one lift of the mop. These mops are made of cotton twine, soft laid, and braided in ropes exactly like a mop for a

kitchen floor, and, being attached to a triangle, are drawn by oyster steamers over the oyster beds, and the moment the mop touches a starfish the latter clings to it or is gathered up by it and lifted by steam hoist to the decks and the "stars" are then taken ashore and buried. The use of the mop enables the oyster planters to remove the starfish without injury to the young oysters. Not so with the periwinkles and drills illustrated in colors, life size, in this report. The drill or borer is small, as will be seen by referring to the colored plate, and it drills a hole through the oyster and kills it. The drill bores into oysters up to two or three years of age, and then older oysters with thicker shells fall to the periwinkle, which operates in the same manner as the drill. The drill is the worst enemy the oysterman has to contend with to-day, and there is no known way of destroying the drill except by dredging up everything on the ground and removing the drills and returning the oysters to the bed. This dredging to remove the drills is not only expensive but it destroys many young oysters, and while dredging the ground fine nets have to be used inside the dredges to clean the beds perfectly before oysters can again be planted. All that the oysterman can do is to prepare the ground in the best possible manner, plant the best possible material, and if the set is obtained, wage a constant war against the enemies of the oysters; but the work never ceases, and too often it bears no fruit in the form of marketable oysters in sufficient quantities to pay for the work with added profit.

EDWARD THOMPSON,

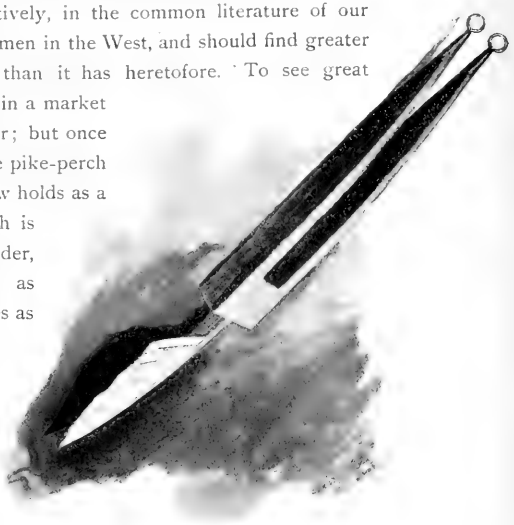
Shellfish Commissioner.

The Pike-Perch *(Stizostedium vitreum).*

The pike-perch is often incorrectly called pike, without the suffix perch, and it is called by other names that are inappropriate and should be relegated to oblivion as relative to this fish, but our people cling to the common local names of fishes, however incorrect or inappropriate, with such pertinacity that it is a most difficult matter to bring about reform in this particular. The fish is here accurately represented in form and colors with its proper common name for the purpose of identification and fixing the name upon it.

The pike-perch belongs to the family of perches of which the common yellow perch is also a member, but of another genus. It is one of the most prolific of the fresh water fishes, and is highly esteemed both as a commercial and game fish. Of its food qualities, I have heard it said that there are but two fresh-water fish which have a distinctive flavor of their own which separate them from other fishes when cooked, and that they are the white fish and pike-perch. The author of this remark may have been an enthusiastic admirer of the two fishes named, and may have had a very fine sense of taste, but it is true that the pike-perch is one of the best of table fishes, and one that seems to be little known, comparatively, in the common literature of our fishes, although it is highly regarded by sportsmen in the West, and should find greater favor as a hook and line fish in this State than it has heretofore. To see great numbers of pike-perch uninvitingly displayed in a market stall does not recommend the fish to the angler; but once overcome prejudice, if prejudice it be, and the pike-perch will take as high rank as a game fish as it now holds as a food fish. The counterpart of the pike-perch is found in Europe, where it is known as Zander, or Sandre (*Lucioperca sandra*), and we see as little of it in the European literature of fishes as we do in our own.

The pike-perch is a spring-spawning fish, spawning usually in April, and grows to great size. It is claimed that there has been captured one weighing fifty pounds; but Dr. D. C. Estes, of Minnesota, caught one of forty pounds and preserved its head. They spawn in streams and in lakes, their habits



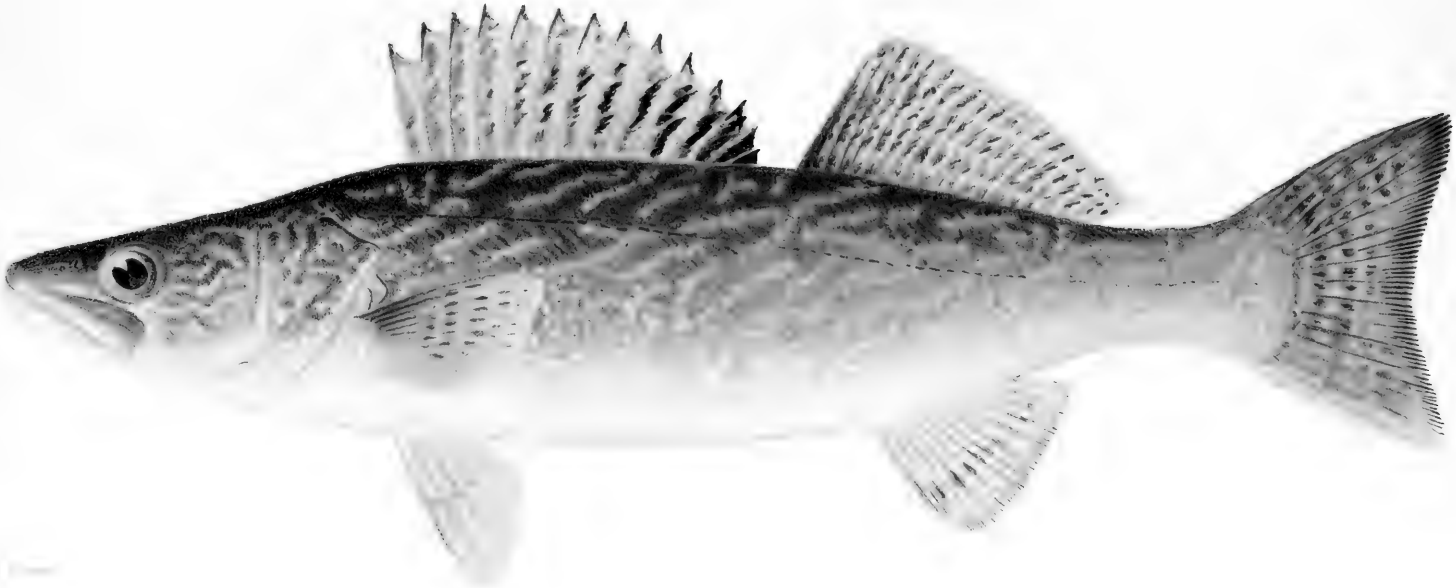
TWEEZERS FOR LIFTING OUT DEAD EGGS.

differing in different waters, and when the brood is hatched the members of it remain together the first season, if not destroyed, and for the first few weeks making a solid, compact mass. The eggs are heavy and adhesive, and unless deposited in a strong current, will stick to whatever may compose the spawning bed, until they become coated with sediment and separate. The fish will average about 150,000 eggs, but if the run is of good-sized fish they may furnish 200,000 each. Mr. M. B. Hill took from one fish in Lake Ontario 609,176 eggs, and, after stripping, the fish weighed thirteen and one-half pounds. The eggs hatch in from twelve to eighteen days, depending on the temperature of the water, and as soon as hatched the young prey upon one another.

At present the facilities for hatching pike-perch are very incomplete in this State, but, as will be seen in the table of distribution, this Commission hatched and planted during the year 41,550,000 pike-perch fry, and with improved facilities, which are contemplated, the output will be three or four times greater, and the Commission hopes in this way to add materially to the food supply in the waters of the State. The first planting of artificially hatched pike-perch was made in this State in 1893. In spite of the glutinous condition of the eggs and the consequent difficulty in hatching them, the State had increased the percentage of eggs hatched about thirty per cent. That the plantings of pike-perch have done well is attested by the following letter, written by Mr. S. Makepeace, of Plessis, Jefferson County, N. Y., to Mr. James Annin, Jr., Superintendent of Hatcheries, under date of September 30, 1896: "Thinking it might be interesting to you to hear about the pike-perch that were planted in Clear Lake in the spring of 1895, I thought I would write you. In the month of June they were six to seven inches long, in August about ten inches, and now they are fourteen inches long. They are good biters, and all that have been caught (except two) have been put back in the lake. They were caught in the evening, while fishing for bullheads. They are fine to look at. I think I will apply for another lot next spring, as I don't think we will be able next year to have the fishermen put them back, and as I understand this matter they will not spawn till they are about three years old. No pike-perch were in this lake before this plant was made."

Mr. John Wilkins, of Middletown, N. Y., also writes me as follows:

"The pike-perch came a few weeks ago, about 65,000, and were planted in the Wallkill River, or rather in the small brooks tributary thereto, and will work down into the main river as they grow older. I am trying a like experiment with 150,000 of them." (The experiment is one that was tried successfully with brown trout fry; viz., rearing and feeding them in separate waters until they were eight months old before planting them in the water which it was expected would be their home.) "I have planted them in batches of 50,000 each in the ponds of Horace Thompson, supervisor



THE PIKE PERCH or WALL-EYED PIKE
[Stizostedium Vitreum]

of the town of Wallkill, two and one-half acres, and full of shiners and chubs; also the pond of William McGinnis, about the same size; and the pond of Thomas Watts, a brother lawyer, of about five acres, having made the arrangement with each one that in October I am to take the fish out and plant them in the Wallkill River.

"A friend, Charles Bennett, caught, last Thursday, a pike-perch twelve and one-half inches long, from last year's planting. He had previously told me that the fish were big enough to catch, and he caught his on a worm while fishing for bullheads for breakfast, the pike-perch probably taking the big worm for a lamprey-eel.

"A friend from Port Jervis has told me that in the Delaware River he caught twenty-one pike-perch which weighed seventy-two pounds, and he says they were only planted three years before. I believe it, judging from the way the same kind of fish have grown here in one year."

The pike-perch is a bottom feeder, and the only fish caught with hook and line that seems to have no fixed abiding place in some lakes. The angler can, from experience, tell in advance, with reasonable certainty, where in a lake to look for black bass, perch or pike, but the pike-perch may be in deep or shallow water, off shore or in shore. I have trolled in deep water where they were supposed to be one day unsuccessfully, and the next day caught them alternately with black bass on a shallow sand-bar. They are more consistent in rivers or streams, and can be located with greater certainty, for they inhabit such waters as an angler would seek trout in if it were a trout stream, and in such waters the pike-perch will take a fly. They are a voracious fish, as their big teeth will indicate, and their food is small fish of all kinds, including their own species, crustacea and larvæ of insects. At spawning time the only fish they seem to fear is the real pike, *Lucius lucius*, which we are given to calling pickerel, for this fish will drive them from their bed when the black bass will not, although at other times the pike-perch will not stand before the black bass.

TOOLS OF THE HATCHERY.

The pike-perch hatched by this Commission are from fish that run up a stream to spawn, and it is my belief that in trying to establish the fish in new waters, natural conditions should be followed as closely as possible. Two attempts have been made to stock the upper Hudson River with pike-perch by private enterprise. The fish were obtained from Lake Champlain, put in the well of a boat constructed for that purpose,

and towed through the Champlain Canal and feeder to the Big Bay, where they were liberated. The fish were nearly ready to spawn, and the next day one of them was taken five miles below the place of planting. They were lake-spawning fish and were evidently seeking the lake, for all disappeared and none have been found in the upper river since the plant was made. Pike-perch are no more suitable for small waters than black bass, but planted in large lakes and rivers, where they will not work injury to less predaceous fish, they will prove a most excellent food and game fish, for they are caught by trolling and in still fishing. In Lake Champlain a favorite method of fishing for pike-perch, and by which large numbers are taken, is by weighting the reel line with a sinker that will go to the bottom, and a little above it is attached a snelled hook, baited with live bait or earth worms. This is slowly trolled in water forty to fifty feet deep, where the bottom is composed of sand or gravel. In lakes pike-perch are usually found in water deeper than that in which it is customary to fish for black bass, but they are taken with trolling spoon and minnow bait in waters of varying depth, for, as I have indicated, no hard and fast rule can be laid down as to where and when the pike-perch will bite best.

A GOOD FISH.

In arranging the illustrations in this report it has not been possible in all cases to place them where they would fit the text. For instance, the "tools of the hatchery" and the "egg tweezers" are implements used chiefly in hatching trout eggs, pike-perch eggs being hatched in automatic hatching jars. In the value of its product as a commercial fish from the interior waters of the State the pike-perch should stand near the head of the list.

A. N. CHENEY,

State Fish Culturist.

Notes upon New York Fishes

Received at the New York Aquarium, 1895 to 1897.

By TARLETON H. BEAN.

[Reprinted by permission from Bulletin American Museum Natural History, 1897, pp. 327-375.]

SINCE May 1, 1895, the Aquarium has received 165 species of the fishes of New York, of which 124 species are marine or anadromous, and the rest fresh-water forms. The marine fishes have been collected chiefly in Gravesend Bay, Long Island, in the traps and other fishing apparatus belonging to John B. De Nyse, a veteran fisherman, whose knowledge of the migrations of coast fishes and of the history of the fishery in that bay is extensive and accurate. Many rare species that would escape the notice of the average observer are recognized and sent to the Aquarium, usually alive, by Mr. De Nyse and his sons.

The writer has made occasional excursions to Shinnecock and Peconic Bays, Sandy Hook and the ocean beach at Southampton, Long Island, the Bronx River, and to several lakes in Central Park and Prospect Park, Brooklyn. The New York Commission of Fisheries, Game and Forests has contributed many species, both living and dead, for exhibition or identification, and additional materials have come from the South Side Sportsmen's Club of Long Island, and from James Annin, Jr., of Caledonia, N. Y.

It is well known that systematic seining along the shores in the vicinity of New York City would add many species to this list, but the present exhibit will serve to indicate the wealth of the marine fish fauna at least, and, at the same time, introduce a number of species of rare occurrence or new to the region. The short-nosed sturgeon (*Acipenser brevirostris*) has been living in one of the pools since May, 1896, and has taken hard clams (*Venus mercenaria*) regularly for food.

A species of *Harengula* was caught at Gravesend Bay in 1895. No species of the genus has been known to occur north of the Gulf of Mexico before. Hoy's whitefish (*Argyrosomus hoyi*) has been taken only in Lake Michigan until Mr. Annin found it in Canandaigua Lake, New York, where it is abundant. The fresh-water silverside (*Menidia beryllina*), previously known and rather rare in the Potomac River, is common in a little stream at Water Mill, Long Island. The thread-fin (*Polydactylus octonemus*), which has not been observed in our waters for thirty years, was secured in Gravesend Bay, September 24, 1896. Three examples were obtained. The surmullet (*Mullus auratus*), an occasional visitor from southern waters, ranging north to Cape Cod, was

reported abundant at Sandy Hook in September and October, 1897, by fishermen. Three individuals were seined for the Aquarium October 8, and, at the time of writing, one of them is alive.

A large amber-fish (*Seriola* sp.) was captured in August, 1896, at Gravesend Bay, Long Island, and brought in for identification; its measurements are given in the proper place. The runner (*Elagatis bipinnulatus*), belonging to the West Indian fauna, was once before recorded from Long Island; a single example was taken in Gravesend Bay in August, 1895. The banded larimus (*Larimus fasciatus*), which is not a common species, has been reported from Chesapeake Bay to the Gulf of Mexico. Two individuals were brought alive from Gravesend Bay in August, 1895, and lived in the Aquarium until December, when they succumbed to the cold water at a temperature of 43° Fahr. They fed freely upon shrimp. The parche (*Chætodon ocellatus*), a West Indian species, occasionally found in summer in Rhode Island and New Jersey waters, was obtained in Gravesend Bay.

A young sturgeon-fish (*Teuthis hepatus*) was captured in Gravesend Bay, October 20, 1897; this occurs in the West Indies and Gulf of Mexico; it was previously known as far north as Charleston. Young trunk-fish (*Lactophrys trigonus*), belonging to the West Indian fauna, are carried occasionally by the Gulf Stream northward as far as Massachusetts. An example was found in Gravesend Bay, August 28, 1897; it could not be kept alive long in a balanced jar, but it fed regularly for about ten days on minced clam. The spotted codling (*Phycis regius*) is not an uncommon fish in Gravesend Bay in October; several individuals were obtained this year. The species often lies upon its side very much like the tautog and many flounders.

Pterophryne histrio was found floating in New York Bay in August, 1897; it occurs occasionally in summer as far north as Cape Cod, but belongs to the tropical parts of the Atlantic.

In this paper the species are arranged in the order in which they are given in "A Check-list of the Fishes and Fish-like Vertebrates of North and Middle America," by David Starr Jordan and Barton Warren Evermann. The names, almost without exception, are written as they stand in that work. The notes were made from time to time during the entire period mentioned in the title whenever suitable dead fishes became available for observation; and additional data were secured by a study of living individuals. I am under obligations to Mr. L. B. Spencer and Mr. W. I. De Nyse for many important notes upon the feeding habits.

1. **Petromyzon marinus** (*Linnæus*). SEA LAMPREY; LAMPREY EEL.—The lamprey has been obtained in Gravesend Bay in March, April and June in small numbers. It has never been kept alive long in the Aquarium because of the impracticability of furnishing it with proper food.

2. Mustelus canis (*Mitchill*). SMOOTH DOGFISH.—The species have been brought alive from Gravesend Bay in August, September and October. In the Aquarium it is restless and delicate, often coming to the surface and struggling as if trying to escape from the pool.

3. Sphyrna zygæna (*Linnæus*). HAMMER-HEADED SHARK.—Not common in Gravesend Bay; occasionally taken in August and September, but never brought alive to the Aquarium because of its great liability to injuries of the eyes.

4. Carcharias littoralis (*Mitchill*). SAND SHARK.—A young male received from Gravesend Bay, Long Island, on June 26, 1895, died in the Aquarium December 19, 1895, when the temperature of the water in the pool containing it was 53° Fahr. The following notes were made upon the specimen in the fresh condition:

Color, bronze gray with light brown blotches, the largest about as long as the eye. Belly and other lower parts white. Eye yellowish. Tips of pectorals, ventrals, dorsals, anal and caudal above and below with a narrow black streak. Numerous minute dark specks on the under surface of snout and suborbital region, extending back to angle of mouth.

Two rows of teeth in function above and three below. Length of longest tooth in lower jaw, ½ inch; in upper jaw, ⅜ inch.

MEASUREMENTS.

Length,	3 ft. 6 in.
Depth of body,	6½ "
Least depth of caudal peduncle,	1⅝ "
Tip of snout to perpendicular through last gill-opening,	10 "
From first to last gill-opening,	2½ "
Depth of gill-openings,	2 "
Snout,	2½ "
Eye to spiracle,	1½ "
Eye,	½ in. long, ⅜ in deep
Snout to nostril,	1¼ in.
Width of nostril,	⅝ "
Distance between nostrils,	1¼ "
Nostril to front of mouth,	½ "
Length of mouth opening,	2⅝ "
Width of mouth, including labial folds,	4 "
Length of labial fold,	1 "
Labial fold to first gill-opening,	3¾ "
Snout to first dorsal,	16 "
First dorsal base,	3½ "
Middle of dorsal base to top of fin,	3 "

MEASUREMENTS.—Continued.

Length of posterior, margin of dorsal,	1¼ in.
From first to second dorsal,	5 "
Length of second dorsal base,	2¾ "
Middle of second dorsal base to top of fin,	2½ "
Posterior margin of second dorsal,	1⅛ "
Second dorsal to caudal pit,	3 "
Caudal from pit,	12 "
Lower caudal lobe,	9⅜ "
Terminal caudal lobe,	3 "
Snout to pectoral, obliquely,	10½ "
Length of pectoral,	5 "
Lower margin of pectoral,	2¼ "
Extended pectoral not quite reaching to perpendicular through front of dorsal.	
Ventral origin slightly behind end of first dorsal base.	
Length of ventral,	3⅛ in.
Inner margin of ventral,	1¾ "
Vent to tip of clasper,	1½ "
End of ventral base to origin of anal,	3¾ "
Anal base,	3 "
Hind margin of anal,	1 "
Depth of anal,	2 "
Anal base to origin of lower caudal lobe,	1¾ "

5. Squalus acanthias (*Linnæus*). HORNED DOGFISH.—The spined dogfish has been brought from Gravesend Bay in October only; it is common on the fishing banks off the New Jersey coast. The species is not hardy in captivity.

6. Squatina squatina (*Linnæus*). SHARK RAY; MONKFISH.—The shark ray has not been received alive, and is to be found only in the bays adjacent to the Atlantic. It appears occasionally in Gravesend Bay in summer.

7. Raia erinacea (*Mitchill*). COMMON SKATE.—The prickly skate was received from Gravesend Bay in November, 1897, and the eggs came from there in March, 1896. The species has deposited eggs in the Aquarium in winter. It will not live in the tanks in summer, but endures the spring, fall and part of the winter.

8. Raia lævis (*Mitchill*). BARNDOOR SKATE.—This skate has come to the Aquarium from Gravesend Bay in October, 1896 and 1897. It is short lived in captivity because of the want of sand and mud, and the difficulty of providing suitable food. Individuals have been kept alive three or four months.

9. Dasyatis centrura (*Mitchill*). STING RAY.—The sting ray is rare now in Gravesend Bay, where hundreds were formerly taken every year. It will live in the Aquarium several months in the spring and summer.

10. Pteroplatea maclura (*Le Sueur*). BUTTERFLY RAY.—A very rare species in Gravesend Bay, and does not endure a captive life.

11. Rhinoptera bonasus (*Mitchill*). COW-NOSE RAY.—Rarely seen now in Gravesend Bay.

12. Acipenser sturio (*Linnæus*). STURGEON.—A female eight feet long was brought from the mouth of the Delaware River and placed alive in a pool on May 20, 1897. At this time (December 7) it is still apparently in good condition. Rock crabs, soft clams and opened hard clams have been used for its food, but it seems to have eaten little or nothing until December 1, when it began to feed freely upon open hard clams. The species appears every spring in Gravesend Bay, and sometimes in the fall. It is hardy in the Aquarium.

13. Acipenser brevirostris (*Le Sueur*). SHORT-NOSED STURGEON.—The species was obtained in Gravesend Bay, May 14, 1894, and a single example was brought alive to the Aquarium on May 13, 1896. It has taken food regularly, and is now living (December 7, 1897). It came in company with five young individuals of *A. sturio*. The species has proved to be well adapted to aquarium life. It is rarely seen in Gravesend Bay.

14. Ameiurus nebulosus (*Le Sueur*). BULLHEAD.—The young were seined in the Bronx in August, 1897. Larger examples were forwarded by the New York Commission of Fisheries, Game and Forests from Canandaigua Lake in November, 1896, and November, 1897; also from Saranac Lake in November, 1897. The fish feed freely upon hard clams and earth-worms; liver is given to them occasionally. Several albinos were obtained from Hackensack Meadows, N. J., in August, 1897. They are now (December 7) six inches long, and have grown to that length from three inches in three months.

15. Catostomus commersonii (*Lacépède*). SUCKER.—This sucker was obtained from Canandaigua Lake in November, 1896, and November, 1897; from the Bronx young individuals were received in August, 1897; from Saranac Lake the New York Commission forwarded the small mountain form, distinguished by its size and red color, in November, 1897. The Canandaigua Lake suckers thrived in the Aquarium until July, 1897, when they were all killed by warm water. The food is chiefly hard clams, with earth-worms occasionally.

16. Erimyzon sucetta (*Lacépède*). CHUB SUCKER.—The chub sucker was seined in the Bronx in August, 1897, and Professor Ulric Dahlgren sent one example from near Princeton, N. J., in September, 1897. The latter, when it arrived, had the broad, longitudinal, median band well developed and the vertical bands obsolete; but soon after it was placed in the Aquarium it obscured the longitudinal band entirely and developed the vertical bands.

17. Cyprinus carpio (*Linnæus*). CARP.—In November, 1896, a number of carp, none of them above two pounds in weight, were presented by the United States Fish Commission. During the last summer two female leather carp died as a result of retention of the eggs. In October, 1897, several large examples were seined in the lake at Prospect Park, Brooklyn. The food of this species is hard clam, earth-worms, wheat, corn, lettuce and cabbage. Their growth is remarkable. A leather carp has fully doubled its weight in one year.

18. Carassius auratus (*Linnæus*). GOLDFISH.—Goldfish have been obtained from lakes in Central and Prospect Parks, and from fountains in Gramercy Park and Bryant Park. A specimen was kept in a fountain at the old reservoir (Forty-second Street and Fifth Avenue, New York) by Patrick Walsh nine years, and was then presented to the Aquarium. The triple-tail variety was a gift from Mr. E. G. Blackford. From the Cold Spring Harbor Hatchery of the New York Fish Commission a number of remarkably large goldfish were obtained. One was a typical fan-tail; another resembling this in color had the form of the regular goldfish; still another was so deep-bodied that he could scarcely swim in equilibrium; all of these were from the same lot of eggs. This fish has never been troubled by fungus or parasites.

19. Semotilus atromaculatus (*Mitchill*). CHUB; FALLFISH; DACE.—A number of large chub were sent by Mr. Annin from the Fish Commission station at Canandaigua Lake in November, 1896, and again, in the same month, in 1897. Some of the first lot were fourteen inches long in July, 1897. All of the first shipment died in July, 1897, from the effects of warm water. They fed freely on hard clam and earth-worms and, occasionally, live killifish.

20. Abramis crysoleucas (*Mitchill*). ROACH; GOLDEN SHINER.—Abundant in the lakes of Central Park and in the Bronx; not found in the large lake of Prospect Park, Brooklyn, in seven hauls with a large seine. They feed freely upon chopped hard clam, and do not like earth-worms. The species spawned in their tank in May, 1897, and their young are now one and one-half inches long.

21. Abramis crysoleucas, variety. IRISH ROACH.—About the end of June, 1896, two females and one male were found to be ready to spawn. The females cast their eggs, but they were immediately eaten by the fish. The fish is always extremely shy.

It takes hard clams readily, and does not care for earth-worms. This variety is distinguished by its short and deep body, uniform size of scales and permanent vermilion color of the pectorals, ventrals and anal. The example studied has D. i, 7; A. i, 12; V. i, 8; scales 10–48–4; teeth 5-5, hooked, crenate, and with grinding surface. It is found in Central Park.

22. Anguilla chrysypa (*Rafinesque*). EEL.—The eel is particularly liable to attacks of fungus, which do not always yield to the treatment with salt or brackish water. By placing the eel in a poorly-lighted tank the parasite can be more safely and surely overcome.

23. Leptocephalus conger (*Linnæus*). CONGER EEL.—This species has never thrived in the Aquarium, but the individuals received were generally caught with hooks and badly injured. The fish suffers greatly from fungus attacks which cannot be relieved by changing to fresh water. It is sometimes caught in summer in Gravesend Bay.

24. Elops saurus (*Linnæus*). BIG-EYED HERRING.—An adult example was caught in Gravesend Bay, October 5, 1896. It is known to the fishermen as the "*scering*" and "*sisco*."

25. Etrumeus sadina (*Mitchill*). ROUND HERRING.—Young individuals were taken in Gravesend Bay, July 30, 1896, varying in total length from 4½ to 4¾ inches. They were associated with young mackerel of slightly larger size in bunches and schools. John B. De Nyse saw some schools that he estimated to contain 25,000 fish.

26. Clupea harengus (*Linnæus*). SEA HERRING.—On April 30, 1896, Mr. John B. De Nyse brought to the Aquarium from Gravesend Bay some small clupeids known as "shad bait," which are believed to be sea herring. The following notes were made from fresh specimens:

Many young transparent fish of the genus *Clupea*, a little under two inches long, are seen in the shad flykes and pounds, and are known as "shad bait," because they are said to be taken frequently from shad stomachs.

D. 18; A. 17. Muscular impressions along side of body about sixty. The ventral very slightly in advance of the origin of dorsal. Intestinal tract full of minute orange-colored substance resembling Entomostraca. A row of black dots on sides, low down, from pectoral to anal. Iris silvery; top of eye very dark.

Large sea herring, according to Mr. W. I. De Nyse, occur rarely in Gravesend Bay. Only about one hundred or two hundred are obtained during fall and winter. On November 23, 1897, an individual 13½ inches long and 2¾ inches deep, and a number of young from 4¾ to 6 inches long, were secured.

27. Pomolobus mediocris (*Mitchill*). HICKORY SHAD.—The hickory shad is caught in Gravesend Bay during September, October and November, but not in such numbers as were found some years ago.

The hickory shad arriving in Fulton Market, October 30, 1896, each contained in the stomach from fifteen to twenty sand launce, from 3½ to 5 inches long. The shad are large, weighing from one-half pound to 2½ pounds. They were shipped from nearby waters.

28. Pomolobus pseudoharengus (*Wilson*). BRANCH HERRING.—This alewife is the first to make its appearance in Gravesend Bay. It comes with the shad. No attempt has yet been made to keep it in captivity here, but there is no reason to doubt that it would do as well as the shad, menhaden and herring now (December 7, 1897) living in the central pool. On November 30, 1897, examples above seven inches long were brought from Gravesend Bay.

29. Pomolobus æstivalis (*Mitchill*). GLUT HERRING.—On November 23, 1897, Mr. De Nyse sent from Gravesend Bay a glut herring 6¾ inches long and 1⅜ inches deep, evidently the young of the year. It is known in the bay as shad herring. On November 30 two individuals, evidently fish of the year, measuring about seven inches, were brought in from the same bay.

30. Alosa sapidissima (*Wilson*). SHAD.—Mr. W. I. De Nyse says it is a common thing in the fall of the year to take large quantities of young shad in nets set off shore in Gravesend Bay—sometimes a ton and a half in a haul; that is during the migration seaward. They are usually about 6 to 8 inches long. In John B. De Nyse's pound sixty or seventy were caught October 17, 1895. A male 11 inches long and 2¾ inches deep, and a female 12 inches long and 3 inches deep, were brought to the Aquarium. None were taken after October 31, in 1895; but on that date a male 13 inches long and 3½ inches deep, and a female 13½ inches long and 3⅛ inches deep, were secured. The male had two lernæan parasites on its back just below the dorsal fin. Mr. W. I. De Nyse states that this parasite is always found along the backbone.

On October 8, 1896, a shad about 4½ inches long and one about 9 inches were taken in Gravesend Bay. Apparently the shad do not all remain at sea after their first migration until they are sexually mature.

Mr. John B. De Nyse informs me that in the first spring run of small shad, fully ninety per cent. are males.

31. Harengula species.—An individual about 9 inches long was brought in dead from Gravesend Bay in 1895. This was the only one observed in that locality, and it

is the only record known of the occurrence of this genus north of Florida. The specimen is not now available for study.

32. Opisthonema oglinum (*Le Sueur*). THREAD HERRING.—Known as "sprat herring" in Gravesend Bay. Appears there in July and August, and is sometimes so abundant as to fill the nets. The great run lasts two weeks, beginning towards the end of July.

33. Brevoortia tyrannus (*Latrobe*). MENHADEN.—The species comes into Gravesend Bay in May and through the summer; occasional individuals are seen in the fall as late as November. At the end of November, 1897, some examples are alive and feeding well in the great pool of the Aquarium.

34. Stolephorus mitchilli (*Cuv. & Val.*). ANCHOVY; WHITE BAIT.—This anchovy appears in Gravesend Bay in May and remains until October. It is frequently shipped to the market as "white bait." The fish is too frail for a captive life.

35. Stolephorus argyrophanus (*Cuv. & Val.*). ANCHOVY.—This species is uncommon in Gravesend Bay, but occurs more frequently in bays communicating directly with the Atlantic.

36. Coregonus quadrilateralis (*Richardson*). FROST-FISH; ROUND WHITEFISH.—This small whitefish is one of the characteristic species of the Adirondack Lakes. Mr. James Annin, Jr., sent specimens for identification from Hoel Pond and Big Clear Lake, in Franklin County, N. Y., and from the third lake of the Fulton Chain. He states that the fish spawn in the little inlets or upon the sand beaches. It never appears until about the time the water begins to chill and freeze about the edges. On the Fulton Chain of lakes the spawning season of 1895 was practically closed about November 20.

The frost-fish, according to Mr. Annin, is "a delicious morsel."

The following notes were made upon fresh examples received from the third lake of the Fulton Chain, November 26, 1895:

A male 11¾ inches long to end of caudal fin had the middle caudal rays, from end of scales, ⅝ inch long; upper caudal lobe, measured horizontally, 1⅞ inches; head, 1 3/16 inches; maxilla, ⅜ inch; eye, ⅜ inch; gill-rakers, 5 plus 10, the longest ¼ as long as the eye; scales, 8–84–8. A female 11⅞ inches to tip of caudal has upper caudal lobe 2 inches, measured horizontally; middle caudal rays from end of scales, 9/16 inch; depth of body, 2¼ inches; head, 1⅞ inches; maxilla and eye, each ⅜ inch; gill-rakers, 5 plus 10, the longest ¼ as long as the eye; scales, 8–79–8.

Three males received December 11, 1895, showed the following colors:

In the male, 13⅜ inches long, from Hoel Pond; the back and sides were dark steel gray; the belly, white; pectoral, ventral and anal, orange; dorsal and caudal, chiefly yellow. A male 12 inches long, from Big Clear Lake, had the back and sides silvery gray, darker between the lines of scales; the lower fins, orange; the dorsal and caudal, with traces of yellow. A male 11⅛ inches long, from Big Clear Lake, showed the same colors as the last. The following measurements in inches and notes were taken:

	Hoel Pond.	Big Clear Lake.	Big Clear Lake
	♂	♂	♂
Length,	13⅜	12	11⅛
Caudal lobe, horizontally,	2 3/16	1⅞	1⅞
Middle caudal rays,	¾	⅝	9/16
Depth of body,	2½	2⅜	2 3/16
Least depth of caudal peduncle,	⅞	¾	11/16
Head,	2	1¾	1⅝
Snout,	½	....	....
Eye,	7/16	7/16	⅜
Maxilla,	7/16	⅜	⅜

In all, the gill-rakers are minute, and number 5 plus 10, 5 plus 10 and 5 plus 9. The scales are 10–86–9, 10–76–9 and 9–86–8.

An example sent by the New York Commission of Fisheries, Game and Forest, from Saranac Lake, November 23, 1897, showed the following characters:

MEASUREMENTS.

Length, including caudal,	13	in.
Length to end of scales,	11½	"
Length of middle caudal rays (from end of scales),	⅞	"
Length of upper caudal lobe (obliquely),	2⅛	"
Depth of body at dorsal,	2⅜	"
Least depth of caudal peduncle,	1 3/16	"
Length of head,	2⅛	"
Diameter of eye,	9/16	"
Length of maxilla (does not reach orbit),	9/16	"
Length of mandible,	¾	"
Distance from snout to dorsal origin,	5⅛	"
Length of dorsal base,	1 7/16	"
Length of longest dorsal ray,	1⅝	"

ADIRONDACK FROST FISH OR ROUND WHITE FISH.

(Coregonus Quadrilateralis. Richardson)

MEASUREMENTS.—Continued.

Length of last dorsal ray,	$1\frac{3}{16}$ in.
Distance from snout to ventral origin,	$5\frac{5}{8}$ "
Length of ventral,	$1\frac{9}{16}$ "
Length of ventral appendage,	$\frac{1}{2}$ "
Distance from snout to anal origin,	$8\frac{3}{4}$ "
Length of anal base,	$1\frac{3}{16}$ "
Length of longest anal ray,	$1\frac{7}{16}$ "
Length of last anal ray,	$\frac{1}{2}$ "
Length of pectoral,	2 "
Distance from snout to adipose fin,	$9\frac{1}{4}$ "
Length of base of adipose fin,	$\frac{7}{16}$ "
Width of adipose fin,	$\frac{3}{8}$ "
Length of adipose fin,	$\frac{3}{8}$ "
Length of longest gill-raker,	$\frac{1}{8}$ "

D. 11; A. 11; V. i, 10; P. i, 14. Scales, 10–84–8. Gill-rakers, 6 plus 10, the longest $\frac{1}{8}$ inch.

Purplish gray; lower parts whitish. Pectorals, ventrals and anal vermilion. Eye pale golden. Head, especially behind the eyes, iridescent gold and purple tints. Caudal was chiefly vermilion in life.

The fish is a male with ripe milt. There are numerous small tubercles on the scales of the sides above and below the lateral line.

37. Coregonus clupeiformis (*Mitchill*). WHITEFISH.—A single young individual, caught in a gill-net at Wilson, Niagara County, N. Y., in Lake Ontario, was forwarded by Mr. James Annin, Jr., for identification.

38. Coregonus labradoricus (*Richardson*). LABRADOR WHITEFISH.—This species is frequently confused with the common whitefish of the Great Lakes (*C. clupeiformis*), especially in waters into which fry of the latter fish have been introduced. It is also mistaken sometimes for the black-fin whitefish (*Argyrosomus nigripinnis*); but a glance at the jaws should correct that error speedily. From the common whitefish it may readily be distinguished by the lingual teeth (unfortunately not always present) and its compressed back, as well as its small size.

A male and a female were received through Mr. James Annin, Jr., from Upper Saranac Lake on November 16, 1895. Both fish were nearly spent. They were supposed to be the common whitefish. A male from Chazy Lake arrived through the same source on November 22, 1895. It was doubtfully called "black-fin whitefish." At that time the fish had left the spawning beds and were in deep water. On June 17, 1896, a female $19\frac{5}{8}$ inches long was shipped by Mr. Annin from Canandaigua Lake.

Its stomach is pear-shaped, with walls more than ¼ inch thick; it contained numerous small shells of several genera, not yet identified.

The species is reported by fishermen to be very abundant in that lake, and to be destructive of eggs of other fish. They say it comes in great numbers into shallow water near the shore in early summer when the water is roily, and can be caught on set lines. Mr. Annin saw men baiting their set lines with small minnows on Canandaigua Lake, and when they were taken up in the morning the Labrador whitefish was found on the hooks. It is claimed that one of them so taken weighed 6 pounds. Superintendent O. H. Daniels, of the New Hampshire Fish Commission, forwarded a specimen from Lake Winnesquam, at Laconia, 19⅞ inches long, weighing 46 ounces, and he wrote that individuals weighing 7½ pounds had recently been taken. The species was called "blue-fin" and "whitefish."

The fish-eating habit of the Labrador whitefish was fully verified in the Aquarium upon examples obtained in Canandaigua Lake in November, 1896, by Mr. Annin. Knowing that the species usually subsists upon small mollusks and crustaceans, efforts were made to provide the fish with *Physa* and *Gammarus;* but this became difficult in winter, and an experiment was made with small killifish (*Fundulus heteroclitus* and *majalis*), which proved satisfactory during the cold months. In summer, however, it was found necessary to return to the use of *Gammarus*. The whitefish at first took the killifish without any eagerness, but they soon learned to chase their prey and take it much as trout do.

A female received from Canandaigua Lake on June 17, 1896, in a fresh state, showed the following colors: Membrane of pectoral fins dusky; that of the pectorals tinged with lemon yellow; ventrals dusky at the tip; anal pale; caudal pale except a narrow dusky portion of the middle rays; eyes pearly, with golden iridescence. The maxilla reaches about to front of eye. The adipose dorsal extends straight backward, and its base is covered with a sheath of small scales $\frac{3}{16}$ of an inch wide. The gill-rakers are 9 plus 17, the longest ⅜ of an inch. Very small teeth are present on the tongue. The eggs are minute.

In a male example, 17¼ inches long, received November 16, 1895, from Upper Saranac Lake, and nearly spent, no tubercles could be seen upon the scales; but several of the males from Canandiagua Lake had them well developed. There is a great difference in the development of the lingual teeth, some of our individuals showing only a trace of them, and it seems as if there may be some relation between their condition and the sexual maturity of the fish. For example, in a male 14 inches long, sent from the fourth lake of the Fulton Chain, November 9, 1897, the lingual teeth were present in a large patch; in three males, only a little smaller but sexually immature, from Saranac Lake, November 11, 1897, the teeth on the tongue could be

perceived by the touch only. The following measurements, in inches, and additional notes, were made from the fresh fish:

	Canandaigua Lake, June 17, 1896	Upper Saranac Lake, Nov. 16, 1895	Chazy Lake, Nov. 22, 1895
	♀	♂	♂
Length, including caudal,	19 5/8	17 1/4	15 1/2
Length of middle caudal rays (from end of scales),	1	1 5/16	7/8
Length of upper caudal lobe (horizontally),	3	3 1/2	..
Length of longest caudal ray,	3 1/4	....	..
Depth of body at dorsal,	4 3/4	3 1/2	....
Least depth of caudal peduncle,	1 1/2	....	1 1/8
Length of head,	3 3/8	2 3/4	2 1/2
Diameter of eye,	5/8	5/8	1/2
Length of maxilla,	1	3/4	5/8
Distance from snout to dorsal origin,	8	....	
Length of dorsal base,	2 1/8		
Length of longest dorsal ray,	2 1/2		
Length of last dorsal ray,	3/4		
Distance from snout to ventral origin,	9		
Length of ventral,	2 3/4		
Length of ventral appendage,	7/8		
Distance from snout to anal origin,	13		
Length of anal base,	2		
Length of longest anal ray,	1 3/4		
Length of last anal ray,	5/8		
Length of pectoral,	3		
Distance from snout to adipose fin,	14		
Length of base of adipose fin,	1		
Length of adipose fin,	3/4		
Width of base of adipose fin,	1/2	....	..
Length of longest gill-raker,	3/8	3/8	5/16

Taking the fish in the order above given, the gill-rakers are: 9 plus 17, 10 plus 16 and 9 plus 17. The scales are: 10–76–8, 10–87–9 and 11–81–10. The branchiostegals in various specimens examined are 9 to 10; divided dorsal rays, 10 to 11; anal rays, 10 to 11.

39. Argyrosomus artedi (*Le Sueur*). CISCO; LAKE HERRING.—A male was received from Mr. Annin November 22, 1895, and a female on November 25 of the same year. The male had spermaries moderately developed. The female agrees very well with the variety *cisco*. Both are from Three-mile Bay, Lake Ontario. The following measurements, in inches, and notes, were made upon the fresh examples:

	Three-mile Bay	Three-mile Bay
	♂	♀
Length, including caudal,	13½	13
Length of middle caudal rays,	¾	. . .
Least depth of caudal peduncle,	1	. . . .
Depth of body at dorsal,	3	2½
Length of head,	2¼	2¼
Length of maxilla,	¾	⅞
Diameter of eye,	½	½
Length of longest gill-raker,	⅝	. . . .
Number of gill-rakers,	17 + 31	47
Scales,	8–74–8	76

In the female above mentioned, the maxilla reaches to the front of pupil; the lower jaw projects a little; the dorsal and anal each have ten divided rays; the dorsal has a black tip; the pectoral is dusky above; the ventral and anal are pale; the caudal is dusky towards the margin. According to Mr. Annin, it lives in deep waters and spawns in brooks in December.

40. Argyrosomus hoyi (*Gill*). LAKE SHINER; MOON-EYE CISCO.—This species is recorded with certainty from Lake Michigan only. It is taken in gill-nets in deep water, and, notwithstanding its small size, has become commercially important. It is here for the first time announced as a member of the New York fauna, and the description following below leaves no doubt of the correctness of the identification. The fish examined, a female with ripe eggs, was taken in Canandaigua Lake, December 19, 1896, by Mr. Annin's men. It was the only one caught, and was captured by becoming gilled in the funnel of the net. Mr. Annin is satisfied that this is the lake shiner of the fishermen, which they sometimes see in immense schools at the surface, and kill for trolling bait by shooting them.

Description.—Head, 4; depth, 4¼; eyes, 5 (nearly); snout, 3½; maxillary, nearly 3 in head, reaching to vertical through front of pupil. D. 10; A. 11; scales, 8–70–9. Gill-rakers, 14 plus 28, left side; 40 on right side; longest about ¼ inch; about 2 in eye. Branchiostegals, 8. Body rather elongate, compressed, the back little elevated. Mouth rather large, terminal, the lower jaw slightly longer than upper when the mouth is closed; tip of muzzle conical as in *A. artedi*; mandible nearly reaching vertical through posterior edge of eye, nearly 2 in head. Head rather long and slender, with pointed snout; interorbital width equal to eye. Supraorbital and preorbital long and narrow. Distance from tip of snout to occiput, 2 in distance from occiput to origin of dorsal fin; dorsal rays much longer anteriorly than posteriorly, the longest rays nearly equal to distance from front of pupil to end of head, the last ray only

⅓ as long; longest anal ray 2½ in head, last anal ray ⅔ as long as the longest. Pseudobranchiæ well developed; tongue with evident teeth.

Color in spirits silvery, with purplish iridescence on back; scales without punctulations; belly whitish; dorsal and caudal fins dark on terminal half, pale at base; other fins all pale.

Length, without caudal, 8 inches; total length, 9½ inches; depth, 1¾ inches; head, 2⅛ inches; eye, $\frac{7}{16}$ inch; maxilla, $\frac{11}{16}$ inch; interorbital width equal to diameter of eye.

Mr. Annin wrote me that the people at Canandaigua Lake told him that there were large quantities of small lake shiners, as they are called, in the lake. A fisherman said that they are seen in immense schools at the top of the water occasionally, and by firing a gun loaded with shot into them they can stun them so that they can pick up quite a number. They are eagerly sought after for trolling bait for the salmon trout found in that lake.

41. Argyrosomus tullibee (*Richardson*). TULLIBEE.—The tullibee occurs in Onondaga Lake. A female was sent from there by Mr. Annin November 18, 1895, and another of the same sex November 25, 1896. Mr. Annin wrote that the fish commenced running onto the shoals about November 15, and were spawning in the lake November 25. They come up to the banks or gravelly shoals and deposit their eggs in from three feet to seven feet of water. The species has never been caught with the hook in that lake, although almost every kind of bait, the finest and smallest hooks, baited with *Gammarus* and other natural foods, were tried.

The following notes relate to the female obtained November 18, 1895:

Length to end of caudal,	18½ in.
Length of upper caudal lobe,	2⅝ "
Length of middle caudal rays,	1 "
Least depth of caudal peduncle,	1⅜ "
Depth of body at dorsal origin,	4⅝ "
Length of head,	3¼ "
Length of maxilla,	⅞ "
Diameter of eye,	⅝ "
Length of longest gill-raker,	$\frac{9}{16}$ "

The mandible projects slightly. B. 8; D. 11; A. 11; V. 11; scales, 8-75–8; gill-rakers 17 plus 27.

The female received November 25, 1896, is 15 inches long.

New York is well supplied with coregonidæ, having eight of the sixteen North American species. *C. quadrilateralis* is the frost-fish of the Adirondacks and the Great Lakes. *C. clupeiformis*, the common whitefish, inhabits the Great Lakes and Lake Champlain. *C. labradoricus*, the Labrador whitefish, is very abundant in the Adirondacks, and is found also in the Great Lakes. *Argyrosomus osmeriformis* is a

shapely little herring of Seneca and Skaneateles Lakes. *A. artedi* is the common lake herring or cisco of the Great Lakes and Lake Champlain. *A. hoyi*, the lake shiner, or Hoy's whitefish, is above recorded from Canandaigua Lake *A. prognathus*, the long-jaw, the only summer-spawning whitefish so far as known, lives in Lake Ontario, and, finally, *A. tullibee*, is the fine whitefish of Onondaga Lake.

42. Salmo salar (*Linnæus*). ATLANTIC SALMON.—Although this is again a New York fish, it is represented in the Aquarium by the young hatched here from eggs taken from the Restigouche River, Canada. Eggs just on the point of hatching were received about May 1, 1897, from Mr. Percy Baker, and in a few days several hundred healthy fry were set free. These were reared almost without loss until June 18, when the temperature of the water had reached 76° Fahr. The refrigerating plant was not completed until July 7, and then only three of the young survived. One of these was subsequently lost by the displacement of a strainer. The larger of the two is now (November 27) 3⅜ inches long. Liver has been the principal food of these salmon.

43. Salmo salar sebago (*Girard*). LAND-LOCKED SALMON.—This salmon has been introduced into our waters from Maine, and appears to have become established in several localities. A very fine example was obtained from the South Side Sportsmen's Club, of Long Island, but it was injured in transportation and never recovered. In April, 1896, several individuals from Maine were presented by Mr. Eugene G. Blackford. One of these lived in a tank on the salt-water side for nineteen months, and was then frightened by visitors when the water was drawn low for cleaning, and injured itself so badly that it died after a few hours of struggling. The following measurements were obtained from the fresh fish:

Length,	24 in.
Middle caudal rays from end of scales,	1⅝ "
Depth,	4 "
Least depth of caudal peduncle,	1⅛ "
Head,	4¾ "
Snout,	1¼ "
Eye,	1 1/16 "
Orbit,	¾ "
Snout to dorsal,	9½ "
Dorsal base,	2¾ "
Longest dorsal ray,	2⅜ "
Last dorsal ray,	1¼ "
Snout to ventral,	11¼ "

Length of ventral,	2¼ in.
Snout to anal,	16⅜ "
Anal base,	1⅞ "
Longest anal ray,	1⅞ "
Last anal ray,	1⅛ "
Snout to adipose dorsal,	17⅝ "
Width of adipose dorsal,	½ "
Length of adipose dorsal,	¾ "
Length of pectoral,	3¼ "
Upper jaw,	2¼ "
Maxilla,	2 "

The head has about 28 dark spots, the largest on the gill-cover, oblong, ⅝ inch long. Body with many large and small black spots, a few with a pale ring around them, and some as large as the largest on the gill-cover; one on the caudal peduncle of one side distinctly X-shaped. General color dark bluish gray; belly and lower parts iridescent silvery. Fins all dusky; the dorsal with many black spots. Eye pale lemon, the upper part dusky.

Gill-rakers 9 plus 11, the longest ⅝ inch. B. 11; D. 10; scales, 21–123–20.

44. Salmo mykiss (*Walbaum*). BLACK-SPOTTED TROUT; RED-THROAT TROUT.—The Lake Tahoe, California, trout form *S. mykiss henshawi* (Gill & Jordan), was obtained by Mr. James Annin, Jr., and reared at his establishment. Young individuals were sent by him in November, 1896, and thrived in the Aquarium until the latter part of June, 1897, when they were overcome by warm water. They would not endure the transfer to salt water.

45. Salmo gairdneri (*Richardson*). STEELHEAD TROUT.—From information furnished by Mr. Annin, it appears evident that some of the eggs of trout received at Caledonia, N. Y., many years ago, from the McLeod River, California, as rainbows, really included both rainbows and steelheads. He finds certain females producing deep salmon-colored eggs, while in the same pond and receiving the same food as other females which furnished very light-colored, almost white, eggs. Some of the females also differ in going to the spawning beds nearly two months in advance of others. It is now known also that the McLeod contains a small-scaled form of the rainbow, known to the Indians as the no-shee, and this also may easily have been sent to the East under the name of rainbow. Striking differences in the appearance and habits of so-called rainbows introduced into the various States lend color to this supposition.

The steelheads now in the Aquarium were obtained in November, 1896, from the United States Fish Commission. They were hatched from eggs shipped from Fort

Gaston to the Craig Brook station in Maine. The length of the trout ranged from 4 to 4½ inches; they are now 10 inches long on the average, and weigh many times as much as they did a year ago. None of them have at any time yet shown a red lateral band such as is present in the rainbow, and they are further distinguished by the presence of white tips on the ventral and anal fins; the dorsal also has a small white tip. They have been kept almost from their arrival in salt water, and could not have been kept in the warm Croton water in June. The salt water never rose above 71½° Fahrenheit, and continued at this high temperature only ten days.

46. Salmo irideus (*Gibbons*). RAINBOW TROUT.—Trout of this species have been received from the South Side Sportsmen's Club at Oakdale, Long Island; the New York Hatchery at Cold Spring Harbor, Long Island, and the Caledonia station of the New York Fish Commission. The large fish never stand transportation well when ice is used to cool the water. They frequently injure their eyes so that they become blind soon after the end of the trip. They are inveterate fighters, and the strongest invariably rules the rest. Contrary to what has been stated heretofore, they will not endure high temperatures as well as brook trout.

47. Salmo fario (*Linnæus*). BROWN TROUT.—This is one of the earliest species of trout to be placed in the Aquarium, and has shown remarkable hardiness in captivity. A large female was received from Mr. E. G. Blackford in April, 1896, and placed in a salt-water tank, where it remains now (November 27, 1897), and gives every indication of perfect health. During most of the time the fish has been in salt water, but at certain intervals fresh water is substituted for a short time, especially when symptoms of fungus make their appearance. Liver and live killifish have been used for her food. Last November she excavated a shallow depression in the gravel bottom and deposited a lot of eggs. The species is extremely shy, and never seems to lose its fear of the attendants.

48. Salmo (HYBRID = **fario** + **fontinalis**). HYBRID TROUT.—In a paper published seven years ago, the writer stated as a result of his studies, that when a large-scaled trout is crossed with a small-scaled one, the hybrid will be large-scaled whichever way the cross be made. The hybrid between the brown trout and the brook is a large-scaled form, and it is sterile as far as reported. The Aquarium has had this hybrid from the South Side Sportsmen's Club, and from the New York hatcheries at Cold Spring Harbor, Long Island, and Caledonia. It is always a strikingly handsome fish, and grows to a large size; but it is far less hardy than either of its parents. The cross has always been artificially made, and never occurs naturally. Two specimens studied gave the following measurements in inches:

	Caledonia, N. Y. June 10, 1896. Jas. Annin, Jr.	Oakdale, N. Y. Mar. 23, 1897 Geo. P. Slade
Extreme length,	9 1/4	14 1/4
Length of middle caudal rays from end of scales,	3/4	....
Depth of body,	1 7/8	3 1/8
Least depth of caudal peduncle,	7/8	....
Length of head,	2	3 1/4
Length of snout,	1/2	1 1/8
Length of upper jaw,	1 1/4	.
Length of lower jaw,	1 3/8	
Diameter of eye,	5/16	7/16
Distance from snout to dorsal origin,	3 3/4	
Length of dorsal base,	1 3/16	
Length of longest dorsal ray,	1 5/16	
Length of last dorsal ray,	3/4	
Distance from snout to ventral origin,	4 1/2	
Length of ventral,	1 1/8	
Distance from snout to anal origin,	6	
Length of anal base,	7/8	
Length of longest anal ray,	1 1/4	
Length of last anal ray,	1/2	

The Caledonian specimen has no hyoid teeth; the vomerines are in a very small patch on the head of the bone only. The gill-rakers are 4 plus 10, the longest about one-half diameter of the eye. It has about 124 tubes in the lateral line. Branchiostegals, 10. The following color-notes were taken from the fresh fish:

Dorsal fin with numerous dark blotches resembling those of young rainbow. Adipose long and slender, amber color with two obscure dusky blotches, one of these very indistinct. Lower half of sides pink; ventral, anal and caudal pink; ventral and anal with a milk-white front margin, that in the anal limited behind by a dark line as in brook trout. Sides reticulated with large meshes of lemon yellow interspersed with darker purplish or olive. Dorsal blotches are mingled with pale lemon. Pectoral pale vermilion. Eye silvery white with yellowish reflections.

The specimen from Oakdale, Long Island, weighed twenty ounces. It has a triangular patch of vomerine teeth, as found in *fontinalis*, but continued behind by several teeth in a single row, the entire length of the vomerine series being seven-sixteenths of an inch.

49. Cristivomer namaycush (*Walbaum*). LAKE TROUT; SALMON TROUT.—The only New York examples of lake trout were received from Mr. James Annin, Jr., Caledonia, in the fall of 1896. They lived and grew rapidly until the warm water

killed them in June, 1897. They could not endure transfer to salt water of a lower temperature, as so many other trout will do, and nothing else could be utilized to tide them over until the completion of the refrigerating plant.

Owing to the extensive individual and race variation among trout referred to this species, it seems desirable here to give some notes and measurements made from individuals obtained from New Hampshire and Vermont. Two lake trout weighing about four and three-quarter pounds each were shipped in a can, only a few inches longer than the fish, from Roxbury, Vermont, on November 17, and after an express journey of twenty hours without an attendant one of them survives in good condition, while the other was nearly dead upon arrival and died within one hour. The latter was a female, and appears to have injured itself severely by jumping in the can; it was not in good condition when it left Vermont. Twelve large brook trout shipped with the lake trout in two cans arrived without injury; these and the lake trout were presented by Mr. John W. Titcomb, Fish and Game Commissioner.

Commissioner N. Wentworth, of Hudson Center, N. H., forwarded the New Hampshire lake trout, one from Newfound Lake, the other from Lake Winnepesaukee. They were sent to determine whether the trout of the two lakes, which the fishermen claim are different species, really are distinct. The Commissioner wrote that "The Newfound trout has darker flesh, more like the sea salmon. This is not caused by their food, as both lakes are alive with smelt. The Winnepesaukee lake trout are better biters; tons of them are caught through the ice every winter. The Newfound trout are hardly ever caught through the ice. A few were caught last winter for the first time to my knowledge. I am sure there is but one variety of lake trout in Newfound Lake. We had one in our tanks this fall that would weigh twenty-five pounds." The only difference to be found upon examination were such as relate to the depths at which the two races habitually live; one is the slim, dark-colored *tuladi*, and the other the common lake trout of the Great Lakes region.

It is necessary, however, to call attention to the lake trout from Northern Vermont, which furnished one of the series of measurements given below. The gill-rakers in that example are few in number and unusually short, four or five on each side being reduced to mere spiny tubercles.

MEASUREMENTS IN INCHES.

	Newfound Lake	Winnepesaukee Lake	Roxbury, Vt.
	♂	♂	♀
Length, including caudal,	24½	27⅛	22
Length to base of middle caudal rays,	21	23⅜	19½
Least depth of caudal peduncle,	1⅝	1⅞	....
Greatest depth of body,	4⅝	6⅜	4½
Thickness of body,	2¾	2⅝	2¾
Length of head,	5⅜	6½	4¼
Length of snout,	1¼	1¾	1⅜
Length of postorbital part of head,	3¼	3⅞	2½
Length of upper jaw,	2¾	3⅞	2⅜
Length of maxilla,	2¼	3	2
Diameter of eye,	¾	¾	⅝
Interorbital width,	1⅝	2⅜	1⅛
Distance from snout to dorsal,	10¾	12⅝	10
Length of dorsal base,	2⅝	2½	2⅛
Length of longest dorsal ray,	3	2¾	2⅜
Length of last dorsal ray,	1½	1⅜	1⅛
From end of dorsal to adipose fin,	4½	5	4¼
Length of adipose fin,	¾	1	¾
Width of base of adipose fin,	⅜	9/16	⅜
Distance from snout to ventral,	12¼	14⅜	11⅝
Length of longest ventral ray,	2⅝	2⅞	2⅜
Length of last ventral ray,	1⅜	1½	..
Length of ventral appendage,	¾	⅜	⅝
Distance from snout to anal,	16	18⅝	15½
Length of anal base,	2	2⅜	1⅞
Length of longest anal ray,	2¾	2½	2½
Length of last anal ray,	1	1	¾
Length of pectoral,	3½	3½	3¼
Length of upper caudal lobe,	3¾	3¾	....
Length of lower caudal lobe,	3½	3⅞	....
Length of longest gill-raker,	7/16	7/16	5/16

In the Newfound Lake fish we have:

B. 11; D. 11; A. 10 (counting divided rays only); V. i, 8; P. i, 12; scales, 26–195–34 (about 150 tubes); gill-rakers, 9 plus 13, the longest a little more than one-half length of eye, the one in the angle club-shaped at the tip. It is a male with spermaries moderately small but soft. The body is gray, darker on the back. The outer edge of the pectoral and ventral and the front margin of the anal are white as in *fontinalis*. A white tip to the lower caudal lobe and a very small one at the top of the dorsal. Otherwise the coloration is like that of ordinary lake trout which have the pectoral, ventral and anal chiefly vermilion in the breeding season.

The male from Winnepesaukee Lake has:

B. 12 to 13; D. 10; A. 10; V. i, 8; P. 12; gill-rakers 8 plus 12, the longest about one-half as long as the eye. The ground color is a little lighter than in the Newfound lake trout, and the vermilion of the pectorals, ventrals and anal is less intense. The spermaries are larger than in the specimen from Newfound, and in about the same stage of development; the body is considerably stouter.

The female from Roxbury, Vermont, shows the following additional characters:

B. 12; D. 10; A. 10; V. i, 8; gill-rakers 8 plus 12, the longest exactly one-half as long as the eye. The eggs and ovaries are small as in young females. The pectorals, ventrals and anal area chiefly vermilion as in the male from Newfound Lake. The body is silvery gray with numerous small, whitish spots, these present also upon the dorsal.

50. Salvelinus fontinalis (*Mitchill*). BROOK TROUT; SPECKLED TROUT.—Brook trout have been received from New York Fish Commission stations at Caledonia and Cold Spring Harbor, from the private establishment of Mr. James Annin, Jr., the preserve at Oakdale, Long Island, of the South Side Sportsmen's Club, the Maine Fish Commission, from Mr. John W. Titcomb, President, Vermont Fish and Game Commission, Mr. E. G. Blackford, New York, and Mr. A. N. Cheney, State Fish Culturist of New York. The only brook trout that endured the high temperature (76°) of the Croton water in June, 1897, was one young individual from Caledonia. The Vermont trout were saved by sending them to Cold Spring Harbor in May.

The food of the trout in the Aquarium consists almost entirely of chopped hard clams and liver for the young, and hard clams, live killifish, and occasionally earth worms for the larger ones. Their increase in weight has been remarkable; an individual from Caledonia, for example, received in November, 1896, as a fingerling not above 3½ inches long, is now (December 10, 1897) 12¼ inches long, and 3½ inches deep. This species will live indifferently in the fresh and salt water of the Aquarium. When attacked by fungus in fresh water the parasite is easily killed by keeping the fish in salt water, and the trout is not at all injured or inconvenienced by this treatment if the transfer be made gradually, that is, from fresh to brackish, and finally salt water of the salinity here found (about 1.017). A trout so treated and cured has practical immunity from fungus attacks thereafter. The brook trout is well adapted to domestication in tanks: it soon overcomes its fear of moving objects, takes its food regularly, and is always attractive because of its beauty and grace of movement.

51. Osmerus mordax (*Mitchill*). SMELT.—The smelt is found in Gravesend Bay in winter, beginning to run in December, and remaining during cold weather. In the spring it ascends rivers to spawn. The eggs are small and adhesive. The fry are hardy in transportation. In the Aquarium the adults live until about the end of

June, when the water becomes too warm and they die. Their food consists mainly of shrimps and other small crustaceans.

52. Umbra limi (*Kirtland*). MUD MINNOW.—A number of mud minnows were shipped in wet moss from Caledonia, N. Y., April 10, 1896, by James Annin, Jr., and nearly all were alive at the end of the twelve hours' journey. The species has not proved hardy, either in balanced tanks or in running water, notwithstanding its reputation as a fish that can endure alternate freezing and thawing without permanent injury.

53. Lucius americanus (*Gmelin*). BANDED PICKEREL.—On December 30, 1895, Mr. James Annin, Jr., sent from Rockland, N. Y., a small pickerel which had attracted his attention on account of its colors and markings. It was taken in a small spring brook, tributary to the Beaverkill, which, about ten or fifteen miles below, unites with the Delaware. Subsequently two examples were forwarded alive from the same place, and one of them is still living in the Aquarium. The following notes and measurements, in inches, relate to the first individual of undetermined sex, the organs being undeveloped:

Length, including caudal fin,	7¾ in.
External caudal lobe (horizontally),	1⅛ "
Middle caudal rays (from end of scales),	½ "
Length of head,	1¾ "
Greatest depth of body,	1⅛ "
Least depth of caudal peduncle,	½ "
Length of snout,	⅝ "
Length of maxilla,	11/16 "
Length of mandible,	1 3/16 "
Diameter of eye,	5/16 "
Distance from snout to dorsal,	5 3/16 "
Length of dorsal base,	⅞ "
Length of longest dorsal ray,	¾ "
From end of dorsal to caudal origin,	⅞ "
Distance from snout to pectoral,	1⅝ "
Length of pectoral,	1 3/16 "
Distance from snout to ventral,	3⅝ "
Length of ventral,	¾ "
Distance from snout to anal,	5¼ "
Length of anal base,	¾ "
Length of longest anal ray,	11/16 "
From end of anal base to origin of lower caudal lobe,	¾ "

B. 12; D. 12; A. 11; V. 9; scales, 24–110.

The maxilla reaches to below the middle of the pupil. The mandible projects $\frac{1}{16}$ of an inch when the mouth is closed. The diameter of the eye is contained $5\frac{2}{3}$ times in length of head. The stomach was empty, but insect remains were voided from the vent.

Colors.—About twenty oblique, interrupted, dark bands on the body. A narrow oblique dark band under the eye and four rather large dark blotches on the cheek and opercle. Pectorals, ventrals and anal orange. A tinge of orange on the dorsal and caudal. General color olivaceous gray, with golden reflections; lower parts creamy white. Iris lemon mingled with pale brown. Peritoneum silvery.

All the pickerels are liable to fungus attacks without apparent cause, but, as a rule, they can be cured by the salt water treatment. Their food consists of small live killifish, which they approach slowly and deliberately until within five or six inches, when they rush, seize, and stop as abruptly as if stopped by an obstruction.

54. Lucius reticulatus (*Le Sueur*). CHAIN PICKEREL.—Living pickerel were sent from Canandaigua Lake by Mr. James Annin, Jr., and small examples were seined in the Bronx. Others were given to the Aquarium by Charles A. Shriner, Chief Game and Fish Protector of New Jersey, and Professor Ulric Dahlgren of Princeton University. The chain pickerel is always hard to keep in good condition in captivity, but the losses here have been very small owing to the success of the salt water treatment for fungus. The fish spawned in their tank in June, 1897, and young were hatched naturally, but they died when about three-quarters inch long because they could not be induced to feed. The feeding habits of this pickerel are the same as stated concerning *L. americanus*

55. Lucius lucius (*Linnæus*). PIKE.—About July 1, 1896, a fresh specimen was sent for identification by Mr. Annin from Silver Lake, Wyoming County, N. Y. He says the pike is not found in Canandaigua Lake. Curiously enough, the Aquarium has never yet had a living example.

56. Lucius masquinongy immaculatus (*Garrard*). UNSPOTTED MASCALONGE.—The examples of unspotted mascalonge received at the Aquarium were from Chautauqua Lake, New York, which belongs to the Ohio River drainage system. It appears that the typical spotted form also inhabits the Ohio basin, but occurs rarely. Mr. Annin sent one individual December 4, 1895, and two on May 4, 1896; from these three were obtained the following notes and measurements in inches:

	Dec. 4, 1895.	May 4, 1896.	May 4, 1896.
Length, including caudal fin,	23½	27⅛	25⅞
Length to end of scales,	....	23⅞	23
Length of caudal lobe (horizontally),	3⅝	.	.
Length of middle caudal rays,	1½	....	....
Depth of body,	3⅝	4	3⅞
Least depth of caudal peduncle,	1½	1¾	1⅝
Length of head,	5¾	6⅝	6⅛
Length of snout,	2⅜	2¾	2½
Length of maxilla,	2½	2⅜	2⅛
Length of mandible,	3¾	4¼	3¾
Diameter of eye,	½	9/16	9/16
Distance from snout to dorsal,	....	18⅛	16¾
Length of dorsal base,	....	2¾	2⅞
Length of longest dorsal ray,	....	2⅞	2⅝
Distance from snout to ventral,	....	13½	12¾
Length of ventral,	....	2½	2⅜
Length of anal base,	....	2¼	2 5/16
Length of longest anal ray,	....	2¾	2 9/16
Length of pectoral,	....	2¾	2 9/16
Branchiostegals,	19	18	19
Dorsal rays (developed),	18	16	17
Anal rays (developed),	16	15	15
Rows of scales,	ca. 153	.	.
Gill-rakers,	13 + 28	.	.

In all the specimens the maxilla extends to below the front edge of the pupil. The gill-rakers are mere clumps of spiny tubercles. In the two males the diameter of the eye is contained from 4⅓ to 5 times in the length of the snout, and from 10 to 11 times in the length of the head.

In the individual of December 4, 1895, the lateral line tubes are distributed over various parts of the sides without much regularity except in the median line. There are no black spots. About twenty entire, blotch-like, irregular cross bands and several parts of bands and blotches intervening. The lower third of the pectoral is pink. The dorsal, caudal and anal with dark blotches making pseudo bands. Iris lemon yellow overlaying silvery white. The general color is olive green with golden tints.

The two males of May 4, 1896, furnished the following color-notes:

Olive green tinged with golden bronze. Sides with about 23 irregular dusky blotches resembling interrupted bands. Dorsal, caudal and anal with numerous large dusky blotches,

those on dorsal and anal almost forming bands. Iris lemon yellow and silvery in the larger; almost vermilion and orange in smaller. A dark blotch at upper edge of opercle.

The Chautauqua Lake mascalonge, according to Mr. James Annin, Jr., who sent the specimens, is a very fine food and game fish, and attains to the weight of fifty pounds. In the spring of 1895 it was not unusual to capture individuals weighing from forty to fifty pounds, and twenty to thirty pounds was a very common weight. In winter the fish frequent nearly the same localities as in summer, being found in the vicinity of water-plants. When the lake becomes very clear in February, they go into deep water, but they live in deep water more or less all the year.

For the fish-cultural operations the nets are set as soon after the first of April as the ice leaves the lake. The fish begin to spawn a few days after and continue until the latter part of April. They go into shallower water for spawning; most of them spawn in from ten to 15 feet of water. They do not resort to the gravel like many other fish, but to mud, generally going into bays. The eggs are placed in boxes, all of which are provided with screens at top and bottom. The bottom has an extra screen, to prevent minnows from injuring the eggs. The boxes are sunk from one to two feet under the surface of the water. Every day or two they are drawn up, the covers removed, and all bad eggs and sediment cleaned out.

57. Fundulus majalis (*Walbaum*). BASS MINNOW; KILLIFISH.—This large killifish is found all the year in Gravesend Bay. It has proved less vigorous in captivity than all the other marine killifishes. In the winter it is found in deep, muddy holes at the mouths of creeks.

58. Fundulus heteroclitus (*Linnæus*). KILLIFISH.—A permanent resident in Gravesend Bay, going into deep, muddy holes near the mouth of creeks in winter. This species forms the principal supply of live food for the larger fishes in the Aquarium.

59. Fundulus diaphanus (*Le Sueur*). FRESH-WATER KILLIFISH.—This is usually a most difficult species to keep in health. The individuals now in the gallery were seined in the lake at One Hundred and Tenth Street and Fifth Avenue, Central Park, in August, 1897. As a rule the fish is attacked and killed by fungus before the salt-water treatment can take effect. Its food is chopped hard clams chiefly. Occasionally it takes liver. It cannot be considered hardy in captivity.

60. Lucania parva (*Baird & Girard*). RAINWATER-FISH.—This killifish is abundant in Peconic, Shinnecock and Great South Bays, and in a fresh-water stream at Water Mill, Long Island. Although small it is always interesting because of its translucent body and its graceful movements; it is hardy and takes chopped clams very freely. The fish does not exceed one and one-half inches in length.

FEMALE LAND LOCKED SALMON or OUANANICHE

(Salmo Salar Sebago Gmel.)

61. Cyprinodon variegatus (*Lacépède*). LEBIAS; SHORT KILLIFISH.—Mr. Spencer has kept a male and two females in a balanced jar nearly two years. They have bred at least once, and the young were reared to a length of five-eighths inch when they disappeared suddenly, and it is probable that they were eaten by the adults. This is one of the best of the Cyprinodonts for aquarium purposes.

62. Tylosurus marinus (*Walbaum*). SILVER GAR; NEEDLE-FISH.—The silver gar is to be found in Gravesend Bay from June to September. It never stands transportation, and cannot be kept long in captivity.

63. Eucalia inconstans (*Kirtland*). BROOK STICKLEBACK.—Living examples were obtained from Mr. James Annin, Jr., at Caledonia, N. Y., April 10, 1896. For some unexplained reason it is difficult to keep the fish alive either in balanced or circulating tanks; it does better in the former. One individual of the lot above mentioned is now alive in a balanced tank. It has always been shy, but feeds readily upon hard clams and *Gammarus*.

64. Pygosteus pungitius (*Linnæus*). NINE-SPINED STICKLEBACK.—Less abundant in Gravesend Bay than the following two species. In the Aquarium it is not difficult to keep alive.

65. Gasterosteus bispinosus (*Walbaum*). STICKLEBACK.—The adults have been kept in a balanced marine tank many months, and young were obtained and reared to the length of about half an inch, but they were then eaten by the adults. All of this species were killed by warm water in the summer of 1896.

66. Apeltes quadracus (*Mitchill*). THREE-SPINED STICKLEBACK.—A hardy species in circulating tanks; but none have ever been known to breed in captivity. Their food consists of chopped hard clams and broken shrimps.

67. Siphostoma fuscum (*Storer*). PIPE-FISH.—The pipe-fish is moderately common in summer in eelgrass and sea lettuce in Gravesend Bay. It is difficult to find suitable food for it in the Aquarium, and, as a consequence, it is short-lived. The species likes shrimp with eggs and small *Gammarus*. Several examples taken at Sandy Hook, October 8, 1897, are still alive in a slightly circulating tank in the Aquarium, in a temperature of 54° Fahrenheit. They feed well upon *Gammarus* and seem to be in good condition.

68. Hippocampus hudsonius (*De Kay*). SEA-HORSE.—The sea-horse is sometimes found in large numbers in the nets at Gravesend Bay, but has not been abundant since 1895. It endures captivity for a few months only; individuals have been kept eight months in a "balanced" tank, where they thrive best. The food consists of *Unciola* and shrimp eggs.

69. Aphredoderus sayanus (*Gilliams*). PIRATE PERCH.—Common in a lake at Patchogue, Long Island, where it has sometimes been mistaken for young carp. The individuals in the Aquarium were sent by Professor Ulric Dahlgren from Princeton, N. J., in October, 1897. They have never been observed to feed, and do not look well.

70. Menidia beryllina (*Cope*). FRESH-WATER SILVERSIDE.—This small silverside, heretofore found only in the Potomac River, is abundant in a little mill stream at Water Mill, Long Island, where the writer seined it, September 14, 1897, in company with *Fundulus diaphanus*, *Lucania parva*, *Eupomotis gibbosus*, and *Lucius reticulatus*. The largest of the individuals are two and three-eighth inches long. Owing to high temperature the shipment to New York was unsuccessful, none of the fish having lived in the Aquarium longer than a few days. Following are some of the characters:

D. V. I, 10; A. I, 16-17; scales, 8-40.

71. Menidia notata (*Mitchill*). SILVERSIDE; SPEARING.—This species is found in Gravesend Bay almost all the year, inhabiting spring holes in winter. Individuals brought into the Aquarium in the winter of 1895 are still living (November 28, 1897). They endure the summer temperature, which has sometimes reached 71½ degrees Fahrenheit in the salt-water tanks. They feed here upon hard clams and shrimp.

72. Labidesthes sicculus (*Cope*). BROOK SILVERSIDE; SKIPJACK; GLASS-FISH.—The name glass-fish is used for the species on Chautauqua Lake. Mr. Annin sent some living examples April 22, 1897, but they were in a very weak condition after the twelve hours' journey by rail, and soon died.

73. Mugil cephalus (*Linnæus*). STRIPED MULLET.—The young mullet are abundant in Gravesend Bay in midsummer; larger ones appear in September and October. One winter, some years ago, they hibernated in the mud in Sheepshead Bay and were taken with eel-spears. It feeds and thrives most of the year, but cannot survive the heat of summer. Food in the Aquarium consists of hard clams and shrimp.

74. Mugil curema (*Cuv. & Val.*). WHITE MULLET.—This appears with the foregoing, but is less abundant in Gravesend Bay.

75. Sphyræna borealis (*De Kay*). BARRACUDA.—Several young individuals were captured in Gravesend Bay in September, 1896. The species is not common in that locality. An individual five and one-half inches long was seined at Sandy Hook, October 8, 1897; it lived only until October 31, and was never observed to take food. The species never has been successfully reared in the Aquarium.

76. Polydactylus octonemus (*Girard*). THREADFIN.—On September 24, 1896, three specimens were obtained by Mr. John B. De Nyse in Gravesend Bay and sent to the Aquarium dead, as they would not endure captivity. The fish agrees in coloration and in every other respect with *P. octofilis* Gill, and is believed to be the adult form of *P. octonemus* Girard. This is probably the first record of its occurrence in New York waters for more than thirty years.

MEASUREMENTS.

Length, including caudal,	8¾ in.
Length to end of middle caudal rays,	7½ "
Length to origin of middle caudal rays,	6⅝ "
Greatest depth of body,	2 "
Least depth of caudal peduncle,	1 5/16 "
Length of head,	1¾ "
Length of snout,	5/16 "
Diameter of eye,	5/16 "
Length of upper jaw,	¾ "
Length of mandible,	¾ "
Length of longest pectoral filament,	2⅜ "
Length of upper and lower caudal lobes,	2¼ "
Length of pectoral,	1½ "
Length of longest (third) dorsal spine,	1¼ "
Length of second dorsal ray,	1¼ "
Length of ventral,	1 5/16 "
Length of longest anal ray,	1 "
Length of anal base,	1 1/16 "
Length of base of first dorsal,	¾ "
Length of base of second dorsal,	1⅛ "

The longest pectoral filament reaches to below the interspace between the two dorsals and slightly past the vent. The diameter of the eye equals the length of the snout and one-fifth the length of the head.

77. Ammodytes americanus (*De Kay*). SAND LAUNCE; SAND EEL; LANT.—The species appears in Gravesend Bay in July, but is more plentiful in winter. In the Aquarium it will not thrive for want of sand and proper food. It swims continually and soon dies. The fish buries itself in sand and sometimes, when alarmed, will leap four inches above the sand.

78. Mullus auratus (*Jordan & Gilbert*). RED MULLET; GOAT FISH.—Three individuals of a *Mullus* were captured in a seine at Sandy Hook, N. J., October 8, 1897, and brought alive to the Aquarium, where they are now (November 30, 1897)

in good condition and feed freely upon shrimp. As the fish are living it is uncertain whether or not they are *M. auratus;* but they agree in the main with the description of that species. Their endurance of water at a temperature of 50° Fahr. is unexpected. *M. auratus* is recorded upon our East Coast from Cape Cod to Florida, but it is rare as a rule in the north. Fishermen at Sandy Hook reported that large numbers were seen there in September and October, 1897.

79. Scomber scombrus (*Linnæus*). MACKEREL.—Two young, three and one-quarter to five and one-half inches long, were taken in Gravesend Bay, L. I., May 23, 1896, in John B. De Nyse's shad pond. No more were seen, and these were the first for the year. They come about the time of the appearance of anchovy and weakfish. They are often seen swimming at the surface of the bay in small bunches of eighteen or twenty, occasionally one hundred, in the latter part of May or early in June. They are always split up into small bunches, probably by the attacks of weakfish and other predaceous species which are present at the time. Flukes attack them also in shallow water; flukes are very destructive to young fish. A fluke will often have eight or ten little tautogs in its stomach. They frequent the flats for the purpose of feeding on little fishes.

80. Scomber colias (*Gmelin*). THIMBLE-EYE MACKEREL; CHUB MACKEREL.—This species was not found in large numbers in Gravesend Bay in 1897, but in 1896 it abounded in all the little creeks, and in some instances the fish could be dipped up by the boat loads with scoop-nets. The fish reached ten inches in length before the end of the summer.

81. Sarda sarda (*Bloch*). BONITO.—The fish is generally scarce in Gravesend Bay. Five were taken in one day in a pound net in October, 1897, an unusual number for that species. The fish will not live in captivity.

82. Trichiurus lepturus (*Linnæus*). SCABBARD-FISH.—One young example was caught in John B. De Nyse's pound, Gravesend Bay, in August, 1897. It had been captured by another fish while in the pound, but was rescued in good condition. The species is very rarely seen in that bay.

83. Oligoplites saurus (*Bloch & Schneider*). LEATHER JACKET.—An example nine and three-quarters inches long and two and one-half inches deep was secured in De Nyse's pound in Gravesend Bay in the summer of 1896. It is rarely seen there.

84. Seriola zonata (*Mitchill*). BANDED PILOT.—The species does not endure close confinement, but thrives in the great pool of the Aquarium. Two examples, taken in September in Gravesend Bay, are living at the end of November, 1897. They feed on small killifish, which they take with a rush much the same as the brook trout.

85. Seriola lalandi (*Cuv. & Val.?*). AMBER-FISH.—A large amber-fish was captured by Mr. De Nyse in Gravesend Bay, July 15, 1896, and was brought alive to the Aquarium August 8, but it never recovered from the effects of the journey. The large *Seriolas* are too active and shy to stand transportation, and they rarely live in captivity, but a species received from Bermuda early in July, 1897, is alive in the Aquarium (December 10), and still feeds regularly upon pieces of herring and live killifish.

A description and measurements in inches of the Gravesend Bay specimen may help to verify or correct the identification:

Length, including caudal,	33½ in.
Length to end of middle caudal rays,	30½ "
Length of external caudal lobes from pit,	7 "
Length of middle caudal rays,	2 "
Greatest depth of body,	6¾ "
Least depth of caudal peduncle,	1⅝ "
Greatest thickness of body,	4 "
Length of head,	8 "
Length of upper jaw,	3½ "
Width across end of maxilla,	3½ "
Length of mandible,	4⅛ "
Length of snout,	2¾ "
Diameter of eye,	1¼ "
Diameter of pupil,	2¾ "
Distance from snout to vertical from first dorsal origin,	10¼ "
Length of first dorsal base,	3½ "
Length of first spine,	⅝ "
Length of second spine,	1¼ "
Length of third (longest) spine,	1⅝ "
Length of seventh spine,	¼ "
Distance from snout to second dorsal (obliquely),	14¼ "
Length of second dorsal base,	11¾ "
Length of second ray of second dorsal,	3¾ "
Length of first ray,	1⅝ "
Length of last ray,	1⅜ "
Length of pectoral,	3⅞ "
Length of ventral,	4⅝ "
Distance from ventral origin to anal origin,	10⅛ "
Distance from vent to anal origin,	2 "

The jaws are equal. The maxilla reaches to below the middle of the pupil. The pectoral and ventral origins are in the same vertical.

D. VII, 26; A. I, 24; V. 6; P. 21; scales, about 24–160–30; gill-rakers, 4 plus 10, the longest 1⅛ inches, very thin, much wider at base, and tapering gradually to a small, rounded point, very finely toothed on inner margin.

Teeth in broad, villiform bands in both jaws; an arrow-shaped patch with long, slender backward process on vomer. Similar bands on palate and pharynx.

The ground color is gray with purplish iridescence. A golden bronze stripe beginning on the snout and continued behind the eye to the caudal in a nearly straight line, slightly above the median line. Another bronze stripe begins above the eye and extends to the first dorsal. In life, two dark bands showed between the eyes and extended to the first dorsal. Sides and lower parts much mingled with silvery white. Iris gray overlaid with golden yellow. Pupil bluish black. All the fins colored like the body except the ventrals, which are whitish underneath, and gray mingled with white above.

The weight of the fish was thirteen pounds, one and one-half ounces.

86. Elagatis bipinnulatus (*Quoy & Gaimard*). RUNNER.—On August 2, 1895, a fresh dead specimen of the runner was brought from Mr. De Nyse's pound in Gravesend Bay. This tropical species has once before been recorded from Long Island.

87. Decapterus punctatus (*Agassiz*). SCAD; ROUND ROBIN.—The spotted scad is not recognized in Gravesend Bay. It was found abundant, August 31, 1897, in the ocean at Southampton, Long Island.

88. Decapterus macarelius (*Cuv. & Val.*). MACKEREL SCAD.—The mackerel scad has not yet been recorded in Gravesend Bay, but was found common at Southampton, Long Island, in the Atlantic, August 31, 1897, associated with the preceding species and young *Scomber*, *Pomatomus*, *Rhombus*, *Clupea*, *Etrumeus*, two species of *Stolephorus* and *Paralichthys*.

89. Trachurops crumenophthalmus (*Bloch*). BIG-EYED SCAD.—This is taken in the fall in Gravesend Bay. It is another fish that soon dies when closely confined, but will live within suitable ranges of temperature in the large pool. The food is small killifish, chopped clams and shrimp. Found August 31, 1897, in the surf at Southampton, Long Island.

90. Caranx hippos (*Linnæus.*) YELLOW MACKEREL; CREVALLÉ.—The remarks made concerning the big-eyed scad will apply to the two species of Crevallé.

91. Caranx crysos (*Mitchill*). CREVALLÉ.—At the end of November, 1897, several Crevallés of this and the preceding species are living and feeding in the large pool. Occasionally they school together under the sand shark and follow it about.

92. **Alectis ciliaris** (*Bloch*). THREAD-FISH.—This species is occasional in summer in Gravesend Bay. In the Aquarium it usually lives about three months, dying when the temperature falls much below sixty degrees.

93. **Vomer setipinnis** (*Mitchill*).—HORSE-FISH; SHINER.—An example was brought from Gravesend Bay, October 21, 1896. The young, called "Dollar-fish" here, was brought from the bay October 22, 1896, for examination.

94. **Selene vomer** (*Linnæus*). MOON-FISH.—On September 8 and 29, 1897, three examples of the moon-fish were taken in Gravesend Bay. In November these were transferred to a tropical tank, in which the water is kept at a temperature of 68° to 70° Fahr., and they are taking their food regularly.

95. **Trachinotus carolinus** (*Linnæus*). POMPANO.—The young are summer and fall visitors in Gravesend Bay. Twenty-two individuals were placed in the Aquarium in August, 1897, and thrived until the temperature of the water fell below 60° Fahr. in November, during which month all of them died.

96. **Trachinotus falcatus** (*Linnæus*). ROUND POMPANO.—The young are occasionally taken in summer in Gravesend Bay. Early in September, 1897, a small individual was placed in the Aquarium and lived more than two months; it died in November on account of the low temperature of the water. As long as the temperature was suitable it fed and grew rapidly.

97. **Pomatomus saltatrix** (*Linnæus*). BLUEFISH; SNAPPER.—This is usually regarded as a difficult species to keep in the Aquarium. On October 8, 1897, five young were brought from Gravesend Bay and Sandy Hook, and three of them are now living (November 30) and feeding freely.

98. **Coryphæna hippurus** (*Linnæus*). DOLPHIN.—A fine example, 17 inches long and 2¾ inches deep, was brought in from off Sandy Hook late in August, 1897. It was caught by a trolling line while fishing for bluefish, and so badly injured in one of the eyes that it could not be kept alive.

99. **Palinurichthys perciformis** (*Mitchill*). RUDDER-FISH.—Rare in Gravesend Bay. Some years none are seen, but usually one or two will appear during the summer.

100. **Rhombus triacanthus** (*Peck*). HARVEST-FISH; BUTTER-FISH.—This is found in Gravesend Bay from April to November. It is not a hardy fish in the Aquarium.

101. **Rhombus paru** (*Linnæus*). HARVEST-FISH; PAPPY-FISH.—A summer visitor in Gravesend Bay and sometimes rare, but formerly abundant. Not well adapted to Aquarium life.

102. Eupomotis gibbosus (*Linnæus*). SUNFISH.—The common sunfish abounds in the parks, and living individuals have been received also from Canandaigua Lake, the Adirondack lakes and elsewhere. It is hardy but subject to fungus attacks, which yield readily to treatment with brackish water.

103. Micropterus dolomieu (*Lacépède.*) SMALL-MOUTHED BLACK BASS.—Fourteen young of the year were received from James Annin, Jr., Caledonia, N. Y., on October 6, 1896. On the approach of cold weather they remained nearly dormant and took almost no food during the winter, but when the spring was advanced they fed eagerly and grew rapidly.

104. Micropterus salmoides (*Lacépède*). LARGE-MOUTHED BLACK BASS.—Three individuals, about four inches in length, were received from Mr. Annin, at Caledonia, October 6, 1896. They hibernated and almost always refused food in the winter, but fed ravenously in spring, summer and fall. Young fish from one-half to two inches long were seined in Bronx River in August, and they prove hardy in captivity.

105. Stizostedion vitreum (*Mitchill*). PIKE-PERCH; WALL-EYED PIKE; PIKE.—Mr. James Annin, Jr., of Caledonia, sent two individuals, April 23, 1896, for identification. They furnished the following notes and measurements in inches:

Length, including caudal,	18 3/4	18
Length to end of middle caudal rays,	18	17 1/8
Depth of body,	3 1/2	3 1/2
Least depth of caudal peduncle,	1 1/8	1 1/4
Length of head,	4 3/4	4 3/8
Length of snout,	1 1/4	1 1/8
Diameter of eye,	13/16	13/16
Length of maxilla,	2	1 7/8
Length of mandible,	2 3/4	2 1/2
Dorsal,	XIV, I, 21	XIV, I, 20
Anal,	III, 11	III, 11
Scales,	92	93

The pyloric cœca are long and loaded with fat. The male is brassy; the female gray and whitish.

In November, 1896, and again in the same month of 1897, Mr. Annin had living adult pike-perch shipped by express from Canandaigua Lake, and a fish was seldom lost in transportation.

LAKE TROUT. (Salmo Trutta.) Salmonidæ.

106. Perca flavescens (*Mitchill*). YELLOW PERCH.—The species is abundant in the parks of New York and Brooklyn. It is a fairly good aquarium fish, somewhat susceptible to fungus attacks, but easily treated with salt water. Its food is chiefly hard clam; sometimes live killies are used.

107. Boleosoma olmstedi (*Storer*). TESSELLATED DARTER.—The species was found sparingly in Bronx River in August, 1897. A number of individuals were placed in a balanced tank and are still living at the end of November. They are fed principally on hard clam, *Gammarus*, and, occasionally, earth-worms.

108. Roccus chrysops (*Rafinesque*). WHITE BASS.—Mr. Annin obtained a specimen in Oneida Lake, September 4, 1896, and sent it for identification. Its length is twelve and one-quarter inches, and its weight sixteen and one-half ounces. The following additional measurements, in inches, were taken:

Length to end of middle caudal rays,	11½ in.
Length to end of scales,	10 "
Depth of body,	4 "
Least depth of caudal peduncle,	1⅜ "
Length of head,	3 "
Length of snout,	⅝ "
Diameter of eye,	9/16 "
Length of fourth dorsal spine,	1⅜ "
Length of second dorsal ray,	1¾ "
Length of second anal ray,	1¾ "

109. Roccus lineatus (*Bloch*). STRIPED BASS; ROCKFISH.—A permanent resident, but the height of the fishery in Gravesend Bay occurs from October 10 to November 10. Large fish, up to forty-five pounds, are caught in May, but the fall fish will range from nine to twenty-four inches in length. In the Aquarium the species is hardy and grows rapidly. Its food consists of killifish, pieces of herring, shrimp and, occasionally, chopped clam. Many examples have been kept here three and one-half years, and are still alive.

110. Morone americana (*Gmelin*). WHITE PERCH.—This species is never plentiful in Gravesend Bay; it is abundant in fresh-water lakes of Central Park, New York, and Prospect Park, Brooklyn. Near Montauk, Long Island, individuals weighing two to three pounds and more are reported. In the Aquarium the white perch is very susceptible to fungus attacks, but the parasite is readily killed by changing the water supply from salt to fresh, or *vice versa*.

111. Centropristes striatus (*Linnæus*). SEA BASS.—The sea bass makes its appearance in Gravesend Bay in May. It is not abundant. The young in October are found in the eel grass, measuring from one and one-half to two inches in length. The species is well adapted to life in the tanks during all but the coldest months.

112. Orthopristis chrysopterus (*Linnæus*). PIG-FISH.—Several examples were taken in Gravesend Bay, October 24, 1894

113. Stenotomus chrysops (*Linnæus*). SCUP; PORGY.—The scup comes into Gravesend Bay in May, and is taken as late as November. In the Aquarium it lives until December, and in warmed water can be kept indefinitely. It is thrifty, and is seldom out of condition.

114. Lagodon rhomboides (*Linnæus*). SAILOR'S CHOICE.—Not a common fish in Gravesend Bay; it is found occasionally in summer.

115. Archosargus probatocephalus (*Walbaum*). SHEEPSHEAD.—Very unusual in Gravesend Bay. A large example, weighing thirteen pounds, was caught September 16, 1897, at Coney Island, and brought to the Aquarium, but was badly injured and never recovered. The species is well adapted to Aquarium life.

116. Kyphosus sectatrix (*Linnæus*.). —BERMUDA CHUB.—This rare species was taken in Gravesend Bay in October, 1896, and again in September, 1897. It is hardy in the Aquarium, but cannot endure the winter temperature

117. Cynoscion regalis (*Bloch & Schneider*). WEAKFISH; SQUETEAGUE.—An adult example, now living in the Aquarium, has been kept in good condition during two winters, and is now in winter quarters in the great central pool. At one time a white membrane covered both eyes, and the fish was supposed to be blind; but its eyes are now (December 11, 1897) in perfect condition.

118. Larimus fasciatus (*Holbrook*). BANDED LARIMUS.—An individual was captured in Gravesend Bay, July 25, 1895, and another one August 2 of the same year. These fed freely, and were kept in a healthy condition until January 16, 1896, when the low temperature of the water killed them. The fish is not common anywhere, and has not before been recorded north of Chesapeake Bay.

119. Bairdiella chrysura (*Lacépède*). YELLOW-TAIL; SILVER PERCH.—The young of the silver perch are found every summer in Gravesend Bay, and adults are to be seen occasionally. On September 8, 1896, Mr. De Nyse took an example one and one-quarter inches long with a shrimp net in eel grass back of the flats at extreme low tide. Pools containing two feet of water are common here, and many species of

fish become imprisoned in them. In August, Mr. W. I. De Nyse has captured a half-dozen adult *Hippocampus* in such localities. On October 5, 1896, and again in the fall of 1897, the silver perch was obtained in the bay.

120. Sciænops ocellatus (*Linnæus*). RED DRUM; CHANNEL BASS.—A red drum, or spotted bass, weighing fourteen pounds, was obtained by Mr E. G. Blackford from New Jersey, and was purchased alive for the Aquarium. At the time of writing (December 11, 1897) it is in the central pool, and is, apparently, in perfect health. It swims sometimes immediately under the sand shark. Its food consists of large pieces of herring, which it takes readily.

121. Leiostomus xanthurus (*Lacépède*). SPOT; LAFAYETTE.—Rather common in Gravesend Bay from July to as late as December, and is well adapted to captive life. It is most abundant usually in September.

122. Micropogon undulatus (*Linnæus*). CROAKER.—A very uncommon species in Gravesend Bay.

123. Menticirrhus saxatilis (*Bloch & Schneider*). KINGFISH.—This was formerly abundant in Gravesend Bay, but it seldom makes its appearance there now.

124. Pogonias cromis (*Linnæus*). DRUM.—The drum is an occasional summer visitor in Gravesend Bay. In the fall of 1896, fourteen young individuals, eight inches long, were brought from there alive to the Aquarium, and lived until February 10, 1897, when the low temperature (38°) overcame them. In the fall of 1897 none were seen in the bay.

125. Tautogolabrus adspersus (*Walbaum*). BERGALL; CUNNER.—Found throughout the year. Hardy in the Aquarium. Individuals have been kept three years or longer. The food is chiefly hard clam.

126. Tautoga onitis (*Linnæus*). BLACKFISH; TAUTOG.—Found during the entire year. An excellent aquarium fish. Examples now here have been kept longer than three years, and their growth in some cases is remarkable. They are fed upon chopped hard clams, live killifish, shrimp and, occasionally, fiddler-crabs.

127. Chætodon ocellatus (*Bloch*).—Very rare in Gravesend Bay.

128. Teuthis hepatus (*Linnæus*). SURGEON; DOCTOR-FISH.—A young individual, about three inches long, was caught in Mr. John B. De Nyse's pound, October 22, 1897. It was injured when captured, and lived only a few days in the Aquarium. The species has not been known before north of Charleston.

129. Balistes carolinensis (*Gmelin*). TRIGGER-FISH; TURBOT.—An uncommon species in Gravesend Bay, but seen occasionally in the bays opening into the Atlantic.

130. Monacanthus hispidus (*Linnæus*). FILEFISH.—This fish is taken in Gravesend Bay in moderate numbers occasionally in the fall. Individuals have been sent from there in September and November, 1897. Some are now (December 11) living in a tropical tank and feeding freely.

131. Alutera schoepfii (*Walbaum*). ORANGE FILEFISH.—The young are rather common in Gravesend Bay in August, September, October, and sometimes as late as November. Adults are rarely seen. The species will not survive the winter except in warmed water. It feeds freely when the temperature is agreeable.

132. Lactophrys trigonus (*Linnæus*). TRUNK-FISH.—The only individual taken in Gravesend Bay was found in August, 1897; it was three-eighths of an inch long. The fish lived a very short time in a balanced jar, although it appeared to feed freely upon minced hard clam. It is seen oftener in Vineyard Sound and neighboring waters in the summer.

133. Lagocephalus lævigatus (*Linnæus*). RABBIT-FISH; SMOOTH PUFFER.—Occasionally taken in the fall in Gravesend Bay. Five young were obtained in October, 1897, but all of them died in November, notwithstanding that they had been taking food readily. The temperature could not be endured.

134. Spheroides maculatus (*Bloch & Schneider*). PUFFER; SWELL-FISH.—The species is found in Gravesend Bay at all times except the cold months. It is hardy, but cannot be kept with other fish because of its predatory habits.

135. Chilomyterus schoepfii (*Walbaum*). SPINY BOXFISH; BURRFISH.—The species is found occasionally in small numbers from May to October in Gravesend Bay, but no very small ones are seen. It lives in the Aquarium in winter only in water heated to a temperature of 68° to 70° Fahr.

136. Acanthocottus æneus (*Mitchill*). MITCHILL'S SCULPIN.—This little sculpin spawns in winter. The eggs have a beautiful green color. The fish is practically a permanent resident of Gravesend Bay.

137. Acanthocottus octodecimspinosus (*Mitchill*). SCULPIN; HACKLEHEAD.—Taken only in winter and early spring in Gravesend Bay. It will not live in the warm water of summer in the Aquarium.

138. Hemitripterus americanus (*Gmelin*). SEA RAVEN.—The sea raven spawns in November. The eggs are amber or yellow.

The eggs of *Hemitripterus* in the Aquarium, November 29, 1897, are in masses sticking tightly together. The egg is $\frac{5}{32}$ inch in diameter, and showing the form of the fish distinctly. The color of the egg is pale salmon, but is brighter when just deposited.

139. Cyclopterus lumpus (*Linnæus*). LUMPFISH.—Found in Gravesend Bay in May. It never lives in the Aquarium longer than a few weeks.

140. Rissola marginata (*De Kay*). SLIPPERY DICK.—A rare fish in Gravesend Bay. A specimen was obtained there October 24, 1894.

141. Gobiosoma bosci (*Lacépède*). GOBY.—Taken in the oyster dredge at Eaton's Neck, Long Island, in the fall of 1896. The fish lived all winter in a balanced tank, and took food greedily; but on the approach of summer all perished. It seizes its food with a snap, and immediately rushes off to conceal itself in a rock crevice or behind plants.

142. Astroscopus guttatus (*Abbott*). STAR-GAZER.—An example was caught in Gravesend Bay October 24, 1894. It did not live longer than a month in captivity, and was killed by the cold water.

143. Opsanus tau (*Linnæus*). TOADFISH.—Not present in the hot summer months in Gravesend Bay, but can be kept in the Aquarium by careful treatment. Most of the individuals brought from there to the Aquarium have come in August, September and October.

144. Pholis gunnellus (*Linnæus*). ROCK-EEL; BUTTER-FISH.—Taken in the oyster dredge at Eaton's Neck in the fall of 1896, and brought alive to the Aquarium. It did not live long in captivity.

145. Zoarces anguillaris (*Peck*). MUTTON-FISH; EEL-POUT.—Found in fall and winter on the fishing-banks. It never endures the warm water in summer.

146. Prionotus carolinus (*Linnæus*). SEA ROBIN.—This species appears in Gravesend Bay in May, and is caught in the shad fykes. It is the earliest of the sea robins to arrive.

147. Prionotus strigatus (*Cuv. & Val.*). RED-WINGED SEA ROBIN.—Makes its appearance later than *P. carolinus*.

148. Prionotus evolans (*Linnæus*). STRIPED SEA ROBIN.—This arrives in Gravesend Bay later than *P. carolinus*.

149. Cephalacanthus volitans (*Linnæus*). FLYING GURNARD.—An uncommon fish in Gravesend Bay. An example sent from there October 30, 1897, lived only two days.

150. Echeneis naucrates (*Linnæus*). REMORA; SUCKING-FISH.—The remora is found in Gravesend Bay in summer only, attached to sharks, usually the sand shark, *Carcharias littoralis*. An example obtained July 28, 1897, lived and fed until November 13, when it ceased feeding, and on November 23 it died because of the low temperature of the water. In the Aquarium the fish is usually stationary on the bottom, but will often rise to the surface to take pieces of fish or clam.

151. Merlucius bilinearis (*Mitchill*). WHITING.—Found in Gravesend Bay in spring and fall. A poor fish for the Aquarium. One individual lived in a large pool two months.

152. Pollachius virens (*Linnæus*). POLLACK.—The pollack appears in the fall. It prefers cool water, and will not endure the summer temperature. It is a ravenous feeder.

153. Microgadus tomcod (*Walbaum*). TOMCOD.—A fall and winter species that does not live in captivity in summer.

154. Gadus morrhua (*Linnæus*). COD.—The cod is abundant in Gravesend Bay in November, 1897, and thrives in the tanks during the winter and spring, but cannot be kept later than June without refrigeration of the water.

155. Melanogrammus æglefinus (*Linnæus*). HADDOCK.—This species is not at all adapted to aquarium life.

156. Lota maculosa (*Le Sueur*). BURBOT; LING; LAWYER.—Perhaps one of the most difficult of the fresh-water fishes to transport. It is easily overcome by fungus. An individual obtained by Mr. Annin in Canandaigua Lake in November, 1897, is now alive, but may not recover from the effects of the journey.

157. Phycis regius (*Walbaum*). SPOTTED CODLING.—This fish is found in small numbers in Gravesend Bay in the fall. It lives in water below 60° Fahr., and is a good aquarium species, but cannot be kept in summer without artificial cold. Its habit of lying upon the side in imitation of the tautog, and other Labroids, is often observed here.

158. Phycis tenuis (*Mitchill*). HAKE.—As a rule, the common hake does not live in water above 60° Fahr., but one example survived during last summer, and is now in plump condition. In the hot weather it was emaciated, and suffered greatly from attacks of fungus.

159. Phycis chuss (*Walbaum*). SQUIRREL HAKE.—Found only occasionally in Gravesend Bay; it lives in the deeper water off shore.

160. Paralichthys dentatus (*Linnæus.*) FLUKE; FLOUNDER.—A summer visitor in Gravesend Bay, arriving in May or June, and leaving when cold weather sets in. It does not live in the Aquarium in winter.

161. Bothus maculatus (*Mitchill*). SPOTTED FLOUNDER.—The spotted flounder, or window pane, is not adapted to aquarium life; it delights in cold water.

162. Pseudopleuronectes americanus (*Walbaum*). FLATFISH.—A permanent resident, and a good aquarium fish. Individuals have lived two years or longer in captivity, and their growth has been remarkable.

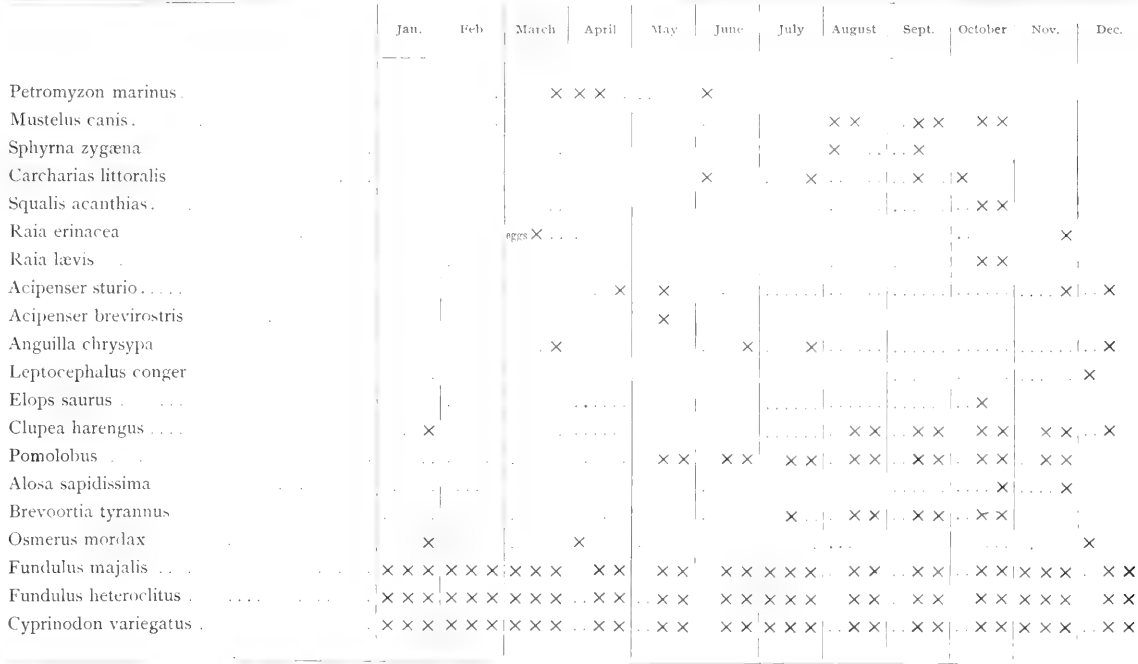
163. Achirus fasciatus (*Lacépède*). AMERICAN SOLE; HOG CHOKER.—This species has been brought from Gravesend Bay every month, except the first four, of the year. It is a hardy and interesting animal for the Aquarium. Its habit of clinging to the glass is remarkable.

164. Lophius piscatorius (*Linnæus*). ANGLER; GOOSEFISH.—The angler is moderately abundant on the fishing banks, and small ones are sometimes taken in Gravesend Bay. It has never lived in the Aquarium in summer, and no individual has survived longer than four months at any season. The species seems to need sand, which cannot be provided for it in our tanks.

165. Pterophryne histrio (*Linnæus*). MOUSEFISH.—An individual caught off the Long Island shore in August, 1897, was brought to the Aquarium in a dying condition. It is not uncommon in the floating masses of gulf weed in the Gulf Stream.

As a supplement to the notes upon the fishes of the State, collected for exhibition and identification, a record of the shipments of living fish and occasional species intended for study only by W. I. De Nyse and John I. De Nyse from Gravesend Bay during 1895, 1896, and all of 1897, except December, is here given. This is not based upon exhaustive collections systematically made throughout the year, but upon the captures made in the pounds and fykes of John B. De Nyse, and in the small nets employed by the brothers for obtaining fish food, young fish and other marine animals for the Aquarium. The number of species included in the list is eighty-seven, which is far from the total of forms known to occur in that bay. Mr. De Nyse intended to include chiefly the species that were delivered alive at the Aquarium, and purposely omitted some species forwarded for examination dead. The statement is the only one now available for publication, and it will be found very useful as the beginning of a systematic record of the fish faunal conditions.

W. I. DE NYSE'S RECORD OF SHIPMENTS OF FISH FROM GRAVESEND BAY, LONG ISLAND, TO THE NEW YORK AQUARIUM, 1895–97, SHOWING THE MONTHS WHEN THE SPECIES WERE CAUGHT.*



* The three xxx indicate that the species was sent in 1895, 1896, and 1897; two xx placed to the right of the column indicate the years 1896 and 1897; to the left, 1895 and 1896; two xx with a dash between (thus x-x) indicate not received in 1896.

SHIPMENTS OF FISH.—CONTINUED.

	Jan.	Feb.	March	April	May	June	July	August	Sept	October	Nov.	Dec.
Pygosteus pungitius												×
Gasterosteus bispinosus	× ×	×			×							
Apeltes quadracus	× ×	×										
Siphostoma fuscum							×			×		
Hippocampus hudsonius		×		×				×		×		
Menidia notata			×								×	×
Mugil cephalus										× ×		
Sphyræna borealis									×			
Polydactylus octonemus									×			
Ammodytes americanus					×							
Scomber scombrus					×							
Sarda sarda									×			
Seriola zonata									× ×			
Seriola lalandi (?)								×				
Elagatis bipinnulatus								×				
Trachurops crumenophthalmus									×	×		
Caranx hippos									× × ×	× ×		
Caranx crysos									× × ×	× ×		
Alectis ciliaris									× ×			
Vomer setipinnis								×	×	×		
Selene vomer									×	×		
Trachinotus carolinus								×	×	× ×		
Trachinotus rhomboides									×			

SHIPMENTS OF FISH.—Continued.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
Pomatomus saltatrix									×	×		
Coryphæna hippurus									×			
Palinurichthys perciformis								×				
Rhombus triacanthus						×			×	× ×		
Roccus lineatus				×		×			× ×		× ×	×
Morone americana		×		×						× ×	×	× ×
Centropristes striatus					×	× × ×	× ×	×	× × ×	×	×	×
Stenotomus chrysops					×	× - ×	×	× ×	× × ×	×	× ×	
Archosargus probatocephalus									×			
Kyphosus sectatrix									×	×		
Cynoscion regalis						×			×	× ×	×	
Larimus fasciatus								×				
Bairdiella chrysura									× ×	×	×	
Leiostomus xanthurus							×		× × ×	× ×	× ×	×
Menticirrhus saxatilis						×		×		×		
Pogonias cromis						×				×	×	×
Tautogolabrus adspersus							×		×			
Tautoga onitis				× ×	×		×	× ×	× - ×			×
Teuthis hepatus										×		
Balistes carolinensis									×			
Monacanthus hispidus									×		×	
Alutera schoepffi								× ×	× ×	× ×	×	
Lactophrys trigonus								×				

SHIPMENTS OF FISH.—Concluded.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
Lagocephalus lævigatus									×	×		
Spheroides maculatus					× ×		×	× ×	× ×	×	×	
Chilomycterus schoepffi							×	× ×		× ×	×	
Acanthocottus æneus	×			× ×	×				×		×	× × ×
Acanthocottus 18-spinosus				×							×	× ×
Hemitripterus americanus				×	× × ×					× ×	×	× × × ×
Cyclopterus lumpus					× ×							
Opsanus tau		×	×					× ×	× ×	× ×		×
Prionotus carolinus					× × ×	×		×	×	× × ×		
Prionotus strigatus					× × ×	×		×	×	× × ×		
Cephalacanthus volitans										× ×		
Echeneis naucrates							× ×					
Merluccius bilinearis										×		
Microgadus tomcod	×		× ×	× ×	× ×					×	×	× × ×
Gadus morrhua										× ×	×	
Phycis regius										× ×		×
Phycis tenuis				×	× ×					×	×	× ×
Phycis chuss										×		
Pseudopleuronectes americanus	×			×			×		× ×		×	×
Achirus fasciatus					×	×	×		×	×	×	×
Lophius piscatorius										×		

Report of Chief Fish and Game Protector and Forester.

To the Commissioners of Fisheries, Game and Forests:

I HEREBY submit the following figures showing the work of the Fish and Game Protectors and Foresters for the fiscal year ending September 30, 1896, and will venture to say, although I may be charged with egotism, that the figures, which are facts in every instance, show that a majority of the Protectors are capable, efficient officers, and have made a good record during the year.

I do not think it necessary for me to make any suggestions relative to legislation, but will simply refer to certain fish and game, which, in my opinion, must have better protection, and I trust that the Legislature will continue to see the wisdom of more restrictive measures before certain fish and game which cannot be successfully propagated artificially, become exterminated. The game that is most in danger under the present law are the deer and partridge, and the species of fish that surely ought to be better protected is the black bass. I am compelled by close observation throughout the Adirondacks in the past two years to change my mind as to the mode of hunting deer, and believe that hounding and night hunting must necessarily be abolished. There is no doubt that with the improved guns now in use and the great advantages over former years of reaching the most remote points of the forests where deer inhabit, and the increased number of people interested in the pursuit of deer, a radical change must necessarily take place in the near future or one of the principal attractions to the Adirondacks will soon be a thing of the past.

The partridge, which cannot be replaced by any artificial means, are in a fair way of becoming exterminated unless there is some restriction as to the number one may kill and possess and more restrictive provisions as to transportation. With section 249 of the present Game Law in force, it is possible for a dealer who is so inclined to procure express receipts for, say twenty-five game birds, partridges killed out of the State, and under it sell 500 birds that may have been killed in this State contrary to law. Birds that are killed out of season in this State cannot be identified and separated from birds of the same species alleged to have been killed outside of the State, when an express receipt for out-of-State birds is presented to a game protector, who may suspect that the birds are killed near the local market, where they are offered for sale.

So long as this section (249) remains a law, it will be almost impossible to convict for killing or possessing game birds out of season in this State.

The present law regulating the taking and possession of black bass does not protect that fish at the time when they are spawning and brooding their young. Therefore, more restrictive laws should be enacted until some means are devised to artificially propagate them. This matter is, however, treated at length by the State Fish Culturist in a special article on black bass in another portion of this report, and I only desire to emphasize the fact that the fish must be protected during their breeding season if we would preserve them

The legislation suggested in my annual report of 1895 relating to a change in bringing actions for trespass, which through your efforts became a law in March, 1896, has enabled the Protectors to bring to justice a number of timber thieves and to institute proceedings whereby many others will be compelled to abandon their wanton ways and cease denuding the State lands.

All of which is respectfully submitted.

J. WARREN POND,

Chief Fish and Game Protector.

SALMON FISHING.

Schedule of Prosecutions for Violations of Fish and Game Laws from October, 1895, to October, 1896.

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Charles Argus,	Steuben.	John L. Ackley,	$54 85
" Fred. Crosby,	Yates,	"	20 00
" Burton Dennis,	"	"	24 34
" John Morse,	"	"	12 00
" Fred. Dorman,	"	"	
		Total,	$111 15
People vs. H. E. Hall,	Essex,	F. S. Beede,	$50 00
" Harvey Washbond,	"	"	104 50
" Levi Patterson,	"	"	50 00
" H. P. Jones,	"	"	50 00
" Fred. Greenough,	"	"	31 00
" William La Roe,	"	"	30 days in jail
" Horace Lewis,	"	"	50 00
" Mark Sherman,	"	"	50 00
" Edward Cox,	"	"	Sentence susp.
" Edson Beede,	"	"	25 00
" W. Byron Knox,	"	"	50 00
" Albert Call,	"	"	25 00
		Total,	$485 00
People vs. Charles B. Craig,	Monroe,	E. I. Brooks,	$25 00
" Rich. Amesbury,	"	"	20 00
" William Heffer,			
" August Pike,	"	"	20 00
" Charles Pehtas,			
" Fred. Osterly	"	"	10 00
" Joseph Mreyooka,	"	"	10 00
" Fred. Ginegam,	"	"	20 00
" Fred. Schwasman,	"	"	20 00
" Budette Alberton,	"	"	20 00
" William La Barge,	"	"	15 days in jail
" John Stone,	"	"	90 00
" John Kline,	"	"	140 days in jail
" William Spitzer,	"	"	35 days in jail
" Orren Van Husen,	"	"	" "
" William Comstock,	Orleans,	"	25 00
" Edward Drennen,			
		Total,	$260 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Sidney Cole,	Wayne,	George Carver,	$25 00
" George Segar,	"	"	15 00
" Frank Dunbar,	"	"	20 days in jail
" John Loop,	"	"	25 days in jail
" Michael Bower,	"	"	25 00
" Joseph Jones,	"	"	20 00
" L. Dunbar,	"	"	10 00
" Mervin Bull,	"	"	Sentence susp
" William Mosher,	"	"	15 00
" Ira Converce,	"	"	15 00
		Total,	$125 00
People vs. Vinson Burton,			
" Stephen Briggs,	Dutchess,	William Cookingham,	$3 00
" Elmore Doyle,			
" Lucius Deckern,	"	"	22 35
" Elting Welch,	"	"	24 00
" Charles Forbes,			
" Charles Traver,	"	"	20 00
" F. Tinklepaugh,			
" Harry Stewart,	"	"	13 50
" William M. White,	"	"	10 50
" Edward Herrick,	"	"	13 90
" Eugene Wyant,			
" C. H. Holdridge,	"	"	15 00
" George Bell,			
		Total,	$122 25
People vs. L. F. Potter,	Wyoming,	T. H. Donnelly,	$25 00
" R. J. Fitzmanice,	"	"	10 00
" J. C. Gailbraith,	"	"	10 00
" A. M. Wisner,	"	"	10 00
" D. R. Sedom,	"	"	10 00
" A. H. Southard,	"	"	10 00
		Total,	$75 00
People vs. Howard Simons et al.,	Columbia,	Ira Elmendorf,	$25 00
" Charles Jennings,	"		
" Orrin J. Turner,	Greene,	"	20 00
" Ira Roase,			
" Webster McVey,	Ulster,	"	10 00
		Total,	$55 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Budd Hopler,	Broome,	L. S. Emmons,	$40 00
" Clarence Potter,	Otsego,	"	50 00
" A. E. Wilcox,	"	"	35 00
" Frank Cooper,	"	"	40 00
" Henry Yager,	"	"	40 00
" William Constable,	"	"	100 00
" James L. Baitley,			
" N. F. Fenn,	"	"	150 00
" Robin Clark,			
" Edwin Utter,	"	"	40 00
" Ray Palmer,	"	"	25 days in jail
" Scott Bishop,	"	"	30 00
" James E. Livingston,	Schoharie,	"	25 00
" George Bard,	Otsego,	"	25 00
" Edward Carr,	"	"	25 00
" Alphonzo Bailey,	"	"	10 00
" Ephiram Walrath,	"	"	20 00
" George F. Rathbone,	"	"	100 00
" Henry Rathbone,	"	"	100 00
" Gilbert Flint,	"	"	100 00
" Howard W. Eldridge,	"	"	20 00
" Howard Gould,	"	"	50 00
" Bruce Silvey,	"	"	100 00
" M. S. & M. H. Hollister,	Broome,	"	50 00
" Eugene Moak,	Otsego,	"	40 00
" Austin Ridge,	"	"	30 00
" Dore Hughes,	"	"	50 00
" Otis Gardner et al.,	"	"	90 00
" William Brooks et al.,	"	"	160 00
" W. D. Talbott,	"	"	Sentence susp.
" Frank Harrington,	"	"	" "
" George Link,	"	"	" "
" G. H. Sponible et al.,	"	"	175 00
" Lyman M. Denning,	"	"	13 00
" Morrill Parker,	"	"	50 00
" Burton Aplin et al.,	"	"	90 00
" Thomas Dellillis,	Delaware,	"	19 50
" C. Wykoff,	Ostego,	"	Sentence susp.
" Fred. E. Cox,	"	"	" "
" Seymour Hoag et al.,	"	"	80 00
" J. B. Stebbins,	"	"	20 00
" Lewis Rider,			
" James Wicks et al.,	"	"	40 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. George Myers,	Otsego,	L. S. Emmons,	$10 00
" Dorr Gardner,	"	"	10 00
" George A. Yates,	"	"	50 00
" B. Sheldon et al.,	"	"	36 90
" David Donovan,	"	"	15 00
" John Alpin,	"	"	24 60
" W. Bowen,			
" Linn Holmes,	Chenango,	"	25 00
" Lewis Craft,			
" Stephen Carley,	Otsego,	"	45 00
" George Smith,			
		Total,	$2,224 00
People vs. William N. Cole,	Lewis,	Eugene Hathway,	$32 25
" Nicholas Valin,	"	"	27 00
" Edgar Pickard,	"	"	35 00
" Byron Class,	"	"	Sent to jail
" Samuel McFerrin,	St. Lawrence,	"	51 00
" J. Carancross,	Lewis,	"	75 00
" Harrison Burnham,	"	"	25 00
" Henry Jones,	"	"	35 00
" George Dobson,	"	"	20 00
" Hiram Wormwood,	"	"	45 00
" George F. Beck,	"	"	25 00
" James McClaer,	St. Lawrence,	"	20 00
		Total,	$390 25
People vs. M. De Line,	Onondaga,	Spencer Hawn,	100 days in jail
" E. Dunham,	Oswego,	"	$50 00
" John C. Brazee,	Oneida,	"	25 00
" Albert Belknap,	Oswego,	"	20 00
" Adelbert Landers,			
		Total,	$95 00
People vs. Peter Patterson,	Queens,	S. Hesbach,	$25 00
People vs. C. E. Gardener,	Richmond,	Edgar Hicks,	$25 00
" E. S. Strong & Co.,	New York,	"	118 81
" Bernard Brinks,	Kings,	"	10 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Lewis Kunz et al.,	Kings,	Edgar Hicks,	$50 00
" Peter Pfeier et al.,	"	"	50 00
" Henry Heck,	"	"	10 00
		Total,	$263 81
People vs. Charles Crouch et al.,	Broome,	James Holmes,	$100 00
" Ross Springsteed,	"	"	10 00
		Total,	$110 00
People vs. Martin Talbot,	Franklin,	Carlos Hutchins,	$16 50
People vs. Louis Bishop,	Columbia,	Matthew Kennedy,	$25 00
" Henry Wooden,	Dutchess,	"	100 00
" Frank Adams,	Putnam,	"	102 00
		Total,	$227 00
People vs. Leonard Lent,	Rockland,	Willett Kidd,	$25 00
" Leonard McCloud,	Orange,	"	Sentence susp.
" Thomas Watts,	"	"	50 00
		Total,	$75 00
People vs. Carl Strevel,	Herkimer,	A. B. Block,	$15 00
People vs. Robert Flansburg,	Cayuga,	James H. Lamphere,	$10 00
" Joseph Spohr,	"	"	10 00
" William Roberts,	"	"	10 00
" Leroy Smith,	"	"	10 00
" G. W. Sturdevent,	"	"	25 00
" Javoc Froutz,	"	"	24 00
" John Moland,			
" Thomas Thomas,	"	"	26 00
" Menzo Osburn,	Onondaga,		
" John Robinson,	Cayuga,	"	22 00
" Wallace Holcomb,			
		Total,	$137 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. George J. Odett,	Delaware,	J. D. Lawrence,	20 days in jail
" Merton Curry,			
People vs. Millard Whitbeck,	Monroe,	John E. Leavitt,	$15 00
" Louis Young,	"	"	10 00
" Frank Smith,	"	"	10 00
" Michael Ashland,	Saratoga,	"	Sentence susp.
" William Pouport,			
" Byron Harris,	Fulton,	"	20 50
" Oscar Curtis,	Montgomery	"	10 00
" E. S. Emerson,	Herkimer	"	20 00
" Eugene Knowles,			
" Edwin Benjamin,	Montgomery	"	25 00
		Total,	$110 50
People vs. E. Ricketson,	Essex,	J. W. Littlejohn,	$25 00
" R. C. Darling,	Franklin,	"	25 00
" Darwin J. Day,	"	"	75 00
		Total,	$125 00
People vs. Lorenzo Lawrence,	Saratoga,	E. J. Lobdell,	$10 00
" Henry Early,	Hamilton,	"	41 50
" Francis Bishop,	"	"	81 00
" Jacob Wagner,	Fulton,	"	50 00
" Robert S. Anibal,			
" Richard Davenport,	Hamilton,	"	12 days in jail
" William A. Paige,	"	"	" "
" Banajah Paige,	"	"	" "
" C. M. Smith,	"	"	60 00
" L. E. Woodbury,	Fulton,	"	10 00
" C. A. Conant,	Hamilton,	"	40 00
		Total,	$292 50
People vs. John Genack,	St. Lawrence	B. H. McCollum,	$20 00
" J. J. Seavey,	"	"	50 00
" M. Grady,	"	"	16 00
" Whitford,	"	"	15 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Charles Lobdell,	St. Lawrence	B. H. McCollum,	$15 00
" Everett Peck et al.,	"	"	77 00
		Total,	$193 00
People vs. Ed. Horton,	Jefferson,	Joseph Northup,	$20 00
" Frank Horton,			
" Edward Frasier,		"	20 00
" Walter Allen,			
" George Rogers,	"	"	10 75
" Orrin Soper,	"	"	15 00
" M. W. Doxtater,	"	"	58 00
" Fred. Davis,	"	"	50 75
" W. McDougal			
" H. Maranthus,	"	"	52 00
" Ezra Purceval,		"	5 00
" A. B. H. Marre,	"	"	5 00
" William P. Paterson,	"	"	5 00
" W. Dormetzer,	"	"	5 00
" J. H. Hoadley,	"		
		Total,	$246 50
People vs. Frank Dowler,	Chautauqua,	F. M. Potter,	$40 00
People vs. Cornelius Dingman,	Oswego,	O. S. Potter,	$25 00
" E. O. Bartlett,	"	"	25 00
" George Best,	"	"	51 75
		Total,	$101 75
People vs. A. Dieckman,	Erie,	D. N. Pomeroy,	Sentence susp.
" John Mutz,	"	"	$10 00
" Charles Voight,	"	"	10 00
" George Floss,	"	"	10 00
" Joseph Swartz,	"	"	10 00
" Isaac Josephs,	"	"	Sentence susp.
" Philip Young,	"	"	30 00
" Edward Young,			
" Chester Sky,	"	"	10 00
" Anderson Charles,	"	"	10 00
" A. K. Webster,	Niagara,	"	14 60

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Alijah Brooks,	Erie,	D. N. Pomeroy,	$10 00
" William Hahn,	"	"	20 00
" John Henan,			
" David Jones,	"	"	5 00
" Louis Bohm,	"	"	20 00
" Frank Browning,	"	"	10 00
" Michael Malzer,	"	"	10 00
" Julius Goietzmen,	"	"	15 00
		Total,	$194 60
People vs. Salem Town,	St. Lawrence	J. W. Pond,	$153 10
" William J. Cook,	"	"	107 85
" A. J. Garrett et al.,	"	"	150 00
		Total,	$410 95
People vs. Joseph Demarsh,	Washington	S. M. Prouty,	$5 00
" S. Shattuck,	Warren,	"	13 00
		Total,	$18 00
People vs. D. Kavanaugh,	Livingston	W. L. Reed,	$25 00
" Benjamin Sutton,	"	"	20 00
" Herman Klinetop,	"	"	15 00
" James DuBois,	Ontario,	"	10 00
" John A. Quick,	"	"	50 00
" Charles W. Ingalls,	Schuyler,	"	26 45
" Jacob Isnor,	Ontario,	"	Sentence susp.
" George Miller,	"	"	15 00
" Arthur Richardson,	"	"	10 00
" William Ryan,	"	"	Sentence susp.
" William Pruner,	"	"	15 00
		Total,	$186 45
People vs. John Williams,	Cattaraugus	Barnard Salisbury,	40 days in jail
" George Ramb,	"	"	$25 00
" Eugene Adams,	"	"	10 00
" Robert Knight,	"	"	25 00
" Fayette Searle,	"	"	15 00
" William Brondart,	"	"	15 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Min Waring,	Cataraugus,	Barnard Salisbury,	$10 00
" J. W. Osborne,	"	"	10 00
		Total,	$110 00
People vs. Elmer Riley,	Saratoga.	Nicholas Shaul,	$40 00
" William Cady,	"	"	25 00
" Niles Cady,		Total,	$65 00
People vs. Henry Stevens,	Oswego,	A. A. Warren,	$20 00
" George Parkhurst.			
People vs. H. A. Maxam,	Warren,	Alvin Winslow,	$20 00
" Adolph Shields,	"	"	10 00
" F. Beadleston,	"	"	10 00
" Sampson Ellis,	"	"	20 00
		Total,	$60 00
People vs. Norman R. Smith,	Seneca,	M. C. Worts,	$100 00
" Lewis Cornwall,	Oswego,	"	12 50
		Total,	$112 50

Schedule of Licenses to Use Nets to Catch Fish, Issued Between October 1, 1895, and September 30, 1896.

[Issued pursuant to Section 151 of the Fisheries, Game and Forest Law.]

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
J. M. Askins,	Troy,	Hudson River,	Scap,	May 30, 1896
A. J. Rosenburgh,	Coxackie,	"	Fyke,	"
H. Dedrich,	"	"	"	"
William H. Askins,	Lansingburgh,	"	Dip,	"
John A. Turpening,	Malden,	"	Fyke,	"
John E. Patterson,	Hudson,	"	"	"
John W. Ward,	Cornwall Landing,	"	"	Feb. 1, 1896
"	"	"	Gill,	"
William Smalley,	Marlborough,	"	Fyke,	"
"	"	"	Gill,	"
Joshua Ward,	Cornwall Landing,	"	Fyke,	May 30, 1896
"	"	"	Gill,	"
J. G. Tompkins,	"	"	Fyke,	"
"	"	"	Gill,	"
Thomas Murphy,	West Troy,	"	Fyke,	Feb. 1, 1896
William Hallenbeck,	Hudson,	"	"	May 30, 1896
Drozeski and Adams,	Dunkirk,	Lake Erie,	Gill,	May 1, 1896
John Desmond,	"	"	"	"
T. Wilson, Jr.,	Wilson,	Lake Ontario,	"	"
J. S. Wilson,	"	"	"	"
Samuel Melius,	Saugerties,	Hudson River,	Fyke,	May 30, 1896
J. Flicker,	Malden,	"	"	"
John Pilkinton,	Wilson,	Lake Ontario,	Gill,	May 1, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
S. Kisselbergh,	Hudson,	Hudson River,	Fyke,	Feb. 1, 1896
D. M. Wheeler,	Wilson,	Lake Ontario,	Gill,	May 1, 1896
Helnrig & Co.,	Dunkirk,	Lake Erie,	"	"
William Wilson,	Wilson,	Lake Ontario,	"	"
Charles F. Wilson,	"	"	"	"
Charles H. Wheeler,	"	"	"	"
W. H. Minniger,	Westfield,	Lake Erie,	"	"
Henry Wells,	"	"	"	"
G. H. Tifft,	"	"	"	Feb. 1, 1896
W. H. Jackway,	"	"	"	"
Henry Oaks,	"	"	"	"
Antoine Gottschalk,	"	"	"	"
Frank Brown,	"	"	"	"
H. A. Monroe,	"	"	"	"
John Wagner,	Youngstown,	Lake Ontario,	"	"
George Wagner,	"	"	"	May 1, 1896
John Spellman,	Catskill Station,	Hudson River,	Fyke,	May 30, 1896
Frank Powley,	Youngstown,	Lake Ontario,	Gill,	"
C. J. Alexander,	Dunkirk,	Lake Erie,	"	May 1, 1896
William Miller, Jr.,	Cheviot,	Hudson River,	Fyke,	May 30, 1896
Egbert Waters,	Germantown,	"	"	"
M. Benoit,	Sacketts Harbor,	Lake Ontario,	Gill,	Feb. 1, 1896
Charles Nemon,	Cohoes,	Hudson River,	"	"
H. O. Helmer,	Montezuma,	Seneca River,	Fyke,	Dec. 31, 1895
O. M. Helmer,	Savannah,	"	"	"
Mike Finn,	Albany,	Hudson River,	Dip,	Feb. 1, 1896
William F. Race,	Hudson,	"	Fyke,	May 30, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
John Walker,	Brewerton,	Oneida Lake,	Trap,	Dec. 31, 1895
Charles Hines,	"	"	"	"
Edgar Hines,	"	"	"	"
F. Nicholson,	"	"	"	"
Cicero Walker,	"	"	"	"
George Whitney,	"	"	"	"
Fred. Sharrow,	"	"	"	"
Albert Shaw,	West Monroe,	"	"	"
Lorenzo Shaw,	"	"	"	"
Charles T. Miller,	Brewerton,	"	"	"
F. Shaw,	West Monroe,	"	"	Nov. 19, 1896
C. Ladd,	Brewerton,	"	"	Dec. 31, 1896
Frank Ladd,	"	"	"	"
Elijah Pierce,	"	"	"	"
George L. Kathan,	"	"	"	"
Robert Darling,	"	"	"	"
Henry Lynn,	"	"	"	"
E. G. Gale,	"	"	"	"
William Yerton,	"	"	"	"
Albert Belknap,	"	"	"	"
H. Landers,	"	"	"	"
John Belknap,	"	"	"	"
Oscar Eaton,	"	"	"	"
Dell C. Wood,	"	"	"	"
Burnett Wood,	"	"	"	"
S. Rockefeller,	Germantown,	Hudson River,	Fyke,	May 30, 1896
A. Dalhke,	Buffalo,	Niagara River,	Seine,	Dec. 31, 1895

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Thomas Crowell,	Cicero,	Oneida Lake,	Trap,	Dec. 31, 1895
Henry L. Lynn,	"	"	"	"
John Sterling,	Brewerton,	"	"	"
George Petty,	"	"	"	"
L. C. Pierce,	"	"	"	"
Aza Ladd,	"	"	"	"
George F. Lynn,	Cicero,	"	"	"
C. R. Ladd,	Brewerton,	"	"	"
D. Ladd,	"	"	"	"
Charles Crowell,	Cicero,	"	"	"
Hugo Brose,	Buffalo,	Niagara River,	Seine,	"
Charles H. Wheeler,	Wilson,	Lake Ontario,	Sturgeon,	May 1, 1896
A. Trautwein,	Buffalo,	Lake Erie,	Gill,	"
John Beck,	"	"	"	"
John Silvey,	"	"	"	"
Charles Trautwein,	"	"	"	"
Thomas Huddy,	"	"	"	"
John O'Brien,	"	"	"	"
John Oberst,	"	"	"	"
Martin Ryan,	"	"	"	"
John Ryan	"	"	"	"
William Straker,	"	"	"	"
T. Desmond,	"	"	"	"
Joseph Square,	"	"	"	"
W. Cavanaugh,	"	"	"	Feb. 1, 1896
John Slattery,	"	"	"	May 1, 1896
N. Van Antwerp,	West Monroe,	Oneida Lake,	Fyke,	Dec. 31, 1895

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
George F. Scriba,	Constantia,	Oneida Lake,	Trap,	Dec. 31, 1895
D. Johnson,	West Monroe,	"	Fyke,	"
Edward Meany,	Brewerton,	"	Trap,	"
Frank Klock,	"	"	"	"
A. W. Wood,	"	"	"	"
J. H. Shell,	"	"	"	"
Charles H. Livingston,	"	"	"	"
Frank Bell,	"	"	"	"
Forest Walker,	"	"	"	"
Frank M. Dixon,	"	"	"	"
Morris Shell,	"	"	"	"
Jerome Ladd,	Cigarville,	"	"	"
James H. McGilfrey,	Bath-on-Hudson,	Hudson River,	Fyke,	May 30, 1896
William Waldron,	Brewerton,	Oneida Lake,	Trap,	Dec. 31, 1895
G. A. Crownhart,	South Bay,	"	"	Nov. 27, 1895
L. Nichol,	"	"	"	Dec. 31, 1895
Aaron Landers,	Brewerton,	"	"	"
Benjamin Hoffer,	Buffalo,	Lake Erie,	Gill,	May 1, 1896
Robert Dingman,	Alexandria Bay,	Mill Site Lake,	"	Dec. 20, 1895
Charles H. Bush,	Redwood,	"	"	"
Peter Pierce,	"	"	"	"
William Dingman,	"	"	"	"
John Dollinger,	"	"	"	"
Fred. Dollenger,	"	"	"	"
Henry Simons,	Theresa,	"	"	"
C. H. Heath,	"	"	"	Dec. 20, 1895
E. E. Makepeace,	Alexandria Bay,	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
H. G. Crownhart,	Brewerton,	Oneida Lake,	Trap,	Nov. 27, 1895
Frank Landers,	"	"	"	Dec. 31, 1895
Ed. Frazer,	Henderson,	Lake Ontario,	Ciscoe,	Feb. 1, 1896
Ed. Dollenger,	Redwood,	Mill Site Lake,	Gill,	Dec. 20, 1895
Christ. Miller,	Buffalo,	Niagara River,	Seine,	Dec. 1, 1895
David Secor,	Hudson,	Hudson River,	Fyke,	Feb. 1, 1896
M. Benoit,	Sacketts Harbor,	Lake Ontario,	Ciscoe,	"
Mutz Bros.,	Buffalo,	Niagara River,	Seine,	Dec. 31, 1895
Theodore M. Tupper,	Syracuse,	Onondaga Lake,	Gill,	Dec. 15, 1895
John Hanley,	"	"	"	"
Frank S. Emmons,	Brewerton,	"	"	Dec. 31, 1895
Ernest Landers,	"	"	"	"
Isaac Emmons,	"	"	"	"
George N. Miller,	Liverpool,	"	"	Dec. 15, 1895
Ignatius Ziegler,	"	"	"	"
Fred. Barnes,	"	"	"	"
W. A. Gleason,	"	"	"	"
Patrick Ryan,	"	"	"	"
John H. Staley,	La Salle,	Niagara River,	Seine,	Dec. 31, 1895
Vollmer & Milne,	Buffalo,	"	"	"
George W. Taylor,	Savannah,	Seneca River,	Fyke,	"
Watson N. Hart,	Liverpool,	Onondaga Lake,	Gill,	Dec. 15, 1895
Martin J. Dinehart,	"	"	"	"
Jacob Zoll,	Syracuse,	"	"	"
John F. Davin,	Liverpool,	"	"	"
Charles Draper,	Redwood,	Millsite Lake,	"	Dec. 20, 1895
John Schen,	Buffalo,	Niagara River,	Seine,	Dec. 31, 1895

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Charles Gettman,	Liverpool,	Onondaga Lake,	Gill,	Dec. 15, 1895
Abram Wicks,	Greenbush,	Hudson River,	Fyke,	May 30, 1896
Anthony Koegel,	Syracuse,	Onondaga Lake,	Gill,	Dec. 15, 1895
Jacob Aufting,	"	"	"	"
Herman Myers,	Buffalo,	Lake Erie,	"	May 1, 1896
Samuel B. Wood,	Brewerton,	Oneida Lake,	Trap,	Dec. 31, 1895
S. H. Eastwood,	South Bay,	"	"	"
Charles Foster,	Brewerton,	"	"	"
Fred. Davidson,	Cigarville,	"	"	"
Frank Vedder,	Cicero,	"	"	"
J. A. Youngs,	Theresa,	Millsite Creek,	Gill,	May 20, 1895
Charles Ott,	Buffalo,	Lake Erie,	"	May 1, 1896
Alfred Olson,	"	"	"	"
William J. Gerspach,	"	Niagara River,	Seine,	Dec. 31, 1895
Herman Yuhnke,	"	Lake Erie,	Squat,	May 1, 1896
John A. Barton,	Athol Springs,	"	Gill,	"
Fred Hart,	Syracuse,	Onondaga Lake,	"	Dec. 15, 1895
Peter Beneke,	Liverpool,	"	"	"
Valentine Fisher,	"	"	"	"
Jacob Ripple,	Syracuse,	"	"	"
Ivan D. Schell,	Brewerton,	"	Trap,	Dec. 31, 1895
William Shaffer,	"	"	"	"
Fred. Schell,	"	"	"	"
H. S. Dutcher,	"	"	"	"
William Pierce,	"	"	"	"
R. L. Emmons,	"	"	"	"
Albert Fayle,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Charles Sterling,	Brewerton,	Onondaga Lake,	Trap,	Dec. 31, 1895
Sanford Belknap,	"	"	"	"
Adelbert Landers,	"	"	"	"
Charles Sadler,	"	"	"	"
Joseph Swarts,	Buffalo,	Niagara River,	Seine,	"
Lewis C. Smith,	Dunkirk,	Lake Erie,	Gill,	May 1, 1896
Leonard DeGlopper,	Inland,	Niagara River,	Seine,	Dec. 31, 1895
Joseph Pierce,	Plessis,	Millsite Lake,	Gill,	Dec. 20, 1895
C. J. Simons,	Redwood,	"	"	"
Emory F. Tryon,	Lake View,	Lake Erie,	"	May 1, 1896
Anson Landers,	Brewerton,	Oneida Lake,	Trap,	Dec. 31, 1895
John E. Lord,	West Monroe,	"	"	"
Edward Gaffery,	"	"	"	"
Henry Landers,	Brewerton,	"	"	"
John Wise,	Cicero,	"	"	"
William N. White,	Brewerton,	"	"	"
S. H. Wilson,	Cicero Centre,	"	"	"
R. Pallas,	"	"	"	"
Herman Pallas,	Bridgeport,	"	"	"
John Shaw,	West Monroe,	"	"	"
Charles Shaw,	"	"	"	"
Martin Rouck,	Lake View,	Lake Erie,	Gill,	Feb. 1, 1896
Arthur Vandecar,	Hudson,	Hudson River,	Fyke,	"
Joseph Hecker,	Geddes,	Onondaga Lake,	Gill,	Dec. 15, 1895
Thomas Sanderson,	Syracuse,	"	"	"
Charles B. Chambers,	"	"	"	"
Charles Grobosky,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Nelson Ladd,	Central Square,	Oneida Lake,	Trap,	Dec. 31, 1895
Jacob Coleman,	Brewerton,	"	"	"
Lewis Johnson,	"	"	"	"
John Maney,	"	"	"	"
Richard Vreeland,	Savannah,	Seneca River,	Fyke,	"
Frank Bacon,	Athol Springs,	Lake Erie,	Gill,	May 1, 1896
George Dernback,	Buffalo,	"	"	"
Adam Axtman,	Liverpool,	Onondaga Lake,	"	Dec. 15, 1895
George W. Zee,	Lakeland,	"	"	"
J. J. Springer,	Syracuse,	"	"	"
Sheldon Baum,	Brewerton,	"	Trap,	Dec. 31, 1895
Clark R. Vincent,	"	"	"	"
Lawrence Madden,	Syracuse,	"	Gill,	Dec. 15, 1895
Henry Van Alstyne,	Liverpool,	"	"	"
J. J. McVickar,	Bridgeport,	Oneida Lake,	Trap,	Dec. 31, 1895
W. B. Craus,	"	"	"	"
J. D. Myers,	Buffalo,	Lake Erie,	Gill,	May 1, 1896
Daniel Kelley,	"	"	"	"
William Firban,	"	"	"	"
Mason Keller,	Bridgeport,	Oneida Lake,	Trap,	Dec. 31, 1895
Robert S. Hines,	Brewerton,	"	"	"
L. N. Damon,	Bridgeport,	"	"	"
Harrison Deyo,	"	"	"	"
Davis Delyne,	"	"	"	"
E. B. Horton,	Henderson Harbor,	Lake Ontario,	Gill,	Feb. 1, 1896
O. O. Luff,	"	"	"	"
Charles Shutter,	Bridgeport,	Oneida Lake,	Trap,	Dec. 31, 1895

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Frank Smith,	Buffalo,	Lake Erie,	Gill,	May 1, 1896
W. H. Hollenbeck,	Catskill Station,	Hudson River,	Fyke,	Feb. 1, 1896
John H. Simons,	Redwood,	Millsite Lake,	Gill,	Dec. 20, 1895
E. W. Williams,	Poughkeepsie,	Wappingers Creek,	"	"
Jacob Sheffer,	North Germantown,	Hudson River,	Fyke,	May 30, 1896
John Keefe,	Buffalo,	Lake Erie,	Gill,	May 1, 1896
John Phillips,	Malden,	Hudson River,	Fyke,	May 20, 1896
C. J. Rightmyer,	"	"	"	"
George Drumgold,	North Germantown,	"	"	"
S. S. Masten,	Pleasant Valley,	Wappingers Creek,	Gill,	"
Harvey Myers,	Poughkeepsie,	"	"	"
William Miller,	Germantown,	Hudson River,	Fyke,	"
J. H. Hamblin,	Poughkeepsie,	Wappingers Creek,	Gill,	"
M. H. Le Roy,	"	"	"	"
T. B. Rickert,	"	"	"	"
William H. Sheldon,	Hudson,	Hudson River,	"	"
Thomas McKernan,	West Troy,	"	Fyke,	"
E. A. Brandow,	Athens,	"	"	"
Henry Stammel,	Greenbush,	"	"	"
Frank Smith,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
W. J. Peckover,	North Evans,	"	Gill,	"
William L. Ely,	Wolcott,	Lake Ontario,	"	"
V. Riddle,	Albany,	Hudson River,	Fyke,	May 30, 1896
Theodore F. Clark,	West Troy,	"	"	"
"	"	"	Seine,	June 15, 1896
A. H. Hart,	Catskill Station,	"	Fyke,	May 30, 1896
I. H. Sharp,	Wolcott,	Lake Ontario,	Gill,	Dec. 31, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
B. S. Martin,	Angola,	Lake Erie,	Gill,	Dec. 31, 1896
Philip Myers,	Albany,	Hudson River,	Fyke,	May 30, 1896
I. A. Sherer,	West Troy,	"	Dip,	"
J. W. Page,	Derby,	Lake Erie,	Gill,	May 31, 1896
"	"	"	Sturgeon,	"
John Kehrer,	Glenmont,	Hudson River,	Fyke,	May 30, 1896
John H. Dyer,	West Troy,	"	"	"
N. Pauley,	Albany,	"	"	"
John Shultz,	"	"	"	"
William J. Homyer,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
"	"	"	"	"
"	"	"	Seine,	"
"	"	"	Fyke,	"
Patrick McDonough,	"	"	Gill,	"
Owen McLaughlin,	Troy,	Hudson River,	Scap,	May 30, 1896
George T. Record,	Dover,	Ten Mile River,	"	"
Elihu A. Hoag,	"	"	"	"
Alfred Dubey,	Buffalo,	Lake Erie,	Gill,	"
George A. Wicks,	Greenbush,	Hudson River,	Seine,	"
James McGregor,	Evans,	Lake Erie,	Gill,	Dec. 31, 1896
James King,	"	"	"	"
Frank C. Mullin,	Dexter,	Perch Lake,	Fyke,	"
William Clark,	West Troy,	Hudson River,	Dip,	May 30, 1896
Jacob D. Lewis,	Castleton,	"	Fyke,	"
"	"	"	Seine,	June 15, 1896
Charles Graeber,	Albany,	"	Fyke,	May 30, 1896
Bartel Vanderwall,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
E. & N. Root,	Green Island,	Hudson River,	Dip,	May 30, 1896
Peter Gregory,	Bath,	"	Seine,	June 15, 1896
Charles E. Ackerman,	Wilson,	Lake Ontario,	Cisco,	Dec. 31, 1896
William L. Ackerman,	"	"	"	"
Francis E. Jaques,	West Troy,	Hudson River,	Fyke,	May 30, 1896
Daniel O'Brien,	"	"	"	"
Mike Mosher,	Evans,	Lake Erie,	Seine,	Dec. 31, 1896
Edward Albertson,	Stuyvesant,	Hudson River,	"	June 15, 1896
Kennedy Bros.,	Hudson,	"	"	"
Miller & Shultz,	"	"	"	"
Reuben Brown,	Troy,	"	"	"
Wilcox & Henderson,	Columbiaville	"	"	May 30, 1896
Fred. W. Barringer,	Hudson,	"	Seine,	June 15, 1896
William Van Steenburg,	"	"	Fyke,	"
F. T. Welch,	Wemple,	"	"	"
Edgar J. Farquharson,	Cooperstown,	Otsego Lake,	Seine,	"
Charles F. Root,	"	"	"	"
Jeremiah Parish,	"	"	"	"
Fred. House,	"	"	"	"
Edward L. Phelps,	Troy,	Hudson River,	Dip,	May 30, 1896
Sheehan & Folmsby,	Stuyvesant,	"	Seine,	June 15, 1896
George Denue,	West Troy,	"	Hoop,	May 30, 1896
John Klee,	West Seneca,	Lake Erie,	Seine,	Dec. 31, 1896
Bert Hibbard,	Cooperstown,	Otsego Lake,	"	Aug. 31, 1896
George R. Lasher,	Greenbush,	Hudson River,	Gill,	June 15, 1896
Mike Van Cisco,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
Thery Smith,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Mike Van Cisco,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
Roger Donnelancko,	"	"	"	"
Joseph Statts,	Castleton,	Hudson River,	Fyke,	May 30, 1896
John W. Hibbard,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
Frank Bacon,	Athol Springs,	Lake Erie,	"	Dec. 31, 1896
Samuel Taro,	Green Island,	Hudson River,	"	June 15, 1896
John J. Carroll,	Troy,	"	Dip,	May 30, 1896
Leonard Earl,	Catskill Station,	"	Seine,	June 15, 1896
John N. Van Loan,	Coxsackie,	"	"	"
John Spellman,	Catskill Station,	"	"	"
John J. Pinder,	"	"	"	"
Walter Mann,	Coxsackie Station,	"	"	"
Samuel Johnson,	West Troy,	"	Fyke,	"
Henry D. Adams,	Wilson,	Lake Ontario,	Sturgeon,	Dec. 31, 1896
Hiram Cullett,	Troy,	Hudson River,	Dip,	May 30, 1896
E. L. Donegas,	Linlithgo,	"	Gill,	June 15, 1896
William H. Askins,	Lansingburgh,	"	Seine,	"
William C. Knapp,	North Germantown,	"	Drift,	"
Moore & Miller,	"	"	"	"
James S. Coons,	"	"	"	"
Wilson Snyder,	"	"	"	"
John Locknell,	"	"	"	"
Lester Miller,	"	"	Shad,	"
Wilcox & Henderson,	Columbiaville,	Hudson River,	Fyke,	"
John M. McIntyre,	Irving,	Lake Erie,	Gill,	Dec. 31, 1896
George Fredenburgh,	Catskill,	Hudson River,	Drift,	June 15, 1896
Charles Fredenburgh,	"	"	Gill,	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
John H. Fellen,	Linlithgo,	Hudson River,	Gill,	June 15, 1896
Ephraim Snyder,	North Germantown,	"	Drift,	"
Peter F. Bronk,	Stuyvesant,	"	Seine,	"
C. Slingerland,	Coeymans,	"	"	"
Frank Leak,	Athens,	"	"	"
E. R. DeWitt,	Cheviot,	"	"	"
Henry L. Moose,	West Camp,	"	Gill,	"
Miller & Schults,	Cheviot,	"	"	"
Hiram E. Brown,	West Troy,	"	Seine,	"
Amos Snyder,	Linlithgo,	"	Gill,	"
Samuel Sheffer,	North Germantown,	"	"	"
J. W. Bowmaker,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
L. J. Parshall,	"	"	"	"
Lewis J. Elting,	Greendale,	Hudson River,	Fyke,	May 30, 1896
M. Holshur,	Staats Landing,	"	Seine,	June 15, 1896
William Folmsby,	Castleton,	"	Fyke,	May 30, 1896
George E. Folmsby,	"	"	"	"
Miller, Smith & Co.,	Tivoli,	"	Seine,	June 15, 1896
Charles Rockefeller,	Cheviot,	"	Shad,	"
Truman R. Platner,	Linlithgo,	"	Gill,	"
Clyde H. Lasher,	North Germantown,	"	"	"
Henry Stamel,	Greenbush,	"	Seine,	"
George Stillwell,	Gardiner,	Walkill Creek,	"	May 30, 1896
M. Holcher,	Castleton,	Hudson River,	Fyke,	June 15, 1896
William Van Apledron,	"	"	Seine,	"
John A. Robinson,	Green Island,	"	"	"
Martin Nicholas,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Samuel Overbaugh,	West Camp,	Hudson River,	Gill,	June 15, 1896
Albert Castle,	New Baltimore,	"	Seine,	"
John Clark,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
Andrew Van Steenburgh,	Youngstown,	Lake Ontario,	"	"
John Tighe,	Coxsackie,	Hudson River,	"	June 15, 1896
John Patten,	Linlithgo,	"	"	"
Henry Conn,	Hudson,	"	Fyke,	May 30, 1896
Lewis F. Decker,	Catskill Station,	"	"	"
David Hallenbeck,	"	"	Drift,	June 15, 1896
Jacob A. Sheffer,	North Germantown,	"	Gill,	"
Fred. E. Hopkins,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
Jeremiah Foley,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
Henry T. Ray,	Hudson,	Hudson River,	Drift,	June 15, 1896
James M. Mead,	East Worcester,	Otsego Lake,	Seine,	"
H. E. Fredenburgh,	Catskill,	Hudson River,	Drift,	"
R. Bruce Sheffer,	"	"	"	"
Conine Brothers,	"	"	"	"
George S. Luddington,	"	"	"	"
Jos. P. Mulford,	Kendall,	Lake Ontario,	Gill,	Dec. 31, 1896
Frank T. Sheffer,	Cheviot,	Hudson River,	"	June 15, 1896
John H. Salspaugh,	"	"	Seine,	"
Oscar Hoffman,	North Germantown,	"	Gill,	"
E. Briggs,	Coxsackie,	"	"	"
Frank Wurtz,	Buffalo,	Lake Erie,	"	"
Truman Best,	Linlithgo,	Hudson River,	"	"
Kirk E. White,	Springfield Centre,	Otsego Lake,	Seine,	Aug. 31, 1896
Snyder & Smith,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Stewart & Pierce,	Springfield Centre,	Otsego Lake,	Seine,	Aug. 31, 1896
William Sullivan,	Westville,	"	"	"
John S. Defrate,	Cooperstown,	"	"	"
S. E. Myers,	"	"	"	"
Sterns S. Phillips,	"	"	"	"
Ben. Dodge,	Cape Vincent,	Lake Ontario,	Gill,	Dec. 31, 1896
Chas. Rightmeyer,	Malden,	Hudson River,	"	June 15, 1896
Frank Emmons,	Brewerton,	Oneida Lake,	Seine,	May 10, 1896
William Sheffer,	"	"	"	"
Dell Wood,	"	"	"	"
R. Dutcher,	"	"	"	"
Frank Ladd,	"	"	"	"
Thomas H. Gaffney,	"	"	"	"
D. L. Rathbone,	Springfield Centre,	Otsego Lake,	"	Aug. 31, 1896
Martin Mahoney,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
J. H. Rightmyer,	Malden,	Hudson River,	Gill,	"
Sheldon O. Byron,	"	"	"	"
Frank Delanoy,	Smith's Landing,	"	"	"
Hugh Fingar,	Germantown,	"	"	"
Charles S. VanDusen,	Hudson,	"	"	"
F. D. Miller,	New Baltimore,	"	Seine,	"
John A. Coyle,	Albany,	"	Dip,	"
Augustus Clark,	West Troy,	"	Seine,	"
James C. Platz,	Albany,	"	Dip,	"
Eldred & Sheldon,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
D. H. McEwan,	Marshville,	"	"	"
George Scriba,	Constantia,	Oneida Lake,	"	May 10, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
George Denue,	West Troy,	Hudson River,	Seine,	Dec. 31, 1896
D. Rogers Noble,	Lansingburgh,	"	"	June 15, 1896
M. Miller,	Cooperstown,	Otsego Lake,	"	Aug. 31, 1896
M. DeWitt Eckler,	"	"	"	"
F. Bocard,	Athol Springs,	Lake Erie,	Sturgeon,	Dec. 31, 1896
John Beck,	Buffalo,	"	Gill,	"
William Brown,	"	"	"	"
Jos. Square,	"	"	"	"
William Gardner,	Smith's Landing,	Hudson River,	Drift,	June 15, 1896
George A. Appleton,	Coxsackie,	"	"	"
Moses Stevens,	North Germantown,	"	"	"
Harry E. Brown,	Smith's Landing,	"	Gill,	"
Alex. V. Lathrop,	Stockport,	"	Drift,	"
Frank E. Terpening,	Malden,	"	"	"
Fred. Solomon,	Cedar Hill,	"	Seine,	"
Wilcox & Henderson,	Columbiaville,	"	Drift,	"
Delavan House,	Cooperstown,	Otsego Lake,	Seine,	"
G. & R. Phillips,	Cape Vincent,	Lake Ontario,	Gill,	"
Aug. Trautwein,	Buffalo,	Lake Erie,	"	"
E. F. Tryon,	Lake View,	"	"	"
Emery Tryon,	"	"	Fyke,	"
Leroy Tryon,	"	"	Gill,	"
A. Calkins,	Stuyvesant,	Hudson River,	Drift,	"
Harmon B. Whitbeck,	"	"	"	"
William H. Brandow,	Catskill,	"	"	"
F. Vroman,	Coeymans,	"	Seine,	"
H. R. Mercer,	West Troy,	"	Fyke,	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
H. Hover,	Malden,	Hudson River,	Dip,	June 15, 1896
James Zeilman,	"	"	"	"
George Wagner,	Youngstown,	Lake Ontario,	Gill,	Dec. 31, 1896
William Straker,	Buffalo,	Lake Erie,	"	"
Anton Potosi,	"	"	"	"
F. N. Strabel,	"	"	Sturgeon,	"
John Klee,	West Seneca,	"	Gill,	"
Lewis Hanson,	Angola,	"	Sturgeon,	"
John Latten,	Irving,	"	"	"
B. W. Thayer,	Springfield Centre,	Otsego Lake,	Seine,	Aug. 3, 1896
John Desmond,	Dunkirk,	Lake Erie,	Gill,	Dec. 31, 1896
F. Helrig & Co,	"	"	"	"
Drozeski & Adams,	"	"	"	"
S. Reynolds,	Coeymans,	Hudson River,	Seine,	June 15, 1896
Walter Flicker,	Malden,	"	Drift,	"
Silas Noble,	Olcott,	Lake Ontario,	Gill,	Dec. 31, 1896
John S. Wilson,	Wilson,	"	"	"
William Wilson,	"	"	"	"
John Silvey,	Buffalo,	Lake Erie,	"	"
A. L. Hoover,	"	"	"	"
H. L. Fay,	Richfield Springs,	Otsego Lake,	Seine,	Aug. 31, 1896
Charles G. Sharp,	Wolcott,	Lake Ontario,	Sturgeon,	Dec. 31, 1896
John Oathout,	West Troy,	Hudson River,	Seine,	June 15, 1896
Jacob A. Sheffer,	North Germantown,	"	Gill,	"
George Newkirk,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
James Shipworth,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
Thomas A. Huddy,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
William MacPherson,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
Charles Trautwein,	"	"	"	"
Michael Lennert,	"	"	"	"
William Neemon,	"	"	"	"
Charles Trautwein, Jr.,	"	"	"	"
Martin Ryan,	"	"	"	"
Emery Chapman,	"	"	"	"
Stephen Jerome,	"	"	"	"
Thomas Sears,	"	"	"	"
W. G. Kabel,	"	"	"	"
John F. Beneck, Jr.,	"	"	"	"
George Thompson,	"	"	"	"
Charles H. Wheeler,	Wilson,	Lake Ontario,	Gill,	"
"	"	"	"	"
David M. Wheeler,	"	"	"	"
"	"	"	"	"
Timothy Wilson, Jr.,	"	"	"	"
John Pilkinton,	"	"	"	"
Wilbur Fitch,	Wolcott,	"	Sturgeon,	"
John Oberst,	Buffalo,	Lake Erie,	"	"
William Miller, Jr.,	Germantown,	Hudson River,	Gill,	June 15, 1896
David Overbaugh,	Malden,	"	"	"
Benjamin Overbaugh,	"	"	"	"
Russel Overbaugh,	"	"	"	"
George Flicker,	"	"	"	"
James D. Rightmyer,	"	"	"	"
George W. Turpening,	"	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Charles Turpening,	Malden,	Hudson River,	Gill,	June 15, 1896
Peter Georgian,	"	"	Drift,	"
Nathan M. Rose,	Athens,	"	Gill,	"
John McGuire,	Albany,	"	Drop,	"
Wallace Whitbread,	Derby,	Lake Erie,	Sturgeon,	Dec. 31, 1896
"	"	"	Gill,	"
Frank L. Powley,	Youngstown,	Lake Ontario,	"	"
Emanuel Joseph,	Buffalo,	Lake Erie,	"	"
William Bird,	"	"	Sturgeon,	"
Samuel Crockett,	"	"	"	"
Howard Miller,	Linlithgo,	Hudson River,	Gill,	June 15, 1896
Joseph Myers,	Buffalo,	Lake Erie,	"	Dec. 31, 1896
Charles F. Wilson,	Wilson,	Lake Ontario,	"	"
Frank Pound,	Athol Springs,	Lake Erie,	"	"
A. L. Cross,	Tivoli,	Hudson River,	Drift,	June 15, 1896
Joseph Sweet,	West Seneca,	Lake Erie,	Sturgeon,	Dec. 31, 1896
J. J. Miniger,	Westfield,	"	Gill,	"
L. Canfield,	"	"	Trap,	"
Isaac Zeilman,	Malden,	Hudson River,	Gill,	June 15, 1896
Christ. Fisher,	West Seneca,	Lake Erie,	"	Dec. 31, 1896
"	"	"	"	"
John Klee,	"	"	"	"
William J. Homeyer,	Buffalo,	"	Sturgeon,	"
"	"	"	Gill,	"
W. J. Thayer,	Springfield,	Otsego Lake,	Seine,	Aug. 31, 1896
Shea & Morewood,	Dunkirk,	Lake Erie,	Gill,	Dec. 31, 1896
George Hurlbert,	Buffalo,	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Herman Myers,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
Earl Ridgeway,	Wolcott,	Lake Ontario,	Sturgeon,	"
W. H. Hover,	Linlithgo,	Hudson River,	Gill,	June 15, 1896
Charles H. Baulfourd,	Buffalo,	Lake Erie,	"	Dec. 31, 1896
John A. Turpening,	Malden,	Hudson River,	"	June 15, 1896
Toney Simmons,	"	"	"	"
William R. Saxton,	Milford,	Otsego Lake,	Seine,	Aug. 31, 1896
George Zeilman,	Malden,	Hudson River,	Drift,	June 15, 1896
Charles Gettman,	Liverpool,	Onondaga Lake,	Seine,	June 13, 1896
Valentine Fisher,	"	"	"	"
Charles Van Alstine,	"	"	"	"
Patrick Ryan,	"	"	"	"
John Young,	"	"	"	"
Joseph Richards,	Wolcott,	Lake Ontario,	Gill,	Dec. 31, 1896
Glenn Names,	"	"	"	"
Daniel J. Kelly,	Buffalo,	Lake Erie,	"	"
Edward Ahart,	"	"	"	"
E. S. Morgan,	West Seneca,	"	Sturgeon,	"
Holland & Bromley,	Angola,	"	Gill,	"
Milan Culp,	Buffalo,	"	"	"
George Durnbach,	"	"	"	"
Charles Flicker,	Malden,	Hudson River,	Drift,	June 15, 1896
William B. Swart,	"	"	"	"
Edgar D. Sheffer,	Athens,	"	"	"
Frank Cooley,	Stottville,	"	Scap,	"
E. B. Horton,	Henderson Harbor,	Lake Ontario,	Gill,	Dec. 31, 1896
John L. Perry,	Solvay,	Onondaga Lake,	Seine,	June 13, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Michael Dunne,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
Charles Krause,	"	"	"	"
James Roland,	Coeymans,	Hudson River,	Seine,	"
James Schermerhorn,	No. Germantown,	"	Drift,	June 15, 1896
Clapp & Fitzpatrick,	Stuyvesant,	"	Seine,	"
Samuel Milius,	Malden,	"	"	"
Thomas Cavanaugh,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
Walter Rea,	Coxsackie,	Hudson River,	"	June 15, 1896
George Ott,	Buffalo,	Lake Erie,	Sturgeon,	Dec. 31, 1896
Ben. Hofer,	"	"	Gill,	"
John Hanley,	Syracuse,	Onondaga Lake,	Seine,	June 13, 1896
John J. Matteson,	"	"	"	"
Dutson B. Barker,	"	Lake Erie,	Gill,	Dec. 31, 1896
Emory F. Tryon,	Lake View,	"	Sturgeon,	"
W. J. Lake,	Silver Creek,	"	"	"
Henry Mills,	Westfield,	"	Trap,	"
H. A. Monroe,	"	"	Gill,	"
G. H. Tifft,	"	"	"	"
Henry Oakes,	"	"	"	"
James Jennings,	Catskill Sta.	Hudson River,	Drift,	June 15, 1896
William H. Coon,	Germantown,	"	"	"
George Zee,	Lakeland,	Onondaga Lake,	Seine,	June 13, 1896
S. L. Beckwith,	Angola,	Lake Erie,	"	Dec. 31, 1896
George H. Austin,	Stottville,	Hudson River,	"	June 15, 1896
Taylor & Whitbeck,	Stuyvesant,	"	Drift,	"
Oscar Shultis, Jr.,	Cheviot,	"	Gill,	Dec. 31, 1896
C. J. Alexander,	Dunkirk,	Lake Erie,	"	"

SCHEDULE OF LICENSES.—Continued.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Lake Fish and Provision Company.	Dunkirk,	Lake Erie,	Trap,	Dec. 31, 1896
Bacon & Boyd,	"	"	Gill,	"
Henry J. McEwan,	Evans,	"	Sturgeon,	"
Richard Reed,	Buffalo,	"	Gill,	"
James Zeilman, Jr.,	Malden,	Hudson River,	Drift,	June 15, 1896
Robert Taylor,	Point Breeze,	Lake Ontario,	Gill,	Dec. 31, 1896
Ernest Armstrong,	Woodville,	"	Sturgeon,	"
Louis C. Smith,	Dunkirk,	Lake Erie,	Gill,	"
Dunkirk Fish Company,	"	"	"	"
C. Jackway,	"	"	Trap,	"
George A. Britting,	Angola,	"	Gill,	"
Julius Sungatuski,	Buffalo,	"	"	"
James Martin,	Olcott,	Lake Ontario,	Sturgeon,	"
John A. Benton,	Lake View,	Lake Erie,	Fyke,	"
Theo. A. Hoffman,	Tivoli,	Hudson River,	Drift,	June 15, 1896
H. D. Bitley,	West Troy,	"	Seine,	"
James Cronkhite,	Liverpool,	Onondaga Lake	"	"
John Van Keuren,	Columbiaville,	Hudson River,	Drift,	"
E. S. Miniger,	Westfield,	Lake Erie,	Trap,	Dec. 31, 1896
J. J. Miniger,	"	"	"	"
J. E. Jackway,	"	"	"	"
H. A. Freling,	"	"	"	"
"	"	"	"	"
G. H. Tifft,	"	"	"	"
W. H. Jackway,	"	"	"	"
"	"	"	"	"
Howard C. Gould,	Springfield Center,	Otsego Lake,	Seine,	Aug. 31, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Jos. Peaslee,	East Springfield,	Otsego Lake,	Seine,	Aug. 31, 1896
Byron A. Southwick,	Woodville,	Lake Ontario,	Sturgeon,	Dec. 31, 1896
Gunther & Wick,	Dunkirk,	Lake Erie,	Gill,	"
Clarence Jackway,	Fredonia,	"	Trap,	"
A. Gottchalk,	Westfield,	"	Gill,	"
John O'Brien,	Buffalo,	"	"	"
F. W. Sherman,	"	"	"	"
T. Desmond,	"	"	"	"
E. Sweet,	Dunkirk,	"	"	"
F. Shafer, Jr.,	Olcott,	Lake Ontario,	Sturgeon,	"
M. M. Wentworth,	Liverpool,	Onondaga Lake,	Seine,	June 13, 1896
James Daly,	Buffalo,	Lake Erie,	Gill,	Dec. 31, 1896
A. Olson,	"	"	"	"
Albert Carpenter,	Angola,	"	"	"
E. Armstrong,	Woodville,	Lake Ontario,	Seine,	"
Frank Link,	Tivoli,	Hudson River,	Sturgeon,	"
John Link,	"	"	"	"
William Seebold,	"	"	"	"
Edward Fiero,	Saugerties,	"	Gill,	June 15, 1896
Samuel G. Melius,	"	"	"	"
Jacob Sheffer,	North Germantown,	"	Drift,	"
Mary L. Best,	Hudson,	"	Seine,	"
Lisk & Cashdoller,	Tivoli,	"	Herring,	"
Grant Moore,	Madalin,	"	Sturgeon,	Dec. 31, 1896
Henry F. Center,	Dunkirk,	Lake Erie,	Gill,	"
Charles Rockefeller,	Cheviot,	Hudson River,	"	"
Alpheus Simmons,	Madalin,	"	Sturgeon,	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
George Sheffer,	Linlithgo,	Hudson River,	Gill,	Dec. 31, 1896
W. W. Wilson,	Angola,	Lake Erie,	Trap,	"
Dunkirk Fish Company,	Dunkirk,	"	Pound,	"
Duane Dennee,	Cape Vincent,	Lake Ontario,	Gill,	"
James A. Jackson,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
William Brockway,	Springfield Center,	"	"	"
Charles McGarrell,	Westfield,	Lake Erie,	Trap,	Dec. 31, 1896
"	"	"	"	"
H. A. Freling,	"	"	"	"
"	"	"	"	"
H. W. Brooks,	"	"	"	"
Robert G. Hallenbeck,	Hudson,	Hudson River,	Fyke,	"
N. F. Case,	Portland,	Lake Erie,	Trap,	"
Nelson Bayer,	Rochester,	Lake Ontario,	Net,	"
W. S. Hoot,	Point Breeze,	"	Sturgeon,	"
"	"	"	Whitefish,	"
Jesse Cole,	Catskill Station,	Hudson River,	Drift,	"
William Carter,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
John Galloway,	Westfield,	Lake Erie,	Trap,	Dec. 31, 1896
C. C. Acker,	North Greece,	Lake Ontario,	Gill,	"
John Jackway,	Westfield,	Lake Erie,	Sturgeon,	"
"	"	"	Trap,	"
J. D. Lloyd,	"	"	"	"
Jerry Driscoll,	Dunkirk,	"	Gill,	"
N. F. Case,	Portland,	"	Trap,	"
M. Delavergne,	North Parma,	Lake Ontario,	Gill,	"
George Holcomb,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
J. M. & L. J. Meed,	East Worcester,	Otsego Lake,	Seine,	Aug. 31, 1896
Nelson Gilbert,	Ellisburg,	Lake Ontario,	Gill,	Dec. 31, 1896
William J. Sweet,	Youngstown,	"	"	"
William Johnson,	Dunkirk,	Lake Erie,	"	"
Van Ness P. Cooper,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
George Wright,	North Parma,	Lake Ontario,	Gill,	Dec. 31, 1896
John Garrison,	"	"	"	"
William Burrow,	Dunkirk,	Lake Erie,	"	"
E. N. Flint,	Sprout Brook,	Otsego Lake,	Seine,	Aug. 31, 1896
Theo. Van Riper,	Westerlo,	Seneca Lake,	"	Sept. 1, 1896
G. B. Martin,	Olcott,	Lake Ontario,	Sturgeon,	Dec. 31, 1896
James McGregor,	Evans,	Lake Erie,	Trap,	"
William H. Smith,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
William H. Comstock,	Point Breeze,	Lake Ontario,	Whitefish,	Dec. 31, 1896
"	"	"	Cisco,	"
"	"	"	Sturgeon,	"
John Wagner,	Youngstown,	"	Gill,	"
John J. Pindar,	Catskill,	Hudson River,	Sturgeon,	"
Myron Parsons,	Webster,	Lake Ontario,	Gill,	"
A. H. Gaylay,	Cooperstown,	Otsego Lake,	Seine,	Aug. 31, 1896
Alfred Hall,	Cherry Valley,	"	"	"
John A. Terpening,	Malden,	Hudson River,	Fyke,	"
Jacob M. Askins,	Troy,	"	Scap,	"
W. Fredenburgh,	Catskill,	"	Fyke,	"
W. H. Brandow,	"	"	"	"
George Sheffer,	Linlithgo,	"	"	Dec. 31, 1896
A. V. Clark,	Watervliet,	"	"	"

SCHEDULE OF LICENSES.—CONTINUED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Samuel Melius,	Saugerties,	Hudson River,	Fyke,	Dec. 31, 1896
Thomas Murphy,	Watervliet,	"	"	"
William Hallenbeck,	Schodack Landing,	"	"	"
Peter Gregory,	Bath,	"	"	"
Charles Rightmyer,	Malden,	"	"	"
Lester Miller,	North Germantown,	"	"	"
Charles Martekopsky,	Albany,	"	"	"
John Locknell,	North Germantown,	"	"	"
Samuel Parsons,	Webster,	Lake Ontario,	Gill,	"
Ransler Proper,	Linlithgo,	Hudson River,	Fyke,	"
Oscar Shultis,	Cheviot,	"	"	"
John Spellman,	Catskill Station,	"	"	"
Earl & Lawrence,	"	"	"	"
E. Snyder,	Germantown,	"	"	"
Hiram Knol,	Schodack Landing,	"	"	"
James H. Jennings,	Catskill Station,	"	"	"
George Flicker,	Malden,	"	"	"
Henry Smith,	Catskill Station,	"	"	"
J. M. Van Loan,	Coxsackie,	"	"	"
Peter F. Bronk,	Stuyvesant,	"	"	"
Coon & Saulspaugh,	Hudson,	"	"	"
John Race,	"	"	"	"
James H. McGilfrey,	Bath,	"	"	"
John W. Gillette,	Lewiston,	Niagara River,	Trap,	"
Charles W. Woodcock,	Niagara Falls,	"	"	"
Leonard Van Buskirk,	Coxsackie,	Hudson River,	Fyke,	"
Elmer Rowe,	"	"	"	"

SCHEDULE OF LICENSES.—CONCLUDED.

LICENSE	RESIDENCE	WATER	KIND OF NET	EXPIRATION
Nathan M. Rose,	Athens,	Hudson River,	Fyke,	Dec. 31, 1896
Harry Odell,	Coxsackie,	"	"	"
H. D. Bitley,	Watervliet,	"	"	"
David Smith,	Tivoli,	"	"	"
Samuel Sheffer,	North Germantown,	"	"	"
William T. Race,	Hudson,	"	"	"
David Secor,	"	"	"	"
Charles Fredenburgh,	Catskill,	"	"	"
Spencer G. Vail,	Derby,	Lake Erie,	Sturgeon,	"
James Kinnicutt,	Albany,	Hudson River,	Fyke,	"
Ed. D. Waters,	North Germantown,	"	"	"
John H. Hill,	West Camp,	"	"	"
Patterson & Loudon,	Hudson,	"	"	"
Isaac H. Sharp,	Wolcott,	Lake Ontario,	"	"
Cornelius Best,	Coeymans,	Hudson River,	"	"
V. Salisbury,	Schodack Landing,	"	"	"
Conrad Myers,	North Germantown,	"	"	"
Wilcox & Flouton,	Columbiaville,	"	"	"
Water Commissioners,	Newburgh,	Lake or Reservoir,	"	"
Jacob Sheffer,	North Germantown,	Hudson River,	"	"
John Phillips,	Malden,	"	"	"
James Wood,	Ellisburgh,	Lake Ontario,	Seine,	"

Schedule of Prosecutions for Violations of Fish and Game Laws for the Fiscal Year Ending September, 30, 1896.

By Special Protectors.

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Ira Trask,	Hamilton,	Adirondack Club,	$18 40
" A. Wardell,	"	"	$27 00
		Total,	$45 40
People vs. William Hudson,	Onondaga,	Fred. Barnes,	$40 00
" E. W. Armstrong,			
People vs. William Wind,	Cattaraugus,	George Bush,	3 mos. in jail
" Jacob Wind,	"	"	" "
" George Wallhouser,	"	"	$20 00
" Leo Collins,	"	"	3 mos. in jail
		Total,	$20 00
People vs. Frank Mandsland et al.,	Westchester,	Jos. Canepi, Jr.,	$160 00
People vs. Edgar Kemp,	Wyoming,	G. W. Crandall,	$15 00
People vs. F. L. Collins,	Franklin,	Robert Eddy,	$10 00
People vs. Charles Wallace,	Herkimer	George Fayzette,	$80 00
" Dennis McCannell,			
People vs. M. S. Conkling,	Suffolk,	John Ferguson,	$5 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Edwin Sage,	Cattaraugus,	Henry French,	$15 00
People vs. Wesley Lee et al.,	Putnam,	Chas. Knox,	$136 00
" James Giggs,	Westchester,	"	25 00
" Samuel R. Free,	Dutchess,	"	50 00
" John B. Olivette,	"	"	25 00
		Total,	$236 00
People vs. Robert Burnhardt,	Richmond,	John W. Lisk,	$25 00
" G. Fisher,	"	"	15 00
" A. B. Sisson et al.,	"	"	50 00
" Michael Graber,	Kings,	"	10 00
" William Doll,			
		Total,	$100 00
People vs. Fred. Thompson,	Monroe,	Simon Marshall,	$10 00
" Theo. F. Hildt,	"	"	10 00
" Jos. Bonfeldt,	"	"	10 00
" Albert Schultz,	"	"	10 00
" Jos. Schneider,	"	"	10 00
" John Beinline,	"	"	10 00
" Henry Rogisky,	"	"	12 days in jail
" Rubin Jones,	"	"	15 00
" Richard Burton,	"	"	15 00
" Frank Doel et al.,	"	"	30 00
" William Nash,	"	"	15 00
" Andrew Ward,	"	"	15 00
" Valentine Deitrich,	"	"	25 00
" William Seils,	"	"	20 00
" Chas. Seils,			
" Frank Bell,	"	"	10 00
" William Nash,	"	"	20 00
" William Brasch, Sr. and Jr.	"	"	20 00
" Jos. Young,	"	"	30 00
" Peter Bittner,			
		Total,	$275 00

TITLE OF CASE	COUNTY	PROTECTOR	RECOVERY
People vs. Edwin Pettitt et al.,	Saratoga,	Michael McQuinn,	$102 00
" Darvin Vannatta,	"	"	20 00
			$122 00
People vs. Henry Corey,	Ontario,	Edwin Oakley,	$10 00
People vs. E. A. Stevens,	Oswego,	G. E. Sackett,	$50 00
People vs. Melvin Smith,	Montgomery	C. S. Scharff,	$75 00
People vs. L. K. Aagard,	Saratoga,	H. W. Schumann,	$22 50
" Peter Rasmussen,			
People vs. William Warney,	Monroe,	A. C. Smith,	$10 00
" Edward Snyder,	"	"	10 00
		Total,	$20 00
People vs. George Oatman,	St. Lawrence,	Jos. Sterling,	$15 00
" George Vraman,	"	"	25 00
		Total,	$40 00
People vs. Frank DuBois,	Dutchess,	Chas. Van Steenberg,	$10 00
" Herman Potts,	"	"	20 00
" Jacob Coon,			
" William Simmons,	"	"	10 00
" William H. Coon,	"	"	14 85
		Total,	$54 85
People vs. George E. Sellick,	St. Lawrence.	O. S. Webber,	$25 00

Illegal Devices Seized and Destroyed During the Fiscal Year Ending September 30, 1896.

John L. Ackley.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
November, 1895,	..	..	2	..	..	..	..	..	$10 00
December, "	..	..	3	..	3	..	..	..	32 00
April, 1896,	3	..	..	..	10	..	..	..	28 00
May, "	2	..	..	..	6	..	..	..	46 00
June, "	..	..	4	..	5	..	..	..	62 00
July, "	..	..	5	..	1	1	..	..	52 00
August, "	..	..	11	..	1	..	..	..	57 00
September, "	3	..	14	..	6	..	..	..	96 00
								Total,	$383 00

E. I. Brooks.

October, 1895,	3	..	..	..	1	..	..	..	$75 00
November, "	4	..	4	..	..	..	..	..	190 00
December, "	7	..	..	7	..	..	..	..	106 00
May, 1896,	7	..	2	..	..	..	..	..	178 00
June, "	6	..	1	1	5	..	..	..	92 75
July, "	3	..	3	..	3	..	..	..	106 25
August, "	10	..	2	..	..	..	..	..	214 00
September, "	3	..	2	..	..	1	..	..	123 00
								Total,	$1,085 00

George Carver.

October, 1895,	2	..	2	..	..	..	..	..	$125 00
November, "	1	..	50	..	5	..	..	..	1,070 00
December, "	5	..	3	..	Tipups	..	..	..	140 00
January, 1896,	41	..	..	..	116	..	..	..	438 00
February, "	1	..	..	..	10	..	..	..	17 00
March, "	2	..	..	..	Set Lines	..	..	..	20 00
April, "	..	..	..	..	18	..	..	1	40 00
May, "	3	..	2	..	2	..	..	..	66 00
June, "	..	..	2	..	1	..	..	3	75 00
July, "	38	..	..	..	..	..	..	..	405 00
August, "	1	..	7	..	..	..	..	..	265 00
September, "	..	..	1	..	..	..	..	..	25 00
								Total,	$2,686 00

T. H. Donnelly.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
April, 1896, .	7	..	2	..	2	..	..	..	$500 00

L. S. Emmons.

October, 1896, .	..	..	..	..	..	1	..	..	$25 00

Eugene Hathway.

October, 1896, .	..	..	1	..	2	..	..	..	$4 00
November, " .	..	..	1	..	..	..	..	..	20 00
								Total,	$24 00

Spencer Hawn.

October, 1895, .	..	11	7	1	..	..	..	..	$377 50
November, " .	..	4	1	..	..	..	..	..	129 00
December, " .	..	16	3	..	..	..	..	..	413 00
April, 1896, .	..	9	1	1	..	..	..	..	173 75
May, " .	1	14	..	..	..	..	..	..	320 00
June, " .	..	2	..	..	..	..	..	..	47 00
July, " .	..	2	1	..	..	..	..	..	66 00
August, " .	..	3	..	..	..	..	..	..	65 00
September, " .	..	8	1	..	..	..	..	..	213 00
								Total,	$1,804 25

E. A. Hazen.

June, 1896, .	..	..	5	..	..	..	..	..	$34 50
July, " .	..	..	3	..	6	..	..	..	42 00
August, " .	..	..	1	..	9	..	..	..	64 00
								Total,	$140 50

Edgar Hicks.

May, 189 , .	..	..	..	..	6	..	..	..	$40 00
June, " .	..	..	..	..	..	1	..	..	25 00
								Total,	$65 00

SEBASTIAN HESBACH.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
June, 1896, .	1	..	..	..	..	..	..	..	$15 00

MATTHEW KENNEDY.

October, 1895, .	1	..	..	..	..	..	..	..	$10 00

A. B. KLOCK.

May, 1896, .	..	1.	..	..	..	1	..	..	$70 00

JAMES H. LAMPHERE.

October, 1895, .	1	..	1	..	22	..	..	..	$38 00
November, " ..	1	1	2	..	..	..	..	1	153 00
December, " .	2	..	..	..	..	..	..	..	10 00
April, 1896, .	14	..	..	..	..	..	..	..	145 00
								Total,	$346 00

J. D. LAWRENCE.

August, 1895, .	..	..	..	..	..	..	..	1	$1 50

JOHN E. LEAVITT.

December, 1895, .	..	8	..			..	..	..	$245 00
April, 1896, .	..	..	1	..		..	..	..	33 00
								Total,	$278 00

EMMETT J. LOBDELL.

May, 1896, .	..	1	..	.	..	1	..	..	$70 00

BYRON H. MCCOLLUM.

April, 1896, .	.	..	4	..	..	..	..	..	$8 00
August, " .	..	..	2	..	..	..	..	..	18 00
								Total,	$26 00

BENTLEY S. MORRILL.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
November, 1895, .	1	..	..	..	..	..	..		$20 00
December " .	6	..	3	..	..	..	..		145 00
								Total,	$165 00

JOSEPH NORTHUP.

October, 1895, .	..	..	1	..	6	..	..	..	$47 00
November, " .	..	..	4	..	4	..	..	..	54 00
December, " .	3	..	..	..	..	..	..	..	45 00
March, 1896, .	..	1	..	..	23	..	..	..	46 00
April, " .	4	3	..	..	..	..	..	..	170 00
May, " .	5	..	2	..	2	1	..	..	143 00
June, " .	1	..	..	..	..	..	..	..	10 00
July, " .	..	..	4	..	1	..	..	..	45 00
August, " .	..	..	1	..	5	..	..	..	27 00
September, " .	3	2	3	..	4	..	..	..	151 00
								Total,	$738 00

JAMES H. O'BRIEN.

June, 1896, .	1	..	1	..	1	..	..	..	$23 00

DANIEL N. POMEROY.

October, 1895, .	7	..	2	5	.	..	..	..	$440 00
November, " .	3	..	33	..	5	1	..	..	335 00
December, " .	5	..	..	3	5	2	.	..	170 00
February, 1896, .	..	..	..	..	.	2	..	..	45 00
March, " .	..	..	..	..	..	1	..	..	40 00
April, " .	2	.	..	7	..	1	..	..	60 00
May, " .	1	..	4	8	1	6	..	2	260 00
June, " .	..	..	..	6	..	2	..	..	140 00
August, " .	..	..	..	1	..	..	..	..	5 00
								Total,	$1,495 00

O. S. POTTER.

May, 1896, .	2	..	..	..	..	..	..	..	$50 00

S. M. Prouty.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
April, 1896,	4								$47 00

Wallace L. Reed.

October, 1895,					7				$24 00
December, "			2						22 00
March, 1896,								70	3 50
April, "			1		2				16 00
May, "					5	1			54 00
June, "					2				5 00
July, "					2				6 00
August, "			1						8 00
September, "					2				4 00
								Total,	$142 50

Riley M. Rush.

December, 1895,		8							$300 00
May, 1896,		1				1			70 00
June, "					2				10 00
July, "		3							65 00
September, "		2							60 00
								Total,	$505 00

Bernard Salisbury.

January, 1896,								1	$3 00
February, "								2	10 00
May, "		1					2		750 00
June, "		5			1				242 00
July, "		2							300 00
								Total,	$1,305 00

William A. Ten Eyck.

November, 1895,					4				$10 00

GEORGE B. SMITH.

MONTH	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
November, 1895, .	..	1	..	..	..	.	..	..	$30 00
April, 1896, .	4	..	..	..	8	..	..	..	33 00
May, " .	2	..	..	..	2	..	..	..	19 00
July, " .	..	1	..	..	38	..	..	..	56 00
August, " .	1	1	1	1	..	1	..	..	43 00
								Total,	$181 00

Illegal Devices Seized and Destroyed During the Fiscal Year Ending September 30, 1896, by Special Protectors.

	Fyke Nets	Trap Nets	Gill Nets	Squat Nets	Set Lines	Seines	Pound Nets	Spears	Value
John F. Benton, .	..	..	2	..	..	..	..	..	$12 50
Noel W. Conger, .	1	1	4	..	..	..	..	..	84 00
Simon Marshall, .	4	..	1	12	..	..	..	..	104 50
Allen C. Smith, .	25	..	6	..	3	..	..	..	183 00
Joseph Sterling, .	1	3	4	..	2	..	..	..	98 50
William Harris, .	41	..	3	..		1			266 00

The Adirondack Deer.

THERE were 347 more deer killed this year (1896) in the Adirondacks than in 1895. Although the period for hounding had been shortened from one month to two weeks, there were 280 more deer killed ahead of the hounds in these ten weeks than in the four weeks allowed in 1895. Shortening the hounding season did not lessen the number of hunters and hounds; it merely resulted in bringing them all there together. As a consequence, there was not only the same number of hunters, but, as they were all hunting at about the same time, every runway was fully manned and few deer escaped. If hounding is to be permitted, the period may as well include four weeks as two.

The statistics compiled from the various localities indicate a decrease in the number killed by "jacking" or night hunting as compared with the previous year. This may be due to the moonlight nights which occurred during the first part of the jacking season, and the cold, foggy nights later on. In St. Lawrence County, where hounding is not permitted by law, and where the hunters rely largely on night hunting for their venison, there was also a decrease in the number killed by jacking.

It will be noticed in the table submitted herewith that a few deer were killed in St. Lawrence County by hounding in violation of the law. Some of these were shot by hunters who were running dogs illegally, but most of them were deer that were killed on the border, having been driven there by hounds that were put out in an adjoining county.

The large number of deer shot in St. Lawrence County, which are included in the column marked "still hunting," were not hunted by the method usually known by that term. These deer were killed by what are known as evening shots, daylight shots or morning shots; that is, they were killed for the most part while feeding along the ponds or water courses, the hunter in such cases using a boat, in which he sits concealed or paddles noiselessly to within easy range of his game. This kind of hunting, like jacking, is destructive to the does, for they frequent the water in greater number than the bucks. Many of the does killed this way have young fawns, which are left to starve.

Moreover, the deer killed at this time of year—when they frequent the lake shores to feed—are weak and thin in flesh; the venison is tough, tasteless, and mighty poor eating. The same animals in October and November would weigh one-third more and furnish good venison.

Our game law is at fault in this matter. It should not permit the killing of deer, by any method, until they have attained their full weight and until the females have reared their young. It might as well permit the robbing of spawning beds. No other State or Canadian province allows its deer killed before the first of October. But the deer law in New York was made for the benefit of the "summer people" instead of the protection of game. It is ridiculous to argue about the propriety of hounding and at the same time permit the shooting of lean, nursing does in August.

MATED.

Our State has not so many deer that it can afford to give ten weeks deer shooting, while Michigan, Wisconsin, Minnesota and Ontario find that three is all that can be safely granted.

Reports from the Catskill counties indicate that the deer which were liberated there in July, 1895, are doing well, and appear to be increasing in number. Where they have been observed, they seem to be large and vigorous. As only forty-five were turned loose, some time must still elapse before the region can be fairly stocked. A few deer cross the Delaware River each year from Pennsylvania into the Catskill forests, but no more than will offset what are killed by the Sullivan County people, who succeed in getting a bill through the Legislature occasionally permitting them to kill them. The period in which deer shooting is prohibited by law in the Catskills should be extended five years more.

If the experiment of re-stocking that region with deer is to have a fair trial, there should be 200 more deer brought down from the Adirondacks and turned loose there. The forest area of the Catskills is three-fifths as large as that of the Adirondacks and would support 15,000 deer. The expense of catching 200 live ones and transporting them to the State Deer Park in Ulster County would require an appropriation of $2,000; but it would be money well expended. Our forests can and should be made to furnish a food supply as well as timber. The State does not hesitate to vote

A RABBIT HOUND.

annually large sums for the propagation of fish. Why not appropriate some money for the propagation of large game?

The statistics furnished here showing the total number of deer killed in the Adirondack forests are believed to be fairly correct and approximating closely to accuracy. If anything, they fall short of the actual number rather than exceeding it. In obtaining these figures, the entire region was divided into 149 districts, each with clearly defined and well-known boundaries. Reports were obtained from some competent person in each district, who was duly cautioned to include only the specified territory assigned him and to avoid reporting any deer that were killed

outside such limits. In some cases, to secure greater accuracy, reports were obtained from different persons in the same district, and these returns were carefully compared and inquired into.

The total number killed in 1896 as thus reported is 5,247. If the proposed law prohibiting jacking and hounding is enacted, the number killed each year will not exceed 1,200, the greater part of which will be killed in August and early September, when the weather is warm enough for the deer to come down to the water at evening to feed. After that, in October, the sportsmen will have to depend on still hunting, in which only the expert hunter will be successful.

It is highly important that the number killed each year should be ascertained accurately, and by some method which will preclude any criticism of the figures. To this end, some law should be enacted compelling every person who kills a deer to report it to this Department, together with full information as to the date, locality, and sex. The weight, if known, should also be included in the report. Failure to report a deer that is killed should constitute a misdemeanor, with a proper penalty attached. The accurate and undoubted information thus obtained would form a valuable basis for legislation regulating the hunting of this class of game.

We append here, also, the statistics showing the exact number of carcasses shipped by the express companies during the open season of 1896, and the number shipped from each railway station. From these reports it appears that 849 entire bodies were transported from the woods, and that in addition to these there were 139 saddles or parts of bodies and 100 buck heads. The largest shipments were made from North Creek (149), Beaver River (81) and Fulton Chain (73). In publishing these figures of the transportation companies, the Commission desires to acknowledge the valuable courtesies extended by Mr. John L. VanValkenburg, superintendent of the American Express Company, and Mr. T. M. Smith, superintendent of the National Express Company.

The number thus shipped out of the woods may seem entirely disproportionate to the number reported as killed; but the reasons for this are fully set forth in our report of last year. Of the 899 deer killed in St. Lawrence County, only 61 were shipped out by rail.

It may be interesting to note, in connection with these matters, the number of deer killed in other States. Through lack of accurate statistics, we are unable to give the figures, except for the State of Maine. From the annual report of the Commissioners of Inland Fisheries and Game of that State, it appears that 8,947 deer were killed in the season of 1896; also, 250 moose, 239 caribou, and 160 bears. The published statements of the railroads in Maine show that the shipments of venison, or number of carcasses, by rail bear about the same proportion to the total number killed

in the State, as the shipment of deer from the Adirondack region to the total number killed in New York.

Under the law in Maine, requiring that guides shall be licensed, 1,316 men registered as guides since July 1, when the law went into effect. From the annual report the following facts also appear: The total number of days' employment furnished these guides during the open season, aggregated 51,918; at $3 per day, the usual price, this amounted to $155,754 paid in wages to these men, while, in addition, over $50,000 went to the taxidermists in that State. The number of residents guided was 3,384; non-residents, 7,125. It was estimated that the non-residents who employed guides expended within the State at least $2,000,000.

The number of deer killed in Maine exceeds that of New York; but more bear were killed in the Adirondacks (to say nothing of the Catskills) than in Maine—the bounties paid in the Adirondack counties showing that 349 deer were killed in one year in Northern New York. It will be noted also, that in the State of Maine there are 1,316 registered guides, while in the Adirondacks there were only 626, in 1893, as indicated in the list published by the Superintendent of Forests, in the annual report of the Forest Commission for 1893—a full and complete list giving the post-office address of each, and which was prepared with the assistance and co-operation of the guides in each locality.

AN OPEN SHOT.

ADIRONDACK FORESTS.

Number of Deer Killed in 1896.

COUNTY	Night Hunting	Hounding	Still Hunting	Total	Bucks	Does
Clinton,	.....	58	7	65	33	32
Essex,	26	258	91	375	218	157
Franklin,	170	748	116	1,034	477	557
Fulton,	4	38	12	54	26	28
Hamilton,	310	775	212	1,297	659	638
Herkimer,	156	501	123	780	431	349
Lewis,	67	262	30	359	178	181
Oneida,	6	20	.....	26	11	15
Saratoga,	.....	1	3	4	2	2
St. Lawrence,	444	21	434	899	398	501
Warren,	32	267	23	322	166	156
Washington,	.....	25	7	32	11	21
Total,	1,215	2,974	1,058	5,247	2,610	2,637

Shipments of Deer.

AMERICAN EXPRESS COMPANY.

Adirondack & St. Lawrence Railway.

OFFICE	CARCASSES*	SADDLES	HEADS
Big Moose, N. Y.,	16	4	12
Beaver River, "	81	12	11
Childwold, "	20	7	
Clearwater, "	7		
Fulton Chain, "	73	16	
Forestport, "	15	7	5
Horse Shoe Pond, "	8	2	
Lake Placid, "	1	8	
Lake Clear Jct., "		1	
Loon Lake, "	7		
Little Rapids, "	7	2	3
Long Lake, "	32	3	
Malone, "	7	6	1
Minnehaha, "	6		
Mountain View, "	6		2
McKeever, "	19	2	
Owl's Head, "	2		
Otter Lake, "	4		
Paul Smith's, "	14	7	15
Poland, "	5	1	1
Piercefield, "	1		
Remsen, "	1		1
Rainbow Lake, "	1	1	
Saranac Lake, "	4		1
Saranac Inn, "	6	10	5
Tupper Lake Jct., "	39	10	
White Lake Corners, "	4	3	
Woods Lake, "	11		
Total,	397	102	57

* Entire body; head not severed.

CARTHAGE & ADIRONDACK RAILROAD.

OFFICE		CARCASSES	SADDLES	HEADS
Benson Mines,	N. Y.,	18	5	2
Harrisville,	"	12	3	
Natural Bridge,	"	4		1
Newton Falls,	"			2
Oswegatchie,	"	11	1	
	Total,	45	9	5

FONDA, JOHNSTOWN & GLOVERSVILLE RAILROAD.

Cranberry Creek,	N. Y.,	2		
Gloversville,	"	2		
Johnstown,	"	1		
Northville,	"	65	7	13
	Total,	70	7	13

LITTLE FALLS & DOLGEVILLE RAILROAD.

Dolgeville,	N. Y.,	1		1

NEW YORK CENTRAL & HUDSON RIVER RAILROAD.

Fonda,	N. Y.,	1		
Little Falls,	"	1		
	Total,	2		

NORTHERN NEW YORK RAILROAD.

Brandon,	N. Y.,	7		
Bay Pond,	"			1
Childwold,	"	4		
Kildare,	"	8	2	
Le Boeuf,	"	1		
Madawaska,	"	11		

NORTHERN NEW YORK RAILROAD.—Continued.

OFFICE		CARCASSES	SADDLES	HEADS
Spring Cove,	N. Y.,	10		1
Santa Clara,	"	12		
St. Regis Falls,	"	5		1
Shanley,	"		2	
Tupper Lake,	"	5	2	12
Willis Pond,	"	6		3
	Total,	69	6	18

OGDENSBURG & LAKE CHAMPLAIN RAILROAD.

Winthrop,	N. Y.,	1		

ROME, WATERTOWN & OGDENSBURG RAILROAD.

Canton,	N. Y.,		2	3
Carthage,	"	1	2	
Gouverneur,	"	1		
Potsdam,	"	2		
Redwood,	"			1
	Total,	4	4	4

UTICA & BLACK RIVER RAILROAD.

Alder Creek,	N. Y.,	2	2	
Boonville,	"	3		1
Carthage,	"		1	
Castorland,	"	6	1	
Glendale,	"	12	1	1
Lyons Falls,	"	3		
Lowville,	"	4		
Prospect,	"	14	6	
Port Leyden,	"	2		
Trenton,	"	1		
	Total,	47	11	2

RECAPITULATION.

OFFICE	CARCASSES	SADDLES	HEADS
Adirondack & St. Lawrence Railroad,	397	102	57
Carthage & Adirondack Railroad,	45	9	5
Fonda, Johnstown & Gloversville Railroad,	70	7	13
Little Falls & Dolgeville Railroad,	1		1
New York Central & Hudson River Railroad,	2		
Northern New York Railroad,	69	6	18
Ogdensburg & Lake Champlain Railroad,	1		
Rome, Watertown & Ogdensburg Railroad,	4	4	4
Utica & Black River Railroad.	47	11	2
Grand Total,	636	139	100

Shipments of Deer.

NATIONAL EXPRESS COMPANY.

Delaware & Hudson Railroad.

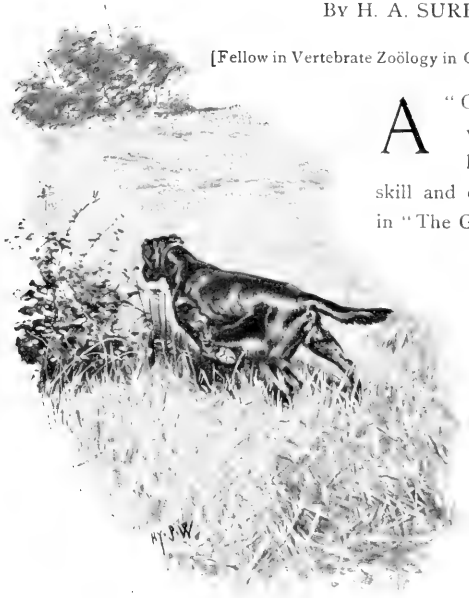
OFFICE	CARCASSES.
North Creek, N. Y.,	149
Stony Creek, "	11
The Glen, "	2
Thurman, "	2
Saranac Lake, "	2
Port Henry, "	41
Riverside, "	6
Total,	213

The Three Most Important Game Birds

Of the State of New York.

By H. A. SURFACE, M. Sc.,

[Fellow in Vertebrate Zoölogy in Cornell University, Ithaca, N. Y.]



A GOOD POINT.

A "GAME BIRD" has been defined as "one which is suitable for food, and which is habitually pursued for sport, demanding skill and dexterity for its capture." (F. A. Bates, in "The Game Birds of North America.")

Again, "a game bird is one that lies to the dog, and can be shot only while on the wing." (H. D. Minot, in "The Land and Game Birds of Eastern North America.")

No two definitions of "a game bird" will agree, and none will be entirely satisfactory.

There are no natural or scientific boundaries by which birds that are hunted for sport differ (as a group) from other birds, and so it might be said that a game bird is one that plays in a game which on one hand is sport to the hunter, and on the other, life or death to the bird.

The Ruffed Grouse. *Bonasa umbellus* (Linnæus).

The classification of this noble game bird is as follows:

Order GALLINÆ—The Gallinaceous Birds.

Family *Tetraonidæ*—The Grouse, Partridges, and Quails.

Family characters: Hind toes small (much less than half as long as lateral toes), and inserted above the level of the anterior toes. Tarsi without spurs. Head entirely feathered (in American species) except sometimes over eyes. Tail not vaulted or arched.

Subfamily *Tetraoninæ*—The Grouse.

Subfamily characters: Gallinaceous birds with the margins of the toes distinctly pectinated in winter; the tarsi at least half feathered; the nasal fossæ densely filled with feathers (so as to completely enclose and partially conceal the nostril); sides of neck often with an inflatable air sac. A bare (usually red or yellow) space over eyes.

Genus BONASA Stephens.

Bonasa Stephens, Shaw's Gen. Zoöl. xi, 1819, 298.

Type, *Tetrao bonasia* Linn.

Tetrastes Keys. & Blas. Wirb. Europ., 1840, p. lxiv.

General characters: Tail fan-shaped, its feathers very broad, soft, as long as the wings; eighteen in number. Tarsi naked for the lower half; covered with two rows of hexagonal scales anteriorly. Sides of toes strongly pectinated (in winter). Side of neck with a tuft of very broad, soft feathers. Portion of culmen between the nasal fossæ about one-third the total length. Top of head with soft crest.

Bonasa umbellus (Linnæus). RUFFED GROUSE.

Popular synonyms: "Partridge" (in New England); "Pheasant" (in Southern and Western States); Ruffled Grouse; Drumming Grouse.

Habitat.—Eastern United States, south to the Gulf coast (?). [Replaced from Manitoba, northwestward, and also in the Rocky Mountains, by a gray race (*Bonasa umbellus umbelloides*), and on the coast of Washington, Oregon, and British Columbia by the dark rusty *Bonasa umbellus sabini* (Douglass).]

Specific characters: Above ochraceous-brown finely mottled with grayish; the scapulars and wing-coverts with pale shaft-streaks, the rump and upper tail-coverts with median cordate spots of pale grayish. Tail ochraceous-rufous, narrowly barred with black, crossed terminally with a narrow band of pale ash; then a broader one of black, this preceded by another ashy one. (In specimens from the Alleghany Mountains and New England States, the tail usually more or less grayish to the base, sometimes entirely destitute of rufous tinge.) Throat and foreneck ochraceous. Lower parts white (ochraceous beneath the surface), with broad transverse bars of dilute brown, these mostly concealed on the abdomen. Lower tail-coverts pale ochraceous, each with a terminal deltoid spot of white, bordered with dusky. Neck-tufts brown or black. Length, 18.00; wing, 7.20; tail, 7.00 (in.). *Female* smaller, and with the neck-tufts less developed, but colors similar. *Young* (No. 39,161 St. Stephen's N. B.; G. A. Boardman): brown above and dingy white beneath; a rufous tinge on the scapulars. Feathers of the jugulum, back, scapulars, and wing-coverts with broad median streaks of light ochraceous, and black spots on the webs; jugulum with strong buff tinge. Secondaries and wing-coverts strongly mottled transversely. Head dingy buff, the upper part more rusty; a postocular or auricular dusty patch,

and a tuft of dusky feathers on the vertex. *Chick:* Above light rufous, beneath rusty white; uniform above and below; a dusky postocular streak inclining downwards across the auriculars. Bill whitish. ("History of North American Birds." *)

This beautiful bird is found from the Eastern United States westward to the edge of the Great Plains, and from Northern New York, Southern Ontario, Canada, and Minnesota, southward to Northern South Carolina and Northwestern Georgia, Tennessee, and Arkansas. In the northern portion of its range it is found in the lowlands, and in the southern, in the highlands. In the northern part of this State it intergrades with a gray variety, the Canadian Ruffed Grouse, known as *Bonasa umbellus togata*, R. It breeds throughout its range and is highly appreciated as a game bird and as an article of food for man. The habitat preferred by this bird is a hilly, wooded country with much undergrowth and some meadows and cultivated fields near by. During the close season or period when protected by law, and during the early part of the open season, it is very confiding and is often seen out in the open fields; but when the fall shooting commences, it soon learns to keep near or in the brushy woods. They commence to mate in March, when the loud and characteristic booming or drumming sound of the male may be heard. He selects a log near the edge of the woods, and after considerable strutting, spread of tail and show of black ruff or neck-feathers, he stretches himself on his perch and commences to beat the air vigorously with his wings, at first rather slowly, but soon with such rapid vibrations that one would scarcely believe that voluntary muscular fibre can be made to move so rapidly.

There has been much discussion as to how this drumming sound is produced, some persons holding that it is caused by the wings striking the log; others say that the wings strike the inflated body of the bird; but it is now generally agreed that the sound is made by the feathers of the wings cutting rapidly through the air. The noise produced is of the same nature and practically made in the same manner as the whirring sound of the bird's wings when it suddenly takes flight by being frightened. Although the drumming is mostly done in the spring time, the sound may be heard almost every month of the year, and it is probable that it is for the purpose of notifying the female of his whereabouts. The same drumming site is usually selected, not only from day to day and month to month, but from year to year. This habit of the birds in frequenting one spot has often led to their destruction, as boys frequently place snares arranged with spring-poles along the log and catch the grouse by their necks. There they are found hanging dead. However, this is now illegal.

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* These descriptions are from R. Ridgway, in "The Ornithology of Illinois," Nat. Hist. Survey of Ill., Pt. 1, Vol. II.

Bonasa Umbellus (Linnæus.)

RUFFED GROUSE ON NEST. (PHOTOGRAPHED BY GRANVILLE HILLS.)

It has been known to nest in the central part of this State as early as the first of April, but this is rather unusual, as the nesting season for this species usually commences about the first of May. These birds have apparently learned the possible dangers to which their brood would be exposed by late snows and frosts, and so they delay the nesting until the signs of the times denote the certainty of spring weather. A remarkable feature of this bird is the fact that it often chooses its nesting site quite near the paths or roadways of man, depending upon its protective coloration for concealment. During the past year several nests have been seen very near to well-trodden paths. The nest is usually but a slight excavation in the ground near a tree, log, or rock, slightly lined with dead leaves, dry grass, or pine needles. From eight to sixteen eggs are laid in one nest. They are ovate in form and average 1.65 x 1.25 of an inch in size, in color varying from milky white to pinkish buff. Many are spotted with small rounded dots, varying from brown or drab to reddish, although many are seen that are not at all speckled or spotted.

RUFFED GROUSE NEST. (PHOTOGRAPHED BY GRANVILLE HILLS.)

The young hatch from the eggs in eighteen to twenty-four days and are able to run from the nest at once, being what are technically known as precocial birds. Now, let appear on the scene an object supposed to be an enemy and see how the young

instantly disappear at the note, "Quit, quit," the first sound they may have heard in their young lives. As the intruder comes near the family, see how the mother feigns lameness and flutters along on the ground just beyond reach of the person's hand, uttering a plaintive cry until she thinks she has decoyed him to a distance that means safety for her young. Now she bursts through the trees in full flight and in one second is forty rods from her pursuer, leaving him confused and chagrined and unable to find the spot where the precious young lie in concealment or safe protection by their earth-like coloration. And when the mother utters that low call that may be translated "All's well," see how they spring up from places where they had no cover, and you wonder how it was that you could not have seen them in their hiding.

The soft little bills cannot now break heavy coverings of seeds, neither can the tender little gizzards comminute the rough weed seeds that might become the food of the parents; so insects are caught and fed to them, and they are at once taught to catch insects for themselves. The male, who has been away on voluntary absence during the summer, returns and struts and chuckles as if to say, "See what *we* have done with our little hatch-it." He is sufficiently prosaic, however, to "take a hand" (or rather put in his bill) in family affairs and aid in the capture of bugs, beetles, flies, moths, grubs, worms, etc., as well as in hunting berries and other soft fruits for the sustenance of the progeny. It is at this time that the young are especially liable to be injured by exposure to cold and wet weather, and by numerous pests and enemies. (See "Enemies.") They may be found quite approachable at the beginning of the shooting season, and when not too closely hunted may remain together as one covey until the following spring; but after being much hunted, they become quite alert and very wild and scattered. They fly into trees and remain so quietly perched against the trunk that even the eye of an expert fails to detect their presence. When the snow is on the ground they are especially likely to alight in a tree, and at such times they are often hunted with a barking cur. Their attention is so completely given to the dog that the hunter is often able to shoot several as they sit in the tree. It is believed by many persons that all the birds in the tree may be shot by commencing with the lower one and dropping them, one at a time, but this is denied by good authority. Although during the summer they eat many insects, berries, grapes, beechnuts, seeds, and other fruits, they also eat many leaves and buds, especially the seeds and pulp of skunk cabbage and the leaves of Bishop's cap (*Tiarella*). They are very fond of buckwheat at all seasons. In the winter, when snow is on the ground, their principal food is buds of various trees and shrubs, such as birch, poplar, and maple trees and cedar berries, witch-hazel flowers, the leaves and berries of the wintergreen, squaw berries, and the leaves of the peppermint. "Kalmia leaves, which are sometimes eaten by them in winter, are said, on good authority, to make the flesh

temporarily poisonous for man, and the fact that the birds' food directly affects their flesh is exemplified in the delicious aromatic flavor of grouse that have been feeding extensively upon birch buds and wintergreens, the grateful odor pervading the whole house when such birds are so unfortunate as to get upon the hot kitchen stove just before dinner time." (Dr. R. T. Morris, in "Hopkins Pond and Other Sketches.")

ENEMIES.

The greatest enemies of this valuable bird are insect pests, hawks, owls, foxes, raccoons, lynxes, skunks, squirrels, cats, dogs, etc. The snowy owl (*Nyctea nyctea*), being diurnal as well as nocturnal, is an especial enemy of the grouse, as is also the American goshawk (*Accipiter atricapillus*).

Specimens of the goshawk have been received at Cornell University containing the remains of the ruffed grouse, and in February, 1896, one was shot in the Adirondacks by Mr. Ezra Cornell, Jr., while in the act of devouring a ruffed grouse which it had just killed.

The wolf (*Canis lupus*) is now too rare in the State of New York to be considered an important enemy of this bird, but the red fox (*Vulpes vulpes*) is by far too abundant in almost all parts of the State, and appears to make this bird one of its choice articles of diet.

The remains of several grouse were found at a fox den near Danby, N. Y., in March, 1897, and in many other cases it has been known to fall prey to reynard. Like all other carnivorous mammals, the fox not only eats the adult birds when it can catch them, but delights in an opportunity to surprise a flock of half-grown or very young birds, and even devours the eggs while they are in the nest, lying by the nest in wait for the old bird herself.

The fox will scent a brood of young birds and follow them for a long time, even until nightfall, when it will spring among them after they have stopped for the night and play fearful havoc with the covey. Sometimes it will learn the direction the birds are moving, and by a circuitous route establish itself in front of them, lying in wait concealed in a clump of bushes or weeds. When the birds come within reach, it will snap right and left and secure one or two fine birds as a prize for its cunning.

The raccoon (*Procyon lotor*) kills and eats the young birds especially, and loses no opportunity to destroy a nest of eggs.

Skunks (*Mephitis mephitica*) are probably the greatest enemies of eggs in the nest, and the destruction annually wrought by this means is beyond calculation or belief. In fact, in certain localities more eggs are destroyed by skunks than are permitted to remain and hatch.

A serious enemy of the young grouse is a tick or fly of the entomological family *Hypoboscidæ*. This miserable parasite fastens itself deeply into the skin and lives by

sucking the blood of its host. Contrary to the habits of most insects, it is viviparous, giving birth to living young. When it fastens on the head or back of a grouse chick, it is quite likely to prove fatal. Many birds are supposed to be destroyed annually by this means. They are also often seriously infested with lice and with a species of bot-fly (*Œstridæ*), the larva of which is sub-dermal, living in the flesh of its victim.

PROTECTION.

(*a*). Trap, shoot or poison the carnivorous and ovivorous animals.

(*b*). Prohibit the use of snares or traps for grouse.

(*c*). Prohibit their sale in the markets after the first of December.

(*d*). Establish inter-state laws to regulate the killing, transportation, and sale of all game.

(*e*). Establish a limit as the maximum legal number for any one person to kill in a season or have in his possession.

(*f*). Where a person really cares to do something for his birds, more good can be accomplished than may be believed by mixing a teaspoonful of insect powder in each of the dusty wallows which the birds frequent for the purpose of freeing themselves from vermin.

(*g*). During prolonged periods of snow on the ground, establish feeding places where early each morning food may be strewn for them. This food may be grain or seeds of any kind, pieces of fruits or vegetables, crumbs and scraps from the table, etc.

AFTER GROUSE.

The Bob-White or Quail. *Colinus virginianus* (Linn.)

The quail belongs to the same order and family as the ruffed grouse, but to the subfamily *Perdicinæ*—the Partridges.

Characters of subfamily: Tarsi and toes entirely naked; nasal fossæ unfeathered, protected by a naked scale. Sides of toes without pectinations at any season. Sides of neck without any inflatable air-sac, and no bare space over the eyes.

Genus *Colinus* Lesson. *Ortyx* Stephens; Shaw's Gen. Zoöl., XI, 1819. Preoccupied. Type, *Tetrao virginianus* Linn. *Colinus* Less.; Man. II, 1828, 190. Same type.

General characters: Bill stout; head without crest; tail short, scarcely more than half the wing, composed of moderately soft feathers. Wings normal; legs distinct, well developed, the toes reaching considerably beyond the tip of the tail; the lateral toes short, equal, their claws falling decidedly short of the base of the middle claw.

Colinus virginianus (Linnæus). Bob-White.

Popular synonyms: "Quail" (in New England and most portions of the Mississippi Valley); "partridge" (in Southern States and parts of the interior); American quail; Virginia quail; partridge or colin.

Habitat—Eastern United States, north to Massachusetts and Ontario, south to Georgia, Alabama, Louisiana and eastern Texas (?), west to the edge of the Great Plains. Replaced in Florida by the smaller and much darker *Colinus virginianus floridanus* Coues, and in central Texas, north to western Indian Territory, by a much lighter colored *Colinus virginianus texanus* (Lawr.).

Specific characters: *Adult male:* Pileum and stripe on side of head mixed black and rusty, the former prevailing; broad and distinct superciliary stripe; chin and throat white. Upper parts mottled rusty and grayish, the scapulars and tertials spotted with black, the latter with inner webs broadly edged with ochraceous. Jugulum mixed rusty black and white; abdomen white, with irregular V-shaped bars of black; sides rusty, streaked with black and white. *Adult female:* Similar to male, but superciliary stripe and throat ochraceous, and pileum, together with stripe on side of the head, mostly rusty. *Young:* Pileum and auriculars dull grayish; superciliary stripe and throat dull dirty whitish; jugulum and breast dull grayish brown, with whitish shaft-streaks; abdomen plain dull white; back rusty brownish, with whitish shaft streaks and black spots. *Downy young:* Head dingy buff, with an elongated dusky auricular spot; and on the crown an oblong patch of chestnut rufous. Total length (fresh specimens), 9.50–10.50; extent, 14.00–15.50 inches.

When the warm sunshine of early spring is awakening life to renewed activities and "A livelier iris glows upon the burnished dove," then it is that Bob White's fancy "lightly turns to thoughts of love," and with a pardonable pride characteristic of the

sex, the male loudly proclaims to all passers-by tidings of his newly-found treasure, "The Greatest Thing in the World—Love."

Standing erect, majestic, proud, haughty, defiant, he calls, in a loud, clear voice from the top of the rail fence, "Bob White," "Ah! Bob White," and the country boys know the quails are mating. But ah! what different words are those sounds to the companion of his choice for the year, as she with due feminine modesty quietly searches under the black bushes nearby for a suitable place to deposit her life's treasures and rear her young safe from the molestation of skunk, weasel, fox, raccoon, cat or dog, or the prying boy, or the thoughtless and ignorant drivers of the cruel reaper.

According to latitude the quail nests from the first of March to the first of June. In the State of New York they generally nest during the month of May. In the early part of this month the males fight like veritable little furies for the possession of the females, and the choice having been made with a great deal of chattering, bowing and strutting, the pair quietly steal away through the tangles of grass and bushes on a house-hunting expedition. Having apparently settled upon a general location for nesting, they next select a spot where there is a natural depression in the ground, in some slightly protected place, as under tall grass, weeds, low bushes or brushwood, and after clearing out the depression, or making a shallow excavation for themselves, they proceed to fill it with blades of grass and a small quantity of other suitable lining material. Sometimes the nest is laboriously and snugly arched over. The male often takes part in the nest construction as well as sometimes in the incubation of the eggs, and he often carries food to the female while she is incubating. From fourteen to thirty pointed white eggs are laid, and after about twenty-four days the young come forth and run about almost immediately. In fact they have been seen running from the nest with pieces of the shell still clinging to their backs.

They are fed on insects, and soon learn that their lives depend upon their own sharp eyes and swift movements. Contrary to the habits of many birds, but in accordance with others, the male helps to feed the young, and the family remains together as a flock or covey until spring, when they mate and the pairs separate from the flock to begin the pleasures and duties of summer anew.

Where there are two broods the male even takes the babies of the first brood off into the fields and cares for them until he is joined by his mate with the second family.

Although the food of the young is mostly insects, they gradually add berries, other fruits, and nuts to their articles of diet as they grow older until their menu finally includes buckwheat, wheat, rye, oats and corn (most of the cereals being gleaned from the fields after harvest), locust-seeds, wild pease, tick-trefoil (*Desmodium*), smart weeds (*Polygonum*), sunflowers (*Helianthus*), bitter weed (*Artemisia*), partridge berry (*Mitchella*), wintergreen (*Gaultheria*), nanny berries (*Viburnum*), wild grapes (*Vitis*),

small berries, especially strawberries (*Fragaria*), and raspberries and blackberries (*Rubus*).

In June, this year, a fine male was brought to the writer. It had killed itself by flying against a wire, near Ithaca, N. Y., and upon examination its crop and entire enteron were found to be filled with wild strawberries.

They are easily kept in a state of semi-domestication, and when not disturbed form a very valuable and beautiful feature of a woods, large lawn, or park.

There are but few birds that are more keenly alive to the benefits of protection or the evils of persecution. When they are much hunted they become very wild and scattered, like their cousins the Ruffed Grouse under similar circumstances. They are more easily domesticated than the grouse, and we have often seen them around the lawns or barnyards of persons who could appreciate and encourage them. There they contentedly mingle at times with the domestic fowls or feed joyously among the pigs and cattle of the farm.

Although it is true that they sometimes migrate, they are generally permanent residents at any one spot where they find suitable conditions as to both open ground and cover, food, water, and protection.

They breed throughout their entire range, or that part of North America in which they occur, and have one, two, or it is said sometimes three broods in a year, according to latitude and conditions. In the State of New York but one brood is reared annually, although farther south there are more. Where there is but one annual brood the number of eggs laid at one nesting is largest, being from fifteen to thirty, but where there are two broods the number of eggs in the first nest is about twelve to twenty, and in the second from ten to fifteen or fewer. Cold and damp weather is very dangerous to the life of the young, and when they are about half grown they are the favorite article of diet of almost all the carnivorous mammals and birds.

Like the other members of this order, the quails when frightened fly up with such a whirring noise as to startle any intruder by the sound produced by the rapid vibrations of the wings in the air, but when taking flight to move from one place to another of their own choice and not in the presence of supposed enemies, the whirring sound is not audible. This is also true of the grouse.

The covey keeps together, generally on the ground, and moves in harmony in the same general direction, under ordinary circumstances; but when an enemy appears they scatter in every direction. Some may be seen alighting on the ground and running, others remaining motionless after alighting, others hiding in bushes or perching in trees. The beautiful valley quails or helmet quails of California when disturbed always fly directly into the live oak trees and are at once effectually concealed and protected. At night and during rainy, snowy or very cold days, they

collect in groups on the ground in a sheltered spot, as under a log or roots of an old stump, bush pile or fence corner, forming a circle, with their tails pointing in together and their bodies touching, sitting as it were in the radii of a circle, ready to fly outward in every direction toward the circumference the instant an alarm is given. When not molested, they may remain as long as two days and two nights (if there be deep snow) in this spot without moving; but if they are driven from this by being frightened by an enemy, they forsake it forever, as a rabbit does a "form" where it has been discovered. When they take flight from such a resting-place, the noise of their whirring wings is so great that it has been compared to the veritable explosion of a miniature dynamite bomb.

One probable reason for their absence in the northern part of the State of New York is the deep snow fall, which annually would cover them to such a depth as to cause the death of the entire covey. It is almost impossible for them to escape the injurious effects of the very deep snow, and especially when a crust forms over them it is almost certain to prove fatal. They also suffer greatly from starvation during prolonged periods of snow, and persons living where these very useful and beautiful birds occur, cannot do a more beneficial or charitable act than to scatter on the snow seeds, grain, or crumbs, in order that their feathered friends may be nourished in time of need and distress. They are not found in great abundance in any part of our State, but are more numerous on Long Island than at other places. Efforts to transplant them into the Adirondacks have not been crowned with as great success as was anticipated, although a few colonies are to be found in the vicinity of Lake George, where they were introduced by artificial means some years ago.

The quail is of great economic value aside from the fact that it is a favorite popular game bird, and also becomes an important and valuable item in the food of man. The food of the young is almost exclusively insects, and the adults are also among the farmers' best friends as insect destroyers. Another important item of no mean consideration is the vast number of weed-seeds which they destroy annually. There is probably no bird of greater economic value, and consequently every means should be taken to protect and encourage this worthy bird.

The Virginia quail has been introduced into Europe, but it is not much liked there because it is said to drive off the gray partridge or European quail, which is considered better food for man.

Cases of quails killing themselves by flying against wires, walls, or buildings are not rare. It appears that they fly with such terrific force when once frightened from cover that they do not take time or have opportunity to choose their exact course until it is too late. It is probable that in their hurried flight they watch their pursuers more closely than the objects toward which they move.

For the proper protection and propagation of this bird it would be well to

(*a*). Prohibit its sale as "game."

(*b*). Enforce a five year "close season."

(*c*). Recognize them (legally) as the property of the man upon whose premises they occur, and not to be shot, excepting by his consent.

(*d*). Destroy the carnivorous animals that become their enemies.

(*e*). Encourage them (by feeding and other kindnesses) to become semi-domesticated.

(*f*). Be particularly careful to feed them during severe winter or prolonged snow, and if possible give them shelter.

(*g*). Preserve a strip of woodland or hillside in natural thicket in which they may find refuge when too severely persecuted.

(*h*). Be especially careful to watch for their nests in cultivated fields, particularly during haying season, and plainly mark their exact locality (by a stake with a cloth tied to it) in order that horses and wheels of reapers and wagons may not crush the precious eggs.

A GO AT THE QUAIL.

The Woodcock. *Philohela minor* Gmelin.

The classification of this interesting and peculiar bird is as follows:

Order *Limicolæ*—THE SHORE BIRDS.

Characters: Precocial wading birds, usually of small size; distinguished from the *Herodiones* (herons, etc.) by precocial habits and many striking differences of structure, and from the *Paludicolæ* (cranes, rails, etc.) by their lengthened, usually pointed, wings and small rudimentary hind toe, the latter member being sometimes wanting.

Family *Scolopacidæ*—SNIPES AND SANDPIPERS. Tarsus rounded in front, where clothed with a single row of transverse scutellæ. Bill exceedingly variable, short or long, straight, slightly recurved or decidedly decurved, but more or less expanded laterally at the end, which is more or less sensitive. Hind toe usually present; rarely absent.

Subfamily *Scolopacinæ*.

Characters: Bill straight, longer than the middle toe and tarsus; back of tarsus with a continuous row of transverse scutellæ. Ears situated directly underneath the eyes; tip of upper mandible thickened, with cutting edges brought near together; plumage the same at all stages and seasons.

Genus *Philohela* Gray. *Philohela* Gray, List Genera, 1841, 90. Type, *Scolopax minor* Gmelin.

Generic characters: Body very full, and head, bill, and eyes very large. Tibia short, feathered to joint. Toes cleft to base. Wings short, rounded, the three outer primaries very narrow and much attenuated; the fourth and fifth equal to the longest. Tarsi stout, shorter than the middle toe. Hind claw very short, conical, not extending beyond the toe. Tail of twelve feathers. The present genus, embracing a single species, the American Woodcock, is much like *Scolopax*, with the European Woodcock as a type, in color and external appearance. The most striking difference is seen in the wings, which are short, rounded; the fourth and fifth primaries longest, and the outer three abruptly attenuated; while in *Scolopax* the wings are long, the first primary longest, and none attenuated.

Philohela minor Gmelin. American woodcock.

Popular synonyms: Bog-sucker; mud snipe; blind snipe.

Scolopax minor Gmelin. S. N., i, 1788, 661. Wils. Am. Orn. vi, 1812, 40, pl. 48, fig. 2. Aud. Orn. Biog. iii, 1835, 474, pl. 268.

Specific characters: Bill long, compressed, punctulated near the end; upper mandible longer than the under and fitted to it at the tip; wings moderate, three outer quills very narrow; tail short; legs moderate; eyes inserted at an unusual distance from the bill.

Adult: Occiput with three transverse bands of black, alternating with three much narrower ones of pale yellowish rufous; upper parts of body variegated with pale ashy, rufous, or yellowish red of various shades, and black; large space on front and throat reddish ashy; line from the eye to the bill and another on the neck below the eye brownish black; entire under parts pale grayish rufous, brighter on the sides and under wing-coverts; quills ashy brown; tail feathers brownish black, tipped with ashy, darker on the upper surface, paler and frequently white on the under; bill light brown, paler and yellowish at base; legs pale brownish.

Downy Young: General color light reddish buff, or isabella-color, uniform on the lower surface. Line from bill to eye, a large, somewhat elliptical patch covering the forehead and fore part of the crown, a patch on the occiput (connected with that on the crown by a narrow isthmus), and a narrow mark behind the eye, with an oblique one below it, very dark chestnut; broad stripe down the rump, also dark chestnut; stripe down the nape, and various large blotches on the back, wings, etc., rather light snuff-brown. Total length about 28 centimeters (11 inches); wing, 12 to 14.50 centimeters (4.80 to 5.70 inches); tail, 5.75 centimeters (2.25 inches); bill, 6.35 centimeters to 7.60 centimeters (2.50 to nearly 3.00 inches); tarsus, 3.20 centimeters (1.25 inches); middle toe, 3.50 centimeters (1.37 inches).

The generic name of this bird, "Philohela," comes from two Greek words, *philos* (loving) and *helos* (a bog), in allusion to its habit of frequenting swamps. The specific name, "minor," refers to its size in comparison with that of the European woodcock (*Scolopax rusticola*).

This bird is a summer resident in the State of New York, breeding in suitable localities throughout the state. It has been known to remain at least once during the winter, in sheltered places in the southern part of the state. In America this bird is found from the Gulf to the British Provinces, and from the Atlantic westward to the Great Plains. It breeds throughout its entire range, but it is perhaps the most erratic game bird we have, as it appears to maintain at least a local movement for almost each month of its summer residence. It arrives in this state in March, and at once commences to mate. As it flies through the air, it produces a series of notes, probably its love-call, which

SETTER HEAD.

is very singular and pleasing, sounding like the water whistles that we often hear blown by boys. It is claimed by our best authorities that this noise does not come from the syrinx or "voice box" of birds, but from the wings, being produced by the wing striking the air.

Athough the male and female woodcock do not differ essentially in color, the sexes may at once be recognized by size, the female being much larger. In the markets she is often called the "wood hen."

These birds, like others of their family and order, do not have a musical voice with which to attract or charm their mates, so the male does his wooing by executing the most amusing little jigs and antics before the bird of his choice. This may make him appear very absurd to the "outsider," but when we remember that even the lugubrious owl, the emblem of solemnity and wisdom, resorts to the same ridiculous tactics to secure the affection of his mate, we may be lenient in passing sentence upon our modest and shy little "game bird." It often nests as early as April 1st, which is quite too early to insure the safety of its brood in this latitude, as late snows and frosts often destroy its eggs or young. It then nests again, often in the same locality, but generally changing its abode. It has been seen on its nest in this state as late as the last of June.

The numbers of specimens of this species found in any one region are often directly dependent upon the climatic conditions during the early springtime. During some seasons none but old birds may be found in the swamps during the late summer, pointing to the fact that their haste in spring wooing resulted in the destruction of their offspring. One great peculiarity of this bird is the fact that its eyes are placed far back and toward the top of its head, over its ears. This is probably not so much to protect the eyes as to enable it to see any object that might forebode approaching danger. In order to adapt its vision to its crepuscular and nocturnal habits the pupil of its eye is very large, as in other nocturnal birds—e. g., the owls. On account of its naturally dilated pupil the bright glare of the noon-day sun blinds it to such a degree that it can not see sufficiently clearly to fly with safety in the bright light. We have recorded several authenticated cases of woodcock having been injured or killed by striking against objects in its flight.

During the month of August the woodcock are to be found not in the swamps as in the springtime, but in the thickets, woods and groves of the uplands or hillsides along the valley. As they steal quickly over the dry ground they may leave no scent, and thus elude the dogs. This condition is doubtless what has given rise to the popular fallacy that certain gamebirds like the woodcock and quail are able to voluntarily withhold the scent of their bodies and thus baffle the keen nose of a trained dog in attempting to locate them.

WOODCOCK. (Philohela Minor.)

In October the birds have their full coats of new feathers and may be again found abundantly in their old haunts—the swamps. They commence their fall migrations in this month, and by the last of November have gone to winter in the Southern States.

This bird is altogether crepuscular and nocturnal in its habits, feeding at night by probing in the mud with its long, soft, sensitive bill. The sensitive nature of the bill renders it possible for the bird to distinguish by the sense of feeling whether it has found a stick or a worm, and if the latter, it is generally able to suck it from the ground without withdrawing its bill. This has given rise to the common name of "bog-sucker" in some localities. It has the peculiar faculty of separating its mandibles near the tip by making a compound curve in the upper one. This is for the purpose of using the two parts of the bill as finger and thumb in probing the mud and feeling for its food without having to open the mouth widely at the base of the mandibles.

WOODCOCK.

The holes or borings of the bird are plainly visible as clear-cut, neat, deep holes in the mud of swamp or moist field. By these signs the hunter is able to locate the feeding-grounds of the birds. Now if he wishes to find them he may do so by going to the copse or brushy hillside nearby, or in the woodland not far from the swamp. By hunting carefully in such regions he may flush the birds singly, and as they fly up in a decidedly corkscrew-like path a person must be indeed an expert with a gun in order to bring them down. However, if the first shot misses there will be an opportunity for a "straight-away" shot with the second, as the bird when thus surprised straightens its course and flies as if to get away from that spot by the nearest possible route, which must be a straight line. When it alights it suddenly drops into the grass, leaves or bushes, and often does not again move until actually kicked out, or flushed

by a dog. But the birds may also be found in the day-time hiding in the tall grass in the swamp. This territory may be thoroughly hunted one day and no birds found, while on the next day they may be found on the same grounds, having come in during the night.

When these birds migrate, as well as when they move to or from their feeding-grounds, they fly singly. If an observer should stand by their feeding-swale or swamp an hour before dusk he could see them suddenly twisting down in spirals as if from the sky, or skulking from grassy tussocks in the marsh or the brushwood on the hillside. Their whistling sound is characteristic and often guides the hunter to their site.

When food becomes scarce in the swamps, or when too much water accumulates there, they may even penetrate the depths of forests, where they find food, such as worms, larvæ, etc., by turning over damp leaves with their bills. Little or no nest is made. Sometimes a natural depression in the ground will suffice, and sometimes only a curled leaf is used.

The woodcock usually lays four eggs, varying in size, shape, and color, but the average size is about 1.50x1.20 of an inch, or 3.80x3. centimeters. The ground color is stone gray or buff or brownish, spotted and blotched with brown, gray, and lilac markings. They hatch in about sixteen days or longer. They have been known to carry their young to feeding-places; some persons holding that this is done by the bill, while others claim to have seen the young carried by being held between the thighs of the parents.

The young are precocial, being able to run about as soon as hatched, and are able at once to understand and obey the warning voice of the mother to conceal themselves when she suspects danger to her precious brood. They emerge from the shell from the first of May to the first of July, and certainly are very peculiar and interesting little stilted bunches of gray down. Nature protects the young by not giving their bodies the odor by which the adults may find each other, yet which enables dogs and other keen-nosed animals to locate them in turn. Students of ontogeny and phylogeny might say that this argues for a development from an odorless ancestry.

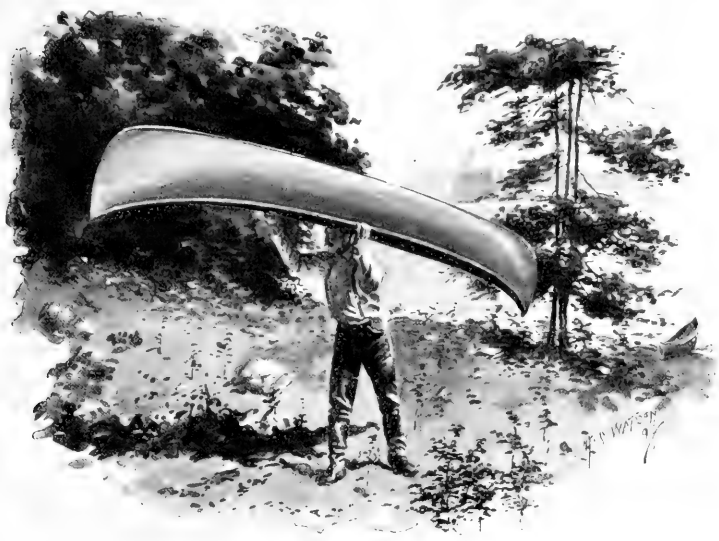
Protection.

Woodcock are becoming more scarce almost every year. What are the reasons? Surely their natural enemies are on the decrease. The only advancing foe with which they come in contact is the march of "civilization." It is very unfortunate that mankind cannot be wise enough to see before too late the inevitable results of general slaughter of our song and game birds, and the results of artificially transforming their haunts.

I heartily concur with the wise sentiments expressed by Mr. G. Hills in his excellent but all too brief article on "Summer Woodcock Shooting," pp. 256–7 of the very admirable report of the Fisheries, Game and Forest Commission for 1895, in which he advocated a close season, protecting all birds from December 1 to October 1.

However, the history of this bird is but that of all native birds of our State. Protective legislation alone can not avail. If the people living in localities where birds breed do not really want them preserved their ultimate absolute destruction is certain. Already fifteen species of birds formerly known in Great Britain are extinct there, and the native or "wild" life of America is fast following in the same course.

It is for our legislators to make laws *pro bono publico*, but these laws are as useless as though they were in sealed tombs, if our citizens do not unite in creating a proper sentiment in favor of protecting our living creatures and enforcing the laws enacted for this purpose. Also, it is important that a careful effort be made to preserve in native condition as much suitable breeding and feeding territory as possible. Otherwise we shall soon see the time when, in order to have any game, it will be necessary for individuals or clubs to buy or lease favorite sites, place upon them competent keepers, and rear and maintain the game desired with intelligence and upon scientific principles.



ON THE TRAIL.

A Forestry Experiment Station.

(Special Report of the Superintendent of Forests.)

To the Commissioners of Fisheries, Game and Forests:

GENTLEMEN: In addition to the various reports made from time to time regarding the work of the Department, it has occurred to me to call the attention of your honorable Board to the widely extended criticism of the methods of work prevalent among the lumbermen in our forests and the generally expressed wish that some better and more scientific system of forestry might be adopted. This matter has already been the theme of so much comment and discussion that the only excuse for reverting to it here is the opportunity thus provided for some suggestions in the way of legislation which indirectly might lead to a better condition of affairs.

In the public meetings of our various forestry associations the remark is too often made that there is no such thing as American forestry. Many speakers and writers in their desire to pose as experts or leaders of thought seem to think the reiteration of this statement necessary. They seek to make a favorable impression by decrying or ignoring everything connected with the forest industries of this country. This is unfortunate. It retards progress. Its effect is to further postpone the day of better ideas and methods.

In America we have forests and forest exploitation; with them we have American forestry. It may not be the best attainable; but we have it, and on a larger and more remunerative scale than any other country. The revenue may be temporary instead of permanent; the methods employed may be inferior to those in European forests; but the fact remains that we have American forests and an American forestry whose product exceeds in value that of our gold, iron and coal mines combined. Any plan for better methods which overlooks these facts, and is not based on a thorough, technical knowledge of American forestry work as carried on to-day, is not worth consideration by those who are most interested in the matter.

The American forester, or lumberman as he is termed, is in no way inferior in intelligence or enterprise to his brethren in other industries. In addition to a lifelong experience in the forests and in the marketing of its products, many of these men have the best education that our colleges and universities can supply. Many of them were educated at schools of technology where the practical character of the curriculum is equal to that of the forest academies abroad. They are keenly alive to any sugges-

tion that will increase their gains or make their revenues more permanent. But they are slow to listen when their advisers are men whose experience in forestry is confined to operations with pen and ink, to mere observation, or, at the best, to work in the forests of far-off lands where the conditions are entirely different. At the same time they agree readily with the doctrinaires that the true test of forestry is the balance sheet, and point complacently to their profits. Their margins are small, but wealth soon accrues through the magnitude of their operations. These small margins are obtainable only by adhering carefully to methods of work which are based on a century of experience in American forests. And yet they are constantly receiving explanations as to how they should conduct their business from men who never saw a log cut or skidded, who could not even make a respectable guess as to the stumpage value of any species, or the cost of putting the logs on the river bank.

All this criticism is due to the superior results obtained in the forests of other countries, especially those of Germany. There the forests, through skillful management, yield not only an annual but a perpetual revenue; and, without any diminution of area. Each acre is not cut annually, but a large tract will furnish yearly a total product equivalent to a good showing per acre on the total average. The Saxon forests furnish a permanent annual product of $4.11 per acre on the average. The Swiss canton of Zurich has a forest that yields annually a sum equal to $4.40 per acre. Fourteen forest administrations in Germany containing 10,000,000 acres yield $3.15 per acre, or a total revenue of $31,500,000 annually.*

It is natural that such results should attract the attention of people in our country who are interested in forestry matters, and that they should urge the adoption of similar methods here in hope of like results. But, can it be done here while the conditions are so different?

In these foreign countries the owner of woodlands has the advantage of cheap labor and a good market. With us these conditions are reversed. Then, again, the profitable management of European forests depends largely on the sale of fuel, a very large per cent. of the income being derived from that source or by the sale of material obtained from thinnings and improvement cuttings. Every small limb and fagot is bundled up and sold. If the American lumberman could sell his waste timber—tops and limbs—for firewood, or could find a sale for the material cut in thinning out his forest, and could employ cheap labor, he could manage his property on similar lines. But in our forests the limbs and tops, which elsewhere are converted into cash, go to waste, and must be left to rot wherever they fall. If the American forester would improve his woodlands by thinning or pruning, he must undergo that expense

* B. E. Fernow: Bulletin No. 5, 1891; United States Department of Agriculture.

without the pecuniary returns which in European forests largely offset the cost of such work. It is asking a good deal of the American lumberman that, with dearer labor and a cheaper market, with no sale for his tree tops and limbs, with no returns from his improvement cuttings, he shall manage his forests in accordance with German methods and at the same time show anything to his credit on the balance sheet.

It is very interesting to read about forests abroad that yield a perpetual income over and above the cost of management—an income that returns a fair per cent. on the investment. Our forest owners and operators are not ignorant of all this. Many of them have gone abroad and studied this question on the ground where such operations are carried on. They are more anxious than anyone else to inaugurate some better system, provided it can be undertaken and carried on without loss. But, everywhere, here and abroad, the true test of successful forestry is the balance sheet. The most advanced thinkers and experts admit that no system is worthy the name of forestry unless it is conducted with profit; and the American system fulfills this requirement, at least, even if it fails in others.

The demand is made that the American forest managers shall abandon their methods, which look only to immediate or temporary profits, and set aside their woodlands as a permanent investment, the revenue from which shall be a matter of future rather than present income. But can they afford to do this? Most of our forest proprietors bought their woodlands when they were poor; some of them ran in debt for their purchases. Like other business men in pursuit of fortune they want to realize on their investment during their lifetime and enjoy it. Furthermore, they doubt whether they can make money if they depart from their present methods of harvesting the product of the woods.

There are a few forest owners, whose wealth enables them to hold their woodlands as an investment, who have undertaken in a limited way a better system so far as to restrict the cutting of some species to certain diameters, and to minimize the injury done to small trees by the careless felling of timber or cutting of roads. This restriction applies mostly to spruce, in which the cutting is limited to trees of twelve inches or more in diameter. But a twelve-inch spruce is far from being a matured tree, and the continued cutting of undersized trees tends eventually to the extinction of the species. Under a thorough and complete system only mature trees should be selected, or those which have attained a size so near maturity that the future increment would not offset the interest on the present value.

It would be a grand thing if all our forests could be preserved in undiminished areas and productivity. But has the public a right to demand of our forest owners that they shall waive their present incomes and fortunes for the benefit of posterity?

Should the right of eminent domain be exercised to the financial detriment of this particular class, these great producers of national wealth? Is it true that these captains of industry can readily change their manner of business to conform to foreign methods?

Now the lumbermen meet all these questions good-naturedly. They profess a willingness to adopt the improved methods suggested whenever it is demonstrated that it can be done without loss. They demand first that some experiment be made. No one of them feels able to run any risk in such a matter, and it would be unfair to ask it. Let the experiment be made, and let it be made by the State.

In other countries a great part of the forests which have proved such models of management and productivity, are owned and operated by the Government. There these public woodlands have become a source of large and permanent revenues to the governments which own and operate them. The time will come when the State of New York will derive likewise a large and permanent revenue from its forests; and there is reason to believe that the day is not far distant when the forests owned by individuals will be managed more in conformity with methods which ensure not only preservation but permanent income. But the State can never harvest the product of its forests with profit and success until it has passed the experimental stage, and our private forest owners will never undertake improved methods until there has been some object-lesson in the shape of an experiment station. The State of New York maintains experiment stations in furtherance of its agricultural interests. Why not, also, for the advancement of its forest interests?

It is held by many whose experience and study of the subject entitles them to be heard, that, while it may be possible in this country to introduce foreign methods of forestry which will furnish a permanent and satisfactory revenue over and above the cost of maintenance, little or no margin of profit would appear if the interest on the principal were computed also. If this is so, it becomes all the more imperative that the State should assume the duty and cost of demonstrating the possibility of better methods.

Owing to the restrictions of the new State Constitution, no such experiment can be conducted on the Forest Preserve. The Constitution provides that the timber thereon shall not be sold, removed or destroyed; and eighteen years must elapse before this can be changed.

It would seem, however, that in the extensive purchases of forest land made by the State some desirable tract could be bought through a special act of the Legislature, which should form no part of the Preserve, and be devoted to experimental work. True, the restrictions in the Constitution apply not only to the Forest Preserve as now constituted by law, but to all lands which hereafter may be acquired. But, to

assume that if the State acquires any more woodlands in northern New York, such area must, without any exception, be placed in the Preserve, no matter how great the need for other purposes, would seem like a narrow and technical interpretation of the law. It would forbid the Legislature buying any land whatever in the Adirondacks except for one specific purpose. This provision could be evaded by the passage of an act authorizing the purchase of some tract in which the owners would be allowed to reserve a timber right. But such evasion, as well as any narrow-minded interpretation of the constitutional provision, would not become the dignity of the State or the meritorious character of the proposed enterprise. It would be better if the Legislature were to enact some law carrying a special appropriation for the purchase of the land, and providing for its especial use as a forestry experiment station.

The land thus acquired and dedicated could, while under the general supervision of the Forestry Department, be placed under the management of skilled, professional foresters. The experiment to be made would consist in the demand that these men, having a primitive forest given them free of interest account, should so manage the property that the State would derive an annual income from it over and above the cost of management and any sums that might be advanced to inaugurate the work. If they fail to do this, any further advice about scientific work and improved methods as applied to our woodlands would seem gratuitous.

The experiment would not imply that the State must go into the lumber business, or undertake any logging operations, or advance money for teams, wages and materials. The matured trees designated by the foresters could be sold to the highest bidder, leaving the removal of the timber to the purchaser, whose work of tree felling, trimming, log cutting and road building must be done under the direction of the forester and according to written contract. A part of the surplus revenue left after paying the foresters and other expenses could be devoted to forest improvement, a class of work in which the technical knowledge of the professional forester would be available and valuable. But these are matters of detail which need not be discussed now.

The State can make no mistake in such a purchase. The property becomes an asset convertible into cash at any time, which cannot be said of other public expenditures. And as long as the State sees fit to hold the property, the yearly forest revenue would make it an interest-bearing investment. Whenever it ceases to be such, sell the property and abandon the experiment; the State will be none the poorer for the trial.

In view of the facts set forth and the suggestions respectfully submitted here for your honorable consideration, might it not be well for the Commission to prepare a

bill to be introduced in the Legislature during its next session which will contain the provisions necessary for carrying out this plan?

The working methods in use throughout our forests cannot be supplanted in a day by those of other countries; the difference in conditions will not permit it. Any attempt to thus revolutionize business would result in financial failure. But through intelligent and conservative experiments, based on existing conditions, an ideal system may be evolved, which our people will be proud to recognize and claim as American forestry.

WILLIAM F. FOX.

THE STORY OF THE DEER.

Occupants of State Lands.

THE occupation of land in the Forest Preserve presents one of the most perplexing and complicated questions with which this Commission has to deal. The buildings which, in one place and another, constitute these occupancies range all the way from the most primitive shanty to costly and beautiful summer homes. With few exceptions, they were all erected before the present Commission was organized. The few that were built since—four in number—were erected hastily, and without the consent or knowledge of the Commission.

There are 98 of these cottages, log cabins, shanties, and farm houses on the State lands in the Adirondack Preserve. The greater part of them were erected before the State came into possession of the ground, the owners of the buildings having received permission to build from the persons who owned the land at that time, but who subsequently lost their title to these forest tracts through some tax sale.

In Essex county, near the Boreas River, are eleven families living on farms in the Preserve who bought land of a prominent Glens Falls lumberman, taking a contract in each case instead of a deed. They had made one or two payments on their contracts, when this land owner, failing in business and getting in arrears for taxes, lost his lands at a tax sale, and the occupants found that, through no fault of theirs, their homesteads and farms had passed into the possession of the State of New York.

When the State made its purchase of 75,000 acres of forest land from Dr. Wm. S. Webb, in 1896, there were some occupants on the property thus transferred, one of whom had been in possession of his cabin on Salmon Lake before Dr. Webb acquired that territory; another had built a small hotel on Beaver River, with the permission of Dr. Webb—a stopping-place which has proved a great accommodation to the travelers, hunters and fishermen who frequent that region.

On the Lake George islands there are some cottages which were already there in 1885, when the law establishing the Forest Preserve and Forest Commission was first enacted. These cottagers erected their buildings under written permission of the Board of Land Commissioners,* who appointed these persons "custodians" of their respective islands. Subsequently, in order that these people might occupy their

* The Board of Land Commissioners is composed of the Lieutenant-Governor, Secretary of State, Comptroller, Attorney-General, State Treasurer, State Engineer and Surveyor, and the Speaker of the Assembly. Prior to the establishment of the Forest Commission, in 1885, this Board had control of the public lands.

WYNNE-ROBERTS-HALLENBECK - WATERLOO

PINE ISLAND, RAQUETTE LAKE.
Occupancy without lease

ROUND POND, TOWNSHIP 50, HAMILTON COUNTY.
Source of the Hudson River.

cottages under some definite, business-like arrangement, the Forest Commission—prior to the organization of the present Board—granted them five-year leases and charged them rent, the price varying from $10 to $75 per year, according to desirability of location or amount of ground occupied. Five acres was the maximum amount of land leased to any one occupant. The leases thus granted were limited in number, the Commission reserving the greater part of the islands for the free use and benefit of the public. Of the islands in Lake George which are owned by the State, over 150 are large enough for desirable camping ground; but only twelve of these are occupied. It might be well to bear this fact in mind, in view of the ill-considered talk in certain quarters about the Lake George islands having been leased and occupied to the exclusion of the public.

On the Lower Saranac Lake there are five buildings, two of which are under State leases. No buildings, except an ice house and a shanty made of slabs, have been erected on the lake since the present Commission took charge of the Preserve. As there are fifty-two islands, large and small, in the Lower Saranac, and forty miles of shore line, all available for camp sites, it is evident that the public has not thus far suffered by any exclusion resulting from the few buildings erected there. Several parties have occupied tents along the shore and on the islands, but as these are taken down and removed each fall, there is no permanent or exclusive occupancy on their part. The use of tents on the Preserve is permitted and encouraged by the Commission.

On the islands and shores of Raquette Lake there are several buildings. Many of these were on the ground when the land passed into the possession of the State, or before the establishment of the Preserve. Some were built during the administration of a former Board, but without permission. One small cottage was erected last spring without the knowledge or consent of this Commission. As there is only one forester for all Hamilton county, it was easily put up during his absence in other parts of the county. Three of the occupants on Raquette Lake hold leases from the State.

In all, there were seventeen leases of land in the Forest Preserve granted by the former Commission. None have been granted by the present Board. These leases, which in each case were limited to five acres or less, were issued as follows:

RAQUETTE LAKE.

LESSEE.	LOCATION.	ANNUAL RENT.
Dr. A. C. Gerster,	Big Island,	$200
Hon. John B. Henderson,	Indian Point,	50
Mrs. Cornelia T. Kirby,	Golden Beach,	50
Henry Bradley,	North Bay,	20

LOWER SARANAC LAKE.

LESSEE.	LOCATION.	ANNUAL RENT.
William P. Mason,	Eagle Island,	$150
Mrs. Ann H. Manierre,	Hocum Bay,	150
Edward Manierre,	Hocum Bay,	150

CHAPEL POND.

Thomas P. Wickes,	Rocky Point,	30

LAKE GEORGE.

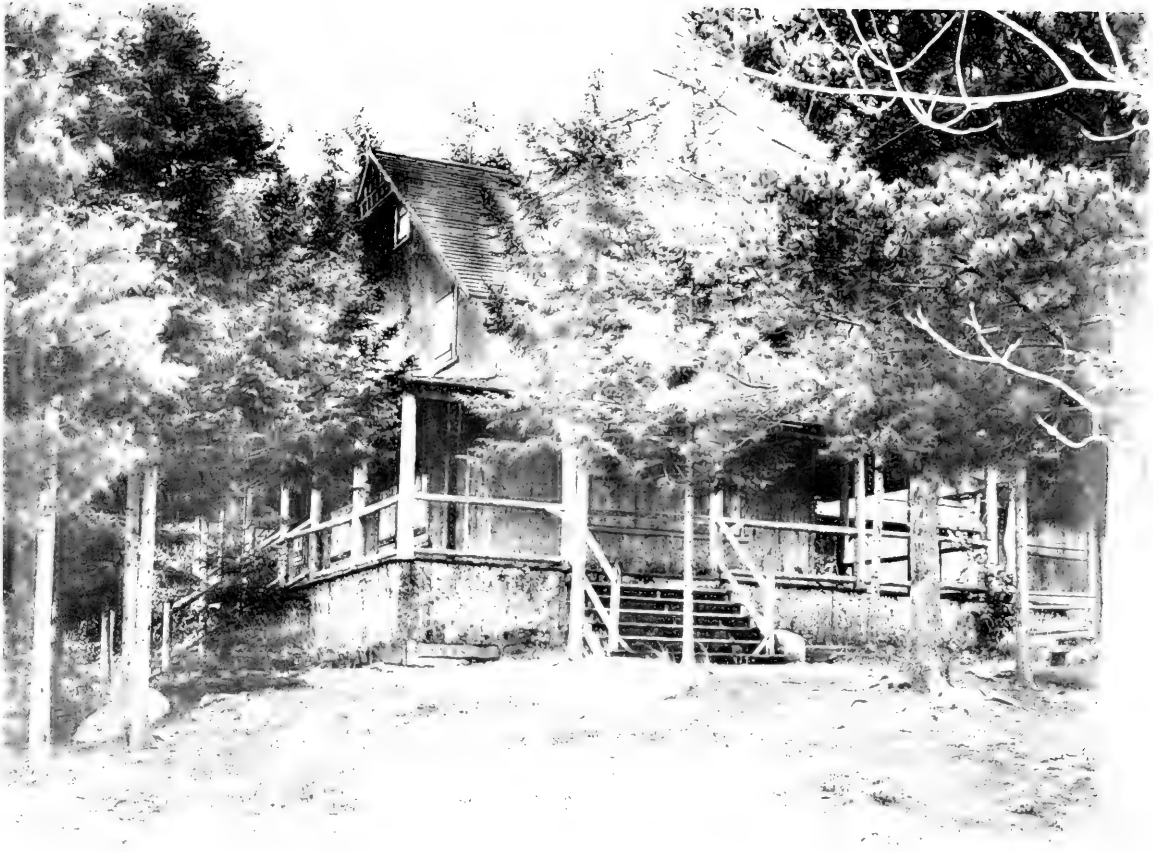
Dr. Delevan Bloodgood,	Hen and Chickens,	75
Hon. Jerome Lapham,	Phantom Island,	75
Mrs. Agnes Ranger,	Ranger Island,	50
Col. William D. Mann,	Waltonian Island,	50
Mrs. Cecil Gabbett,	Temple Noe Island,	50
Albert L. Judson,	Pleasure Island,	50
William A. Wait,	Sweetbrier Island,	30
Oberon Lapham,	Burnt Island,	30
L. H. Fillmore,	Uncas Island,	10

The amount of land leased to each of these persons varies from a small camp site to five acres. The lease granted Henry Bradley calls for two acres, to be used as a steamboat landing at the terminus of the highway leading from Fourth to Raquette Lake, and was deemed necessary for the accommodation of travelers. The lease granted L. H. Fillmore on Lake George is for a small plot on which there is a little one-story building containing a single room, and one or two tents, where he carried on a photograph business during the summer months. He was occupying this place prior to the establishment of the first Forest Commission.

All of these leases, each of which was drawn for five years, were executed at various dates between July 1, 1893, and July 1, 1894. They will, consequently, expire in 1898 and 1899. Owing to a clause in the new State Constitution, they cannot be renewed.

These leases were granted pursuant to the forestry law of 1891, which authorized the Forest Commission—

"To lease from time to time, for a term not longer than five years, land within the Forest Preserve, not more than five acres in one parcel to any one person, for the erection of camps or cottages for the *use and accommodation of campers*. Such leases shall contain *strict conditions as to the cutting and protection of timber* and the prevention of fire, a reservation for travelers of the *right of passage over the land* leased at all proper and reasonable times, and a covenant on the part of the lessee to observe all ordinances or regulations of the Forest Commission thereto, for, or thereafter to be prescribed; and *no exclusive privilege of fishing or hunting* shall be granted



THE GERSTER COTTAGE, RAQUETTE LAKE.
Land leased from State

WYNKOOP HALLENBECK CRAWFORD CO.

LITTLE ROCK ISLAND, RAQUETTE LAKE.
Occupancy without lease.

to any person. All revenues from such leases shall be paid into the State treasury and shall be placed to the credit of the special fund established for the purchase of lands within the Adirondack Park."

In view of the widely spread and too often malicious misrepresentation of the nature of these leases, it may be interesting to notice the provisions and restrictions contained in them as shown in the foregoing paragraph.

Included in the 98 occupancies previously mentioned, there are several log cabins or shanties which were put up by hunters, surveyors or travelers in the more remote and unfrequented portions of the forest, their erection being absolutely necessary for shelter. These cabins, when not occupied by their owners, are always open to any traveler who may need them, and have proved a great convenience to those who are journeying through these wilder parts of the wilderness, the State officials often availing themselves gladly of the rude comfort which they afford. As the rules of the Commission forbid the peeling of trees for bark and, consequently, the erection of bark shanties which hitherto afforded temporary shelter over night, the travelers in certain parts of the Great Forest find these "occupancies" a very convenient refuge at times.

In some instances, however, parties have taken possession of camp sites and erected cottages under circumstances of a flagrant and aggravating character that called for summary action on the part of the Commission. In two instances on Raquette Lake cottages were built by persons who not only neglected the formality of asking permission from the State authorities—which would not have been granted—but they claimed title to the property. Not content with this violation, they built their cottages with timber cut on the Preserve. In these cases the persons who cut the timber were prosecuted for trespass, and ejectment suits were promptly brought against the occupants.

In regard to many of these occupants, the Commission finds itself confronted with a perplexing situation. As the new Constitution expressly forbids the leasing of any land in the Preserve, the question arises whether the Commission can properly allow them to remain. Though they pay no rent and no rent can lawfully be collected, and though their further occupancy under tacit consent may not constitute a constructive lease, still they are tenants at will. How far does such a tenure conflict with the constitutional provision which expressly forbids any lease?

On the other hand, if the Commission drives these tenants off the premises, what shall be done with their cottages and buildings? Shall these houses be destroyed? Shall they be locked, kept unoccupied, and allowed to tumble down in decay? Or, having ejected the occupants, shall the houses be left open for other persons to move in, whoever may come first? If they are to be occupied, what difference to the State

whether it is by the ones who built them or by some squatters who seize the vacant premises at the first opportunity.

One of the attractions of the Thousand Islands in the St. Lawrence River is the large number of charming cottages which grace each prominent point. Are Lake George and Raquette Lake any the less beautiful because of the summer homes which adorn their shores? It is no answer to say that these camp sites are occupied to the exclusion of the public. Aside from guides' and hunters' camps, there are not thirty of these summer cottages on the lakes in the Preserve. But there is room for thousands of campers on unoccupied desirable sites, none of whom, however, come.

Then, there are the seventeen leaseholders whose leases will soon expire. What shall be done with them? They are there, with their buildings and improvements, by authority of the Board of Land Commissioners or Forest Commission. On the expiration of their leases they will probably ask for a renewal, and tender their money for the same. But the Board will be compelled, under the constitutional provision, to refuse their request. Neither can the Board make the excuse, common with other landlords, that the property has been rented to other parties. Shall these tenants be ejected and their houses destroyed, closed, or given to others? If the houses are to remain, who has a better right to occupy them than the present tenants?

There is another class of tenants whose peculiar case appeals to the sympathy of the Commissioners and makes it difficult for them to act. They are persons suffering from pulmonary disease who have gone into the woods to seek relief or to eke out a slender existence. Shattered in health and straitened in means, they were unable to pay the extravagant prices asked for building sites in the vicinity of the hotels, and so they pitched their camps on the public Preserve. Perhaps they had read the clause in the forestry law providing that the Adirondack Park "shall be forever reserved, maintained and cared for as a ground open for the *free use* of all the people *for their health* and pleasure." Finding their tents too cold and damp for the early spring or late fall, they built small houses—hardly worth the name of cottages—that brought them within the list of tenants-at-will or "occupants" of State land. Some of these invalids who lived in tents built little ice houses, boat landings and steps; but on returning in the spring they often found their point occupied by some guide or squatter who had coolly taken possession not only of the camp site but of all its little betterments. The person thus dispossessed would then ask for a lease of some piece of ground where he could have some assurance of peace and permanence. But, owing to the constitutional restriction, the Commission was obliged in each case to refuse the request.

These are only a part of the many questions which confronted the Commissioners in their efforts to decide what should be done in the matter of occupancies. But

OSPREY ISLAND, RAQUETTE LAKE.
Occupancy without lease.

over and above all hangs the constitutional mandate that the Preserve "shall be forever kept as wild forest lands" and "that they shall not be leased." And so the order was reluctantly issued by the Board that each occupant should be notified to vacate the premises occupied by them, and notice was served accordingly on each, with the exception of the seventeen tenants to whom leases had been issued before the adoption of the new Constitution, and which are still in force. This action was further deemed advisable on account of the frequent litigation of State titles, in which the matter of some former occupancy had an important bearing. As all the occupied lands are held by the State under a tax title, it was held important that the State should thus exercise some act of possession and distinctly assert its ownership.

Having served notice on each occupant to vacate the premises, the Board reserves for the further exercise of its discretion the advisability of following up each case with a writ of ejectment. In fact, the Attorney-General has advised the Board that in some cases such action would be injudicious. For instance, one lot of 193 acres in Essex county which reverted to the State in 1844, was at that time farming land, with a house and farm on it. It remained in peaceable possession of the occupant for forty-one years until 1885, when the Forest Commission was established, during which time the man and his descendants have lived there and paid the taxes. It is questionable whether a writ of ejectment would be the best way to dispose of this occupancy.

Again, the colony of French Canadian farmers on the Boreas River whose lands passed into possession of the State in 1877, have lived there from thirty to forty years and paid taxes on the property until 1886, at which time the Forest Commission ordered the land assessed to the State. The assessors, however, continued to assess the houses, barns and cleared lands until the present time, and the occupants still pay these taxes; for, under the law of 1886, only "wild or forest lands" can be assessed to the State. It is not at all clear that the State should risk a suit over these lands, as its title to the entire township—Township 30, Totten and Crossfield Purchase—would become involved. These matters are mentioned here for the benefit of a class who are always ready to criticise the action of the Commission in such matters, but who are wholly ignorant of important facts which have a bearing on the question.

A small resident population has always proved convenient in warning out a posse to assist the local firewarden in extinguishing forest fires. Repeatedly these squatters, of their own accord, have rendered efficient service in extinguishing incipient fires that were started by fishermen or campers. They are always ready to help in fighting fire, and have always been friendly. If they are evicted, after expressing a willingness to pay rent, the bitter enmity engendered will add still further to the difficulties of forest management in such localities.

But the Commissioners have determined that, whatever may be done as regards the present occupants of State lands, no further occupancies shall occur if they can prevent it. To this end the following notice was posted on every lake, stream, island, trail and carry in the Adirondack Preserve:

FOREST PRESERVE.

STATE LAND.

All persons are forbidden to erect any buildings, camps, cottages or permanent structures of any character on land within the Forest Preserve. Anyone violating this regulation will be prosecuted by the State as a trespasser to the full extent of the law, and will be dispossessed of any building he may erect.

By order of the Fisheries, Game and Forest Commission.

WILLIAM F. FOX,
Superintendent of State Forests.

ALBANY, N. Y., *July* 20, 1897.

This ordinance does not by any means prohibit the free use of the Forest Preserve by the public, for there is no objection to the use of tents, as they do not result in a permanent or exclusive occupation. The people are free to use tents and pitch them wherever they please on any unoccupied spot in the State forests, on any island, lake shore, stream or forest path. They are asked and urged to do so; for the Commission desires that all who can shall avail themselves of the pleasures and benefits which our grand old forests afford.

Tents of proper size and construction offer comfortable and attractive accomodations that are a pleasant surprise to those who have not tried them. The rules of the Commission permit the use of board floors, which, with a wide base-board turned up around the bottom, are a protection against cold and draughts. A large canvas "fly" should be used, with sufficient space between it and the tent roof to lessen the heat of the sun and keep the rain or dampness from the inner roof. By using a fly large enough to project a few feet in front as an awning, and extending the floor outside the same distance, a shady, comfortable and attractive porch can be obtained. The wooden floor inside the tent permits the use of rugs or carpets, while the interior furniture and decorations may be the same as in any room, whether at home or in a hotel. A stove, with pipe passing through a safety-tin in the wall of the tent, will keep the room warm in any weather until the late fall. Moreover, there is a supply of fresh, pure air in a roomy tent which makes it the most healthful of all sleeping

WYNKOOP HALLENBECK CRAWFORD CO.

PINE ISLAND, RAQUETTE LAKE.
From the Gerster Cottage.

rooms. The accompanying illustrations of tent life on the Lower Saranac will give some idea of the delightful possibilities attainable in these canvas cottages by our forest lakes.

The question is often asked, What harm is there in my putting up a little shanty here? Now, our experience and observation in the matter of the "little shanty" is this: The shanty is built. The next year a shingle roof is put on and it is clapboarded. The next season or so reveals a piazza in front and a summer kitchen in the rear. In time, further additions are made and it is painted. The owner sells out to some summer resident who makes further improvements. The little shanty has become a $5,000 cottage, with pleasant surroundings and an artistic interior. It occupies some desirable site, free of rent, and to the exclusion of the public. Other people demand that they, too, shall have the privilege of building cottages, and when refused point querulously to the complacent owner of the cottage that was evolved from the primitive shanty. This is one of the reasons why the Commission draws the line on any wooden structure whatever. The shanty, in any case, is a permanent occupancy; the tent, is taken down in the fall.

Then, again, the little shanty is apt to be an unsightly thing, marring the beauty of some charming spot. Its owner, too often, is not a desirable neighbor. His abode is not only an eyesore, but it is too often surrounded with a litter of old tin cans, fish scales, offal, hair and hides, with some howling cur tied to a tree.

It is conceded that in traveling through remote parts of the wilderness, where there are no hotels or even hunters' camps—the Red Horse Chain or Moose River Townships, for instance—the use of tents is not always practicable. Boats and pack baskets must be carried, and there is little opportunity to carry the additional heavy load of a tent. This is especially the case where parties are making a long journey from one locality to another and do not intend to make a stay at any one point, but merely need shelter wherever night or a storm overtakes them. To properly provide for such a situation the Commission have under consideration the advisability of erecting, or allowing others to erect, open log camps at suitable places and distances along these routes, in which travelers, sportsmen or guides can find a resting-place. By open camps are meant the low structures built of logs, inclosed on three sides, but with a good roof, which furnish shelter from wind and rain, even though they may not be warm. But with protection from the storm, a good camp fire opposite the front or open side will always furnish warmth, while the balsam boughs, and blankets taken from the pack basket, will insure a comfortable sleeping-place.

The public may rest assured that the Commission will do all in its power to grant every privilege on the Preserve consistent with proper management and observance of constitutional restrictions.

Annual Forest Product.

(Special Report of the Superintendent of Forests.)

To the Commissioners of Fisheries, Game and Forests:

GENTLEMEN: I submit herewith the statistics showing amount of timber taken from the Adirondack forests for the manufacture of lumber and pulp during the years 1894, 1895 and 1896. The amount consumed each year in 1890, 1891, 1892 and 1893 will be found in the Annual Report of the State Forest Commission for 1893. Prior to 1890 there was no compilation of the aggregate output of the mills which draw their supply from the forests of Northern New York; but the amount sawed in the Glens Falls district each year from 1851 to 1883, as indicated by the logs received at the Glens Falls boom, may be found in the report of the Forest Commission for 1885.

The figures submitted here for the annual product of each mill are not mere estimates, but are the statements furnished by the mill owners themselves, as taken from their books, and mailed to Albany in response to circulars sent from the Department. Every effort has been made to secure accuracy in these returns as far as possible. In many instances special agents of the Commission were sent to the office of the firm whenever further or more accurate information was deemed necessary. Some of the mills made out their returns in round numbers, but as they contracted for their annual supply of logs in the same way, the figures may be accepted as approximately correct, or as near accuracy as possible.

It seems proper to note here that until the establishment of the State Forest Commission no attempt was ever made to compile the figures for the total output of our forests; at least, no such information was ever published.

These statistics are entitled to something more than passing notice. In order to obtain a clear, intelligent view of the forestry situation in our State, it is necessary to note accurately the annual consumption of timber. It is then easier to understand how the composition of our forests is gradually changing, how certain species are disappearing, and how our woodlands are changing from a coniferous to a broad-leaved forest. Although the operations of the lumbermen do not necessarily result in denudation or forest destruction, the continuous removal of certain species effects a marked change in the character of the tree growth. Furthermore, the only way that we can form any estimate of our timber reserves and future supply is by ascertaining carefully the annual consumption of each merchantable species.

The figures in the accompanying tables indicate that 110,000 acres are being cut over annually by the axemen, from which area the spruce and pine are removed entirely, together with the greater part of the hemlock. If the cutting continues at this rate, the supply of spruce and pine in the Adirondack forests, outside of that owned by the State, will be exhausted in sixteen years.

At the same time, it should be remembered that through these operations $700,000 worth of raw material is annually converted into cash and added to the wealth of our State. This depletion of our forest is in some measure offset by the important and valuable industries dependent on this same production, and the fact that in the manufacture and transportation of this product over $5,000,000 are paid out annually in wages, the work furnishing steady and profitable employment for a large number of people.

In 1896, of the 430,109,426 feet cut and removed, 374,278,182 feet, or eighty per cent., was spruce, nearly half of which was consumed in the pulp mills. The demand for pulp stock is increasing so rapidly that in a short time, perhaps a year or so, the pulp mills will consume more spruce than the saw mills. Already spruce stumpage is worth more for pulp than for sawing timber. A few years ago the pulp men contented themselves in taking only the small logs, leaving the middle-sized and largest ones to be sawed into lumber. But now many of our pulp mills use their entire stock of spruce logs, large and small, in the manufacture of paper. The largest spruce tree ever cut in the Adirondacks was recently manufactured into pulp. This tree measured forty-one inches on the stump, and its shaft was cut into twenty-two pieces, each four feet long. There was more spruce timber cut in the Adirondack forests during either of the last two years than was ever cut before in any year since the first axeman entered those woods. Then, again, many of the pulpmen, in their cutting, take the small spruce trees which hitherto were always left by the lumbermen. Upon these small trees depends the future supply of spruce. With their removal the extinction of the species must follow on all tracts where this short-sighted method is used.

Included in the figures for the spruce is a small amount of balsam, say two per cent. This species seldom attains any large size, the maximum growth seldom exceeding fourteen inches in diameter on the stump.* For the most part, the balsams run from eight to ten inches in diameter. But the lumbermen generally cut the twelve-inch trees and mix them in with the spruce. After the logs are sawed there is little difference in the appearance of the timber, although the balsam is

*At Lake Placid, N. Y., on the grounds of the Placid Park Club, there is a balsam thirty inches in diameter two feet above the ground. Professor Charles H. Peck, State Botanist, has identified this tree as a balsam.

inferior to the spruce in quality, and the buyers object if too large an amount is thus put in. This species, known variously as balsam, or fir, or balsam fir (*abies balsamea*), can be used for woodpulp by the sulphite or chemical mills; but it is not available in the mechanical mills, where the wood is reduced to fibre by grinding, as the resinous matter of the balsam gums up the screens.

The cut of white pine has varied during the last ten years from 17,000,000 to 27,000,000 of feet annually. In 1893 it amounted to 27,844,222 feet. The main stock of white pine in our northern forest was removed many years ago, at a time when the lumbermen cut pine only and no spruce. A few small areas remain untouched, but the greater part of the white pine cut in late years comes from trees that were left at the first cutting or from some scattering second growth. Most of the first growth now remaining is of inferior quality, being shaky or ring-rotten and running largely to culls. The supply of this species is practically exhausted, and the product reported annually is the result of a gleaning process carried on while the operators are cutting the spruce and hemlock on the same tract where this scattered pine remains.

The amount of hemlock cut annually has steadily decreased from 94,145,695 feet cut in 1890 to 53,907,595 feet cut in 1896. This decrease is not due to a scarcity of this species so much as an increasing remoteness of the timber. Owing to the large hemlock product of the Pennsylvania forests the market price is so low that it will not warrant any logging operations except where the trees are easily accessible, or where some tannery within a reasonable haul affords a market for the bark. The nearest timber having been cut, the lumbermen each year are penetrating farther into the interior forest, and the logging operations are farther removed from the tanneries. Although the spruce and pine are cut clean, the hemlock on many jobs is left standing in the woods. Hence there is a disproportion in the product of spruce and hemlock which does not exist in the woods, there being a much larger proportion of hemlock in the standing timber than the output of the mills would indicate.

The hardwood supplied by the Adirondack forests during the last seven years averages 7,614,482 feet per year, the amount varying but slightly each year. As this class of logs cannot be floated down the streams, the consumption is limited to the small areas accessible by a short haul, and which are not too far from a railroad to prevent hauling the sawed lumber. The railroads recently built through the forest will now render large areas of hardwood accessible and at the same time furnish ready transportation for the lumber. There will probably be an increase in the annual product of this kind of timber.

The output of hardwood as reported here for the last three years is made up mostly of birch and maple, the birch predominating largely. The latter, which is known in the woods as red or black birch, is the *betula lutea* or yellow birch, some-

times called gray birch. The Adirondack lumbermen call it red birch to denote the pinkish hue of the wood, which makes it so valuable for furniture or cabinet work; but the red birch proper (*betula nigra* L.) does not exist on the Adirondack plateau. Of the hardwood output, three-fourths is birch and maple; the balance is made up of ash, cherry, beech and elm, in relative quantity corresponding to the order named.

There was about 300,000 feet of basswood sawed each year. This is not classed as hardwood properly, although a broad-leaved tree; but for lack of space it is included in the hardwood column. There was also some small amounts of tamarack and cedar sawed which are included in the same column, although they are soft woods. The amount of each will be found in the footnotes in case it should be deemed desirable to separate them.

The statistics relating to the pulp mills do not fully indicate the extent of this immense industry, because many of them obtain a large part of their stock from Canada. There are several mills in the State—some of them in Northern New York—that do not appear on this list, for they obtain their entire stock of pulp wood from Canada or the Great Lakes. The Empire State leads all others in this industry, having more than twice as many mills as any other State. Moreover, many of its mills surpass all others, in this country or abroad, in the extent of the plant and capacity for production.

Most of the pulp manufacturers made their returns in cords, but some gave the amount in markets. In the latter case the quantity was converted into cords on a basis of three markets to a cord. In computing the equivalent of the yearly totals the same rule was used, one cord being figured as equal to three markets or 579 feet board measure, Doyle's Rule.

All of which is respectfully submitted.

WILLIAM F. FOX.

LOCATION	MANUFACTURER	SPRUCE
Belfort, N. Y.	Le Fevre & Crumb	400,000
Beaver River, "	Firman Ouderkirk	5,618,176
Brandon, "	Ducey Lumber Company	5,900,000
Bloomingdale, "	Wm. J. Gillespie	350,000
Bucks Bridge, "	Bucks Bridge Lumber Company*	3,500,000
Bleecker, "	H. Vandenburgh	900,000
Bleecker, "	John M. Peters, Jr	200,000
Canton, "	Canton Lumber Company	6,750,000
Castorland, "	M. W. Van Amber	1,100,000
Castorland, "	Beaver River Lumber Company	10,000,000
Chase's Lake, "	Le Roy Crawford	1,500,000
Crary's Mills, "	Oscar Runions	50,000
Clinton Mills, "	Ladd & Smallman	400,000
De Grasse, "	Andrew Negus	310,000
Diana, "	William Ingraham	225,000
Dickinson Centre, "	Anson Hutchins	100,000
Dolgeville, "	Alfred Dolge	1,500,000
Everton, "	Everton Lumber Company	8,000,000
Forestport, "	Denton & Waterbury	2,500,000
Forestport, "	Forestport Lumber Company	4,427,575
Glendale, "	Henry Abbey	2,000,000
Glens Falls, "	Finch, Pruyn & Co	17,623,413
Glens Falls, "	Morgan Lumber Company	13,604,330
Glens Falls, "	George H. Freeman	7,028,208
Gray, "	Charles B. Gray	300,000
Gouverneur, "	Weston, Dean & Aldrich	7,890,000
Gouverneur, "	Starbuck & McCarty	1,203,006
Harrisville, "	C. R. Remington & Son	2,500,000

* Mills at Bucks Bridge and Canton, N. Y.

AMOUNT OF LUMBER CUT IN THE YEAR 1894. (*In Feet. B. M.*)

HEMLOCK	PINE	HARDWOOD	TOTAL
1,000,000	. .	300,000	1,700,000
. . . . .	.	. . . . .	5,618,176
. . . . .	3,800,000	. . . . .	9,700,000
125,000	. . . . .	. . . . .	475,000
2,625,000	875,000	. . . . .	7,000,000
100,000	. . . . .	. . . . .	1,000,000
75,000	. . . . .	40,000	315,000
750,000	. . . . .	. . . . .	7,500,000
900,000	. . . . .	. . . . .	2,000,000
8,700,000	1,700,000	. . . . .	20,400,000
1,500,000	50,000	. . . . .	3,050,000
200,000	50,000	175,000*	475,000
550,000	. . . . .	50,000	1,000,000
310,000	80,000	. . .	700,000
300,000	50,000	75,000	650,000
. . . . .	. . . . .	75,000	175,000
. . . . .	. . . . .	500,000	2,000,000
. . . . .	500,000	. . . .	8,500,000
750,000	. . . . .	35,000	3,285,000
. . . . .	. . . . .	. . . . .	4,427,575
1,300,000	2,000,000	. . . . .	5,300,000
2,002,660	400,532	. . . . .	20,026,605
4,782,140	695,819	. . . . .	19,082,289
1,865,032	261,873	43,977†	9,199,090
200,000	. . . . .	. . . .	500,000
6,945,000	1,359,000	51,000	16,245,000
1,260,000	. . . . .	. . . . .	2,463,006
2,500,000	. . . . .	. . . . .	5,000,000

* Includes 75,000 feet basswood. † Ash.

GREAT FOREST OF NORTHERN NEW YORK.

LOCATION		MANUFACTURER	SPRUCE
Herkimer,	N. Y	Deimel & Snell	250,000
Hinckley,	"	Trenton Falls Lumber Company	12,786,337
Hope Falls,	"	W. H. Lawton	100,000
Jayville,	"	Post & Henderson	1,700,000
Lyons Falls,	"	Gould Paper Company	2,482,831
Malone,	"	A. B. Parmelee & Son	1,000,000
Massena,	"	Massena Lumber Company	300,000
McKeever,	"	Moose River Lumber Company	6,771,000
Natural Bridge,	"	Yousey Brothers	700,000
Natural Bridge,	"	Calvin W. Graves	100,000
Norwood,	"	Norwood Manufacturing Company	10,722,151
Onchiota,	"	Kinsley Lumber Company	3,000,000
Oswegatchie	"	W. G. Coffin	
Oswegatchie,	"	John Irvin	1,000,000
Owl's Head,	"	Scott G. Boyce	1,200,000
Old Forge,	"	Old Forge Company	100,000
Plattsburg,	"	Baker Brothers*	7,800,000
Parishville,	"	S. L. Clark & Son	2,000,000
Philadelphia,	"	William Roberts	378,402
Potsdam,	"	A. Sherman Lumber Company	7,302,955
Potsdam,	"	Clarkson Manufacturing Company	1,000,000
Paul Smith's,	"	Paul Smith's Hotel Company	150,000
Pine Lake,	"	Henry T. Bona	300,000
Rockwood,	"	Everett Young	400,000
Sandy Hill,	"	Kenyon Lumber Company	4,210,431
Saranac Lake,	"	Stephen Merchant	1,098,000
Saranac Inn,	"	Upper Saranac Association	600,000

* Lumber from mills of M. E. Walker, B. R. Brewster, P. Hanlon, Wales Parsons, F. M. Purdy, W. A. Reynolds and Ducey Lumber Company.

AMOUNT OF LUMBER CUT IN THE YEAR 1894.—(CONTINUED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
250,000	.....	700,000	1,200,000
	.....	.....	12,786,337
150,000	.....	125,000	375,000
2,000,000	250,000	100,000	4,050,000
874,664	58,744	.....	3,416,239
	.	.. .	1,000,000
500,000	..	.....	800,000
2,379,000	1,098,000	.....	10,248,000
2,800,000	100,000	200,000	3,800,000
100,000	. . .	. .	200,000
189,377	1,524,507	23,075*	12,459,110
500,000	.....	500,000	4,000,000
	.....	300,000	300,000
1,000,000	.....	850,000	2,850,000
100,000	.....	500,000	1,800,000
	100,000	...	200,000
400,000	1,000,000	.....	9,200,000
500,000	270,000	5,000	2,775,000
2,545,611	258,000	258,000†	3,440,013
498,263	603,863	15,500	8,420,581
200,000	.	. .	1,200,000
	150,000	. . . .	300,000
20,000	.....	75,000	395,000
200,000	.....	50,000	650,000
1,050,191	659,149	28,195	5,947,966
.	....	.....	1,098,000
400,000	250,000	.....	1,250,000

* Includes 10,115 feet cedar.

† Includes 206,400 feet ash.

GREAT FOREST OF NORTHERN NEW YORK.

LOCATION	MANUFACTURER	SPRUCE
South Bangor, N. Y.	Shepard & Morse Lumber Company	1,720,319
South Colton, "	Young & Lindsey	400,000
Stratford, "	J. C. Livingston & Co	2,148,000
Stratford, "	William W. Knapp	200,000
Stratford, "	David Helterline	750,000
Thomson's Mills, "	Thomson, Douglas & Dix	7,613,154
Tupper Lake, "	A. Sherman Lumber Company	1,848,724
Tupper Lake, "	Export Lumber Company	9,180,000
Warrensburg, "	A. C. Emerson & Co	340,000
West Stockholm, "	George N. Gibson	700,000
Various places, "	Small mills	2,500,000
	Total	200,732,012

AMOUNT OF LUMBER CUT IN THE YEAR 1894.—(CONCLUDED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
.....	.....	.....	1,720,319
600,000	.....	.....	1,000,000
.....	.....	428,000*	2,576,000
.....	.....	.....	200,000
125,000	.....	400,000	1,275,000
1,313,657	381,228	75,000	9,383,039
.....	66,200	.....	1,914,924
.....	1,020,000	.....	10,200,000
1,020,000	340,000	.....	1,700,000
1,000,000	50,000	33,000	1,783,000
2,000,000	150,000	350,000	5,000,000
61,455,595	20,151,915	6,360,747	288,700,269

† Birch and maple; used in manufacture of pianos.

GREAT FOREST OF NORTHERN NEW YORK.

LOCALITY	MANUFACTURER	SPRUCE
Belfort, N. Y.	Le Fevre & Crumb	400,000
Beaver River, "	Firman Ouderkirk	6,106,201
Brandon, "	Ducey Lumber Company	7,900,000
Bloomingdale, "	Wm. J. Gillespie	350,000
Bucks Bridge, "	Bucks Bridge Lumber Company*	3,000,000
Bleecker, "	H. Vandenburgh	720,000
Bleecker, "	John M. Peters, Jr.	150,000
Canton, "	Canton Lumber Company	6,750,000
Castorland, "	M. W. Van Amber	1,600,000
Castorland, "	Beaver River Lumber Company	9,020,000
Chase's Lake, "	Le Roy Crawford	1,000,000
Crary's Mills, "	Oscar Runions	50,000
Clinton Mills, "	Ladd & Smallman	400,000
De Grasse, "	Andrew Negus	310,000
Diana, "	William Ingraham	50,000
Dickinson Centre, "	Anson Hutchins	100,000
Dolgeville, "	Alfred Dolge	1,500,000
Everton, "	Everton Lumber Company	8,000,000
Forestport, "	Denton & Waterbury	3,000,000
Forestport, "	Forestport Lumber Company	3,628,341
Glendale, "	Henry Abbey	2,000,000
Glens Falls, "	Finch, Pruyn & Co	14,595,861
Glens Falls, "	Morgan Lumber Company	9,059,000
Glens Falls, "	George H. Freeman	4,199,077
Gray, "	Charles B. Gray	300,000
Gouverneur, "	Weston, Dean & Aldrich	8,330,000
Gouverneur, "	Starbuck & McCarty	2,004,980
Harrisville, "	C. R. Remington & Son	2,500,000

* Mills at Bucks Bridge and Canton, N. Y.

AMOUNT OF LUMBER CUT IN THE YEAR 1895. (*In Feet. B. M.*)

HEMLOCK	PINE	HARDWOOD	TOTAL
1,000,000	.....	300,000	1,700,000
.....	.....	.....	6,106,201
.....	5,600,000	.....	13,500,000
125,000	.....	.....	475,000
2,250,000	750,000	.....	6,000,000
80,000	.....	.....	800,000
75,000	.....	50,000	275,000
750,000	.....	.....	7,500,000
1,400,000	.....	.....	3,000,000
8,070,000	1,007,000	.....	18,097,000
1,000,000	25,000	.....	2,025,000
200,000	50,000	175,000	475,000
550,000	.....	50,000	1,000,000
310,000	80,000	.....	700,000
200,000	100,000	50,000	400,000
.....	.....	75,000	175,000
.....	.....	500,000	2,000,000
.....	500,000	.....	8,500,000
600,000	.....	30,000	3,630,000
.....	.....	.....	3,628,341
1,300,000	2,000,000	.....	5,300,000
1,658,620	331,724	.....	16,586,205
4,873,045	708,881	.....	14,640,926
853,266	223,194	.....	5,275,537
200,000	.....	.....	500,000
7,330,000	1,510,000	75,000	17,245,000
1,800,000	.....	.....	3,804,980
2,500,000	.....	.....	5,000,000

GREAT FOREST OF NORTHERN NEW YORK.

LOCALITY		MANUFACTURER	SPRUCE
Herkimer,	N. Y.	Deimel & Snell	250,000
Hinckley,	"	Trenton Falls Lumber Company	20,194,156
Hope Falls,	"	W. H. Lawton	175,000
Jayville,	"	Post & Henderson	1,700,000
Lyons Falls,	"	Gould Paper Company	2,315,623
Malone,	"	A. B. Parmelee & Son	750,000
Massena,	"	Massena Lumber Company	300,000
McKeever,	"	Moose River Lumber Company	11,163,000
Natural Bridge,	"	Yousey Brothers	700,000
Natural Bridge,	"	Calvin V. Graves	50,000
Norwood,	"	Norwood Manufacturing Company	10,227,439
Old Forge,	"	Fulton Chain Lumber Company	800,000
Onchiota,	"	Kinsley Lumber Company	2,000,000
Oswegatchie,	"	W. G. Coffin	
Oswegatchie,	"	John Irvin	1,000,000
Owl's Head,	"	Scott G. Boyce	1,200,000
Old Forge,	"	Old Forge Company	100,000
Plattsburg,	"	Baker Brothers*	7,800,000
Parishville,	"	S. L. Clark & Son	2,050,000
Philadelphia,	"	William Roberts	430,937
Potsdam,	"	A. Sherman Lumber Company	9,733,245
Potsdam,	"	Clarkson Manufacturing Company	1,000,000
Paul Smith's,	"	Paul Smith Hotel Company	150,000
Pine Lake,	"	Henry T. Bona	250,000
Rockwood,	"	Everett Young	400,000
Sandy Hill,	"	Kenyon Lumber Company	2,146,208
Saranac Lake,	"	Stephen Merchant	1,098,000

* Lumber from mills of M. E. Walker, B. R. Brewster, P. Hanlon, Wales Parsons, F. M. Purdy, W. A. Reynolds and Ducey Lumber Company.

AMOUNT OF LUMBER CUT IN THE YEAR 1895.—(CONTINUED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
250,000	.....	700,000	1,200,000
.....	.....	.....	20,194,156
200,000	.....	125,000	500,000
2,000,000	250,000	100,000	4,050,000
540,570	65,257	.....	2,921,450
.....	.....	.....	750,000
500,000	.....	.....	800,000
549,000	183,000	.....	11,895,000
2,800,000	100,000	200,000	3,800,000
50,000	.....	.....	100,000
322,287	1,056,167	50,964*	11,656,857
200,000	150,000	.....	1,150,000
750,000	.....	250,000	3,000,000
.....	.....	300,000	300,000
1,000,000	.....	850,000	2,850,000
100,000	.....	500,000	1,800,000
.....	100,000	.....	200,000
650,000	1,000,000	.....	9,450,000
670,000	110,000	7,000	2,837,000
3,591,141	287,291	478,819†	4,788,188
251,796	977,551	40,220	11,002,812
200,000	.....	.....	1,200,000
.....	150,000	.....	300,000
40,000	.....	40,000	330,000
200,000	.....	50,000	650,000
1,599,864	1,356,903	86,455	5,189,430
.....	.....	.....	1,098,000

* Includes 46,523 feet tamarack.

† Includes 335,173 feet ash.

GREAT FOREST OF NORTHERN NEW YORK.

LOCALITY	MANUFACTURER	SPRUCE
Saranac Inn, N. Y	Upper Saranac Association	600,000
South Bangor, "	Shepard & Morse Company	529,707
South Colton, "	Young & Lindsay	400,000
Stratford, "	J. C. Livingston & Co	2,470,000
Stratford, "	Wm. W. Knapp	200,000
Stratford, "	David Helterline	850,000
St. Regis Falls, "	Santa Clara Lumber Company	....
Thomson's Mills, "	Thomson, Douglas & Dix	4,986,465
Tupper Lake, "	A. Sherman Lumber Company	7,970,198
Tupper Lake, "	Export Lumber Company	11,700,000
Warrensburgh, "	A. C. Emerson & Co	340,000
West Stockholm, "	George N. Gibson	600,000
Various places,	Small mills	2,500,000
	Total	208,153,438

AMOUNT OF LUMBER CUT IN THE YEAR 1895.—(CONCLUDED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
400,000	200,000	50,000	1,250,000
.....	.....	.....	529,707
600,000	.....	.....	1,000,000
.....	.....	618,000	3,088,000
.....	.....	200,000	400,000
200,000	.....	300,000	1,350,000
.....	.....	1,100,000*	1,100,000
1,722,465	374,443	42,000	7,125,373
.....	329,800	.....	8,299,998
.....	1,300,000	.....	13,000,000
1,020,000	340,000	.....	1,700,000
700,000	40,000	75,000	1,415,000
2,000,000	150,000	350,000	5,000,000
60,232,054	21,406,211	7,818,458	297,610,161

* Birch and maple; two-thirds birch.

LOCATION	MANUFACTURER	SPRUCE
Belfort, N. Y.	Le Fevre & Crumb	400,000
Beaver River, "	Firman Ouderkirk	6,862,912
Brandon, "	Ducey Lumber Company	2,600,000
Bloomingdale, "	Wm. J. Gillespie	350,000
Bucks Bridge, "	Bucks Bridge Lumber Company*	3,500,000
Bleecker, "	H. Vandenburgh	450,000
Bleecker, "	John M. Peters, Jr	100,000
Canton, "	Canton Lumber Company	9,500,000
Castorland, "	Beaver River Lumber Company	13,800,000
Castorland, "	M. W. Van Amber	1,900,000
Chase's Lake, "	Le Roy Crawford	100,000
Crary's Mills, "	Oscar Runions	50,000
Clinton Mills, "	Ladd & Smallman	400,000
De Grasse, "	Andrew Negus	150,000
Diana, "	William Ingraham	100,000
Dickinson Centre, "	Anson Hutchins	100,000
Dolgeville, "	Alfred Dolge	1,500,000
Elizabethtown, "	Livingston Woodruff	50,000
Everton, "	Everton Lumber Company	5,750,000
Forestport, "	Denton & Waterbury	2,500,000
Forestport, "	Forestport Lumber Company	2,374,682
Glendale, "	Henry Abbey	2,000,000
Glens Falls, "	Finch, Pruyn & Co	19,681,666
Glens Falls, "	Morgan Lumber Company	11,723,962
Glens Falls, "	George H. Freeman	979,455
Gray, "	Charles B. Gray	500,000
Gouverneur, "	Weston, Dean & Aldrich	7,890,000
Gouverneur, "	Starbuck & McCarty	800,000

* Mills at Bucks Bridge and Canton, N. Y.

AMOUNT OF LUMBER CUT IN THE YEAR 1896. (*In Feet. B. M.*)

HEMLOCK	PINE	HARDWOOD	TOTAL
1,000,000	.....	300,000	1,700,000
.....	.....	.....	6,862,912
.....	2,000,000	.....	4,600,000
125,000	.....	.....	475,000
2,625,000	875,000	.....	7,000,000
50,000	.....	.....	500,000
100,000	.....	20,000	220,000
1,500,000	.....	.....	11,000,000
11,540,000	1,400,000	.....	26,740,000
1,600,000	.....	.....	3,500,000
100,000	.....	.....	200,000
200,000	50,000	175,000	475,000
550,000	.....	50,000	1,000,000
450,000	200,000	.....	800,000
150,000	25,000	.....	275,000
.....	.....	75,000	175,000
.....	.....	500,000	2,000,000
100,000	175,000	25,000	350,000
.....	250,000	500,000*	6,500,000
100,000	.....	35,000	2,635,000
.....	.....		2,374,682
1,300,000	2,000,000	.....	5,300,000
2,236,552	447,310	.....	22,365,528
3,878,130	1,180,399	.....	16,782,491
444,999	194,661	26,558†	1,645,673
200,000	.....	600,000	1,300,000
6,945,000	1,359,000	51,000	16,245,000
406,777	.....	.....	1,206,777

* Yellow birch. † Ash.

GREAT FOREST OF NORTHERN NEW YORK.

LOCALITY		MANUFACTURER	SPRUCE
Harrisville,	N. Y.	C. R. Remington & Son	2,500,000
Herkimer,	"	Deimel & Snell	250,000
Hinckley,	"	Trenton Falls Lumber Company	11,211,443
Hope Falls,	"	W. H. Lawton	150,000
Jayville,	"	Post & Henderson	1,700,000
Lyons Falls,	"	Gould Paper Company	3,392,134
Malone,	"	A. B. Parmelee	500,000
Massena,	"	Massena Lumber Company	300,000
McKeever,	"	Moose River Lumber Company	5,490,000
Natural Bridge,	"	Yousey Brothers	700,000
Natural Bridge,	"	Calvin V. Graves	50,000
Norwood,	"	Norwood Manufacturing Company	7,055,152
Old Forge,	"	Fulton Chain Lumber Company	600,000
Old Forge,	"	Old Forge Company	100,000
Onchiota,	"	Kinsley Lumber Company	1,750,000
Oswegatchie,	"	W. G. Coffin	
Oswegatchie,	"	John Irvin	1,000,000
Owl's Head,	"	Scott G. Boyce	1,200,000
Parishville,	"	S. L. Clark & Son	1,700,000
Paul Smith's,	"	Paul Smith Hotel Company	150,000
Philadelphia,	"	William Roberts	199,029
Pine Lake,	"	Henry T. Bona	250,000
Potsdam,	"	A. Sherman Lumber Company	4,614,650
Potsdam,	"	Clarkson Manufacturing Company	1,000,000
Plattsburg,	"	Baker Brothers*	11,050,000
Rockwood,	"	Everett Young	500,000
Sandy Hill,	"	Kenyon Lumber Company	3,131,627

* Lumber from mills of M. E. Walker, B. R. Brewster, P. Hanlon, Wales Parsons, F. M. Purdy, W. A. Reynolds and Ducey Lumber Company.

AMOUNT OF LUMBER CUT IN THE YEAR 1896.—(CONTINUED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
2,500,000	.....	.....	5,000,000
250,000	.....	700,000	1,200,000
.....	.....	.....	11,211,443
250,000	.....	125,000	525,000
2,000,000	250,000	100,000	4,050,000
141,199	53,028	.....	3,586,361
.....	.....	.....	500,000
500,000	100,000	.....	900,000
.....	.....	.....	5,490,000
2,800,000	100,000	200,000	3,800,000
50,000	.....	.....	100,000
728,559	990,135	5,271	8,779,117
500,000	100,000	.....	1,200,000
.....	100,000	.....	200,000
.....	.....	250,000	2,000,000
.....	.....	300,000	300,000
1,000,000	.....	850,000	2,850,000
100,000	.....	500,000	1,800,000
650,000	80,000	20,000	2,450,000
.....	150,000	.....	300,000
2,217,757	241,668	184,811 *	2,843,265
10,000	.....	40,000	300,000
163,034	444,193	26,800	5,248,677
200,000	.....	.....	1,200,000
400,000	1,000,000	.....	12,450,000
200,000	.....	50,000	750,000
2,511,396	1,529,890	55,645	7,228,558

* Includes 56,865 feet basswood.

LOCALITY	MANUFACTURER	SPRUCE
Saranac Inn, N. Y.	Upper Saranac Association	600,000
Saranac Lake, "	Stephen Merchant	1,098,000
South Colton, "	Young & Lindsay	400,000
Stratford, "	J. C. Livingston & Co	1,750,000
Stratford, "	Wm. W. Knapp	400,000
Stratford, "	David Helterline	1,110,430
St. Regis Falls, "	Santa Clara Lumber Company	.....
Thomson's Mills, "	Thomson, Douglas & Dix	3,411,986
Tupper Lake, "	A. Sherman Lumber Company	2,337,000
Tupper Lake, "	Export Lumber Company	13,500,000
Warrensburgh, "	A. C. Emerson & Co	340,000
West Stockholm, "	George N. Gibson	280,000
Various places, "	Small mills	2,500,000
	Total	184,384,128

AMOUNT OF LUMBER CUT IN THE YEAR 1896.—(CONCLUDED.)

HEMLOCK	PINE	HARDWOOD	TOTAL
400,000	250,000	.....	1,250,000
.....	.....	.....	1,098,000
600,000	.....	.....	1,000,000
.....	.....	575,000	2,325,000
.....	.....	100,000	500,000
265,000	.....	50,000	1,425,430
.....	.....	2,000,000	2,000,000
1,599,192	319,685	30,000	5,360,863
.....	90,595	.....	2,427,595
.....	1,500,000	.....	15,000,000
1,020,000	340,000	.....	1,700,000
250,000	.....	108,000*	638,000
2,000,000	150,000	350,000	5,000,000
58,907,595	17,945,564	8,978,085	270,215,372

* Includes 10,000 feet elm.

GREAT FOREST OF NORTHERN NEW YORK.

MANUFACTURE OF SHINGLES FOR THE YEARS 1894, 1895 AND 1896.

LOCALITY	MANUFACTURER	1894	1895	1896
Canton, N. Y.	Buck's Bridge Lumber Co.	250,000	250,000	300,000
Diana, "	William Ingraham	1,000,000	500,000	600,000
Gouverneur, "	Weston, Dean & Aldrich	2,100,000	2,100,000	2,100,000
Natural Bridge, "	Calvin V. Graves	200,000	200,000	200,000
Old Forge, "	Fulton Chain Lumber Co.	.....	300,000	300,000
Onchiota, "	Kinsley Lumber Company	250,000	500,000	150,000
Parishville, "	S. L. Clark & Son	2,000,000	2,000,000	875,000
Paul Smith's, "	Paul Smith Hotel Company	150,000	150,000	150,000
Philadelphia, "	William Roberts	1,307,000	1,681,000	1,302,000
Potsdam, "	A. Sherman Lumber Company	8,225,000	3,937,000	4,130,000
Saranac Lake, "	Stephen Merchant	200,000	200,000	200,000
Thomson's Mills, "	Thomson, Douglas & Dix	852,000*	770,000*	367,000*
Tupper Lake, "	A. Sherman Lumber Company	.....	3,619,000	.....
Tupper Lake, "	Shepard & Morse Lumber Co.	649,000	460,000	4,282,500
Warrensburg, "	A. C. Emerson & Co	600,000	600,000	600,000
West Stockholm, "	George N. Gibson & Son	900,000	1,000,000	700,000
	Total	18,683,000	18,267,000	16,256,500

* Cedar shingles.

GREAT FOREST OF NORTHERN NEW YORK.

MANUFACTURE OF LATH FOR THE YEARS 1894, 1895 AND 1896.

LOCALITY	MANUFACTURER	1894	1895	1896
Bleecker, N. Y.	John M. Peters, Jr	60,000	65,000	75,000
Brandon, "	Ducey Lumber Company	.....	3,800,000	1,000,000
Canton, "	Canton Lumber Company	934,300	751,200	200,000
Canton, "	Bucks Bridge Lumber Co	500,000	500,000	500,000
Diana, "	William Ingraham	200,000	.....	.....
Everton, "	Everton Lumber Company	4,000,000	4,500,000	3,000,000
Forestport, "	Forestport Lumber Company	2,493,300	2,137,700	1,555,000
Forestport, "	Denton & Waterbury	2,000,000	2,300,000	2,125,000
Glens Falls, "	Morgan Lumber Company	3,195,400	1,306,800	862,000
Glens Falls, "	George H. Freeman	2,950,000	2,341,000	277,000
Gouverneur, "	Weston, Dean & Aldridge	3,500,000	3,500,000	3,500,000
Gouverneur, "	Starbuck & McCarty	912,000	1,300,000	555,000
Onchiota, "	Kinsley Lumber Company	300,000	.....	300,000
Philadelphia, "	William Roberts	799,000	1,010,000	200,000
Potsdam, "	A. Sherman Lumber Company	2,411,000	2,790,000	1,330,600
Pine Lake, "	Henry T. Bona	250,000	250,000	250,000
Rockwood, "	Everett Young	300,000	400,000	400,000
Sandy Hill, "	Kenyon Lumber Company	1,935,100	1,443,800	1,786,200
Saranac Lake, "	Stephen Merchant	300,000	300,000	300,000
Stratford, "	William W. Knapp	100,000	100,000	.....
Thomson's Mill, "	Thomson, Douglas & Dix	3,902,900	2,328,700	1,463,800
Tupper Lake, "	A. Sherman Lumber Co	510,000	2,371,400	670,400
Warrensburg, "	A. C. Emerson & Co	600,000	600,000	600,000
West Stockholm, "	George N. Gibson & Son	300,000	200,000	100,000
	Total	32,453,000	34,295,600	21,050,000

GREAT FOREST OF NORTHERN NEW YORK.

AMOUNT OF PULP TIMBER CUT. (*In Cords.*)

LOCATION	PROPRIETORS	1894	1895	1896
Ausable Forks, N. Y.	J. & J. Rogers Co	7,334	17,049	26,322
Beaver Falls, "	J. P. Lewis Co	636	1,315	1,300
Beaver Falls, "	Lewis, Slocum & Le Fevre	810	1,791	2,398
Black River, "	Jefferson Paper Company	2,000	2,000	2,000
Black River, "	Black River Wood Pulp Co	800	800	800
Black River, "	Empire Wood Pulp Company	800	800	800
Ballston Spa, "	George West*	3,000	3,000	6,000
Brainard, "	W. D. Barnes	100	200	150
Brownville, "	Brownville Paper Company	1,000	1,000	1,000
Brownville, "	Globe Paper and Fibre Co	700	700	.....
Brownville, "	Outterson Paper Company	500	500	500
Cadyville, "	Saranac River Pulp and Paper Company	5,290	6,001	6,143
Carthage, "	A. E. Maxwell	416	487	604
Carthage, "	Henry Spicer & Son	1,000	1,000	1,000
Carthage, "	Franklin E. Robinson	2,000	2,000	2,000
Chateaugay, "	Chateaugay Pulp and Paper Co.	5,000	5,000	5,000
Chasm Falls, "	Adirondack Pulp and Paper Co.	1,200	.....	1,000
Colton, "	Raquette River Pulp Co	4,500	5,000	6,000
Dexter, "	Jones & Hunter	700	700	700
Dexter, "	Dexter Sulphite Pulp and Paper Company*	8,460	9,405	9,575
Dexter, "	Leonard & Gilmour Co	800	.....	600
Dexter, "	St. Lawrence Mills	1,200	800	1,300
Dexter, "	Frontenac Paper Company	2,000	2,000	2,000
Forestport, "	Currin & Nichols	.....	1,000	1,000

* Chemical mill.

GREAT FOREST OF NORTHERN NEW YORK.

AMOUNT OF PULP TIMBER CUT.—CONTINUED.

LOCATION	PROPRIETORS	1894	1895	1896
Fort Ann, N. Y.	Kane's Falls Pulp Company	925	950	985
Fullerville, "	Keller Bros	1,000	900	800
Fulton, "	Fulton Paper Company	2,123	4,063	4,314
Fulton, "	Victoria Paper Mills Co	.....	500	500
Fulton, "	Oswego Falls Pulp and Paper Company	4,500	5,000	5,000
Fort Miller, "	Fort Miller Pulp and Paper Co.	.....	162	893
Glens Falls, "	Glens Falls Paper Mill Co *	11,763	13,381	13,003
Gouverneur, "	Gouverneur Wood Pulp Co	4,000	5,019	5,363
Great Bend, "	Great Bend Paper Company	538	1,210	.....
Herkimer, "	Herkimer Paper Company	3,789	3,895	6,760
Lockport, "	Traders Paper Company	443	884	874
Lockport, "	Lockport Pulp Company	.....	3,000	1,000
Lyons Falls, "	Gould Paper Company	15,698	23,124	14,457
Lyons Falls, "	Moose River Paper Company	1,400	1,400	1,400
Lyonsdale, "	Lyonsdale Paper Mfg. Co	800	800	800
Mechanicville, "	The Duncan Company †	6,462	25,469	15,465
Niagara Falls, "	Cliff Paper Company	422	17	84
Niagara Falls, "	Niagara Falls Paper Company.	.....	.....	4,000
Norwood, "	O. E. Martin	950	1,400	1,000
Newton Falls, "	Newton Falls Paper Company.	.....	.....	6,000
Oswegatchie, "	Standard Pulp Company	2,000	2,000	2,000
Palmer, "	Hudson River Pulp and Paper Company *	9,566	9,466	10,333
Plattsburg, "	Treadwell Mills Pulp and Paper Company	5,000	5,000	5,000

* Chemical and mechanical.
† Chemical mill.

GREAT FOREST OF NORTHERN NEW YORK.

AMOUNT OF PULP TIMBER CUT.—CONCLUDED.

LOCATION	PROPRIETORS	1894	1895	1896
Plattsburg, N Y.	Frydenburg Falls Pulp Co ...	.....	13,000	13,000
Port Henry, "	Allen & Sherman	834	1,353	2,043
Potsdam, "	Piercefield Falls P. and M. Co.	17,400	17,400	17,400
Potsdam, "	Raquette River Paper Co* ...	3,333	3,333	3,333
Pyrites, "	High Falls Sulphite P. and M. Company†	7,500	7,500	7,500
Rochester, "	Genesee Paper Company	1,500	2,000	2,000
Sandy Hill, "	Alice Falls Company	5,714	4,228	4,830
Sandy Hill, "	Sandy Hill Power Company ..	2,529	4,024	4,030
Schuylerville, "	American Wood Board Co ...	795	823	1,183
Schuylerville, "	Thomson Pulp and Paper Co.	943	3,254	3,063
Skaneateles, "	John E. Waller	273	455	728
South Edwards, "	South Edwards Pulp Co.....	1,500	1,500	1,600
Ticonderoga, "	E. Richards & Son	94	1,100	1,300
Ticonderoga, "	Ticonderoga Pulp and Paper Co.	5,000	5,000	5,000
Warrensburg, "	Schroon River Pulp Company.	1,666	2,337	2,984
Watertown, "	Ontario Paper Company.....	1,327	4,208	4,173
Watertown, "	Taggarts Paper Company....	4,924	4,300	7,276
Watertown, "	Remington Paper Company* .	15,190	15,270	15,080
Watertown, "	C. R. Remington & Son Co..	4,050	4,751	4,546
Watertown, "	Watertown Paper Company ..	3,500	3,500	4,000
Watertown, "	Knowlton Bros.....	237	248	256
Watertown, "	Black River Wood Pulp Co ..	1,000	2,000	2,000
Willsboro, "	New York and Pennsylvania Co.	3,248	4,897	5,698
	Totals	‡ 204,182	‡ 276,669	‡ 291,246

* Chemical and mechanical.

† Chemical mill.

‡ 204,182 cords of pulp wood equals 112,095,918 feet B. M.
276,669 " " 151,891,281 "
291,246 " " 159,894,054 "

SUMMARY.

1894.

	FEET.
Spruce,	200,732,012
Hemlock,	61,455,595
Pine,	20,151,915
Hardwood,	6,360,747
Total lumber,	288,700,269
Pulp wood, 204,182 cords, equivalent B. M.,	112,095,918
Total lumber and pulp wood,	400,796,187

	PIECES.
Shingles,	18,683,000
Lath,	32,453,000

1895.

	FEET.
Spruce,	208,153,438
Hemlock,	60,232,054
Pine,	21,406,211
Hardwood,	7,818,458
Total lumber,	297,610,161
Pulp wood, 276,669 cords, equivalent B. M.,	151,891,281
Total lumber and pulp wood,	449,501,442

	PIECES.
Shingles,	18,267,000
Lath,	34,295,600

1896.

	FEET.
Spruce,	184,384,128
Hemlock,	58,907,595
Pine,	17,945,564
Hardwood,	8,978,085
Total lumber,	270,215,372
Pulp wood, 291,246 cords, equivalent B. M.,	159,894,054
Total lumber and pulp wood,	430,109,426

	PIECES.
Shingles,	16,256,500
Lath,	21,050,000

PRODUCTION OF LUMBER BY DISTRICTS.

1894.

Glens Falls District,	66,713,989	
St. Lawrence County,	71,020,697	
Franklin and Clinton Counties,	59,823,256	
Jefferson, Lewis and Oneida Counties,	56,796,990	
Herkimer and Fulton Counties,	34,345,337	
Total,		288,700,269

1895.

Glens Falls District,	52,017,471	
St. Lawrence County,	73,836,649	
Franklin and Clinton Counties,	64,374,998	
Jefferson, Lewis and Oneida Counties,	59,471,180	
Herkimer and Fulton Counties,	47,909,863	
Total,		297,610,161

1896.

Glens Falls District,	56,958,113	
St. Lawrence County,	65,142,571	
Franklin and Clinton Counties,	52,775,595	
Jefferson, Lewis and Oneida Counties,	65,717,220	
Herkimer and Fulton Counties,	29,621,873	
Total,		270,215,372

RECAPITULATION.

1894.

Lumber and pulp wood,	Feet, B. M.,	400,796,187
Shingles,	pieces,	18,683,000
Lath,	"	32,453,000

1895.

Lumber and pulp wood,	Feet, B. M.,	449,501,442
Shingles,	pieces,	18,267,000
Lath,	"	34,295,600

1896.

Lumber and pulp wood,	Feet, B. M.,	430,109,426
Shingles,	pieces,	16,256,500
Lath,	"	21,050,000

Lands Purchased.

As stated in the preliminary report of this Commission, the Forest Preserve was increased during the year by an accession of 92,974 acres. The lands acquired were:

	ACRES.
Wm. McEchron purchase,	17,354
W. S. Webb purchase,	74,584
John Brown Farm,	243
	92,181

The two tracts first mentioned were acquired by purchase; the latter, through a deed of gift to the State.

In addition to the lands thus specified there was deeded to the State by Patrick Moynehan, of Glens Falls, N. Y., a tract containing 1,950 acres. This conveyance was made December 3, 1895, but the contract was made by the Forest Commission prior to the appointment of the present Board, and before the fiscal year to which this report relates. This land is situated in Township 28, Totten & Crossfield Purchase, Town of Newcomb, Essex county, and adjoins the two large private preserves of Mr. Robert C. Pruyn, of Albany, N. Y., and the Caughnawaga Club, of New York city. The price paid was $1.50 per acre for 1,200$\frac{93}{100}$ acres, and $2 per acre for the remaining 741 acres; total consideration, $13,901.86.

The McEchron Purchase.

The lands purchased by this Commission of William McEchron and others was conveyed to the State February 12, 1896. Mr. McEchron is a resident of Glens Falls, N. Y., and other persons* were interested with him in the ownership of the lands thus conveyed. The tract is in a solid block situated in Hamilton and Warren counties, and in the towns of Wells, Thurman, and Johnsburg. It may be further described as being in Townships 10 and 29 of the old land grant known as the Totten & Crossfield Purchase, a colonial grant antedating the War of the Revolution.

The price paid was $1.50 per acre; the total acreage was 17,354$\frac{52}{100}$ acres, and the total consideration was $26,031.32.

Before recommending the purchase of this property, the Forestry Committee of the Commission made a personal examination of the lands. At a subsequent meeting of the Board, held October 7, 1895, this Committee submitted the following report:

* Morgan Lumber Company, Glens Falls, N. Y.

To the Board of Fisheries, Game and Forests, Albany, N. Y.

GENTLEMEN: Your Committee on Forest Lands beg leave to submit the following report upon lands offered for sale, viz.:

On August 17, 1894, John Edmondson, of Johnsburg, N. Y., filed with the then Forest Commission, an offer to sell 300 acres of land, in Township 29, Totten & Crossfield Purchase, Warren county, at $1.50 per acre.

On April 2, 1894, Gardner Winney, of Northville, N. Y., filed an offer with the Forest Commission to sell 210 acres of land in Lot 16, north end of same, situated north of the Sacandaga River, in Townships 10 and 29, Totten & Crossfield Purchase, Hamilton county, at $1.50 per acre.

On August 8, 1895, the Morgan Lumber Company, of Glens Falls, N. Y., filed with this board an offer to sell about 15,000 acres, more or less, being Lots 13, 14, 15, 16, 17, 18, 19 and 20, and certain Great Lots not subdivided, in Townships 10 and 29, Totten & Crossfield Purchase, Hamilton and Warren counties, at $1.50 per acre.

On July 16-19, 1895, your Committee, accompanied by Mr. McEchron of the Morgan Lumber Company, and Colonel William F. Fox, the Engineer of the Commission, made an examination of these lands, such as we were able to make by driving over same on a traveled road which runs across the tract from east to west, cutting the eastern portion, or so-called Great Lots, through the middle, and crossing the northern part of the other lots offered for sale by the said lumber company. This road also brought us in sight of the 300 acres lot and the 210 acres lot offered by Edmondson and Winney, as pointed out to us by the engineer when on the ground.

We also left the road, going on foot into the timber on one occasion to a distance of perhaps three-fourths of a mile up an elevation to look at a sheet of water known as "Cod Pond," and to get a general idea of how closely these lands had been lumbered. The general character of this tract is hilly and rough, having but a small percentage of arable land, and that very poor for agricultural purposes.

The East Branch of the Sacandaga River crosses all but two of the lots offered by the Morgan Lumber Company, and bounds the Winney lot on the South. The Edmondson lot corners on the same stream. Quite a large creek, also, crosses the southeasterly Great Lot and Lot 20 of the Morgan Lumber Company.

The whole territory has been lumbered over some years ago, the hemlock, or the best of it which was of suitable size, having been cut off, mostly for lumber for shipment or local use, and for the bark. The spruce had also been cut for lumber. The timber left is of the usual species growing in that section, mostly maple, beech and birch, with small spruce, hemlock, and balsam. On some of the hills, or mountains so-called, where it was impracticable to lumber, there is quite a growth of large spruce left.

On the land of the Morgan Lumber Company several hundred acres, perhaps 500 or more on the various lots along the river front, were cleared off years ago when the tanneries and lumbering operations were going on.* But from present appearances, the forest is again getting the best of the clearings, as the bushes are crowding in around the edges and springing up into second growth on much of it. Fires have never injured these lands, to any extent at least; such as we viewed showed no evidence of any large fires having run through it.

Along the river road there are quite a number of old buildings, once used as residences, but now unoccupied and of no special use or value; also some few houses along the south side of the river which are occupied by families. If the State should purchase this tract these occupants should not be allowed to remain unless they are legally entitled to do so. They are an irresponsible class whose careless, slovenly methods of carrying on their so-called farming is a constant nuisance to the whole region on account of fire. Besides, they become habitual trespassers.

The general appearance of these lands is that of a dense forest and indicates that within a few years they will again be interspersed with large-sized evergreen trees; that is to say, with a good, fair proportion of spruce and hemlock. This conclusion is fair from the fact that a considerable portion of the timber now standing is young spruce, hemlock, and balsam.

We have had submitted to us the detailed report of Thomas Powers, Forester, made from personal examination in the winter of 1895, of all the Morgan Lumber Company lots; also the report of S. C. Armstrong, Forester, who examined the Edmondson and Winney lots at the same time. These reports give the particulars and details as to each lot, quality and quantity of timber, and topographical features, and are submitted herewith as part of this, our report.

The said Foresters' reports, twelve in number, are marked for identification, "Exhibits A, B, C, D, E, F, G, H, I, J, K, and L."

The assessed valuation of these lots for 1895 is: Lots 13 to 16, inclusive, $1 per acre; and balance of Townships 10 and 29 at $1.50 per acre.†

The purchase of the lands in the three offerings considered in this report will, as may be seen by reference to the map, give the State quite a solid tract of forest on the Upper Sacandaga. Deeming the price proposed reasonable and fair, your Committee recommends that, if the funds on hand will warrant, contracts be made for the purchase of all three of the tracts offered.

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*These cleared lands were not included in the offer of the Morgan Lumber Company, and were not bought by the State.

† The intention of the assessors is to always assess land at less than its value.

And your Committee further reports that they have expended in making the necessary examination of said lands the sum of $99.55. All of which is respectfully submitted.

WILLIAM R. WEED,
H. H. LYMAN,
B. H. DAVIS,

Committee.

Dated, ALBANY, N. Y., *September* 14, 1895.

The reports of Forester Powers were a valuable assistance in determining the value of the land, as he had passed his whole life in the Adirondack forests and was a recognized expert on the examination of this class of property with reference to timber value. He reported on each lot separately, making out his report on the blank forms furnished by the Commission for such purposes. These printed forms contain a series of questions which are intended to elicit all necessary information regarding the land examined, the questions being complete and exhaustive.

Powers examined these tracts from January 28 to February 4, 1895, going over each lot on snowshoes. As there were no leaves on the hardwood trees, he had a good opportunity to estimate the amount of young spruce, hemlock and other evergreen species. He states that although the tract had been lumbered, the hardwood trees, which constituted eighty per cent. of the original growth, remained as before; that only the larger soft wood trees were cut; and that, throughout the entire tract, the young spruces which were left by the lumbermen would average seventy trees to the acre; and the young hemlocks, sixty trees to the acre. Forester Powers claims that in twenty-five years these lands will yield a second cutting of spruce. On Lot 19, there was a dam at the outlet of Cod Pond, the overflow from which had killed some timber around the shore, but to no great extent, as the pond is small and the water was drawn out each year before the trees were in leaf. A fire occurred on this lot several years ago, which burned over a small area; but the land thus injured is covered over with a thick growth of young trees composed of poplar, birches and cherries.

The cleared lands along the Sacandaga River on Lots 13, 14, and 15 were not included in the contract, as the Commission prefers to confine its purchases to forest land only. Moreover, there were several families residing on these meadows, and it was not deemed advisable to eject them at present.

The tract of the Morgan Lumber Company is well stocked with deer, and is a favorite hunting ground, the Sacandaga River furnishing some fine runway shooting.

The report of the Forestry Committee having been adopted by the Board, notice of such approval was transmitted to the Commissioners of the Land Office.

At a meeting of the Land Commissioners, November 26, 1895, the Attorney-General offered the following resolution:

Resolved: That the resolution of the Board of Fisheries, Game and Forests that the said Board of Fisheries, Game and Forests contract with the Morgan Lumber Company of Glens Falls, N. Y., for the purchase of about 15,000 acres, more or less, being Lots 13, 14, 15, 16, 17, 18, 19, 20, and Great Lots not subdivided, in Townships 10 and 29, Totten & Crossfield Purchase, Hamilton and Warren counties, at $1.50 per acre, be approved; such approval, however, not to take effect until the title to said lots and undivided Great Lots in said Morgan Lumber Company of Glens Falls, be approved by the Attorney-General.

The Attorney-General having approved the form of conveyance and the validity of the title, the Morgan Lumber Company presented its deeds to the Comptroller and received payment for the following described lands:

HAMILTON COUNTY.

TOTTEN & CROSSFIELD PURCHASE, TOWNSHIPS 10 AND 29.

	ACRES.
Lot 13, ex. 222.78 a. N. pt.,	633.72
14, ex. 239.90 a. N. pt.,	624.60
15, all in Hamilton county, 821 a. ex. 222.74 a. N. pt. thereof,	598.26
16, all in Hamilton county, 600 a. ex. 100 a., Winney farm, being all N. of the Sacandaga River and W. of the county line after ex. the part thereof known as the Drake farm, b'd beg. at a stake and stone on E. bank of said river 3c. from mouth of George's Brook and runs th. N. 25 deg. E. 50c. to a stake and stones; th. S. 65 deg. E. 40c. to a stake and stones; th. S. 25 deg. W. to centre of George's Brook; th. N. 65 deg. W. 4c. 40 l. from beg.; and th. N. 65 deg. W. 4c. 40 l. to beg.,	300
17, all in Hamilton county,	18

WARREN COUNTY.

TOTTEN & CROSSFIELD PURCHASE, TOWNSHIPS 10 AND 29.

Lot 15, all in Warren county,	56
16, same,	724
17, same,	1,348
18,	1,370.75
19, all in Johnsburg,	63
19, all in Thurman,	1,331.75
20, all in Johnsburg,	377
20, all in Thurman,	1,041

Township 29.	Acres.
All of the unallotted part of Township 29, in Johnsburg, ex. 2,400 a. E'ly end of the Rutherford Tract, 80c. wide, E. & W. 1,200 a. N. pt. of all the Balfour Tract in Warren county, 176 1-5 a. b'd N. by the Sacandaga River, E. by line p'rl with and 80 c. W. from E. line of township, and S. by the S. line of the Rutherford Tract, 116 a. known as the Benj. Harrington farm, b'd E. by said 176 1-5 a. parcel, 64 a. being all of 125½ a. on S. line of the Rutherford Tract, 80c. W. from E. line or township, 10c. 26 l. wide on E. and 10 c. 67 l. on W. line not covered by said 176 1-5 a. and 116 a. parcels, . .	7,317.84
S. E. cor. in Thurman, bd. N. by town line & W. by lot 20, . .	1,020.6
Russell Tract.	
N. E. cor. in Johnsburg, 41 c. 25 l. wide N. and S. and 80 c. long E. & W., ...	330
On E. line of Township, beg. 103 ch. 75 l. from N. E. cor. and being 25 c. wide N. & S. and 80 c. long E. & W., . .	200
Total acreage, ...	17,354.52

The deed is dated February 12, 1896; the consideration named is $26,031.32.

The Webb Purchase.

In 1886, the State of New York erected a dam on the Beaver River at Stillwater, in Herkimer county, for the purpose of impounding water and creating a large reservoir in which to store the motive power necessary for the manufactories on the Black River, into which the Beaver River empties.

Prior to its erection the State had diverted the water of the Black River at Forestport by the erection of a dam that turned the entire stream, from above that point, into the feeder of the Erie Canal, thus transferring it into a watershed other than its natural one. The manufacturers at Watertown and other points on the Black River demanded that the State should provide for this loss of water by constructing some reservoir. The dam on the Beaver River was authorized by act of Legislature and built accordingly. This dam is eighteen feet high, and the back flow caused by it extends up the river for twenty miles, flooding a large area of country.

A claim for damages was made by Mary L. Fisher, of Lyons Falls, N. Y., who owned 9,500 acres east of Stillwater, bordering on the Beaver River, and the Board of Claims allowed $9,970.

ON THE CARRY.

Outlet of Salmon Lake. (Webb Purchase.)

Another claim for damages was made by William Seward Webb, of New York city, who owned about 120,000 acres of forest land situated on waters tributary to the Beaver River. As this claim was taken into consideration in determining the price paid by the State for these lands, we submit a digest of the evidence in the case as given before the Court of Claims:

Statement of Claim and Brief Abstract of Evidence.

PREFACE.

The trial of the claim of the undersigned against the State of New York, in the Board of Claims, was to recover damages to the amount stated in the claim of $184,350.60. The claim has been so thoroughly and completely substantiated by evidence that the damages proven are about twice as large as the amount claimed. At the time of the filing of the claim there was no proper appreciation of its extent and magnitude on the part of the claimant. Its greater extent and magnitude over the amount claimed, however, developed in the course of the trial; and in case the claim is not settled, and the litigation is continued through the Courts, the amount of the damages demanded will, of course, be sought by the usual amendments to be made to conform to the proof.

The field of investigation covered a wide region of subject matter, including such matters as lumbering with all its details, log driving, improving rivers preparatory to log floating, estimating the yield of timber lands, building dams and mills, marketing of lumber, also the business of harvesting pulp wood and converting it into paper; railroads and their construction, freight rates, and that department of medicine which treats of the propagation and spread of miasmatic poisonings, including also the subject of Adirondack lands for park purposes. Every effort was made by the claimant to produce witnesses who are the very best authorities on the particular subject upon which they were called to testify.

The trial of the claim on the part of the claimant occupied over a week, and the evidence covers 1,547 pages of type-writing besides very many exhibits, the examination of all which would be very voluminous, and to save the trouble of such detailed examination, the annexed abstract of evidence is submitted.

The following is a list of the witnesses who testified on behalf of the claimant: David C. Wood, William R. Smith, George T. Crawford, Chandler E. Phelps, George C. Sherman, James Dunbar, Hon. M. W. Van Amber, Hiram Burke, James A. Koonz, A. J. Muncey, John McFarland, Madore Lamore, William Gibbons, Edward B. Sterling, Hon. Wesley Barnes, Zebediah Dupuy, Hon. G. H. P. Gould, Thomas A. Galvin, Hon. James P. Lewis, Dr. James H. Tamlin, Augustus Kessler, Dr. Frederick Townsend, Herbert D. Carter, Dr. P. N. Von Zierolshofen, William Briggs, William P. Goodelle, James Cosgrove, Hon. Lansing Hotaling, William McEchron, Herschel Roberts, Julius Breckwaldt, Hon. T. M. Reed, Franklin E. Robinson, Dr. Florence Donohue, Erastus Darling, Dr. J. W. Candee, William Harris, E. M. Burns, Charles Highby, Dr. Elmer D. Burch, Samuel O. Boullivant, Paul Smith.

Dated July 10, 1895.

WILLIAM SEWARD WEBB,
By EDWARD M. BURNS, *Manager.*

BEFORE THE FOREST COMMISSION AND THE COMMISSIONERS OF THE LAND OFFICE.

IN THE MATTER OF THE PURCHASE OF LANDS
OF
WILLIAM SEWARD WEBB,
TO QUIET CLAIMS FOR DAMAGES TO LANDS
AFFECTED BY THE BEAVER RIVER RESERVOIR.

To the Forest Commission, and to the Commissioners of the Land Office of the State of New York:

As appertaining to the above purchase, in which there is to be a settlement of the pending claim of the undersigned, under Laws of 1895, Chap. 561, including in the purchase price the payment of damages to portions of the lands not purchased, with a release thereof by the claimant, attention is respectfully called to the following extracts from the evidence of the witnesses called by the undersigned upon the presentation of his claim before the Commissioners of the Board of Claims:

The claim, aggregating $184,350.60, is caused by the State dam at Stillwater, on the Beaver River, and is composed mainly of damages done to the lands of the undersigned by reason of the dam and reservoir interfering with the removal of the standing timber upon claimant's lands in Townships 37, 38, 42 and 43, Totten & Crossfield Purchase, and the north part of Township 8 and east third of Township 5, John Brown's Tract, comprising in the aggregate 65,836 acres; together with damages done to a portion of the same lands, and the lakes and streams around and in the vicinity of Stillwater reservoir for camp, cottage and park purposes.

The Beaver River is a natural highway for the floating of logs and timber, and is tributary to a large lumber and pulp wood market. By reason of the construction of the reservoir, the lands of the claimant, to the extent of 65,836 acres, can not be lumbered by water, which is the cheapest and most natural way of lumbering. Moreover, the reservoir renders a large tract of land, of at least 21,678 acres, all told, totally inaccessible for lumbering by railroad. The balance of the tract, consisting of 44,157 acres, can be lumbered by rail; but lumbering by rail is at least three times as expensive as lumbering by water.

By reason of the construction of the reservoir a great many existing camp and cottage sites are flooded, a large section of the country rendered unhealthy, and its usefulness and value for camp and cottage purposes completely destroyed.

It is respectfully submitted that the following propositions of fact are satisfactorily and conclusively established:

First: That the Beaver River and its tributaries are natural highways, having size and capacity for the purpose of floating logs.

Second: That the Beaver River is tributary to a large lumber market.

Third: That by reason of the construction of the reservoir, the timber and pulp wood from the lands of the claimant can not be taken to market by water; and the timber on a large quantity of land—21,678 acres—is cut off and rendered totally inaccessible by either water or rail.

Fourth: That to lumber the 44,157 acres that are still left accessible, by rail, would be at least three times as expensive as to lumber by water.

Fifth: That the claimant has been damaged for lumbering purposes solely, at least $200,000.

Sixth: That the claimant has been damaged by destruction of camp and cottage sites, overflowing of lakes, etc., from at least $60,000 to $70.000 more.

Claimant's Position.

Claimant's theory of the case is that the State of New York has appropriated the submerged land and the water thereon for its own purposes, and that the case is to be disposed of the same, so far as the legal rights of the parties are concerned, as if the State had actually condemned a strip of land of the size and dimensions indicated by the outlines of the reservoir; and that as to the appropriated lands the title vests in the State absolutely, and that the lands thus flooded, together with the use of the water in the Beaver River, have been taken and appropriated exclusively by the State; and that the claimant, his heirs, successors and assigns have not the right to use the land appropriated, with the water thereon, for any purpose in connection with the balance of the tract.

A single glance at the map, taking into account the topography of the country, without the aid of any testimony, shows that this crooked strip of land, ten miles or more, extending from the western boundary of the tract right into its very centre, is absolutely necessary for lumbering purposes, to cross and recross with supplies and loads, and to use for the purpose of floating the product of the forest to market, and that without the land or the use of the land and water which the State has flooded and taken, the claimant has suffered serious damages.

There can be no doubt but that the State takes a fee of the lands flooded. The language of the statute is: "The fee simple of all premises so appropriated" * * * "shall vest in the people of the State." (1 R. S., 732, § 52, 8 ed.)

Position of the State.

The position of the learned Attorney-General is, in short, that the State does not take the fee of the land, but merely appropriates an easement, and that, subject to the paramount right of the State to the use of the land and waters, that the adjacent land owners have the right to use the same in any way that they see fit.

For the purpose of the submission of the controversy in view of a purchase and settlement, the claimant will here concede that the position of the Attorney-General is the correct legal position; but we still claim that even if such a rule as contended for by the Attorney-General were applied, the damages are still greater than stated by the claimant in his printed claim.

First. The Beaver River and its Tributaries are Natural Highways, having Size and Capacity for the Purpose of Floating Logs.

The Beaver River is a large stream of water, having its origin in the northern part of Hamilton County and flowing westerly across the county of Herkimer, and empties into the Black River at Castorland, in the county of Lewis. The Black River flows north through Carthage, Watertown and Dexter, and empties into Lake Ontario.

The evidence shows that not only has the Beaver River size and capacity sufficient for the purpose of floating logs, but that it has been continuously used for a long time for logging purposes. Having capacity to float logs, the stream is by the common law of this State a highway which anyone is at liberty to use for logging purposes.

Morgan vs. King, 35 N. Y., 454;
Tibbitts vs. Canal Appraisers, 13 Wend., 355, page 371;
Brown vs. Scofield, 8 Barb., 239, page 243;
Palmer vs. Mulligan, 3 Caine, 307, page 318;
Canal Appraisers vs. People ex. rel. Tibbitts, 5 Wend., 423;
Ex parte Jennings, 6 Cow., 518, page 527;
People vs. Platt, 17 John, 195, page 211;
Shaw vs. Crawford, 10 John, 236;
The Town of Pierrepont vs. Wm. D. Lovelace, 72 N. Y., 211, page 216;
Washburn on Easements, page 397;
2 Am. and Eng. Ency. of Law, page 470, and cases cited;
16 id., page 259, and cases cited;

Buffalo Pipe Line Co. vs. N. Y., L. E. & W. R. R. Co., 10 Abb., N. C., 107;
Wadsworth vs. Smith, 2 Fairchilds, 278, 280;
Brown vs. Chadbourne, 31 Maine, 9;
Knox vs. Challoner, 42 Maine, 150;
Brown vs. Black, 43 Maine, 443;
Garrish vs. Brown, 51 Maine, 256.

Anyone using such highway has, under the common law, the right of removing boulders or obstructions from the navigable channel of the river.

Sec. 71, Lewis on Eminent Domain;
Sec. 80, Mills on Eminent Domain;
2 Am. and Eng. Ency. of Law, page 470;
16 Am. and Eng. Ency. of Law, pages 264, 265, and cases cited;
Washburn on Easements, page 481;
Sec. 615, Gould on Waters;
Yates vs. Judd, 188 Wis., 118;
Brackson vs. Bresslee, 64, 111, 488;
Sec. 163, Angel on Water Courses, and cases cited;
Thompson vs. Androscoggin Improvement Co., 54 N. H., 545, page 548;
See also 51 Maine, page 264, id. 256;
Slayter vs. Fox, 5 Hun., 544.

(1.) *Action of the State relative to the Beaver River previous to the reservoir legislation.*

The Beaver River was by the Legislature of the State of New York early declared to be a public highway for the purpose of floating logs. (Laws 1853, Chapter 643.)

In 1864, $10,000 was appropriated and subsequently spent by the State in improving the rafting channel of the Beaver River. (Laws 1864, Chapter 233.)

Section 1 (Laws 1864, Chapter 233) appropriates the sum of $10,000—$5,000 to be spent in 1864 and $5,000 to be spent in 1865—for the purpose of clearing and improving the rafting channel of the Beaver River.

Section 2 provides that said $10,000 shall be expended under the direction of John W. Wright, Charles W. Smith and Nelson Rulison, Commissioners.

Section 3 provides and regulates the fees of the Commissioners.

Section 4 is as follows: "The Canal Board are directed and required to levy and collect the same tolls upon the river hereby to be improved as are now levied and collected upon the several canals of this State upon all property and boats passing up and down the same."

WILLIAM GIBBONS, at present a farmer, and for twenty-five years previous a practical lumberman, until he lost his arm and was forced to retire from the lumber business, and an experienced log driver and improver of streams preparatory to driving them, testified that Nelson Rulison, John Wright and Charles W. Smith, named in the act of 1864, Chapter 258, are all dead; that in 1864 Gibbons had charge of the work on the Beaver River for the State under the above-named Commissioners; that work was commenced at the mouth of Sunday Creek, six or seven miles below the present State dam at Stillwater, and from there proceeded up stream to Lake Lila; and that the boulders in the floatable channel were blasted out so as to make a channel in the Beaver River from the entrance of Sunday Creek up through to the dam at Stillwater, from sixteen to twenty feet wide, the narrowest place being sixteen feet, the intention being to give room so that a thirteen-foot log could swing around and pass through.

A bend was cut in the Beaver River above the dam at the place known as the Dutch Gap, and a dam built at Lake Lila or Smith's Lake. The river from Lake Lila down to Sunday Creek was left in a good, feasible condition for floating logs. $5,000, one half the appropriation, was expended the first year under Gibbons' direction.

WILLIAM BRIGGS, of Beaver Falls, Lewis County, N. Y., a farmer, and who was a log driver nine or ten seasons on the Beaver River, testified that he worked for the State on the Beaver River in

1864 and 1865, blasting boulders, cutting out bends and floodwood, and that a gang of thirty or forty men were employed at the work.

CHARLES HIGHBY, residing at Beaver Falls, and working at present in the pulp mills there, and who was a river driver for thirteen or fourteen years on the Beaver River, testified that work was done by the State in 1864 and 1865, in blasting rocks in the channel of the river, from just below Belfort up to where the State dam is now located, and that he worked upon the job; that it was calculated to blast a channel twenty to thirty feet wide, and that at one place just below Beaver Falls, the channel was blasted only sixteen feet wide; that two gangs of men were employed, and that the material used for blasting was black powder and fuse. (Since the invention of dynamite more attention is paid to river improvements for log driving than formerly, when black powder was used. Dynamite is cheaper and much more effective, and more can be accomplished with a given sum of money than with black powder. Testimony, Wesley Barnes.)

Mr. Highby also testifies that, from his experience as a log driver, he should say the river was perfectly feasible to drive in its original condition without any blasting of rocks, but that by means of blasting the expense of driving would be lessened.

HIRAM BURKE, a guide on the Beaver River, testified that shortly after the war, he saw work done which was claimed to have been done by the State, by way of blasting boulders in the Beaver River from the State dam all the way through to Number 4, and that a bend was cut off in the river.

This channel blasted out by the State is clear and well defined, and is spoken of by several of the witnesses, namely:

MR. GEORGE T. CRAWFORD, a lumberman from Boston, Mass., testified that when examining the river in 1887, he noted in his memoranda this channel, which he was informed was blasted out by the State twenty years ago.

MR. SAMUEL O. BOULLIVANT, a lumberman of twenty-five years' experience, largely on the Beaver River, testified that the year the dam was raised the gates were shut down, and the water was down; that he walked up the river from High Falls and noticed that there had been a good deal of blasting done there; that it evidently *had been the intention* to make a drivable stream of it. It was blasted and I could follow the channel all the way from High Falls.

ZEB. DUPUY, a lumberman and river driver of thirty-seven years' experience, largely on the Beaver River, testified that a channel had been blasted out between High Falls and the State dam of an average width of fifty feet, wide enough for the floating of logs.

Upon the passage of this act of 1864, and the making of these improvements, Beaver River was taken into the canal system and used by the State for canal purposes.

HON. MELVILLE W. VAN AMBER, Member of Assembly from Lewis County, testifies that they took toll on the Beaver River, and that the State drag has worked on a portion of it.

From this evidence there can be no doubt that in 1864 an act was passed under which $10,000 was expended in improving the rafting channel of the Beaver River; that from the dam down to Sunday Creek (which is below where lumbering is now carried on) a channel was blasted out through the boulders; that under the act of 1864 the river was taken into the canal system of the State and those floating logs required to pay toll; and that toll was subsequently taken and collected on the Beaver River. Surely the State of New York, after having passed an act declaring the stream a public highway and having expended $10,000 in improving its navigation and requiring all persons using it to pay toll, can not now assume the position that the river is not a floatable or navigable stream. The State is estopped from claiming or asserting that the river is not navigable. The learned Attorney-General, however, took the position upon the trial that the river was not in fact capable of being used for floating logs, so that it is necessary to examine the evidence somewhat critically upon this score.

(2.) THE EVIDENCE AS TO THE ACTUAL FLOATABILITY OF BEAVER RIVER FOR LOGGING PURPOSES.

The evidence is abundant that the river is a floatable stream. There can be no reasonable dispute but that the river is a floatable stream as far up at least as to the point where logs are now being floated.

(*a.*) *The distance that lumbering has extended up the river:*

HON. MELVILLE W. VAN AMBER, a lumberman who has operated the river for twenty years at least, testified: Q. How far up the river, with reference to this dam, have lumbering operations been conducted? A. Four miles.

SAMUEL O. BOULLIVANT, who has charge of lumbering operations for the Beaver River Lumber Company, on the Beaver River, testified that last spring logs were put in the Beaver River as far up as within three or four miles of the State dam.

MADORE LA MORE, who has charge of the log-driving for the Beaver River Lumber Company, testified that last year logs were put in the Beaver River, and floated out from within three or four miles of the dam.

(*b.*) *Condition of the river not yet driven:*

GEORGE T. CRAWFORD, who resides at Boston, and is employed by several paper companies, of which William H. Russell is at the head, in buying timber land, improving rivers, cutting logs and pulp wood, preparing rivers for driving, building dams and examining timber lands, and who has been engaged in this work forty years, testifies that in 1889 he made an examination of the Beaver River, with especial reference to determining whether it was a stream drivable for logs; that he examined it to see whether it was drivable for logs six feet in diameter and from twelve to sixteen feet in length; that in making his examination of the river he commenced four miles below Beaver Lake, at a point where logs had been rolled in and driven the spring before (1888); and that the whole of the river from below the dam at Stillwater to Beaver Lake was drivable for logs of the average size. Mr. Crawford testified, also, that he made observation of the river from the point where the water in the river (first reservoir) set back up to Smith Lake; and that it was drivable for logs of the ordinary size above Little Rapids.

HON. MELVILLE W. VAN AMBER, present Member of Assembly from Lewis County, who is engaged in the manufacture of lumber and who has been twenty-nine years in the lumbering business, testifies that he has a mill at Castorland, where he manufactures about three million feet of lumber a year; that Mr. Basselin has a mill at Castorland and manufactures ten or twelve million feet a year; that when he (Van Amber) first commenced his lumbering operations at Castorland, he had to clear away the timber to build his mill, and that each year since then he has been working back farther up the river, and has gone up about thirty miles; that High Falls, on the Beaver River, were improved for driving logs two or three years ago, and since then logs have been driven down the river from above the falls; that he made a thorough examination of the Beaver River below the State dam as far down as where logs are now being floated; that during the time he conducted his business at Castorland he has familiarized himself with driving logs and has made a study of it, and has large personal experience; that the stream below the dam to where Mr. Basselin is driving is a feasible stream for driving logs; and that the river below the dam is a better stream to drive than the portions below that are actually driven; that in the fall of 1894 he made an examination of the Beaver River from the State dam up to its source; the water was then drawn down so that the stream was within its original banks and the gates in the dam were open, and that the river was in its natural condition, and he found that portion of the river feasible for driving logs; that the river between the dam and Little Rapids in its original condition was a nice piece of river to drive; no rapids for logs to lodge upon; nice current to carry them along; and that from Stillwater dam to Little Rapids the river was always navigable with boats.

JOHN McFARLAND, who has been engaged in the lumber business for thirty-one years, driving logs, improving streams preparatory to driving them, building lumber dams, etc., testified that in 1885 he first became acquainted with the Beaver River, and that he went there for the purpose of inspecting the river to determine whether it was a feasible stream to drive; that he commenced at No. 4 and followed the river up to about Stillwater, spending two or three weeks in the examination; and that in June, 1894, witness again examined the river from Little Rapids down to No. 4 (Mr. Fenton's, below High Falls), and also investigated the river when the water was out of the dam in August and September, 1894; that the river in its natural condition from Lake Lila down to No. 4 is a feasible

and practicable stream for driving logs; and that the Beaver River, in its natural condition, is better than the average of streams in the Adirondacks that are now being actually driven.

HON. WESLEY BARNES, a surveyor and a lumberman of thirty or forty years' experience in lumbering, improving rivers and streams preparatory to driving them, and who has been a log driver, testified that he had made an examination of the Beaver River in June, 1894, for the purpose of determining whether it was a feasible stream to drive; and again on the 3d and 4th of November, 1894, he examined the river, when the gates were open in the reservoir and the water down, for the purpose of determining whether that portion of the river embraced within the reservoir was a drivable stream for logs; and that the Beaver River, in its natural condition, was a feasible stream for driving logs.

AUGUSTUS KESSLER, a lumberman residing at Carthage, testified that he is lumbering on certain lots in Watson's East Triangle, adjoining Township 5; that his lumber is floated down Alder Creek which empties into the Beaver River at Beaver Lake, and from there his logs are driven to his mill at Carthage on the Black River. His lands are about eight miles from the Webb Tract, and he annually lumbers ten million feet; and that Alder Creek which he drives is not one-third as large as Beaver River.

JAMES COSGROVE, a lumberman of thirty-five years' experience in driving streams, clearing them up preparatory to driving, testifies that he examined the Beaver River in June, 1894, and November, 1894, for the purpose of determining whether the river was a feasible one for driving logs; that the portion of the stream from the dam down to Beaver Lake (below where logs are now being actually driven), is a feasible stream for driving; that the river from Lake Lila to Little Rapids is a feasible stream for driving, after making proper improvements in the way of blasting out rocks, building dams, etc., which would cost about $2,200; that in November, when he made his examination, the water was drawn out of the reservoir, so that the river was just about full banks; that he found the river within the reservoir a feasible one to drive if the dam was out of the way; that the current was sufficient for driving logs; that there was sufficient quantity of water, and the water was in good condition for driving; that there are rivers which are driven resembling the portion of the Beaver River between the State dam and Little Rapids.

ERASTUS DARLING, a lumberman, residing at Gloversville, N. Y., with thirty years' experience, testifies that he inspected the Beaver River in 1894, for the purpose of ascertaining whether it was a drivable stream, and that the Beaver River from the State dam down to Beaver Lake (which is below where logs are now actually being driven), is a feasible stream for driving logs, and that the Beaver River from Lake Lila down to Little Rapids (which is at the head of the reservoir) is a feasible stream for driving. At the time Mr. Darling was there the water was in the reservoir; and that portion of the river between the dam and Little Rapids was covered up so that he could not obtain any idea of the character of that portion of the river.

WILLIAM HARRIS, a lumberman residing at Northville, N. Y., of seventeen years' experience in driving rivers and improving them preparatory to driving, testifies that he inspected the Beaver River with a view of ascertaining its feasibility for driving logs, and that the portion of the river below the dam down to where logs are actually floated, was a feasible stream for driving; that the river between Little Rapids and Lake Lila was also a feasible stream for driving; and that the water was in the reservoir at the time of his examination, so that he could not form an opinion as to the portion of the river from the State dam up to Little Rapids in its natural condition.

WILLIAM R. SMITH, a guide upon the Beaver River, testified that the agent of the State when building the dam went up the Beaver River about five miles and cut large pieces of timber which were used in the construction of the dam and floated them down; that some of the trees floated down were from thirty to sixty feet in length; that the Beaver River in its original condition was boatable without a carry from Stillwater dam to Little Rapids, and from Little Rapids the river was boatable to Smith Lake with one carry; that in high water, boats were able to run from Smith's Lake without making this carry; that the portion of the river between Stillwater dam and Little Rapids in its average condition was from four to ten feet deep, and averaged more than fifty feet wide; and that the current was so strong it would take three hours longer and harder work to row up the river than down.

JAMES DUNBAR testified that in building the dam logs were put in the Beaver River as far up as Wolf Creek and floated down; that some of the pieces of timber were from twenty to thirty, and some forty feet long. That the current in the river in its original condition was so strong that it took harder work and at least one-third longer to row up than it did down; and that between the State dam and the place where lumbering operations are now being conducted there is only one tributary stream, called the North Pond Creek, which varies in depth from one to two feet, and is about twenty feet wide.

HON. T. M. REED, Ex-District Attorney of Lewis County, who has known the river for twenty years, testified that there was a good strong current all the way from Stillwater dam up. The banks of the stream varied; some would be higher than others, being on the average from three to five feet in height; some, six feet in height. There were a few flood jams. In high water large trees would float down.

HON. LANSING HOTALING, an attorney at Albany, and formerly Member of Assembly, testified that he had known the Beaver River since 1868; has been there each year. That when the river was in its original condition the banks of the stream between Stillwater and Little Rapids were ordinarily three to four feet above the stream.

DAVID C. WOOD, a surveyor and engineer, testifies that the river in its original width was about fifty feet wide, thirty-eight feet wide in its narrowest place, and sixty-five feet wide in its widest place.

Upon such evidence as this the claimant feels justified in submitting as established facts:

(*a.*) That from the source of the Beaver River at Lake Lila down to where it is now driven, four miles below the State dam, it is abundantly established that the river has size and capacity sufficient to float logs.

(*b.*) That from where logs are now being actually driven, four miles below the dam, actual experience has demonstrated that this portion of the river is floatable for logs.

The learned Attorney-General, however, felt that if the attention of these witnesses had been directed to certain facts, they would see the error of their views concerning the floatability of the river, and taking the claimant's witnesses in hand, proceeded to show by cross-examination that because of low banks and bends in that portion of the river between Stillwater dam and Little Rapids, that because the river was crooked and would overflow its banks and carry the logs out into the brush and swamp, and by reason of boulders below the dam, logs would be obstructed; therefore the river was not floatable.

The following is an abstract of the evidence upon these subjects:

GEORGE T. CRAWFORD testified that the making of improvements in the channel below was not at all necessary, but was simply to cheapen transportation; that it would cost the owner of the logs less to expend money in that way than to employ additional help for the purpose of getting logs down the stream. Between High Falls and the State dam he suggested improvements which, all told, would cost about $300 in the way of blasting, to cheapen transportation. Logs have been actually driven above High Falls. He testified further that the crookedness of the stream above the dam was no obstacle; that more or less logs would hang to the shores in the bends of the stream and would require a little more attention to keep them in the channel; that if logs were thirteen or sixteen feet long there was sufficient room so that they would float without sticking on the shores and would swing around the bends; that any low banks there might be along the river would be no obstacle to the floating of logs; that wherever a marsh or low bank existed along the sides of the river in smooth water, like the Beaver River, a boom should be constructed to hold the logs in the channel, so as to prevent the timber from getting over the banks into the marsh, and that $50 would construct one-half mile of the boom; and that there would be no difficulty from any overflow of the river if the logs were held back and not put in the river until the annual freshets had subsided so that the river was within its banks.

HON. MELVILLE W. VAN AMBER testified on cross-examination in reply to the questions of the learned Attorney-General, that from Little Rapids down there was no place where the stream was

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less than sixteen feet in width; that there was room enough and water enough, in ordinary condition of water, so that a sixteen-foot log would turn anywhere, and that the bends of the river would not make any difference in driving; that logs would go around bends just as easy as the water; that they follow the current; and that as to the river from Little Rapids up to Lake Lila there are a few flood jams that will have to be cleared out. The expense of removing them will be trifling, a couple of hundred dollars at the outside; and by an expenditure of a couple of hundred dollars that portion of the stream could be put in condition for floating logs; that if the banks of the river were overflowed in high water, where there were marshes or low places, logs could be driven by putting in a boom in such places.

JOHN McFARLAND testified, on cross-examination, that floating of logs would not be interfered with by the crookedness of the river, for the reason that the river is too wide and has too much of a current; at some portions they might gulch and need a man to start them out again. With the river in its natural condition it was not necessary to tow any of the logs, for $50 would cut out all the alders that hung from the banks into the river, preparatory to log driving. Witness has known of streams more crooked than the Beaver River, notably the Kunjermuck, that are actually driven.

HON. WESLEY BARNES testified that Little Rapids, on the Beaver River, is drivable; but to make it perfect there should be a little blasting done.

JAMES COSGROVE testified that to make all the improvements necessary from Lake Lila to Little Rapids in the way of removing flood jams, building dams, blasting out rocks, etc., would cost $2,200; that there are rivers which we know of as being driven which resemble that portion of the Beaver River between the State Dam and Little Rapids, notably the Kunjermuck. Mr. Cosgrove suggested the cutting off of some bends between Little Rapids and Stillwater, to lessen the time of driving. He testified that $600 would make all the necessary improvements between Stillwater and Little Rapids, such as cutting off alders, clearing the shores and cutting off bends in the river; that it is perfectly feasible, however, to float logs without cutting off the bends; and that cutting off the bends would merely cheapen the drive.

WILLIAM McECHRON, upon cross-examination, testified that the crookedness of the river would not prevent successful driving; and that he is the owner of the Kunjermuck, a stream that winds and turns twenty miles in going a distance of five, which is being successfully driven.

From this evidence there can be no doubt that the Beaver River in its natural condition is a stream having size and capacity sufficient for transporting logs from Lake Lila through. In some places improvements would be desirable in the way of blasting or cutting off alder bushes along the shores between the State dam and Little Rapids. Some lumbermen (like Mr. Cosgrove) would recommend that one of the bends be cut off at an expense of four or five hundred dollars, and some would desire to have a little blasting done below the dam for the purpose of lessening the expense of driving. Improvements are necessary and usual upon all streams in the Adirondacks in their original condition, such as the removal of flood jams, blasting of boulders, and trimming the banks of alders, etc. No streams are driven without preparatory work upon them, such as blasting of rocks, cutting out flood jams, etc.

It is to be noticed that none of these improvements would be expensive; that $50 would do all the cutting of alders between the State dam and Little Rapids. A few hundred dollars would cut out and remove flood jams up to Lake Lila. An expenditure of a few hundred dollars, which is not necessary, would cheapen the drive below the dam, and $50 would make a half-mile of boom.

Such was the condition of the country originally; nature provided a highway through the center of claimant's tract of sufficient size and capacity for floating off the product of the forest. True, this highway, like any other highway, by the action of the elements, by trees falling into its channel, etc., would require from time to time expenditures of small sums of money in removing these natural obstructions, which, under the law above cited, the claimant had the right to do throughout the whole length.

Not only has nature provided a natural means and outlet in the Beaver River for taking the product of the forest to market, but has also provided in the tributaries of the river upon claimant's

land, notably the Red Horse Chain, Twitchell Creek and South Branch, streams of sufficient size and capacity so that all the softwood timber upon their water sheds can be floated into the Beaver River and from thence to market.

(*c.*) *Red Horse Chain tributary.*

HON. MELVILLE W. VAN AMBER testifies that the Red Horse Chain is a feasible stream for the purpose of floating logs, or could be made so with an ordinary and usual expenditure; that the Red Horse Chain is a better stream to drive than the tributaries to the Beaver River lower down, which he and Mr. Basselin are now actually driving.

JAMES COSGROVE testified that the Red Horse Chain is feasible for driving by making usual and ordinary repairs and improvements.

JOHN McFARLAND, after an examination of the Red Horse Chain, with a view of determining whether it was a feasible stream or tributary to drive logs, testified that it was a feasible stream to drive, upon making the usual and ordinary improvements, which, as he figured, would cost in the neighborhood of $4,000; and that streams which he had successfully driven in the Adirondacks were worse to drive and rougher than the Red Horse Chain.

AUGUSTUS KESSLER testifies as to driving Fish and Alder Creeks, tributaries to the Beaver River, just below Township 5, which are not as large as the Red Horse Chain.

Wesley Barnes testifies that the Red Horse Chain is a feasible stream for driving logs.

(*d.*) *South Branch tributary.*

James Cosgrove testifies that $1,500 will do all that is necessary in improving the South Branch of the Beaver River for floating logs.

HON. WESLEY BARNES testifies that the South Branch is a feasible stream for floating out logs.

(*e.*) *Twitchell Creek tributary.*

S. O. BOULLIVANT has examined Twitchell Creek. He testified that Twitchell Creek is a feasible stream for driving logs.

From this testimony it is to be observed that not only did the Beaver River, in its natural condition, have size and capacity to float the logs out, but its tributaries have also size and capacity sufficient to float off all the merchantable soft wood on their water-shed. Such was the condition of the stream and its tributaries originally, before any interference with it by the State. It was a grand, natural system of highways for lumber purposes.

SECOND. THE BEAVER RIVER IS TRIBUTARY TO A LARGE LUMBER AND PULP-WOOD MARKET.

It is a well-known fact that all along the Black and Beaver Rivers large quantities of pulp wood are consumed. Anyone at all familiar with the industrial developments of the State knows that within the last few years a great many millions of dollars have been invested in pulp and paper mills all along the Black and Beaver Rivers.

(1.) *Consumption of pulp wood.*

HON. G. H. P. GOULD testifies that there is a large quantity of pulp wood consumed along the Black River at Carthage, Felt's Mills, Brown's Mills, Watertown and Dexter.

GEORGE C. SHERMAN, of Watertown, of the Taggart Paper Company, testifies that their company float their pulp wood from Brown's Tract down Otter Creek into the Black River, and down the Black River to their mills at Felt's Mills; that there are a number of pulp mills along the Black River at Watertown, consuming annually 50,000 cords of pulp wood at least.

EDWARD B. STERLING, manufacturer of paper at Watertown, testifies that at Watertown fifty to sixty thousand cords of pulp wood are annually consumed.

DR. FRANKLIN ROBINSON, of Carthage, who has recently erected a pulp mill, and is floating his logs down the Independence River, testifies that his mill consumes from ten to fifteen tons of pulp wood per day.

Not only is there a large consumption of pulp wood along the Black River, but at Beaver Falls there are three pulp mills. Pulp wood along the Black River is a staple commodity in the market, and has a well-known and well-defined market value.

(2.) *Market value of pulp wood in the markets along the Beaver and Black River valleys.*

GEORGE C. SHERMAN testifies that pulp wood delivered at Watertown is worth $6.50 a cord, and that pulp wood is worth more delivered by water than by rail.

HON. MELVILLE W. VAN AMBER testifies that at Beaver Falls pulp wood, squared, is worth $7.50 to $7 75 a cord.

HON. G. H. P. GOULD testifies that at Castorland pulp wood is worth $5.00 to $5.25; and at Felt's Mills is worth $6.50 to $7.00; and where it has been rossed (*i. e.*, bark taken off) it is worth $10; and it is worth more in water than if delivered by rail, for the reason that when it is soaked by the water it can be ground one-third faster.

AUGUSTUS KESSLER testifies that the value of pulp wood at Carthage is $5.25.

There can be no doubt of the fact that all along the Beaver and Black Rivers, there is a large market for the consumption of pulp wood; and that it has a well-defined market value of about $6 a cord.

(3.) *Consumption of merchantable soft wood.*

It is also a well-known fact that along the Beaver and Black Rivers large quantities of logs are annually manufactured and converted into lumber, notably at the mills of the Beaver River Lumber Company at Castorland, at the mills of Hon. M. W. Van Amber at Castorland, and at the mills of Augustus Kessler at Carthage, all of which manufacture annually large quantities of lumber.

HON. MELVILLE W. VAN AMBER testifies that the mills of the Beaver River Lumber Company are quite extensive, having an annual output of ten or twelve million feet a year, and that his own mills have an output of about three million feet a year.

AUGUSTUS KESSLER testifies that his mill at Carthage has an output of ten million feet a year. The mill at Kessler, like the mills of Van Amber and the Beaver River Lumber Company, are supplied with logs by way of Beaver River.

(4.) *Value of merchantable soft wood in the markets along the Black and Beaver Rivers.*

HON. G. H. P. GOULD testifies that the value of spruce logs delivered in the Black River at Carthage and vicinity before being sawed into lumber would be $9 to $9.50 per thousand feet, and that the value at Castorland would be about the same.

HON. MELVILLE W. VAN AMBER testifies that spruce logs are worth in the Beaver River at Castorland $7 to $7.50 a thousand feet.

AUGUSTUS KESSLER testifies that at Carthage, on the Black River, spruce logs are worth about $7 a thousand, pine $10, and hemlock $5.

There can be no dispute but that all along the Black and Beaver Rivers there is a demand for pulp wood and merchantable soft wood timber, and that for such commodities there is a well established market, with market values.

THIRD. BY REASON OF THE CONSTRUCTION OF THE RESERVOIR THE TIMBER AND PULP WOOD FROM THE LANDS OF THE CLAIMANT CAN NOT BE TAKEN TO MARKET BY WATER.

A brief history is now necessary of the condition of things out of which originated the Stillwater reservoir, on the Beaver River.

It is a well-known fact that the State some years ago took a large quantity of water from the Black River for canal purposes, thus diverting such water from the Black River and running it through the Erie Canal to the Hudson River, instead of to Lake Ontario through the Black River. The Black River Canal Feeder, by which the diversion is made, can be seen by any one passing along the Black River Railroad in the vicinity of Alder Creek station.

This depletion of the water of the Black River became so serious as to greatly damage the owners of water powers along the Black River. Something like eight millions of dollars are invested at Watertown alone, in milling establishments run by the water power of the Black River. The usefulness of these mills was interfered with, causing damages to a large extent, and claims aggregating several hundred thousand dollars were filed and lodged against the State because of this diversion of the waters of the Black River.

It was finally agreed between the State officials and the mill owners along the Black River that the State should, by dams and reservoirs on the Beaver River, which is a tributary of the Black River,

restore to the Black River the waters taken from that river for canal purposes; and upon such restoration being done, that then the claimants would withdraw their claims. Legislation was had accordingly.

By chapter 336, laws of 1881, the Superintendent of Public Works was directed to construct a reservoir on the Beaver River, in *Lewis County*, for the purpose of restoring to the Black River its original supply of water. Subsequent acts of appropriation were passed: Laws 1882, chapter 362, page 510; laws 1883, chapter 491, page 682; laws 1884, chapter 551, page 731; laws 1886, chapter 330, page 525.

Under these acts the Superintendent of Public Works constructed a dam at Stillwater on the same site as the present dam. It was to be noticed that the act directed the Superintendent to construct a reservoir in Lewis County. It can not be disputed that the Superintendent of Public Works wholly failed to comply with the statute in this regard. He constructed the dam in Herkimer County, several miles over the line. As to the location of the dam in Herkimer County, attention is called to the following evidence, viz. :

(1.) *Location in Herkimer County :*

DAVID C. WOOD, surveyor and engineer, testifies that the dam is located in Herkimer County, five or six miles west of the county line between the counties of Lewis and Herkimer.

HON. MELVILLE W. VAN AMBER testifies that the dam is located in Herkimer County, about six miles from the county line between Herkimer and Lewis counties.

C. E. PHELPS, a civil engineer, residing at Alder Creek, and who ran out the lines of the reservoir on the theory that the dam was to be increased to fourteen feet in height, with a view to the 1892 legislation, testifies that the dam is located in Herkimer County, about eight miles east of the line between Herkimer and Lewis counties.

This dam was not adequate for the purposes intended, and the Legislature of 1892 passed an act under which the Superintendent of Public Works was directed to repair, enlarge and rebuild the dam at Stillwater, on the Beaver River, and to rebuild the same at least five feet above the height of the former dam.

It is to be noted that the Legislature, in 1892, directed the Superintendent of Public Works to repair, enlarge and rebuild the dam at Stillwater five feet. By this act the Legislature ratified and confirmed the former erection of the dam at Stillwater, in Herkimer county, instead of Lewis County. Prior to this time the building of the dam was at an unauthorized location, which, however, was ratified and confirmed by the State in 1892.

(2.) HISTORY OF THE LEGISLATION UNDER WHICH THE DAM WAS BUILT.

The history of the legislation under which the dam was built was given by the witness, HON. G. H. P. GOULD, who was in the Legislature at the time, and can be best given in his language:

Q. Were you in the Legislature at the time the act was passed which provided for the building of the first dam?—A. No; I think not. I was in the Legislature in 1885.

Q. You were in the Legislature in 1890 again?—A. In 1891 and 1892.

Q. Was there any legislation on the subject of this Stillwater dam in either one of the years 1891 and 1892?—A. 1891 or 1892? There was. 1891 there was a bill introduced for raising the dam; it wasn't passed. 1892 it was introduced again, and it passed.

Q. Who introduced the bill?—A. Senator Mullin or Assemblyman Fuller.

Q. Was there any opposition to it?—A. I opposed the bill in 1891 and I did so in 1892, until the Governor requested me not to, and I stopped. I opposed it for the reason that my constituents on Beaver River, Mr. Basselin and Mr. Van Amber, requested me to.

Q. Was the opposition to this bill founded upon any other ground than because Basselin and some other people down along the river didn't want it?—A. Yes, sir.

Q. What was it?—A. Dr. Webb didn't want it. General Husted came to me with a letter he had in his hand from Dr. Webb, requesting him to defeat that bill. He asked me, "What is your position on it?" and I said, "General, I am opposed to the bill; my constituents don't want it."

(3.) *Location of the dam with reference to claimant's land :*

The dam is located at Stillwater, on the Beaver River, in a direct line three miles west of the west line of the east third of Township 5.

Township 5 is divided into thirds—the east, west, and middle thirds, so called. The east, and west third of Township 5, the whole of Townships 43, 37, and 38, Totten & Crossfield Purchase; all of Township 42, Totten & Crossfield Purchase, except the middle tier of lots (the James Lots), and the whole of Township 8 (Brown's Tract), were owned by one and the same ownership at the time of the construction of the dam originally. (See abstract of title.) Webb had purchased all, including the James Lots, the middle tier of lots in Township 42, before the building of the second dam.

The damages occasioned by the dam were not reserved when Webb purchased (see deeds), and hence went to him as part of the land. Damages represent the land, and as between grantor and grantee, go to the grantee unless specially reserved.

Sec. 318, Lewis on Eminent Domain;

Magee vs. City of Brooklyn, 144 N. Y.

Part of the James Tract was submerged by the raising of the dam in 1893, pursuant to the 1892 legislation. A portion of the rest of the tract was submerged by the first dam, which was increased by the second dam.

It is to be noticed that the dam is located on the west third of Township 5, near Mrs. Fisher's line. The first dam flooded the water back across the middle third of Township 5 (Mrs. Fisher's land) and upon the east third of Township 5.

(4.) AREA AND DIMENSIONS OF RESERVOIR ON CLAIMANT'S LANDS.

(*a.*) *First dam.* The first dam flooded an area of 275 acres on the east third of Township 5, and set the water back in the river nearly up to the outlet of the Red Horse Chain.

(*b.*) *Second dam.* By the rebuilding of the dam under the act of 1892, the water is set back in a direct line upon the claimant's land for a distance of five and three-quarter miles (testimony D. C. Wood), and by the windings and turnings of the river, for a distance of ten and one-half miles.

The first dam flooded an area of 275 acres; whereas, by the rebuilding of the dam, a total area of claimant's land of 1,327 acres is flooded. (Testimony D. C. Wood and C. E. Phelps.)

(*c.*) *Width of Reservoir.* The average width of the reservoir upon the claimant's land is 1,125 feet. (Testimony D. C. Wood.) The original width of the river upon claimant's land was fifty feet.

(4.) *Manner of the construction of the dam.*

Attention is directed to the manner of the construction of the dam.

The dam is constructed without any regard whatever for lumbering purposes. The dam is constructed fourteen feet high. It is 149 feet across. It is supplied with three gates, which are raised from the bottom by means of a screw. It is built of timber laid in tiers like a pair of stairs with the steps outward. It is built without any lumber chutes or aprons whatever, and no means are supplied for taking logs past the dam. This can be determined by any one on inspection. Obviously, logs will not go through gates at the bottom of a dam. Logs naturally float, and to go through gates at the bottom of a dam it would be necessary for them to dive, which is contrary to all experience.

To meet this obvious difficulty in getting logs past the dam, because chutes and aprons had not been provided, the learned Attorney-General suggested that logs might be floated across the top of the dam; and some of his cross-examination of claimant's witnesses was upon the theory that logs could be floated over the top of the dam.

(5.) *Impracticable to float logs over the top of the dam.*

JOHN McFARLAND testified that one could not get over the dam with logs.

WILLIAM McECHRON testified upon cross-examination, as follows:

Q. You have examined the map, Exhibit 5, showing the cross section of the dam?—A. Yes, sir; I have looked at it.

Q. You are familiar with dams for lumbering operations?—A. Yes, sir.

Q. And could logs be driven across such a dam,—is it feasible and practicable to drive them without chutes or aprons just as it is?—A. I should think not profitably, allowing the mountainous stream below to be full of obstructions.

Q. Allowing the stream to be a free stream, with a dam built across it like that, would it be feasible and possible to drive logs across it?—A. It would require the successful operating of such a stream to have a sluiced dam in order to float logs down it.

Mr. McEchron also testified that without a chute or apron, even if there were water enough running over the dam, that the logs as they fell over the dam would soon block up the stream and back right up over the dam.

MR. GEORGE T. CRAWFORD testified that it was not feasible to get logs through the dam, without chutes or aprons.

MR. ERASTUS DARLING testified that the only feasible way was to put a sluice and apron in.

HON. WESLEY BARNES testified upon cross-examination as follows: Q. What expedient would you suggest as to getting the logs through this dam, and what would be necessary to do?—A. I should cut down the dam in the center about eight feet and put in a sluice; put a twenty-five foot apron on it, and sluice my logs through it.

JAMES COSGROVE, when being examined with reference to the difficulties of lumbering with the dam and reservoir in its present condition, testified: Q. Then you would have to fix over the dam, and put in sluices?—A. Oh, certainly.

WILLIAM HARRIS testified, that logs would float over the dam only in the highest freshets.

HON. M. W. VAN AMBER testifies that if you got there with your logs at just the right time in extremely high water logs would float over.

A mere inspection of the dam shows that to drive an ordinary cut of eight or ten million feet of logs over the dam, even assuming that it could be done, would destroy the dam.

The impracticability of floating logs over the dam became so apparent that the learned Attorney-General evidently abandoned that position, for upon subsequent cross-examinations of claimant's witnesses he assumed the position that the dam might be fixed over.

(6.) *Fixing over the dam.*

It was suggested by the learned Attorney-General that the dam might be altered at a comparatively slight expense. Perhaps it might be; but is the claimant obliged to have his claim for damages deferred or reduced on the theory that something might hereafter be done by the Legislature, authorizing the dam to be re-constructed and used for lumbering purposes? This case must be determined upon the facts as they now exist. There is no authority given to any public officer to change the character of the dam or reservoir, and the claimant's rights can not be disposed of upon the assumption of any future legislative action.

Let us examine, however, the evidence. Changing the dam would not solve the difficulty. Clearly, the dam can not be used for the double purpose of driving logs and storage purposes. The two uses are incompatible, even when the dam is altered; and if the two uses are compatible there remains the brush and tangle, which will have to be cleared out, channels to be cut to tow the logs in, logs to be towed instead of driving, all of which is very much more expensive.

Regard the case as if the dam were changed. Even then the claimant could not use the same for lumbering.

(7.) *Incompatibility of uses.*

A complete answer, however, to the learned Attorney-General's suggestion of what might be done is found in the fact that if it were done, and the dam rebuilt, its use by the State for storage purposes would be wholly incompatible with its use by log drivers for logging purposes. The State puts down the gate and holds the water during the spring floods and freshets, and the water is held in the reservoir until the dry weather in the summer, when it is gradually let out to keep up the supply of the Black River. A lumberman would want to let the water out at just the time the State was holding it.

HON. G. H. P. GOULD testified on cross-examination: Q. What would be the objection on the part of the Watertown people to having this dam regulated during the logging season; closed during the rafting time?—A. Because it would draw the water down; it would take the water entirely out of the reservoir at a time when it ought to be full.

Q. Well, wouldn't it fill up again?—A. Some years it might, and some it might not; then after you passed there, and should shut it off, then it would leave you all dry below if you had the chute in; then if you should take and use that water, draw it down, then the Watertown people would insist upon it that the gates be shut as is done now.

JAMES DUNBAR testified that it takes from twenty to thirty days of good water to fill the reservoir. It is not to be supposed that the State is going to let this reservoir be drawn down in May and June for a log drive, and run chances to have it fill again for subsequent use in dry weather by the State.

Even if the claimant could use the dam for lumbering at the same time that the State was using it for storage purposes, still the damages would remain, for as the reservoir is filled with tangle and driftwood, logs could not be taken through; and even if cleared of tangle and driftwood, logs could not be floated, but it would be necessary to tow them.

(8.) *Tangles, tree tops and driftwood.*

The whole basin of the reservoir is completely filled with a tangle of driftwood, picked up by the water from the submerged forest, together with tops of trees which were cut off by the State in the winter of 1893 and 1894 and left floating in the water. With the reservoir in its present condition, it would be absolutely impossible to either float or tow logs down the reservoir. It would be necessary to clean out a channel for that purpose. Cleaning out this channel, assuming that one had the right to go upon the State land to cut trees, etc., would be an expensive operation. It would be necessary for the water to be drawn out of the reservoir at least one whole season, so that driftwood, trees, bushes, etc., would dry out so that they could be burned, and it is hardly to be supposed that the people at Watertown having control of the dam would permit the waters to be kept out one whole season.

The testimony upon this score is clear and convincing.

GEORGE T. CRAWFORD testified: But the great trouble was to get the logs to the dam through this floatage. In the winter of 1887—in February, 1887—when I was there, we went to examine the dam. Of course the river was frozen, and the timber at that time hadn't fallen over. The dam hadn't been there long enough to cause the standing timber to tip over. But in 1889, when I was there, there was a very great tangle. The roots of the trees hung in the ground, and the tops floated about. If they hung in three feet of water they would in five feet more and float; floating islands were floating about.

JAMES McFARLAND testified that the drift and floodwood lying in water would stay without rotting a great many years; that there was too much brush and timber to tow through; and that small holes were cut in the flood jams to get boats through, but that logs could not be towed through; that the brush, alders and floodwood were so tangled and thick that it was impossible to get out to get the depth of the water when the dam was full; that half or two-thirds of the timber is under water, and in clearing it out you can't tell whether you are cutting into roots or not; and that by reason of the action of the water against the banks, it would undermine the trees so that they would fall into the river channel instead of away from the channel.

EDWARD M. BURNS testified that it was a very bad tangle; very difficult to navigate to keep in the channel of the river. The water was not high enough to allow the boat to go over the obstructions—over the alders or the earth—until we got down in the neighborhood of Big Burnt Lake outlet, and that the steamer got stuck in the channel several times. These tangles were down where the trees had fallen over and where the ground appeared to have floated up to the surface. The steamer grounded at times, and at other times she got caught in the floating timber and tangles of alders that appear floating with masses of earth at their roots, and had to be moved back away from the channel. I couldn't tell where the bed of the stream was. It was all new to me. The pilot, as I understood it, was endeavoring to follow the bed of the stream.

This tangle will become worse year by year as the timber decays. In a few years it will be impenetrable.

(9.) *Necessary to cut the tangle, tree tops and driftwood.*

GEORGE T. CRAWFORD testified that it would be necessary, in the first place, to cut a channel through the trees that had tipped over, which could not be otherwise than to cost a large sum of money, so that it would be impracticable to do it.

JOHN McFARLAND testified that a channel ought to be cut about two or three hundred feet wide—cut right down close to the ground.

HON. WESLEY BARNES testified that it would be necessary to clean out a channel about 250 feet wide in the reservoir, and that it would be necessary to draw down the water to clean the channel.

JAMES COSGROVE testified that it would be necessary to draw the water down, then clean a channel and burn the débris.

It is manifestly apparent to any one from an inspection that in order to take logs down the reservoir it is necessary to clean up a channel.

(10.) *Logs will not float down even when a channel is cut for them, because there is no current in the reservoir.*

An inspection of the reservoir will show that there is not sufficient current, even if a channel is cut out. A brief abstract of the evidence upon this subject will, however, be made.

GEORGE T. CRAWFORD testified that it would not be drivable; that there is no current.

HON. M. W. VAN AMBER testified that the reservoir could not be driven if it was cleaned off; that there is so little current, and that the prevailing winds are of such a character as to drive the logs back.

JOHN McFARLAND testified that, with the reservoir cleared off, there would not be sufficient current to drive logs, and that the prevailing west winds would drive the logs back.

This portion of the river was drivable in its original condition.

The learned and ingenious Attorney-General, seeing the manifest difficulty in driving or floating logs down over the reservoir, even when cleared up, was forced to try a new expedient. So he propounded the theory that slash boards might be put on the dam at Stillwater, and dams built at Ne-ha-sa-ne Lake and Lake Lila, and by opening these dams and taking off the slash boards of the dam at Stillwater that a current could be created in the reservoir sufficient to take the logs down.

(11.) *Impossible to produce artificial currents in reservoir sufficiently strong to take down the logs. Not only does this plan of the Attorney-General produce a new flooded area, but it is impracticable.*

JOHN McFARLAND testified on cross-examination: Q. Suppose you let the water out of the mouth of the Stillwater dam and Lake Lila, and the rest of the lakes here, let the water in one end and out the other, why won't you make a current?—A. You make a current, but you have got too much water to make much current; it would be in the natural stream; you wouldn't get much flow.

JAMES COSGROVE testified that the only way of making a current in the reservoir sufficient to drive logs would be to draw down the water in the dam until the river had reached its usual height in driving water, which would be equal to no dam at all.

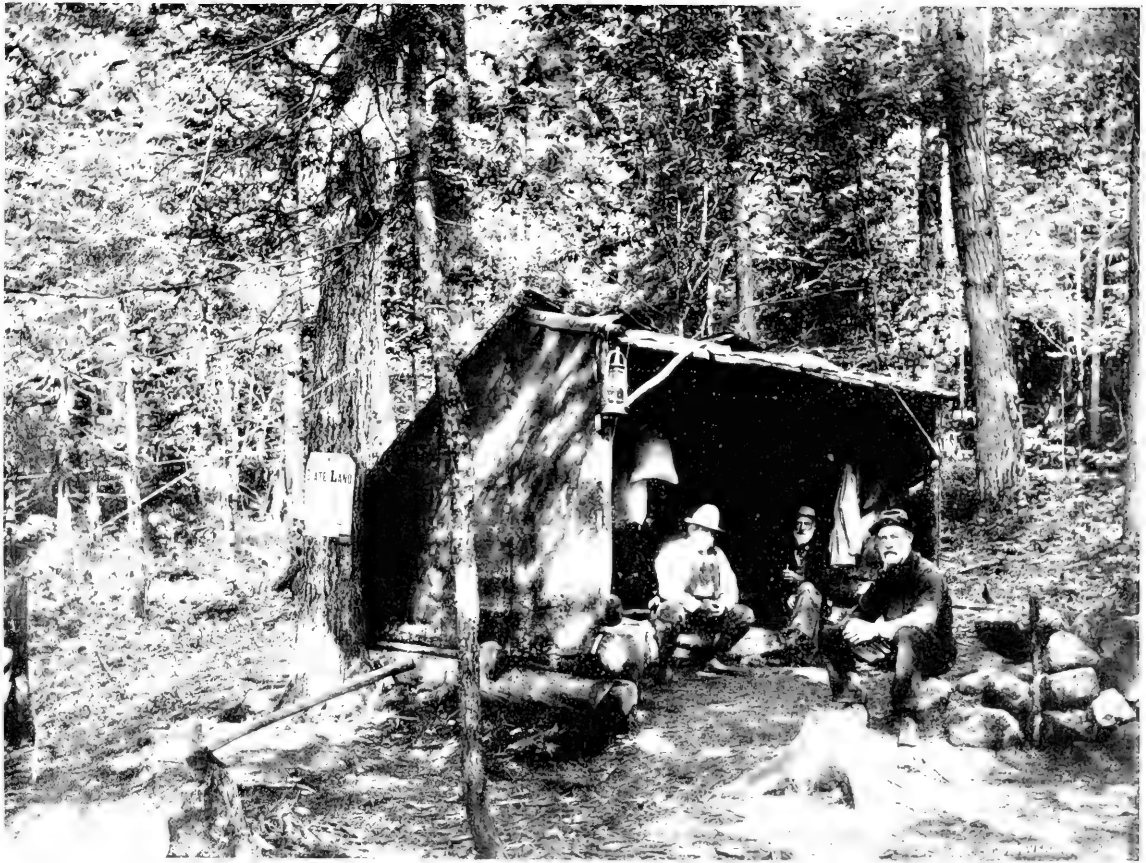
The utter impossibility of creating a current in this immense reservoir is so apparent that such line of investigation was soon dropped by the learned Attorney-General, and the case was tried upon the apparent theory that the only way to lumber, after fixing over the dam and clearing up the reservoir, was to tow the logs down.

(12.) *Towing—Difficulties in the way of towing.*

Even assuming that the dam had been fixed over, and the reservoir cleared out, there would not be sufficient depth in the reservoir for the purpose of towing, except on the lower end. The testimony upon this subject is clear and convincing:

WILLIAM McECHRON testified that in order to tow it is necessary to have a deep body of water; that in a shallow body of water the expense of towing would be materially increased; that a towing boat, in order to do good business, must have a good deal of water; get the wheel down where she can get strength. You can't have a strong towing boat with a light draught of water.

JAMES COSGROVE testified that in order to tow, it is necessary to have headworks and a windlass which is anchored; and anywhere from 600 to 1,000 feet of line run out, and a horse put upon the headworks turning the windlass, thereby drawing the logs down. Whether the bottom of the reservoir



THE PROFESSOR'S CAMP.
Clear Lake, Red Horse Chain, (Webb Purchase.

would be feasible for holding an anchor is uncertain. The probability would be that the anchor would get in the roots of the trees and be impossible to raise it. In order to make it feasible for towing logs, the dam would have to be raised two feet higher in order to cut across the channel of the river. It is impossible to tow following the channel of the river, and that a steamboat going down in a straight line would get stuck on high places and reach bottom. In order to tow by steam you want pretty deep water in order to get power, at least five feet deep. There would be places in the reservoir that wouldn't be deep enough to tow. To run a boat you would have to follow the channel of the river, and that you couldn't do and tow logs because the channel was too crooked. It would be necessary to have a straight channel, 250 feet wide, and it would not be practical to tow logs unless more water was put in the reservoir. Even with the water running twelve to fifteen inches over the top of the dam there were several places along the neighborhood of Elliott's, and from there up to Little Rapids, where the water would not be deep enough to tow. It would be necessary in order to tow when the water was drawn down to dig a channel in the ground and cut off the high hummocks; and in order to tow there ought to be five or six feet of water at any rate.

JOHN McFARLAND testified that towing would have to be done in a direct channel.

HON. WESLEY BARNES testified that towing could not be done by following the channel of the river; that in order to tow it would be necessary to clear out a straight channel in the reservoir.

Moreover, to tow logs a distance of thirteen miles is an unusual length, and therefore extra expensive.

Even assuming that the dam was fixed over, a channel cleared through the reservoir and the dam raised, or a channel dug deep enough, so that there would be sufficient water to successfully tow, the difficulties in the way would still make a large bill of damages—the expense of towing, if towing could be done, over and above that of driving, would alone make a large bill of damages, while the damages caused by the delays in towing would considerably increase the amount.

(13.) THE EXPENSE OF TOWING AS COMPARED WITH THE EXPENSE OF DRIVING WITH THE RIVER IN ITS ORIGINAL CONDITION.

(*a.*) *Expense of driving with the river in its original condition.*

The expense of driving, with the river in its original condition, is almost nominal. The evidence is as follows:

HON. M. W. VAN AMBER testified that logs could be driven down, with the river in its natural condition, for from four to five cents a thousand.

JOHN McFARLAND testified that, with the river in its natural condition, it would cost not much of anything to drive; that with an ordinary drive of eight to ten million feet, the logs could be put through for seven or eight cents a thousand.

HON. WESLEY BARNES testified that, with the river in its original condition, it would cost about ten cents a thousand to float or drive the logs.

JAMES COSGROVE testified that it would cost about ten cents a thousand feet to drive down logs, with the river in its natural condition.

(*b.*) *Cost of towing.*

GEORGE T. CRAWFORD testified that it would be much more expensive to tow across the reservoir than to drive, with the river in its original condition.

HON. MELVILLE W. VAN AMBER testified that on an average it would cost twenty cents a thousand more to tow the logs down than to drive them down.

HON. WESLEY BARNES testified that it would cost on an average thirty cents per thousand feet to tow the logs down.

JAMES COSGROVE testified that it would be twice as expensive to tow down the logs over the reservoir as it would be to drive them down.

It is to be noticed that, in taking into account the increased cost of towing, the witnesses consider that all the necessary improvements in order to tow have been made, and that when so made that it is still twice as expensive in order to tow as to drive.

(14.) *Damages resulting by reason of delays in towing.*

Not only is the towing of logs across the reservoir open to the objections above pointed out, but there is a further objection, viz.: To tow an ordinary cut of eight to ten million feet down across the reservoir would take a month at least, so that by the time the logs were towed to the dam the driving water would be all lost and gone and there would be no water to drive the logs below the dam, which would entail the "hang-up" of the drive for at least a year, with a consequent loss of interest and a deterioration in the value of the logs. Timber deteriorates in value at least fifteen per cent. by being left over one season. The deterioration in value by reason of a "hang-up" would be about ten or twelve thousand dollars additional, to say nothing of the increased expense of towing.

Upon this subject, attention is called to the following evidence:

GEORGE T. CRAWFORD testified that the driving season would be likely to have gone by the time it took to tow 10,000,000 feet of logs across this Stillwater.

JAMES COSGROVE testified that by the time an ordinary drive of eight or ten million feet had been taken down to the dam, the driving water would be apt to be gone.

HON. M. W. VAN AMBER testified that it would take about a month to tow down an ordinary cut of eight or ten million feet of logs, by which time the driving season would be past.

WILLIAM HARRIS testified that it would be necessary to have the logs at the dam at just the right time.

(15.) *Injustice of the State's position.*

It is hardly a suitable thing for the great State of New York to inflict damages of the magnitude that it has in this case and then defend upon the theory that hereafter the dam may be built over; that some Legislature in the future may pass an act for that purpose, appropriate the necessary funds, and that the people at Watertown and the Black River Water Commissioners will permit the reservoir to be dry a whole season so that it may be cleared, and then that it will be cleared, and that the State will pass an act for that purpose, with the necessary appropriation; and that a channel will be dug out for towing purposes, and then if there is sufficient compatibility in the use of the dam and reservoir by the State, that the land owner can go to the extra expense of towing his logs down, with the loss of interest and deterioration in value of his product by reason of the delays attending towing. This is too violent an assumption. There are too many "ifs" in the way.

To arrive at this result it is necessary to assume:

First: That the State will fix the dam over.

Second: That the State will clear up the reservoir and excavate a towing channel.

Third: That the State will permit the reservoir, land and water, to be used for lumbering purposes.

Fourth: That the dam and reservoir can be used by lumbermen for lumbering purposes at the same time that the State is using it for storage purposes.

The position of the State only illustrates the old saying, that by prefixing a sentence with an 'if,' any possible kind of a result can be arrived at.

(16.) *Manner of use of the dam by the State.*

The reservoir is controlled and managed by a Commission appointed by the Governor under Laws of 1894, Chapter 168.

Under this act the Commissioners appointed are authorized to make rules and regulations for the use of the gates of the dam, subject to the approval of the Superintendent of Public Works, and such Commissioners are authorized to regulate the discharge of water through such gates at such times and in such quantities as they may deem proper, but not in such manner as to injuriously interfere with canal navigation; or the navigation of that portion of the Black River used for canal purposes.

The rules and regulations of the Commissioners are shown by the testimony of Commissioner James P. Lewis.

The record of the discharge of the water in the reservoir is given by Mr. James P. Lewis, Secretary of the Commission, in his testimony. The water was originally put in the dam in November or December, 1893. They began to draw the water from the reservoir on July 23d, 1894, when one gate and a half was raised. August 1st, 1894, another gate was raised; September 15th all

the gates of the dam were raised, and remained up until the 22d of September, when they were shut down and remained shut until the 30th of September, when the gates were again opened and shut down in the middle of December, and continued shut until early in January, 1895, when they were opened.

It is to be noticed that the water is drawn from the reservoir in the winter time.

(17.) *Impossible for the land owner to use the reservoir in the winter time for the purpose of crossing or re-crossing on the ice with teams, loads of lumber or supplies.*

Because of the drawing down of the water of the reservoir in the winter time the ice is thin shell ice, frequently incapable of bearing even the weight of a man. By reason of the varying levels of the water in the reservoir no stable ice is formed. When freezing temperature is reached a coating of ice is formed upon the water at a given level, after which, when the water is drawn down with a resulting air chamber left between the ice and water, freezing is stopped and a thin shell of ice is left, which is held up by the trees to which it is frozen. The ice is so thin that it breaks under the weight of an ordinary man.

DAVID C. WOOD testifies that in making his survey in 1893 it was sometimes necessary for him to be on the ice in order to get about, and that the ice was so thin it broke through with him; and that the ice on the reservoir was thin shell or rotten ice, and was not suitable for lumbering operations.

HON. M. W. VAN AMBER testified that in the winter time, in January, he went upon the reservoir for the purpose of considering the feasibility of getting some cedar timber on Mrs. Fisher's tract; and that he examined the ice on the reservoir for the purpose of determining whether lumbering operations could be carried over it; that he found thin, shallow ice which was not feasible for lumbering operations, and that he did not get the cedar posts which he went after; that there was no sound ice underneath the crust. The water had settled away from the ice and remained up, and consequently couldn't freeze any more.

C. E. PHELPS testified that in making his survey for the State he made it in the winter time, and he observed the water levels in the reservoir and the ice; and that the water level was constantly varying, up and down, all winter. Soft, slushy ice resulted, and some of his party used to get in the water every day, and as regards the balsam trees, twigs, etc., in the reservoir, the water would not freeze over them.

JULIUS BRECKWALDT, who made his examination in January, 1895, found a coating of slush on the ice, a thin coating of ice barely sufficient to hold them up with snow-shoes, and that a team or load would break. It was risky for a person to cross. He and his party crossed the reservoir three times and noticed it in every place each time, and that it was not in a fit condition for teaming across it; it was so thin that deer had broken through the crust.

HON. WESLEY BARNES testified that if the level of the water changed in the winter that the ice would not be feasible to lumber upon.

The common experience of every one is to the effect that where the water level is constantly changing in the winter time the resulting ice is unstable.

(18.) *Amount and kind of timber in the flow ground.*

As was stated at the beginning of this abstract the magnitude of the claim was occasioned, not because of the amount and kind of timber in the area of the reservoir which was destroyed, but because the relation of the land appropriated to the balance of the tract was such that it was impossible to use the balance of the tract, without using the lands and waters which the State has taken for reservoir purposes.

In Township Five, 250 acres of timber lands are flooded, and in Township Forty-two 151 acres of land are flooded, making in all a total of 401 acres of timber land flooded. Of the flooded timber, pine and spruce are about equally divided.

C. E. PHELPS, who surveyed the area of the reservoir for the State, testified upon cross-examination that it was timbered with spruce, hemlock, cedar and some pine.

This timber within the area of the reservoir and along the original banks of the river is more valuable than a much larger quantity standing back, for the reason that there would be no long hauls to take it to the river.

HON. M. W. VAN AMBER testified: This timber standing in the flow line adjacent to the river is more valuable than the same quantity of timber standing back, and that the nearer you approach a floatable stream the more valuable the timber is.

(19.) *All the timber standing within the flow line will be destroyed by the reservoir.*

JOHN MCFARLAND testified that if water is dammed back against standing timber in warm weather, after the leaves come out, it will kill the timber, and the timber will begin to die the first year if water is kept on during the hot weather.

WILLIAM H. MCECHRON testified that water held during the hot weather about standing timber would kill it.

(20.) *Water held about standing timber for a few weeks or a month during the driving season in the spring of the year will not injure the timber.*

In order to successfully drive some of the tributaries upon the lands of the claimant on the Beaver River, witnesses testified that it would be necessary to use dams or a reservoir.

The learned Attorney-General straightway fell into the error of supposing that these proposed lumber dams or reservoirs would kill the timber the same as the State dam. That he was mistaken in such supposition clearly appears from the evidence.

DAVID C. WOOD testified that if water surrounded standing timber a few weeks in the spring, before the trees leaf out, it does not kill the timber.

JOHN MCFARLAND testified that water held about standing timber a few weeks before the trees leaf out and sap gets started does not injure the timber.

WILLIAM H. MCECHRON testified that water held about standing timber for the driving season does not injure the timber if it is drained off before the weather gets warm; and that tracts of land having lakes which have been so used for reservoirs are valuable for park purposes, after the soft wood timber has been taken off.

ERASTUS DARLING testified that water held against trees in the spring for a month does not injure the standing timber, and that he has sold tracts of land, that have been flooded in that way, for park purposes after the merchantable soft wood had been taken off.

PATRICK MOYNEHAN testified that water held about timber in the spring of the year does not injure it if it is not held too long in warm weather after the trees are leafed out; and that he has sold tracts of land for park purposes with lakes that he has so used as reservoirs for lumbering purposes.

There would be no difficulty in properly using the lakes as reservoirs for lumbering purposes. The timber would not be killed by holding the water for a few weeks or a month in the spring of the year during the driving season.

(21.) FOR PURPOSES OF FLOATING LOGS ON THE BEAVER RIVER BELOW STILLWATER, THE DAM IS A NUISANCE.

(*a.*) *The dam and the reservoir cut off the natural supply of water and interfere with the driving of the river below the dam.*

It is to be noticed that the gates of the dam are not of sufficient size and capacity to let through the amount of water flowing in the river in its driving condition.

SAMUEL O. BOULLIVANT, who has charge of the lumbering operations of the Beaver River Lumber Company below the dam, testified upon cross-examination:

Q. Well, this reservoir there at Stillwater is an efficient help to log driving on Beaver River.—A. It never has been, not to any extent, because they have never been able to get water when they wanted it.

Q. Well, if they could get the water when they wanted it, it would be?—A. Possibly it might.

Q. Well, wouldn't it?—A. It would certainly. Any amount of water would be an assistance, no matter where they got it.

GEORGE T. CRAWFORD testified: I should hope the State would allow us to take a little water of the dam, and if you got your logs down to the dam and could get the water, and then let the water out, you could drive for the rest of the way.

HON. WESLEY BARNES testified that it would be necessary to use the stored waters of the reservoir for the purpose of driving the river below the dam. In November, when he was there examining the river, there was not as much water going through the gates as was flowing through the river in its original condition; and that if the gates were shut down in the driving season and the dam not full, you could shut off the water necessary to drive the river below.

MADORE LA MORE, who has charge of the river driving of the Beaver River Lumber Company below the dam, testified that the effect of the dam is to hold the water back so as to interfere with the log driving below; that they have upon some occasions had the water of the reservoir to drive with, but that they had not had it just when they wanted it; that witness at one time said to Mr. Basselin, we ought to have that water from the State, and Basselin replied, he had tried but could not get it. The effect of the dam is shown by the following abstract from his cross-examination:

Q. Why didn't you go in a boat?—A. Couldn't do it.

Q. Couldn't do it?—A. No, sir.

Q. Why couldn't you do it?—A. Because there wasn't water enough.

Q. Wasn't enough water in the stream?—A. No, sir.

Q. There is enough water above Stillwater to navigate a boat; why isn't there below?—A. I should think that the dam would hold it when they shut the gates down.

Q. Then if the gates were shut the river was dry?—A. It was pretty near dry when we were up there.

It is obvious that placing a dam across a stream of water so as to hold back the water over an area of 3,000 acres and upwards, would seriously interfere with the flow of water below the dam.

(*b.*) *The dam at Stillwater not necessary for driving logs below the dam.*

It was at one time suggested by the State that the dam at Stillwater was necessary for log driving. The apparent theory was that with the river in its original condition, because of the time that it would take to get a quantity of logs down over that portion of the Beaver River on claimant's land, that the driving season would be past; and that the dam would therefore be necessary to obtain additional water to finish driving the logs.

Even assuming that the learned Attorney-General is correct as to this theory of log driving, and that additional water would be necessary to complete the drive, a glance at the map will show that such additional water could be supplied from other points than Stillwater, and not interfere with lumbering as does the Stillwater dam.

If additional water was necessary the dam or dams with which to obtain the same could be placed upon any of the tributaries on claimant's land, either upon the Red Horse Chain or South Branch. Such dams would be under the control of the land owner and not under the control of the State, and could be used by the log driver when and as it became necessary to do so, and it would not be necessary to take the logs through a large reservoir.

The ease with which any additional water could be supplied from reservoirs upon claimant's land became so apparent that the learned Attorney-General pursued this line of investigation only briefly, as follows:

JAMES COSGROVE testified, upon cross-examination:

Q. Well, if the river was in its natural condition, wouldn't it be necessary to have a dam at Stillwater to drive it below?—A. I shouldn't think so.

Q. Wouldn't need any dam from the time you left Lake Lila until you got where?—A. Suppose a man was going to lumber it; they would build their dam in these tributaries, and then you could hold the water to use to furnish the river.

Q. Then you would have to have a dam on South Branch?—A. Yes, sir.

Q. Or Twitchell Creek?—A. Yes, sir.

Q. Or Red Horse Chain?—A. Yes, or both.

There are places upon the tributaries of the Beaver River for the purpose of building such dams.

(22.) *Access to a portion of claimant's property cut off by the reservoir.*

The width of the river was originally 50 feet. The average width of the reservoir is 1,150 feet. (Minutes of testimony of David C. Wood.)

The State has built no bridges so that the land owner can cross from one side of the reservoir to the other.

The fact that there are no bridges can be easily determined from an inspection of the premises, and attention is only briefly directed to the evidence.

It was attempted to show by the Attorney-General that there was one point where a 300-foot bridge could be built across; but the difficulty with such a place is that it would necessitate excavating and digging a system of roads on each side, besides making a five-mile haul.

The expense of a substantial bridge 300 feet long, sufficiently strong to draw heavy lumber loads across, was not shown by the learned Attorney-General. Anyone with any experience in bridge building knows that such a bridge would be very expensive.

It is apparent that to go from the south to the north of claimant's lands is impossible. It was suggested that lumbering upon the north could be done by taking the lumber from the lands north of the reservoir in a southeast direction to the railroad. This would be impossible because of intervening mountain ranges, as will hereafter be seen.

(23.) *Effect of the reservoir upon highways.*

The only highway upon the tract has been entirely submerged and flooded, so that now, so far as highways are concerned, the tract of land is completely isolated.

DAVID C. WOOD testified that there is only one highway on the south side of the river, and that it is flooded for a half mile so deep that it will be necessary to ferry across.

ANDREW J. MUNCEY testified that the raising of the water stopped the highway and flooded it about seventy or eighty rods, and that in order for him to cross he built a ferry and had to ferry across. At the time of the first raise Muncey built a floating bridge, and when the dam was raised he couldn't use the bridge.

(24.) *The reservoir has destroyed and interfered with the drainage on at least* 1,000 *acres of land outside of the flow line.*

DAVID C. WOOD testified that 927 acres of land surrounding the reservoir had been made wet and swampy, and its drainage interfered with.

It is obvious that this marshy, wet condition outside of the actual flow line would interfere with all lumbering operations or in any uses to which the land might be put.

(25.) *The land flooded is absolutely necessary to use in order to lumber the balance of the tract by water.*

A glance at the map is sufficient to convince any one that the land which the State has flooded is actually necessary to be used for lumbering purposes. Without the use of the land flooded and the free use of the waters of the river, it will be absolutely impossible to float a single stick of timber down the river. It would be absolutely impossible to cross from the south side of the tract to the north side; for, as the testimony discloses, to which attention is hereafter called, the mountain ranges run nearly at right angles to the river, so that the loads of lumber or supplies could not be driven across the mountain ranges. The land and water taken by the State are necessary to be used in lumbering the balance of the tract.

So far as lumbering by water is concerned the dam and reservoir and the manner of its use by the State is a complete embargo upon all lumbering operations conducted by water.

As was testified to by one of the witnesses, Erastus Darling: That there was no way of lumbering this tract of land, or any portion of it, without using the portion embraced within the reservoir; that it would be necessary to use the land and water within the reservoir, and that the fact that the land and water within the flow ground are necessary to be used for lumbering the balance of the tract, makes the flooded land much more valuable than it otherwise would be.

It must be taken as a fact conclusively established that the dam, in the condition in which it is built, the reservoir, with the tangle and driftwood, and the manner in which the dam and reservoir is used by the State for storage purposes, completely cuts off claimant's tract of over 65,000 acres from being lumbered by water.

Lumbering by water is the most natural and feasible way of lumbering. The tributaries of the Beaver River make the whole tract accessible for lumbering. The railroad upon the tract unlike the

river has no branches or tributaries, and goes only through the centre of the tract, while the river, with its tributaries, goes to all portions of the tract. The railroad is valuable to take in the supplies with which to lumber; the river to take out the logs.

As was stated by the witness, Mr. Crawford, the river is the natural and only feasible way to lumber the claimant's land.

This means of access has been entirely cut off and destroyed.

FOUR: LUMBERING BY RAIL.

There is no disguising the fact that the State dam and reservoir has closed up the Beaver River, so that the product of the forest on claimant's lands cannot be taken to market by way of the river.

This fact is so very apparent, that early in the case the learned Attorney-General began to look to the railroad of the Mohawk and Malone Railroad Company across the claimant's tract of land as a solution to the whole situation. It was urged with great earnestness that the product of the forest could be taken to market by way of the Mohawk and Malone Railroad, just as well as by way of the river.

An analysis of the situation shows that this is not the case. Lumbering by rail is at least three times as expensive as lumbering by water; and in addition to the extra expense of lumbering by rail, there is also to be taken into account the fact that 20,000 acres of land and upwards are so cut off by reason of the reservoir as to be wholly inaccessible for lumbering by rail; and that before the dam was raised these 20,000 acres were perfectly accessible for lumbering by rail; it is also to be noticed that in lumbering by rail it would be necessary to build an expensive mill, together with sidings and side tracks.

The subject of marketing the lumber upon this tract by rail seems to divide itself into the following sub-divisions:

(1.) Marketing by rail as compared with marketing by water.
(2.) Marketing unmanufactured product by rail.
(3.) Marketing manufactured product by rail.
(4.) Marketing pulp wood by rail.
(5.) Difficulties in the way of lumbering by rail caused by the reservoir.
(6.) Territory rendered inaccessible to lumber by rail by reason of reservoir.

(1.) *Marketing by rail as compared with marketing by water.*

Nearly all mills are arranged so as to be supplied with logs by water, and only one case has been found by claimant where the experiment has been tried of supplying a mill both by rail and by water, viz.:

AUGUSTUS KESSLER of Carthage, Jefferson County, has a mill at that place, which he supplies with logs from Watson's East Triangle, in the town of Wilmurt, Herkimer County, adjoining claimant's land. Mr. Kessler has had experience in lumbering, both by rail and by water. He is at present conducting his lumbering operations by water, driving the logs down Fish and Alder Creeks into the Beaver River. At one time he supplied his mill with logs over the Carthage and Adirondack Railroad. The distance which his logs were hauled by rail was the same as the distance which they are now floated by water, viz.: forty miles.

As a result of Mr. Kessler's experience, driving on the Beaver River has cost him on the average 80 cents per thousand. Delivering by rail the same distance has cost him $2.17 per thousand feet, so that the bare expense of transportation by rail is nearly three times as expensive as the transportation by water.

In addition to the $2.17 a thousand, bare cost of transportation, there was an additional expense of loading the logs on the cars of forty cents a thousand which was not incurred in floating, so that including the loading and unloading, transportation by rail is about three and one-half times as expensive as transportation by water.

And besides this if the logs of the claimant could get to market in the natural way by means of Beaver River, they could be marketed by water by way of the Black River and Erie Canals. The

majority of lumber markets are arranged with reference to water transportation, and by reason of such arrangements it is forty cents per thousand cheaper to ship by water than to ship by rail.

It is to be noticed that the freight rate of $2.17 a thousand for forty miles is a very liberal freight rate, and especially liberal in view of the experience of the claimant in shipping logs by rail.

WILLIAM McECHRON testified that the bare cost of loading logs on cars would be about fifty cents a thousand, and assuming that there are 3,000 feet per acre, this alone would make a damage of $1.50 per acre, or $98,754.00 for the whole 65,836 acres.

(2.) *Marketing unmanufactured product by rail.*

The experience of Mr. Kessler, above cited, was with taking logs to his mill by rail instead of by water, which he found about three and a half times more expensive.

The claimant has had actual experience with shipping logs to market by rail, and from his experience found it so expensive that it had to be stopped.

EDWARD M. BURNS, the claimant's general manager, testified that in the fall of 1892 and 1893, the claimant began to ship logs from the land at Beaver River, on Township 42. That the freight bills would make the lumber cost about $4 a thousand to take it out, which made it so expensive they could not lumber with any profit. The State had at that time put in the dam and the logs could not be floated out, and a contract was made with Mr. Ouderkirk, who put up a mill at Beaver River station.

(*a.*) *Reasons for high freight rates on logs.*

H. D. CARTER, who is the Freight Agent of the Adirondack Division of the New York Central and Hudson River Railroad Company, and of the Carthage and Adirondack Railroad Company, testified that it was the policy of the Railroad Company and of railroads generally to charge such a high freight rate on logs as would prevent the shipment of logs and encourage the shipment of manufactured lumber; that by reason of the shipment of manufactured lumber that an ingoing as well as an outgoing trade was established by the railroad, and the railroad could afford to carry the manufactured lumber cheaper than the unmanufactured logs; that to manufacture lumber required a mill and men, which called for an ingoing amount of business that did not exist when logs were solely shipped. Mr. Carter also testified that the best obtainable rate on logs was $3 per thousand feet, which the claimant Webb obtained.

The State sought to establish that the claimant Webb would be the recipient of special rates at the hands of the railroad company. The evidence shows the contrary. Webb is treated the same as any other shipper. He is given no special rates. None could be obtainable by him. The freight bills of claimant Webb are actually paid by him with no rebate. In 1892 and 1893, when Webb first endeavored to ship logs, the rate actually charged him and paid by him was $4 a thousand. And because the rate was so high Webb had to give it up.

It stands to reason that to ship logs by rail under the most favorable circumstances is much more expensive than to float them by water.

First: A railroad has to be built, whereas nature builds the waterway. Here this railroad cost upwards of $8,000,000. The Beaver River cost nothing to make. A rate has to be be charged that brings a return sufficient to pay operating expenses together with at least some kind of a return on the investment.

Second: Repairs. The ordinary repairs upon a railroad are greater than the ordinary repairs upon a stream. At the very most $10,000 expended upon the river's tributaries would take off all the lumber, whereas it would not begin to keep a railroad in repair, to say nothing of operating expenses.

Third: The expense of operating a railroad with its expensive equipment is much greater than operating a log drive.

Fourth: The markets are arranged for delivery by water instead of delivery by rail.

Fifth: To deliver logs by rail it is necessary to be at the expense of loading and unloading them on the cars, which expense is not incurred in water delivery.

Sixth: In the transportation of logs by rail, there is the cost of transportation of the slabs and waste material.

TROUT LAKE. - RED HORSE CHAIN.
Township 5, Herkimer Co. (Webb Purchase)

Seventh: There is the well-defined policy of railroads to keep the logs in their respective territories and to discriminate in favor of shipments of manufactured material, because of the return business.

Eighth: It is a well-established principle of trade that in the transportation of bulky materials where speedy delivery is not requisite, rail cannot compete with water.

The experience of a disinterested witness, Mr. Kessler, at a time antedating this claim is, that with the most favorable freight rates obtainable, it was at least three and one-half times as expensive to transport the logs by rail as by water. It may be set down as a conservative, safe proposition, that the mere cost of transportation by rail is three times what the transportation is by water.

It being established that the expense of car transportation is at least three times as great as that of water transportation, it is necessary to inquire what would be the cost of transporting claimant's timber to market by the natural and ordinary method of floating.

(*b.*) *Expense of marketing by river.*

HON. MELVILLE W. VAN AMBER testified that the average expense, one year with another, of driving Webb's logs, would average from seventy-five cents to $1 a thousand.

AUGUSTUS KESSLER testified that the average expense of driving his logs from Watson's East Triangle, adjoining claimant's land, down Fish and Alder Creeks into the Beaver River, and from thence down to Carthage, was on the average eighty cents a thousand feet.

The most favorable evidence given is that given by Mr. Kessler, to the effect that to lumber by rail costs $2.17 a thousand feet, and eighty cents by water, or that the transportation by rail is $1.37 a thousand feet more than transportation by water, and to this is to be added forty cents additional for loading on cars, or a difference of $1.77 per thousand.

Now, assuming, as we will hereafter show, that there are 3,000 feet per acre on the average on claimant's land, and that the whole tract can be lumbered by rail, it would cost $5.31 per acre more to lumber by rail than to lumber by water, or nearly $350,000 on claimant's entire tract.

Is it any wonder that the claim is large when the State of New York shuts off the most natural, cheapest and ordinary avenue of removing the lumber upon the tract, leaving the only way of removing the lumber by rail at increased expense of $5.77 an acre.

In view of such facts the claim is small; and had claimant fully realized the magnitude and scope of the damages done at the time the claim was filed, the claim would have been much larger.

(3.) *Marketing manufactured product by rail.*

It is so apparent that it would not be feasible to market the unmanufactured product by rail that the learned Attorney-General made an extensive investigation in the direction of marketing the manufactured product by rail.

To do this requires a mill to start with.

To lumber by water a mill is not necessary. The logs from claimant's land, as we have seen, could be sold in the markets along the Beaver and Black River. In order to ship out the manufactured product it is necessary not only to have a mill, but to draw the logs to the mill. The mill can not be drawn to the logs.

(*a.*) *Limit that logs can be drawn to a mill with profit.*

In this connection the learned Attorney-General evidently was impressed with the idea that the timber from claimant's land could be taken to the Ouderkirk mill at Beaver River station, on the M. & M. Railroad, and there sawed into lumber and then shipped to market by the railroad, which would obviate the damages.

In investigating this suggestion it is to be borne in mind at the outset that there is a limit to the distance which timber can be profitably hauled, and that this limit is from six to seven miles at the most. The evidence is clear and uncontradicted on the part of all the witnesses that when logs are hauled for a greater distance than six miles there is no profit in the business. There can be so little dispute upon this subject that reference is merely made to the minutes of testimony.

Under such a plan, at the most, considering everything else feasible, which it is not, the soft wood timber within a radius of six or seven miles of Ouderkirk's mill could be taken to that mill.

Moreover, Ouderkirk's mill is inadequate for the purpose of lumbering the whole tract. It is not adapted to the manufacture of pulp wood, and is used mainly for the purpose of getting out fiddle butts and piano sounding-boards, as to which there is a very limited market, and the logs from which fiddle butts and sounding-boards are cut can not be floated to market.

Moreover, the Ouderkirk mill could not be used for the purpose of manufacturing the logs from the north side of the Beaver River. We have already seen that by reason of the water being drawn down in the winter time that the ice upon the reservoir is not stable enough to draw logs across. Upon the subject of taking logs from the north of the reservoir to the railroad the learned Attorney-General pursued a line of investigation with results as follows:

1st. If the logs were floated down to the reservoir, it would be necessary to have steam jack works to take the logs out of the water, which would be expensive.

2nd. There would be a haul of all such logs after taking them out of the water of five miles to railroad.

3rd. The expense of taking them out of the water would be sixty cents per thousand feet.

4th. With the water going up and down in the reservoir as used by the State, there would be nothing stable to adjust jack works to for hoisting logs. What to-day would be a mill-pond, would next week be the dry basin of a reservoir.

(*b.*) *Location of mill.*

In order to lumber the claimant's tract by rail, it would be necessary to erect a mill at some point upon the Beaver River, as low down as possible, at or below the mouth of the Red Horse Chain, so that one mill would answer for the entire tract (except the Twitchell Lake country), and at that place to put in a dam or boom across the Beaver River for holding logs, and then to float the logs down the tributaries and river to the mill and there convert them into lumber and by means of a branch track from the mill to the railroad ship out the manufactured product.

HON. WESLEY BARNES testified that with the reservoir the lands on the Red Horse Chain (north of reservoir) could not be lumbered by rail unless a branch track was built five or six miles long; that if the dam had not been raised, claimant's entire tract, except the Twitchell Creek country, could have been lumbered by rail by building a mill on the river near the outlet of the Red Horse Chain, and then build a branch road down, then float the logs down to the mill, and manufacture them into lumber.

(*c.*) *Cost of mill.*

Any kind of a mill adequate for the tract of land would cost at least $25,000.

AUGUSTUS KESSLER testified:

Q. You have had experience in building saw mills, have you not?—A. Yes, sir.

Q. Now, to properly lumber a tract of 60,000 acres of land, what would be the reasonable cost of a mill?—A. The only way I could explain it would be what my mill cuts in a year.

Q. Your mill cuts eight or ten million feet?—A. Ten million feet in a season. The mill would cost $25,000.

(*d.*) *Cost of branch track.*

The six miles of necessary branch track would cost $60,000 at least.

HERSCHEL ROBERTS, the Deputy State Engineer and Surveyor, testified that to build a branch track in that locality, ballasted so as to carry a locomotive, would cost from ten to twelve thousand dollars a mile, and there are about six miles of branch track to be built. (Testimony, Hon. Wesley Barnes.)

After building the mill and branch track, there is still a freight rate of sixty cents more per thousand feet to be paid in order to market the product by rail than the cost of transportation when marketing by water, which at 3,000 feet per acre would make it $118,504.80 for transportation alone more expensive to lumber claimant's entire tract by rail than by water, after building the mill and branch tracks at an additional cost of $85,000, not taking into account the forty cents per thousand feet of lighterage testified to by Mr. Kessler. It would be considerably over $200,000 more expensive to lumber (manufactured product) by rail than to float out the logs.

The cost of transportation of manufactured lumber by rail from Beaver River station is clearly established in the evidence.

MR. H. D. CARTER, the Freight Agent of the Mohawk and Malone Railroad, and Edward M. Burns, claimant's General Manager, testified that the nearest lumber market would be Albany, and that the rate upon manufactured lumber from Beaver River station to Albany is $1.60 per thousand feet, and to Watertown would be $1.75 per thousand feet; that the claimant Webb pays at the rate of $1.60 per thousand feet in shipping manufactured lumber from Beaver River station; that Webb would be treated just as any other shipper; and that he pays the same as other shippers. It is to be noticed that the railroad of the Mohawk and Malone Railroad Company has been leased to and is now being operated by the New York Central and Hudson River Railroad Company, and that the claimant Webb is not connected with the management of the N. Y. C. & H. R. R. R. Company. His witnesses in this proceeding, even in going over the road, have to pay fare, as was brought out upon cross-examination by the learned Attorney-General.

We have already seen that to float this same product to market by water would cost not over $1 per thousand. Here is a difference of sixty cents per thousand feet in the cost of transportation, or of $1.80 per acre, assuming a cut of 3,000 feet per acre, which makes the additional cost of transportation by rail when shipping the manufactured product, $118,504.80, which does not include the $85,000 cost of the mill and branch tracks, nor does it include the additional lighterage testified to by Mr. Kessler of forty cents per thousand feet.

Is it any wonder that the claim is large, when the bare cost of the mill and branch tracks to the railroad would amount to $85,000, and the additional freight rates would amount to $118,504.80? And all this on the assumption that the tract is all feasible to lumber by rail, as the State has left it, which as we shall see is not the case.

(4.) *Marketing pulp wood by rail as compared with marketing it by water.*

To market the pulp wood by rail instead of by water, makes a difference at the least calculation of $5 an acre in value of claimant's land, or upon the entire tract $329,180.

DR. FRANKLIN E. ROBINSON, who has a pulp mill at Carthage, testifies that he tried to get pulp wood sent to his mill by rail, and that the freight rate was so great that he could not get it there at the price the pulp wood was worth; that the present winter he attempted to buy pulp wood at Lowville, but that the rates were such that he could not, and that two and one-half or three years ago he tried to get some over the Carthage and Adirondack Road; that the rate was $1 a cord, making it cost $6 a cord at Carthage, and that he could buy and float it to market for $5. He floats his pulp wood from the adjoining township in Brown's Tract.

E. B. STERLING, of the Ontario Paper Mill, at Watertown, testified that at one time his mill was supplied with pulp wood shipped out over the Mohawk and Malone Railroad from Otter Lake, and that the freight rate paid was $2.70 a cord, and that his firm gave it up.

MR. H. D. CARTER, the freight agent of the Mohawk and Malone Railroad Company, testified that the rate for a shipper at Beaver River station would be the same as for one shipping at Otter Lake, which would make a rate to Watertown of $2.70 a cord.

MR. JAMES P. LEWIS, a pulp manufacturer at Beaver Falls and one of the State Commissioners having charge of the dam at Stillwater, testified that with the experience that he has had in driving timber on the Beaver River, that the claimant's pulp wood could be floated to market at about seventy-five cents a cord.

Is it any wonder the claim is large when claimant's pulp wood could have been taken to market by water at seventy-five cents a cord, and to take it to market by rail costs $2.70 a cord? And it is to be borne in mind that these 65,836 acres of claimant's will produce on the average at least five cords of pulp wood per acre.

Upon this subject the most favorable evidence for the State is that given by Dr. Robinson, where he stated that it cost him $1 a cord more to get his pulp wood in by rail than it does by water; and it is to be borne in mind that pulp wood delivered by water is more valuable than when delivered by rail, for the reason, as testified by Hon. G. H. P. Gould, that it can be ground one-third faster.

Assuming that the land of the claimant would cut five cords of pulp wood per acre, which, as we shall hereafter see, is a small estimate, the difference in the cost of the transportation of pulp wood by rail over water transportation would amount to at least $5 an acre, or upon the claimant's whole tract of 65,836 acres would amount to $329,180.

Again we repeat the question, is it any wonder that the claim is large when the State of New York has closed up the natural and cheapest way of marketing the pulp wood on claimant's land and has made it absolutely necessary to ship out the pulp wood by rail so as to affect the land at the rate of $5 an acre?

(5.) *Difficulties in the way of lumbering by rail caused by the reservoir.*

Discussion hitherto has been upon the supposition that the reservoir did not absolutely prevent the lumbering of claimant's tract by rail but made it more expensive. The evidence discloses that it is impracticable to lumber by rail.

In order to lumber the tract by rail it is necessary to use the land and waters embraced within the reservoir limits.

As we have previously seen, because of the drawing down of the waters of the reservoir, in the winter time, and the constant changing of the waters' level, the resulting ice is unstable and not of sufficient strength to conduct lumbering operations across, so that all lumbering operations in the winter time such as crossing over the reservoir to and from the railroad are rendered impossible.

The questions propounded by the learned Attorney-General seem to indicate that he deemed it quite feasible to float down the logs from the tract, and especially down the Red Horse Chain into the reservoir, and opposite the entrance of the Red Horse Chain, to construct a mill for the purpose of manufacturing the logs into lumber. That the reservoir at that point could be cleared out, booms placed across it and the logs held there in the reservoir, and that the reservoir would answer the double purpose of use by the State for storage purposes and for a mill pond for the lumberman.

This suggestion seemed at first quite taking, but upon reflecting as to the manner of using this reservoir by the State, it appears that during the summer the State draws down the water in this mill pond, commencing in July; so what would to-day be a satisfactory mill pond would next week be the dry bottom of a reservoir. Under such circumstances the entire stock of logs would be stranded and landed in the mud and mire at the bottom of the reservoir. Such a situation, it would seem, would require no evidence to convince one that it would not be feasible to conduct lumbering operations under such conditions. Reference, however, is made to the following testimony:

JOHN McFARLAND testified that if a mill were built on the edge of the reservoir opposite the valley of the Red Horse Chain, so as to be used for the entire tract, that it would be necessary to use all the waters of the river to get the logs down to the mill, and then to put a boom across to hold the logs; that if in the months of July, August, or September, the water was drawn down it would land the logs on the ground, and they would have to be taken out of the mud and mire to the mill, which would not be paying or profitable.

HON. WESLEY BARNES testified that it would be necessary to build a mill outside the flow line, and then when the water in the pond was drawn out, the logs would be scattered all over the flats, and that it would be almost impossible to get them in to the mill to manufacture. The learned Attorney-General rather took issue with the witness as to his conclusion that it would be necessary to have the mill at the edge of the reservoir, and the following ensued upon cross-examination:

Q. You say that a saw-mill would have to be built at the edge of the flow, at the edge of the reservoir, if it was built there?—A. Yes, sir.

Q. Could it not be built out to the channel of the river?—A. Not very well.

Q. Couldn't it be built on piles?—A. Not to have a steam mill.

(An inspection of the premises shows that there is no water power obtainable with which to run a mill).

DAVID C. WOOD testified that to lumber the tract by rail it would be necessary to have the reservoir full of water, and that the mill could not be run with any practicable results if the reservoir was not kept full.

The question of using the reservoir for a mill pond at the same time that the State is using it for reservoir purposes, is so inconsistent that no extended abstract of the evidence is necessary, or an argument to convince one that a body of water that is going up and down, the water being entirely drawn out in the summer season, is not a suitable mill-pond for the storage of logs, and that any logs stored in such a place would be more than apt to be stranded in the mud and mire when needed.

(6.) *Territory rendered inaccessible to lumbering operations by rail by reason of the reservoir.*

Not only is it more expensive, as above shown, to lumber claimant's tract of land by rail than by water, but the reservoir actually cuts off 21,678 acres, so as to make the same wholly inaccessible for lumbering operations by rail. The lands which are rendered by the reservoir wholly inaccessible are:

Lands in the valley of the Red Horse Chain of lakes.

Lands surrounding the Twitchell Lake and Twitchell Creek.

Lands surrounding the south branch of the Beaver River.

(*a.*) *Mountain ranges and their direction.*

A glance at the topographical map shows that the mountain ranges extend in oblique angles nearly diagonal to the river. These mountain ranges on the tract are about 2,000 feet above the deep sea level and about 250 to 500 feet above the level of the river.

It is self-evident that in lumbering operations the logs will have to be brought down the ravines and valleys to the river. They can not be drawn over the mountains.

DAVID C. WOOD, surveyor and engineer, and a practical woodsman, who has spent about three years with a large corps of assistants in making a survey and topographical map of the claimant's lands, testified:

Township 5: That there are 4,000 acres in the east third of Township 5, north of the Beaver River, the timber from which can not be taken to the railroad on account of the reservoir; that between these 4,000 acres and the railroad, there are three mountain ranges averaging from 250 to 500 feet above the river level; and that there are no passes in the mountains through which loads could be drawn; that it would not be practicable to draw loads of logs over mountains 250 feet high; and that there is no way of getting from the lands in Township 5 north of the Beaver River to the railroad, except by crossing the reservoir.

Township 43: That there are 4,342 acres in Township 43, the timber from which can not be taken to market except by crossing the reservoir; that there are two principal mountain ranges, and in some portions three, between these 4,342 acres and the railroad, with the average height of 340 feet above the valley, with no passes that could be utilized, the lowest pass existing being from 250 to 300 feet above the river level.

Township 42: In Township 42 there are 2,840 acres, the timber from which can not be taken to market by rail except by crossing the reservoir. There is one mountain range between these 2,840 acres and the railroad, which is from 300 to 600 feet in height above the level of the river, with no passes.

Township 38: That there are 464 acres of land in Township 38, the timber from which can not be taken to the railroad except by crossing the reservoir because of two heavy mountain ranges from 250 to 600 feet above the river level intervening between the land and the railroad; and that north of the river and railroad there are 11,759 acres of land, the timber from which can not be taken to the railroad without crossing the reservoir.

This is very apparent from an inspection of the topographical map of the lands. The land so affected was indicated by Mr. Wood as being enclosed in the green lines upon one of the exhibits used in the trial of the case to which reference is made. The lands upon the north side of the railroad and reservoir thus affected are principally in the Red Horse Chain of lakes; that is, in the valley of Big Burnt Lake, Salmon Lake, Witchhopple and Nigger Lake, with their connecting streams

(*b.*) *The flow from the reservoir extends back in most cases to the base of the mountains.*

This condition of things can be readily seen by a glance at the map. The flow extends up the Loon Lake Valley, up the valley of the Red Horse Chain and up the valley of the South Branch and

up to the valley of the North Branch. A glance at the map and outline of the reservoir shows the mountain ranges extending down into the flowed land, so that it is impossible to draw a load around the reservoir.

Upon cross-examination of Mr. Wood, it was stated that the hills came down on one side or the other to the stream in different places, and where there is a hill on one side or an abrupt bank, the other side will be low, and that it could not be drawn along the shore of the original stream except by crossing the river because of the abrupt banks, and that it would not be practicable to draw so as to avoid the reservoir; that to avoid the reservoir, a haul to the railroad, by the most feasible way, would be twelve miles; and that if the reservoir was not there the average haul to the reservoir would be two and one-half miles.

N. B.—We have already seen that logs can not be hauled with profit more than six miles.

(*c.*) *Red Horse Chain.*

The timber from the valley of the Red Horse Chain is entirely cut off by the reservoir.

HON. MELVILLE W. VAN AMBER testified that in his examination of claimant's lands he had examined the land in the valley of the Red Horse Chain with a view of lumbering it by railroad, and that it can not be done; that he noticed the mountain ranges intervening between the railroad and the lands in the valley of the Red Horse Chain, and that with the reservoir in existence it would not be practicable to draw logs from the valley of the Red Horse Chain to the Mohawk and Malone Railroad; that the timber in the Red Horse Chain Valley could not be hauled profitably more than six or seven miles; that it could not be hauled in a direct line to the railroad because of intervening mountains; and that the only feasible way to get around would be by a haul of twelve or fifteen miles.

JOHN McFARLAND testified that when he examined claimant's tract of land, he examined especially with reference to lumbering by way of the Mohawk and Malone Railroad; that you can not get the timber on the lands north of the railroad to the railroad without first floating it down the river, and then it could be towed up to the railroad, with a mill and branch built; that it would be cheaper to build the mill than to tow the logs up. The expense of towing the logs up-stream to the railroad was shown to be fifty cents a thousand after the reservoir was cleared out, which would make it wholly impracticable; that there would be too much up grade to draw to the railroad.

HON. WESLEY BARNES testified that he examined the lands in the Red Horse Chain Valley for the purpose of ascertaining whether they could be lumbered by rail, and that the lands in the valley of the Red Horse Chain could not be lumbered by rail, with the existing reservoir, unless a branch track was built; that he noticed the height and abruptness of the mountains intervening between the mountains and the Red Horse Chain, and that it would not be feasible to draw the logs or lumber over the mountains to the railroad.

JAMES COSGROVE testified that it would not be practicable to draw logs across the mountains from the valley of the Red Horse Chain to the railroad; that the cost would much more than eat the profits up.

JULIUS BRECKWALDT testified that it would not be practicable to draw the logs from the valley of the Red Horse Chain to the railroad, because of intervening mountain ranges.

We have already seen that because of the reservoir and the dam, the timber from the valley of the Red Horse Chain can not be floated down the river; that because of the manner of the use of the reservoir by the State, the ice is so unstable that timber can not be drawn across the reservoir to the railroad, even conceding that the haul of over five miles would be practicable; that because of the manner of the use of the reservior by the State it can not be converted into lumber upon the tract, even after going to the expense of erecting mills; and that because of intervening mountain ranges it can not be drawn directly to the railroad. There is no escaping the conclusion but that access to the timber in the valley of the Red Horse Chain has been entirely cut off by the reservoir, and, as we have seen, there are in all 11,759 acres so situated.

(*d.*) *Kinds and amounts of timber in the valley of the Red Horse Chain that are rendered inaccessible by the reservoir.*

JOHN McFARLAND, an expert lumberman, made a careful examination as to the merchantable soft wood standing in the valley of the Red Horse Chain, and his testimony is that there are at least 170,000 market logs, or 34,000,000 feet of merchantable soft wood in the valley of the Red Horse Chain, no part of which can be taken to the railroad. In addition to the merchantable soft wood in the valley of the Red Horse Chain, the tract has considerable merchantable hard wood, such as cherry, maple and birch, access to all of which has been completely destroyed by the reservoir.

JULIUS BRECKWALDT, an expert lumberman in hard wood, testifies that he made a careful examination of the merchantable hard wood in the valley of the Red Horse Chain and prepared a careful table of quantities and percentages of the different kinds of woods upon the several tracts; and that the expense of drawing the hard wood in the valley of the Red Horse Chain to market over the mountain ranges would be so great as not to be undertaken, and that the same could not be drawn across the reservoir to the railroad on account of the unstable condition of the ice, and that the value of this land, solely for the merchantable hard wood that is upon it, would be $2.09 an acre, and as there are 11,759 acres, the value of the hard wood alone in the Red Horse Chain Valley, destroyed by the reservoir, would amount to nearly $25,000.

(*e.*) *South Branch.*

Upon the South Branch side of the Beaver River, principally in the valley of the South Branch, there are 3,337 acres, so situated on account of intervening mountain ranges, that the timber from which can not be taken to market by rail.

The situation of the land upon the south side of the Beaver River with reference to its feasibility for lumbering by rail can be easily determined by an inspection of the topographical map of the lands, and it will be seen that the relative location of the reservoir, railroad and mountain ranges are such that a large quantity of timber can not be drawn to the railroad except by drawing the same over the mountain ranges, which, as we have seen, are of such a height as to render it impracticable.

The situation of the 3,337 acres south of the railroad are described by Mr. Wood in his minutes of testimony; see also testimony of John McFarland.

As to a portion of the timber in the valley of the South Branch, namely, that above the railroad, it was suggested by the learned Attorney-General that the same could be floated down to the railroad and then taken out of the water and shipped to market.

A careful examination was made of the situation by Hon. WESLEY BARNES, who testified that he went for the purpose of ascertaining the situation of the railroad bridge on the South Branch; that he found the railroad bridge a bridge fifty feet long, about thirty feet high, high trestle works about 500 feet on each side of the bridge, and high embankments; that if any logs were put into the stream and run down to the crossing they would have to be taken out a considerable distance above the bridge; and that this taking the logs down, hauling them up and getting them on the cars, could be done for about sixty-five cents a thousand feet extra.

(*f.*) *Twitchell Creek.*

Twitchell Lake is situated in the north part of Township 8, John Brown's Tract, and empties into Beaver River through Twitchell Creek. Twitchell Creek empties into the Beaver River just above the dam at Stillwater.

The Twitchell Creek, as we have seen, is a perfectly feasible stream to drive, with the river in its original condition. Before any interference with it by the State, Twitchell Creek was a floatable stream. Because of the river being blocked up in the way that it is, it is now absolutely impossible to float logs.

The question arises, how can claimant's land in the Twitchell Lake Valley be lumbered by rail? It was suggested by the learned Attorney-General that the logs from Township 8 could be floated down to the railroad and there be taken out and shipped by rail; and in making this suggestion the situation evidently was not understood, for:

HERSCHEL ROBERTS, Deputy State Engineer and Surveyor, who had charge of the construction of the Mohawk & Malone Railroad, testified that the railroad across the Twitchell Creek is forty-two feet above the level of the water; that the railroad is upon an embankment at each end of the bridge, the embankment on the southern end being 200 feet long and on the northern end over one hundred feet; that the grade of the railroad at the crossing is eighty-four feet to the mile, and there is a sharp curve at the crossing, and that it would not be feasible to build any branch line or spur at that place; that to build a wagon road on the south side of the ravine would be very expensive, as it would be necessary to cut through a hard bastard granite; and to build a wagon road upon the south side feasible for drawing logs would cost $3,000 a mile; and that the stream at the point of crossing is a rapid stream.

HON. WESLEY BARNES testified that he made an examination of the Twitchell Creek Railroad crossing and the land in the vicinity for the purpose of ascertaining whether it was feasible to take the logs out by railroad, that the grade of the railroad would be quite a hindrance to any branch tracks; that on account of the height of the bridge, the curve of the railroad and the unhandy place to take logs out at that place, that to put logs in the stream, run them down and then take them out and put them on the railroad, would be an expense of sixty-five cents a thousand feet. The lands upon Township 8 and Twitchell Creek Valley are unusually well timbered, cutting at least 4,000 feet per acre, which would make a difference per acre of $2.60. There are 6,582 acres of this land; and to lumber the Twitchell Lake country in this way would entail a total expense of $17,213.20 which did not exist before the reservoir.

(*g.*) *Prior to the raising of the reservoir there were* 15,096 *acres that could have been lumbered by rail, which are now completely isolated.*

If the dam had not been raised the last time it would have been possible to have built a mill opposite the Red Horse Chain, and by means of the mill and branch to have lumbered the entire tract.

JOHN McFARLAND testified that if the flow line of the reservoir had extended back no farther than to the line of dead trees caused by the first dam just to or below the Red Horse Chain outlet, and that the balance of the Beaver River was in its natural condition, then all the timber in the Red Horse Chain and South Branch could be floated down the river, and by putting a boom across the river and building a mill there the lands in the Red Horse Chain country could have been lumbered.

HON. WESLEY BARNES' testimony is to the same effect: that if the original flow extended no farther than to the entrance of the Red Horse Chain, those lands could still be lumbered by rail.

FIVE: THE STANDING TIMBER UPON CLAIMANT'S LAND.

The claim being made up largely of damages to the claimant's standing timber, an inquiry is therefore necessary into the kind and amount of timber.

TOWNSHIP 5: The forests upon Township 5 are virgin forests, except a small cutting done by Ouderkirk. The forests consist of 50 per cent. hard wood, 30 per cent. spruce, 10 per cent. pine, and 5 per cent. hemlock.

The estimates of the yield per acre are as follows:

DAVID C. WOOD estimated a cut of 2,000 feet of merchantable soft wood per acre upon Township 5, and in addition two cords of pulp wood.

JOHN McFARLAND estimated a yield of 2,260 feet per acre, or 6 cords of pulp wood per acre.

HON. WESLEY BARNES estimated a cut of 3,000 feet per acre.

TOWNSHIP 43: The forests upon Township 43 are composed of 40 per cent. hard wood, 40 per cent. spruce, 20 per cent. pine, cedar, hemlock and balsam.

The estimated yield per acre is as follows:

DAVID C. WOOD estimated 2,000 feet per acre, and three cords of pulp wood.

JOHN McFARLAND estimated 3,000 feet per acre, seven cords of pulp wood.

HON. WESLEY BARNES estimated a yield of 4,000 feet per acre. Pine in certain parts of the township, especially in the James or Pine lots, is very prevalent.

TOWNSHIP 38: The forests upon Township 38 are composed of thirty per cent. hard wood, twenty five per cent. pine, forty per cent. spruce, five per cent. cedar and balsam.

NEAR WITCHHOPPLE LAKE.
Township 43, Herkimer Co. (Webb Purchase.)

JOHN McFARLAND estimated it to yield 2,575 feet per acre, or six cords of pulp wood.

HON. WESLEY BARNES estimated it to yield 4,000 feet per acre.

JAMES COSGROVE estimated it to yield 3,000 feet per acre.

TOWNSHIP 37: The forests in Township 37 are composed of thirty-five per cent. hard wood, ten per cent. pine, forty per cent. spruce, fifteen per cent. cedar, hemlock and balsam.

JOHN McFARLAND estimated it to yield 2,590 feet per acre, or five cords of pulp wood.

HON. WESLEY BARNES estimated it to yield 4,000 feet per acre.

JAMES COSGROVE estimated that it would yield 3,000 feet per acre.

N. B.—In making their estimates, the witnesses took into account different kinds of cutting. Hon. Wesley Barnes considered a closer cut than the others.

Other witnesses named the tract as an entirety, viz.:

HON. M. W. VAN AMBER estimated the whole tract to yield from three to three and one-half thousand feet per acre, or five cords of pulp wood.

ERASTUS DARLING estimated the tract to cut 3,600 feet per acre.

A cut of 3,000 feet is not at all an unusual cut. (Testimony William McEchron. See also testimony of Augustus Kessler as to the yield of his adjoining land by actual measurement.)

It is a fair conclusion from the testimony that the claimant's land would cut at least 3,000 feet per acre of merchantable soft wood or five cords of pulp wood.

SIX: DAMAGES DONE TO CLAIMANT'S LANDS IN THE DESTRUCTION OF THEIR USE FOR CAMP AND COTTAGE PURPOSES.

One of the class of damages entering into this class is the diminution in value of a portion of claimant's land for camp, cottage and park purposes, caused by the reservoir.

Prior to the construction of the reservoir there were camps and cottage sites all along the Beaver River upon claimant's lands, which were actually in use, nearly all of which have been submerged by the reservoir, springs covered up and polluted, and the whole region rendered so unhealthy as to make the adjacent land unsalable. A beautiful lake—Big Burnt Lake—has been entirely submerged, and the overflow extends up to the outlet of two others, namely, Trout Pond and Loon Lake. The flowed ground has been extended so far that a cottage belonging to the claimant has been placed at the edge of the reservoir.

One of the qualities that give value to a given tract of land for camp and cottage purposes is the ability of the tract to support fish and game. The Beaver River Valley, in its original condition, was a natural feeding ground for deer. This feeding ground has all been submerged and destroyed by the reservoir. In the winter time the Beaver River Valley was a natural yarding place for deer, where feed could be found among the dried grasses of the low lands. All this has been destroyed by the reservoir and the hunting practically ruined.

(*a.*) *Merchantable soft wood can be taken from a tract of forest land and the value of the tract for camp, cottage and park purposes be retained.*

It is to be borne in mind that the merchantable soft wood occupies only a small percentage of the forest. To begin with, fifty per cent. of the forest is hard wood, and the remaining fifty per cent. of soft wood is composed of all sized trees, many of them small, so that the removal of the merchantable soft wood makes but little impression upon the forests as a whole. The evidence is:

HON. WESLEY BARNES testified that with the merchantable soft timber taken off, the lands would be just as valuable for park purposes.

WILLIAM McECHRON testified that land from which the merchantable soft wood had been taken was valuable for park purposes, and that he had sold land for such purpose.

ERASTUS DARLING testified that he had sold tracts of land for camp and cottage purposes from which the merchantable soft wood had been taken, and upon which there were lakes that he had dammed up for a few weeks in the spring of the year for lumbering purposes; and that removing the merchantable soft wood made more and better feed for deer.

PATRICK MOYNEHAN testified that he had made several sales of land recently for camp and cottage purposes where the merchantable soft wood had been taken off and where the lakes had been dammed up for a few weeks in the spring; and that there was a market for such land.

EDWARD M. BURNS, claimant's manager, in speaking of his experience with claimant's lands, testified that in some cases lands from which the merchantable soft wood timber had been taken down to ten or eleven inches is preferred both for health and sport. The large trees or decayed trees are very apt to fall, and particularly about a body of water. People preferred to build their camps in young growth; and the deer feed and increase better if the timber has been cut out. It lets in more light and causes the undergrowth to spring up on which the deer feed.

(*b.*) *Conditions that exist to give value to a tract of land for such purposes.*

EDWARD M. BURNS testified that many people buy purely with regard to the health of some member of their family; others buy simply to spend their vacations; others, again, to hunt and fish. Where they are buying for purely sporting purposes, a large tract of land is necessary to successfully control conditions that will afford good sporting; where persons buy simply with reference to health of one or more members of their family they buy simply a camp site, and they prefer to be located where there is company and where they can get at physicians; then there are others who prefer to spend a long time in the woods and prefer to be isolated; some of them don't fish and don't hunt at all; they are satisfied with an isolated lake, a small body of water, and they want to be alone. We have several applications for purchases just such as these I have mentioned.

The claimant respectfully submits that this land in the vicinity of the Beaver River originally had all these elements of value, as shown by the evidence, to which reference is hereafter made.

(*c.*) *Odors from the reservoir.*

In the ordinary course of human experience, one would naturally expect that a large area of land covered with flooded water, causing vegetation to decay, would emit disagreeable odors, especially in the hot weather, when the water is drawn down. The evidence is:

ANDREW J. MUNCEY testified that there was a strong smell coming from the reservoir before it was enlarged; that when the wind was in the west it was brought up to Little Rapids.

HON. T. M. REED testified: Q. As the water was going down was there any perceptible odor?—A. Yes, sir.

Q. To what extent?—A. It was very readily perceived; you could detect a strong odor.

DR. JAMES TAMBLIN testified: Q. Describe the condition in which it was left when the water was drawn down?—A. The alders and bushes were left with the indications of decay, a green scum, filth or slimy appearance of the part—

Q. Stagnant pools that you saw?—A. Yes, sir.

Q. To what extent?—A. All around the edges, where the set-back left them in little pools and pond holes.

Q. Produce any perceptible odor?—A. Yes, sir; very perceptible. The smell of the water was disagreeable and repulsive.

HON. WILLIAM P. GOODELL, one of the State Law Examiners, testified that the smell was so bad that the trout caught were not fit to eat; reservoir was covered with green scum.

Even assuming that there is no deleterious effect upon health from this odor, it stands to reason that no one would invest in a camp or cottage site on the shores of a reservoir producing disagreeable and annoying odors.

(*d.*) *Big Burnt Lake.*

Big Burnt Lake is entirely submerged. Its area has been changed from 101 acres to 138 acres, and all the timber surrounding the edge destroyed.

This lake, as the evidence shows, would be worth $15,000 in its original condition, and its value has been entirely destroyed by the reservoir.

(*e.*) *Former condition, use and availability for camps, cottages and sporting purposes.*

The evidence is replete to the effect that the entire river on claimant's lands was used for such purposes.

DAVID C. WOOD testified: The Chris. Wagner Camp, so called, is about half a mile below the outlet of the Red Horse Chain. There is a house there, and when the dam is closed there is about five feet of water on the floor. There is a camping place of 1,000 feet water front capable of making five or six lots at the so-called Sand Spring or Cold Spring, above the South Branch Junction, and when the reservoir is filled the spring is obliterated. There is a good camping ground, where camps have been, just below the Loon Lake carry, which the reservoir has obliterated, spring and all. There is a camp and camping ground at the Big Burnt Lake carry that is flooded.

DR. JAMES TAMBLIN testified that prior to the building of the State dam that the valley of the Beaver River was used to quite an extent for camping; that the Sand Spring Camp had been in constant use since his earliest recollection; that there were camps at Loon Lake outlet, Grassy Point, Chris. Wagner's Camp at Big Burnt Lake, and various other places since his earliest recollection.

HON. WM. P. GOODELL testified that he should regard the Sand Spring as a desirable camping place; that he had known the river for twelve years; that there were camps opposite Big Burnt Lake, at Grassy Point, Chris. Wagner's, Loon Lake, and that the river generally through that section was available for camp sites for fishing and hunting purposes.

HON. LANSING HOTALING testified that he has known the Beaver River since 1868; has spent there on the average four or five weeks a year; is familiar with the old hunting and camping places along the river; that camping was done at Sand Spring Camp, Chris. Wagner's Camp, Grassy Point, Cold Spring, Loon Lake outlet and Big Burnt Lake; that parties camped quite indiscriminately all along the river, and that there were very many camping places.

HON. T. M. REED testified that he was acquainted with the former camping places along the Beaver River near the location of Chris. Wagner's Camp, and that there was a beautiful spring of water back of the camp, twenty-five or thirty rods; that there was a camping place just a little way above there; there was also the Greeley Camp, at the mouth of the Red Horse Creek, used extensively for camps; that camping was done right opposite Big Burnt Lake, and at Big Burnt Lake; that there were available camp sites very nearly all around the lake; that camping was done at Grassy Point and on the South Branch at various places.

DR. J. W. CANDEE testified that the Beaver River was also used extensively for camping purposes.

(*f.*) *Effect of the reservoir upon former camp sites.*

These camp sites above mentioned have all been submerged and destroyed by the reservoir, and the springs filled up and spoiled for use. Reference is made to minutes of testimony.

(*g.*) *Original condition of the flooded area as regards a place for the support of deer.*

The flooded area was a natural feeding ground for deer. There can be no reasonable dispute about that proposition, and reference is only made to a little of the testimony upon that subject.

DR. J. W. CANDEE testified that the valley of the Beaver River was very decidedly, in its original condition, a natural feeding ground for deer.

ANDREW J. MUNCEY testified that the place was a natural feeding ground for deer, and a natural place for them to winter.

(*h.*) *Effect of the reservoir upon game.*

It would seem that no discussion was necessary to establish the proposition that where there is a natural feeding ground for deer, that when that feeding ground was covered with water it would be destroyed, and that then the deer would go elsewhere for feed, which would diminish the value of the land for sporting purposes.

DR. J. W. CANDEE testified that these natural feeding grounds were destroyed, or, if they existed, were put so far back into the woods as to be inaccessible.

A. J. MUNCEY testified that when the reservoir was full there wasn't any feeding ground.

(*i.*) *Effect of the reservoir upon health.*

The effect of the reservoir has been to change what was formerly a healthful locality to a place for breeding diseases.

(1.) *Former condition.*

DR. J. H. TAMBLIN testified that he had been acquainted with the region in the vicinity of the reservoir for sixteen or seventeen years, and was familiar with the sanitary conditions of the country; that he knew the place at Stillwater when a hotel was kept by Dunbar, and that the same number of people were entertained there by Dunbar as by the present club; that prior to the construction of the State dam he knew of no special diseases there, and considered it a perfectly healthful place, and that he was constantly sending his patients there for their health; and that prior to the building of the dam there was no case of miasmatic poisoning or catarrhal enteritis.

HON. WILLIAM P. GOODELL'S testimony is to the effect that prior to the building of the dam he did not recollect of any sickness at Stillwater.

(2.) *Condition of health since the building of the reservoir.*

DR. J. H. TAMBLIN testified that the decaying vegetation would, in his opinion, cause disease; it would cause a recognized type of malarial fever, together with catarrhal difficulties, inflammation of the bowels, or enteritis; that since the building of the dam such diseases have been constant every year; that while he was there he treated at least twenty patients; that some of the cases were very severe; some were taken sick and carried out of the woods on stretchers; and that it was necessary to remove them in order for them to convalesce; that this disease was contracted by breathing contaminated air or drinking contaminated water, and that it could be carried a long distance; that he had treated patients three miles away from the reservoir; that the sanitary condition of Loon Lake and Big Burnt Lake would be affected by the reservoir, and that since the building of the reservoir the lands along the river, along Big Burnt Lake aud Loon Lake, are not desirable for camp and cottage purposes from a sanitary view.

DR. FREDERICK TOWNSEND testified that in the summer of 1893 he was camping near the Chris. Wagner Camp when the water was drawn down, leaving a green scum and bad odor; that there was sickness in his party; that he was sick about a week with a fever accompanied with diarrhœal difficulties; the guide was taken sick; and he should consider it a very unhealthy condition; that the conditions were favorable for the propagation of disease germs and miasmatic troubles; that these poisons would extend on either side of the river for several miles; that it would affect the sanitary condition of Big Burnt Lake and Loon Lake; that last year he had planned to camp on the Beaver River below the dam, but was warned off and prevented by the Beaver River Club from camping there; and was forced to camp at the Old Wagner Camp, and saw the effects where the water had flooded the camp and had been drawn down, and as the water receded mud was left bare, and he was again taken sick, with the same difficulties.

DR. PAUL VON ZIEROLSHOFEN testified that at one time he was the nearest practicing physician at Stillwater; and during the years 1891, 1892, 1893, and 1894, was frequently called to Stillwater, where he treated from twenty-six to twenty-seven cases, where patients were suffering from miasmatic poisonings, dumb ague and catarrhal enteritis; that decaying vegetation, together with heat and moisture, would produce this poison, and would extend from one to one and one-half miles outside the reservoir; and that it would be apt to be carried up to great heights.

DR. J. W. CANDEE testified that in the summers of 1891 and 1893, disease of an endemic nature broke out; that there were one or two other physicians on the ground besides himself; and that he personally knew of at least fifteen cases. The disease resembled miasmatic poisoning, severe chills, quite high fevers, aching bones and muscles and enteric symptoms, the cause of which was the impounding of the water; and that in 1893, when he was there, he prescribed for at least one-half dozen cases.

DR. FLORENCE DONOHUE, President of the State Board of Health, testified that the impounding of the water over the area covered with vegetation would be injurious to health; that the bare impounding of the water would arrest the natural processes of purification, of oxidation and nitrification; that the exposure of the banks and shores of a reservoir to the sun, leaving decomposition of organic mattter to take place, would be injurious to health, and that with a strong wind this unhealthy condition would extend a mile to the windward, and would produce fever, agues, and

miasmatic poisoning, which are taken into the system either by breathing, or drinking the water; that patients in a low state of health who would be apt to be sent to the Adirondacks, would be very likely to take on the disease, and if a case of typhoid fever arose so that the emanations of a typhoid patient were discharged in such a stream it would be a good culture bed for the germs. (In this connection claimant calls attention to the epidemic of typhoid fever that has been existing in Watertown and other places along the Black River.)

Here is a locality where fever, agues and enteritis were unknown, and which was considered a fit and proper place for physicians to send their patients.

Since the building of the dam a certain well-defined disease has been prevalent and has continuously existed. As shown by the President of the State Board of Health, the reservoir theoretically would cause just such a disease as Drs. Tamblin, Candee, Von Zierolshofen, and Townsend found so prevalent. There can be no disputing the fact that this unhealthy condition which exists, is due to the reservoir, and extends on each side of the reservoir a considerable distance.

(*j.*) *Effect of the reservoir upon claimant's camp and lodge at Little Rapids.*

Prior to the raising of the reservoir the claimant built a cottage at Little Rapids, and in building the same expended the sum of from $3,000 to $4,000. The pond and reservoir extends to the very foot of the rapids, almost into the front dooryard of this cottage, and certainly the miasmatic poisonings and unhealthy condition above spoken of by the physicians extends to and affects the sanitary conditions of this cottage.

Moreover, the reservoir has destroyed the only meadow in connection with this camp and cottage. Four acres of meadow—the only one existing in that locality—are entirely submerged and destroyed.

SEVEN: DAMAGES.

The conditions out of which the damages originated have been to some extent indicated in the above abstract, so that from the citations to the evidence and data given the amount of the resulting damages can be fairly ascertained.

The value of the whole tract of 65,836 acres, before and after the reservoir, was given by the witnesses as follows:

HON. M. W. VAN AMBER testified that with the tract in its original condition it would be worth from $6 to $7 an acre; with the reservoir, it is worth only $2.50 to $3 per acre. This was from the standpoint of a lumberman.

JOHN MCFARLAND testified that with the tract in its original condition it would be worth $7 an acre; that with the reservoir, the tract is worth only $3 an acre.

HON. WESLEY BARNES testified that with the tract in its original condition, the timber alone would be worth $5 an acre; with the reservoir, the tract is worth about $2 an acre.

HON. G. H. P. GOULD testified that the whole tract would, in its original condition, be worth $5 an acre, and that with the reservoir there it is worth about $1 an acre, solely for lumbering purposes.

JAMES P. LEWIS figures the value from a standpoint of pulp wood to be $5 an acre, with the tract in its original condition, and with the reservoir, to be worth $1.50 per acre.

WILLIAM MCECHRON testified that with the river in its original condition for lumbering purposes solely, the land would be worth $5 an acre; that as to that portion of the tract which was set off by itself by the reservoir, and there was no way to get at it except to haul the timber a distance of twelve miles, he should consider it worthless, and that the present value per acre, assuming that the logs could be taken to the railroad at the same expense that they could be to the river, would be a difference between freight and cost of driving.

EDWARD M. BURNS testified that for all purposes the value of the tract, in its original condition, before the river was dammed, would be $7 an acre, and with the reservoir, would be $3.50.

In addition to these damages it is to be borne in mind that the claimant has expended a large sum of money in attempting to collect his damages, which he offered to prove was of the amount at least of $10,000, but which was rejected.

Under the existing statutes applicable to the case, the State of New York appropriates such land as it sees fit for canal purposes, seizes the land and says to the land owner that he must go to a tribunal known as the Board of Claims to have his damages ascertained. That he can have no costs for collecting his damages. The statute creating the Board of Claims permits it to prescribe rules and regulations of practice; and under the rules and regulations prescribed, this claimant was obliged to furnish a specific and accurate description of the lands appropriated in order even to file his claim so as to present his case to the Court to obtain the compensation and damages that are justly due. For surveying, printing, witness fees, copying and certifying to papers, disbursements, etc., $10,000 were expended, which certainly ought justly and equitably to be taken into account in any settlement made.

The claimant squarely challenges the constitutionality of a statute which deprives him of his property and inflicts upon him the expense and burden of ascertaining its metes and bounds and then of chasing up the compensation. The Constitution guarantees to him just compensation for his property taken, and clearly to deduct the cost of obtaining it, does not leave just compensation.

As above stated, the proof regarding the damages shows the claim so much larger than originally claimed that in case no settlement is made, the claim will have to be amended to conform to the proof, as permission has already been given so to do, so as to include the damages proven and not set forth in the claim.

The foregoing is as concise a statement as the claimant is able to make of the facts which the undersigned desires to submit for the consideration of the Forest Commission and the Commissioners of the Land Office, when they shall take action with reference to the purchase of Adirondack Lands affected by the construction of the Beaver River Reservoir, pursuant to the authority conferred upon them by Chapter 561, Laws 1895, the truth of which, we believe, will be fully verified by personal examination of the property damaged, which it is expected and desired said Board shall make, and also by reference to the stenographer's minutes taken in the matter of his claim against the State for damages, now pending in the Board of Claims, and copies of which minutes are also herewith submitted.

Dated *July* 10, 1895.

WILLIAM SEWARD WEBB,
By EDWARD M. BURNS, *Manager.*

In May, 1895, the Legislature passed the law known as Chapter 561, Laws of 1895, "An act to authorize the Forest Commission to purchase lands within the boundaries of the Forest Preserve."

This law, which was signed by the Governor on May 8, 1895, provides as follows:

SECTION 1. Pursuant to its recommendation and resolution, transmitted to the Legislature February fifth, eighteen hundred and ninety-five, the Forest Commission, or such department of the State government as may hereafter be charged with the care of the Forest Preserve, is authorized, with the approval of the Commissioners of the Land Office, to purchase, for the uses and purposes of the Adirondack Park, the whole or any portion of any township or great lot within the boundaries of the Forest Preserve, the owners of which have sustained damage by the construction of reservoirs by the State for canal purposes, or to restore waters taken for the canals, not exceeding in all 80,000 acres, at a reasonable and fair valuation, taking into account the damages necessarily sustained by any such owner in consequence of the acts of the State in constructing and maintaining such reservoir, but every such purchase shall be upon the express condition stated in the contract of purchase, that the land owner from whom the purchase is made shall release to the State all claims for damages to lands not purchased and owned and retained by him.

SECTION 2. The Treasurer shall pay, on the warrant of the Comptroller, from the money now in the hands of the Treasurer of the State to the credit of the Forest Commission, and known as the Forest Preserve fund, the sum of fifty thousand dollars, or so much thereof as may be necessary, and said

sum is hereby appropriated for the purposes of this act, and the Forest Commission is authorized to provide for the payment of the residue of such purchase price in ten equal annual installments, with interest at the rate of three per centum per annum, payable semi-annually.

SECTION 3. This act shall take effect immediately.

Subsequent to the passage of this law, the Fisheries, Game and Forest Commission received the following proposal:

To the Board of Commissioners of Fisheries, Game and Forests:

GENTLEMEN.—For six hundred thousand dollars ($600,000) William Seward Webb and the Ne-Ha-Sa-Ne Park Association offers to sell to the State seventy-five thousand acres or more, being the land represented on the map submitted herewith comprised in Townships 38, 42 and 43, Totten & Crossfield's Purchase, and the triangle North of Township 38, T. & C. P., the East third of Township 5, John Brown's Tract, and six parcels of land in Township 8, John Brown's Tract, all in the counties of Herkimer and Hamilton.

The lands offered to be sold are colored upon the blue print map submitted and attached hereto.

Such offer is made under the Laws of 1895, chapter 561; the deed to be a warranty deed except as to that portion of the Northeast quarter of Township 46, T. & C. P., situated in Hamilton County, amounting to about two thousand acres; if the title to said two thousand acres shall prove defective, said association will refund to the State on demand the sum of $17,000. Said Webb and said association will release the State of and from any and all claim or claims for damages to such lands so purchased, and also from all claims for damages to such premises as may be retained or owned by said Webb or said Association and not purchased by the State.

Said Webb and said association will permit the raising of the dam at Stillwater on the Beaver River to the height of thirteen feet above the crest of the present dam, and in case the waters of said Beaver River reservoir are hereafter so raised as aforesaid, the said Webb and the said association, for themselves, their legal representatives and assigns, will release and relinquish any and all damages that may be occasioned to any of the lands owned by said Webb and said association, or either of them, by reason of such raising of said dam at Stillwater on the Beaver River, as aforesaid:

Excepting and reserving from the land hereby offered to be sold, the right of way of the Mohawk and Malone Railway Company, and the easement of all legally located highways; and, also, the easement of highway leading from Beaver River station to the road known as the State road, leading to Stillwater; and, also, the easement of the roadway from the said highway to Stillwater to the Beaver River reservoir at the point known as Grassy Point on the Beaver River, which last roadway, if not now a legally located highway, will be legally dedicated as such:

Excepting, also, the merchantable soft wood upon all of the territory known as Township 8, John Brown's Tract, and that portion of the east third of Township 5, John Brown's Tract, south of the Beaver River, and certain portions of the southerly part of Township 42, T. & C. P., as are covered by the four existing contracts made by and between W. S. Webb and the following named parties, viz.: Two contracts relating to Township 8, aforesaid, with Lemon Thompson, Edward Thompson, Jr., and John A. Dix; another contract to Firman Ouderkirk, and another to Moynehan Brothers:

Reserving, also, a right of way for the removal of timber, in the usual course of lumbering, across and over the triangle north of Township 38, for the timber remaining upon the lands not sold upon the watershed of the Oswegatchie River.

The deed conveying the six tracts in Township No. 8, aforesaid, shall contain a covenant running with the land, that none of the remaining land in said township belonging to the said Webb and said association, or either of them, shall be used or sold for agricultural, manufacturing or other purposes, except as mentioned in said Thompson contracts; but that the same shall be used and sold exclusively for permanent forestry, hotel, camp and cottage purposes; and that in all deeds of the same the said lands shall be subject to the restriction binding the purchasers thereof to a perpetual use of such lands for such purposes, and also that said association and said Webb, or

either of them, will not sell to any individual or corporation any lake or substantially the whole of the land under and immediately surrounding a lake in any of the portions of said township retained by them; but that such remaining lands in said township shall be sold by them in the same manner and for the same purposes as lots surrounding the Fulton Chain of lakes, as have heretofore been or now are being sold by William Seward Webb, the intent being that they will not dispose of their lands so as to afford any individual, or club, or association of individuals or any corporation or corporations any opportunity to control the exclusive use of any lake in said township for a private preserve, or the exclusive hunting or fishing privileges of any land beyond their individual camp site or hotel site.

Reserving also to said Webb and said association the right to cut the decaying timber standing within the present flowed ground of said Beaver River reservoir.

Reserving also for the benefit of the Mohawk and Malone Railway Company the right to cut and remove trees along the east side of their right of way on Township No. 8 and clear the ground for the sole purpose of affording to passengers on said railroad a view from the car windows of the mountain scenery in the valley to the east; said cutting and clearing to be under the supervision of the Fisheries, Game and Forest Commission and with their permission and to an extent no greater than they sanction.

Said Webb and said association offer to cut a trail from Big Crooked Lake in Township 43 down through the valley of the outlet of said lake to the junction of said outlet with the trail leading from Gull Lake across the triangle north of Township 35.

Also to cut out a wagon road from Beaver River station on said road across Township 32 on lands hereby offered to be sold, which said road shall join the road known as the State Road crossing Township 39, said trail and road to be cut at their expense.

They further agree to furnish to the State a complete abstract of title, with official searches, down to the date of the delivery of the deed to the State.

Deed to be delivered upon the payment by the State of $50,000 in cash, and certificates of indebtedness, signed by the Comptroller for the balance of the purchase money. The certificates of indebtedness to be ten in number, and payable in ten equal annual installments, with interest thereon at three per cent. per annum, payable semi-annually.

No timber shall be cut or removed after eight years from the date of the deed of conveyance, and the Ouderkirk and Moynehan contracts will be terminated within two years from the date hereof.

(Signed) W. SEWARD WEBB,
NE-HA-SA-NE PARK ASSOCIATION,
By EDWARD M. BURNS,
Attorney in Fact and Manager.

At a meeting of the Fisheries, Game and Forest Commission held on December 6, 1895, the special committee appointed to consider the offer of Dr. William Seward Webb submitted the following report:

This committee was appointed to confer with a committee from the Land Board upon the matter of the purchase of certain lands offered for sale by Dr. W. S. Webb, and the settlement, through said purchase, of damages claimed to have been done to lands affected by the Beaver River dam and reservoir, and Fulton Chain or Moose River reservoir.

The duty of considering and acting upon the proposed purchase and settlement has come to this Board through an act of the Legislature passed February 21, 1895, chapter 561, Laws 1895, which was introduced and passed with special reference to Dr. Webb's case now pending in the Court of Claims, and gives authority to the Commissioners of Fisheries, Game and Forests, with the approval of the Commissioners of the Land Office, to buy at a fair valuation lands not exceeding 80,000 acres for the uses and purposes of the Adirondack Park and Forest preserve, and to restore waters taken

BIG CROOKED LAKE.—RED HORSE CHAIN.
Township 43, Herkimer Co (Webb Purchase.)

for the canals, taking into consideration as a part of the purchase-price damages heretofore done to other lands affected by said reservoirs, or hereafter likely to accrue from raising and maintaining said dams or reservoirs.

The act was apparently intended as a means to enable the State to acquire a large body of land if deemed best by this Commission and approved by the Land Board, and at the same time, also, accomplish the settlement of the damage claims mentioned, and protect the State against further claims from the same source.

The Commissioners of Fisheries, Game and Forests have had the matter under consideration at several regular and special meetings, and have taken such measures to inform themselves concerning the matter as they could within the time allotted to its investigation.

In July the full Board with its Engineer and Superintendent of Forests and his assistants, accompanied by representatives of the Land Board, together with all the members of the Black River Water Commission, went to the Beaver and Moose River country for inspection of the lands offered, and to obtain a better knowlege of the whole subject, especially as to location, values, manner and amount of use and control of the water by the State, and by the Black River Water Commission. And also to ascertain by personal observation the extent of the apparent damage caused by the erection and maintenance of the State dams upon the Beaver and Moose Rivers. This examination was made as complete and thorough as was practicable within the time expended. After this field examination and after obtaining through our Engineer and Superintendent of Forests and others, facts and figures as to the condition and present values of the tracts offered, we proceeded to consider Mr. Webb's various propositions.

None of the offers made appeared to us as desirable or advantageous to the State as one submitted at the meeting held in connection with the Land Board, November 26th, which provides for the sale to the State in fee simple with covenants of warranty of title 75,000 acres of timber land in Townships 5, 8, 38, 42, and 43 in Herkimer and Hamilton Counties for eight dollars per acre or $600,000, and secures to the State as public park and forestry lands to be dedicated to the use of the public forever, subject to park restrictions only, the balance of lands in Township 8, being about 15,000 acres. It being understood that these last-mentioned lands shall not and cannot be sold for mechanical, commercial or agricultural purposes. This sale, if consummated, to extinguish and cancel all claims for damages now existing or which may hereafter accrue to the remaining lands of the grantor on account of the Beaver River dam as it now exists or when raised fifteen feet higher than at present, and also any damage from the construction of the State dam on the Moose River at the foot of the Fulton chain of lakes.

We find the present condition of the lands offered to be as follows:

The soil of the whole tract is like most of the Adirondack lands in this region—thin, sandy, and gravelly, and of little value for agricultural purposes. It is upon the headwaters of the Black and Oswegatchie Rivers, the principal part being tributary to the Black River. The tract contains many lakes and ponds, and is remarkable for its numerous springs and streams of various dimensions. Its value for water storage and park purposes, game preserves, camp sites, health and pleasure resorts or what is termed "sporting purposes," in addition to the value of the merchantable timber thereon, is about all there is of the question of its fair and reasonable value.

Its value on account of maintaining the water supply of streams which support heavy manufacturing interests and in making certain requisite supply of water for canal purposes is an economical question we do not feel called upon to discuss, but one which may be of great importance in the near future.

As to the merits of the claim of Dr. Webb for damages or the prospect of its successful maintenance this committee will not presume to express an opinion, but prefer to leave that question to the learned Attorney-General who has had charge of the State's interest in the case from the beginning, and is much better qualified to judge both as to the law and the facts upon which the decision of the case will hang.

Upon the facts and premises above stated and set forth the Fisheries, Game and Forest Commission has come to the conclusion to contract for the purchase of the lands before mentioned upon

the terms herein stated provided the Land Board sanction and approve the same, and have directed this committee to confer with the Comptroller, Attorney-General and State Engineer as to form and substance of a contract to be made if the Commissioners of the Land Office concur for the purchase of said lands described and settlement of the claim referred to.

WILLIAM R. WEED,
H. H. LYMAN,
B. H. DAVIS.

Dated, *December* 6, 1895.

Upon motion of Commissioner Babcock, seconded by Commissioner Thompson, and upon a yea and nay vote, all the commissioners voting yea, it was

Resolved, That the Commissioners of Fisheries, Game and Forests approve of the recommendation of the special committee on the purchase of lands of Dr. W. S. Webb and the Ne-Ha-Sa-Ne Park Association.

Pursuant to law the recommendation of the Fisheries, Game and Forest Commission was transmitted to the Commissioners of the Land Office for their further approval, without which no purchase of forest land could be made.

At a special meeting of the Commissioners of the Land Office, held at the office of the Secretary of State, on Friday, the 6th day of December, 1895, at 12 o'clock, M., there were present: John Palmer, Secretary of State; James A. Roberts, Comptroller; Theodore E. Hancock, Attorney-General; Campbell W. Adams, State Engineer and Surveyor; Hamilton Fish, Speaker of the Assembly. The Speaker of the Assembly was in the chair.

The Attorney-General, chairman of the committee of the Commissioners of the Land Office appointed to examine into and consider the question of the value of the lands mentioned in the proposition of Dr. W. S. Webb and the Ne-Ha-Sa-Ne Park Association, and to determine and report a proper form of contract for the purchase of said lands, reported verbally, concurring in the report of the committee of the Fisheries, Game and Forest Commission above set forth.

The action of the Fisheries, Game and Forest Commission was presented for approval, whereupon the Secretary of State offered the following:

Resolved, That the Commissioners of the Land Office approve of the action of the Fisheries, Game and Forest Commission to contract with Dr. W. S. Webb and the Ne-Ha-Sa-Ne Park Association for the purchase of certain lands in the Forest Preserve, described in said contract, and that the details of the contract and deeds shall be drawn under the direction of the Fisheries, Game and Forest Commissioners and the Attorney-General, and that said contract and deeds be submitted to the Commissioners of the Land Office at a future meeting for action.

On calling the ayes and noes the above resolution was adopted by the following vote:

Ayes—Secretary of State, Comptroller, Attorney-General, State Engineer and Surveyor.

The Speaker of the Assembly was excused from voting.

At a meeting of the Commissioners of the Land Office, held at the office of the Secretary of State, on Tuesday, the 31st day of December, 1895, at 10 o'clock, A.M.,

there were present: Charles T. Saxton, Lieutenant-Governor; John Palmer, Secretary of State; James A. Roberts, Comptroller; Addison B. Colvin, Treasurer; Theodore E. Hancock, Attorney-General; Campbell W. Adams, State Engineer and Surveyor. The Secretary of State in the chair.

Pursuant to the resolution of this Board adopted December 6, 1895, the following detailed contract and deed were presented for action:

THIS AGREEMENT, made in duplicate this sixteenth day of December, in the year of our Lord one thousand eight hundred and ninety-five, between William Seward Webb, of the City, County and State of New York, and the Ne-ha-sa-ne Park Association, a domestic corporation, created and organized under the laws of the State of New York, parties of the first part, and the People of the State of New York by Barnet H. Davis, Henry H. Lyman, William R. Weed, Charles H. Babcock and Edward Thompson, in their official capacity as Commissioners of the Board of Fisheries, Game and Forests of the State of New York, acting by and with the approval of the Commissioners of the Land Office of the State of New York: Witnesseth,

WHEREAS, The parties of the first part are the owners of the land and premises hereinafter described situate on the watersheds of the Moose, Beaver, Oswegatchie and Bog Rivers, the same all being within the Adirondack Park so-called; and

WHEREAS, The Superintendent of Public Works of the State of New York for the purpose of restoring waters taken for the uses of canals of this State claiming to act under and in pursuance of Laws 1881, Chapter 336, and Laws 1892, Chapter 469, and the acts supplemental and amendatory thereof, constructed a dam across the Beaver River at Stillwater, in the Town of Wilmurt, Herkimer County, New York, creating thereby a large reservoir which has flooded a large tract of land now belonging to the parties of the first part, such flooded lands being a part of the lands hereinafter described; and

WHEREAS, The said Superintendent of Public Works of the State of New York, did also construct and build a reservoir on the middle branch of the Moose River at Old Forge, in the Town of Wilmurt, Herkimer County, New York, which said reservoir has also flooded some of the lands on the shores of the Fulton Chain of Lakes, in Township eight (8) of John Brown's Tract; and

WHEREAS, The said William Seward Webb of the first part has filed his claim with the Board of Claims of the State of New York to recover damages occasioned by the construction of said reservoir on the Beaver River (the said Webb as between the parties of the first part being the owner and holder of said claim); and

WHEREAS, The evidence in support of said claim has been given in said Board of Claims of the State of New York on behalf of said claimant, and it being desirable that said claim be settled and adjusted; and

WHEREAS, It is desirable that the State of New York should own sufficient lands around said Beaver River reservoir so as to permit of the same being materially increased in capacity, which increase seems to be made necessary by the canal enlargements directed by the people of the State of New York at the last annual election; and

WHEREAS, By an Act of the Legislature of the State of New York entitled "An act to authorize the Forest Commission to purchase lands within the boundaries of the forest preserve," which became a law May 8, 1895, with the approval of the Governor, being Chapter 561 of the Laws of 1896, the Forest Commission or such department of the State government as might thereafter be charged with the care of the forest preserve, was authorized, with the approval of the Commissioners of the Land Office, to purchase for the uses and purposes of the Adirondack Park, the whole or any portion of any township or great lot within the boundaries of the Forest Preserve, the owners of which have sustained damage by the construction of reservoirs by the State for canal purposes or to restore water taken for the canals not exceeding in all eighty thousand acres, at a reasonable and fair valuation, taking into account the damages necessarily sustained by any such owner in consequence of the acts of the State in constructing and maintaining such reservoirs, but that every such purchase should be

upon the express condition stated in the contract of purchase that the land owner from whom the purchase is made should release to the State all claims for damages to lands not purchased and owned and retained by him, said act providing that the Treasurer of the State shall pay on the warrant of the Comptroller from the moneys now in the hands of said Treasurer to the credit of the Forest Commission, and known as the Forest Preserve Fund, the sum of fifty thousand dollars, or so much thereof as may be necessary, and appropriating said sum for the purposes of the act, and authorizing such Commission to provide for the payment of the residue of such purchase price in ten equal annual installments with interest at the rate of three per centum per annum payable semi-annually; and

WHEREAS, In pursuance of another act of the Legislature aforesaid, entitled "An Act to amend the game law and to repeal Chapter 332 of the Laws of 1893, entitled 'An act in relation to the forest preserve and Adirondack Park,'" constituting articles 6 and 7 of Chapter 43 of the General Laws, which became a law April 25, 1895, with the approval of the Governor, being Chapter 395 of the Laws of 1895, the said Barnet H. Davis, Henry H. Lyman, William R. Weed, Charles H. Babcock and Edward Thompson of the second part were, by the Governor of the State of New York, under said Laws of 1895, Chapter 395, duly appointed as Commissioners of the Board of Fisheries, Game and Forests, and succeeded to all the rights, powers and duties of said Forest Commission; and said Board of Commissioners of Fisheries, Game and Forests thereby became charged with the care of the Forest Preserve and became vested with authority to contract for the purchase of lands within the bounds of the Adirondack Park, and under the provisions of Chapter 561, Laws 1895, to purchase, with the approval of the Commissioners of the Land Office, the lands hereinafter described; and

WHEREAS, The premises hereinafter described form portions of townships or great lots, within the boundaries of the Forest Preserve, the owners of which have sustained damage by the construction of reservoirs as aforesaid;

NOW THEREFORE, in consideration of the premises and the sum of fifty thousand dollars ($50,000) to be paid to the parties of the first part by the Treasurer of the State of New York upon the warrant of the Comptroller of the State of New York from the moneys now in the hands of the Treasurer of the State of New York to the credit of the Forest Commission and known as the Forest Preserve Fund, upon the 29th day of January, 1896, and of the sum of five hundred and fifty thousand dollars ($550,000) to be paid as hereinafter provided, this agreement, made pursuant to Laws 1895, Chapter 561, WITNESSETH:

First.—The said parties of the first part agree to sell and convey to the People of the State of New York and the party of the second part agrees to purchase for the sum of six hundred thousand dollars ($600,000), to be paid as hereinafter provided, the following lands and parcels of lands situate in the Adirondack Park, so-called, in the Town of Long Lake, Hamilton County, New York, and in the Town of Wilmurt, Herkimer County, New York, amounting to seventy-five thousand (75,000) acres or more subject to the following exceptions and reservations. Said lands so agreed to be sold and purchased are described as follows:

First Parcel.—All that piece or parcel of land situate in the north-east and north-west quarters of Township Number thirty-eight (38) Totten & Crossfield's Purchase, situate in the Towns of Long Lake, Hamilton County, and Wilmurt, Herkimer County, New York, bounded and described as follows: Beginning on the north line of Township thirty-eight (38) Totten & Crossfield's Purchase at the south-easterly corner of Lot Number twenty-nine (29) in the triangle north of said Township number thirty-eight (38); thence easterly along the northerly line of said Township number thirty-eight (38), four hundred and ten and seventy-seven hundredths (410.77) chains to the south-east corner of said triangle north of Township thirty-eight (38) which is a hemlock tree; thence south eighty-six (86) degrees, east seven and sixty-five hundredths (7.65) chains to a cedar post on the east line of said Township thirty-eight (38) and the westerly line of Township thirty-seven (37); thence southerly along the line between said Townships thirty-seven (37) and thirty-eight (38), one hundred and seventy-two (172) chains more or less to the north-east corner of a small tract of land surrounding the west end of Bog Lake heretofore sold and conveyed by said William Seward Webb to Charles A. Tatum and Edmund C. Converse; thence westerly at right angles to said township

line and along the north line of said last mentioned small tract forty-five (45) chains to the northwesterly corner of said last mentioned small tract so sold and conveyed to said Tatum and Converse; thence forty (40) degrees and fifteen (15) minutes to the right, one hundred and twenty (120) chains; thence thirty-three (33) degrees to the left, one hundred and three (103) chains to the line between the east half and west half of Township thirty-eight (38) at a point ninety (90) chains southerly on said line from the north line of said Township; thence twenty (20) degrees and fifteen (15) minutes to the right, one hundred and ninety-nine (199) chains to the place of beginning, containing three thousand eight hundred and fourteen (3,814) acres.

Second Parcel.—All of the triangle north of Township thirty-eight (38) Totten & Crossfield's Purchase, situate in the Town of Long Lake, Hamilton County, New York, and Town of Wilmurt, Herkimer County, New York, excepting therefrom lot number (28) which contains one hundred and forty (140) acres of land more or less, making the amount hereby conveyed seven thousand two hundred and six (7,206) acres.

Third Parcel.—All of Township forty-three (43) Totten & Crossfield's Purchase, Town of Wilmurt, Herkimer County, New York, excepting therefrom and reserving lot number sixty-nine (69) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number seventy (70) containing one hundred fifty and four-tenths (150.4) acres; lot number seventy-one (71) containing one hundred fifty and four-tenths (150.4) acres; lot number seventy-two (72) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number eighty-nine (89) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number ninety (90) containing one hundred fifty and four-tenths (150.4) acres; lot number ninety-one (91) containing one hundred and forty and eight-tenths (140.8) acres; lot number ninety-two (92) containing one hundred eighty-four and eight-tenths (184.8) acres; lot number one hundred and one (101) containing one hundred forty and eight-tenths (140.8) acres; lot number one hundred two (102) containing one hundred eighty-four and eight-tenths (184.8) acres; lot number one hundred three (103) containing one hundred eighty-four and eight-tenths (184.8) acres; lot number one hundred seventeen (117) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred eighteen (118) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred nineteen (119) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred twenty (120) containing one hundred forty-eight and eight-tenths (148.8) acres; and that part of lot number one hundred four (104) lying east of a line beginning at the north-east corner of lot one hundred sixteen (116) in said township and running northerly and parallel to the west line of said lot number one hundred and four (104) to the north line of said lot number one hundred four (104), the part of said lot number one hundred four (104) hereby excepted containing one hundred and seventy-one and six-tenths (171.6) acres more or less. The whole of said township contains twenty-five thousand one hundred and eighty-eight and thirteen hundredths (25,188.13) acres; the portion herein excepted and reserved contains two thousand seven hundred ninety and two-tenths (2,790.2) acres, and the part hereby agreed to be conveyed contains twenty-two thousand three hundred and ninety-seven and ninety-three hundredths (22,397.93) acres.

Fourth Parcel.—All of Township forty-two (42) Totten & Crossfield's Purchase, situated in the town of Wilmurt, Herkimer County, and in the Town of Long Lake, Hamilton County, New York, excepting and reserving: Lot number seven (7) containing two hundred twenty-five and five-tenths (225.5) acres; lot number eight (8) containing two hundred twenty-five and five-tenths (225.5) acres; lot number nine (9) containing two hundred twenty-five and five-tenths (225.5) acres; lot number ten (10) containing one hundred seventy and five-tenths (170.5) acres; lot number eleven (11) containing one hundred seventy and five-tenths (170.5) acres; lot number twelve (12) containing two hundred twenty-five and five-tenths (225.5) acres; lot number thirteen (13) containing two hundred twenty-five and five-tenths (225.5) acres; lot number fourteen (14) containing two hundred twenty-five and five-tenths (225.5) acres; lot number twenty-five (25) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-six (26) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-seven (27) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-eight (28) containing one hundred ninety-six and eight-tenths

(196.8) acres; lot number twenty-nine (29) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty (30) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number thirty-one (31) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number thirty-two (32) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-three (33) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-four (34) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-five (35) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-six (36) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-six (46) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-seven (47) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-eight (48) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-nine (49) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty (50) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number fifty-one (51) containing one hundred eighty-two and four-tenths (182.4) acres; lot number fifty-seven (57) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty-eight (58) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty-nine (59) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty (60) containing one hundred ninety-one and eight-tenths (191.8) acres; lot number sixty-one (61) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-two (62) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-three (63) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-four (64) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-seven (77) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-eight (78) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-nine (79) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty (80) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-one (81) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-two (82) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-three (83) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-four (84) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred and twenty-one (121) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-two (122) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-four (124) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-five (125) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-six (126) containing one hundred sixty-eight (168) acres; and lot number one hundred twenty-seven (127) containing one hundred fifty (150) acres. Also excepting and reserving that part of lot number forty-five (45) beginning at the south-east corner thereof; thence northerly along the easterly bounds thereof to the north-east corner of said lot; thence westerly along the northerly bounds thereof to the northwest corner of said lot; thence southerly along the westerly bounds of said lot to a point thirty (30) chains northerly from the south-west corner of said lot on the said westerly line thereof; thence south-easterly to a point twenty (20) chains northerly from the south line of said lot on a line running parallel with the westerly line of said lot and at a distance of thirty (30) chains easterly therefrom; thence southerly and parallel with the west line of said lot twenty (20) chains to the south line of said lot; thence easterly along the said south line to the place of beginning, containing one hundred twenty-one and eight-tenths (121.8) acres. Also excepting and reserving all that portion of lot number fifty-five (55) lying north of the right of way of the Mohawk and Malone Railway and east of a line running at right angles to the northerly line of said lot, and thirty (30) chains easterly from the west line of said lot, containing six (6) acres. Also excepting and reserving all that portion of lot number fifty-six (56) lying north of the right of way of said Mohawk and Malone Railway Company containing thirty-nine (39) acres. The whole of said Township forty-two (42) contains twenty-four thousand nine hundred and twelve (24,912) acres according to Richards' field notes and survey filed in the Secretary of State's office at Albany. The parts hereby excepted and reserved contain nine thousand four hundred ten and six-tenths (9,410.6) acres including thirty-two (32) acres of the right of way of the M. & M. Ry.,

according to the same authority and actual measurements of the parts of lots where parts of lots are hereinbefore described and the part hereby agreed to be conveyed contains fifteen thousand five hundred one and four-tenths (15,501.4) acres.

Fifth Parcel.—All of the east third of Township five (5), John Brown's Tract, Town of Wilmurt, Herkimer County, State of New York, bounded and described as follows: Bounded on the north and south by the north and south lines of said Township five (5); easterly by the west line of Totten & Crossfield's Purchase, and westerly by the easterly bounds of a tract of nine thousand six hundred (9,600) acres, surveyed and set off to Lyman R. Lyon in 1876, in an action of partition wherein said Lyon was plaintiff and the Adirondack Company defendant, which said partition deed was recorded in the office of the Clerk of Herkimer County in Book 98 of Deeds, at page 567, to which reference is hereby made. The said east third of Township five (5) containing eleven thousand two hundred and fifty acres of land, more or less. Excepting and reserving therefrom the following described parcel of land, viz.: A piece of land beginning at the north-westerly corner of lot fifty-one (51), in Township forty-two (42), Totten & Crossfield's Purchase; thence south sixty-three (63) degrees west ten (10) chains; thence south-easterly parallel to the westerly line of Township forty-two (42) forty-eight (48) chains to a point ten (10) chains westerly of the south-west corner of said lot number fifty-one (51), continuing thence north sixty-three (63) degrees east ten (10) chains to the south-west corner of said lot fifty-one (51) in said Township forty-two (42); thence northerly along the westerly line of said lot fifty-one (51) forty-eight (48) chains to the place of beginning, containing forty-eight (48) acres of land.

Sixth Parcel.—All of the following parts of Township eight (8), John Brown's Tract, situate in the Town of Wilmurt, Herkimer County, New York, and in the Town of Morehouse, Hamilton County, New York, bounded and described as follows:

Parcel A: Beginning at the north-west corner of Township eight (8) John Brown's Tract; thence easterly along the north line of said Township eight (8) John Brown's Tract to the north-east corner of said township; thence south-easterly along the easterly line of said township to the intersection of a line run parallel to the northerly line of said township and at a distance therefrom seventy (70) chains measured on a right angle line from said northerly line of said Township eight (8); thence westerly on said parallel line sixty-eight (68) chains; thence south-westerly to the west line of said township two hundred six (206) chains to a point one hundred sixty (160) chains measured on said westerly line from the north-west corner of said township; thence northerly along the township line to the place of beginning, containing two thousand four hundred fifty-three (2,453) acres of land after deducting the right of way of the Mohawk and Malone Railway Company.

Parcel B: Beginning at the east line of Township number eight (8) at a point twenty-five (25) chains south-easterly from the south-west corner of township number forty-two (42); thence south-easterly seventy-five (75) chains along said east line of township eight (8); thence south-westerly at right angles with said township line, two hundred thirty-five (235) chains; thence north-westerly parallel to the said township eight (8) east line seventy-five (75) chains; thence north-easterly at right angles with the said township eight (8) line, two hundred and thirty-five (235) chains to the place of beginning, containing one thousand seven hundred and sixty-two and five-tenths (1,762.5) acres.

Parcel C: Beginning at the east line of township number eight (8) at a point thirty-five (35) chains south-easterly from the south shore of Big Moose Lake at high-water mark; thence south-easterly along the said township eight (8) line two hundred five (205) chains; thence to the right, one hundred four (104) degrees, thirty (30) minutes, one hundred and eighty-two (182) chains; thence to the right ninety-six (96) degrees and fifteen (15) minutes one hundred seventy-two (172) chains to a point where a line run at right angles to the said township eight (8) east line from the place of beginning would intersect the last course; thence along the said line one hundred fifteen (115) chains to the place of beginning, containing two thousand seven hundred twelve (2,712) acres.

Parcel D: Beginning on the westerly line of Township eight (8) at a point seventy-three (73) chains southerly from the south-east corner of Township number six (6) John Brown's Tract; thence northerly one hundred ninety-three (193) chains more or less to the south boundary of the right of way of the Mohawk and Malone Railway; thence north-easterly along said south boundary of the said

right of way to a line located at right angles with the westerly line of said Township, which line if projected would intersect the west line of the said Township eight (8) one hundred ninety-seven (197) chains northerly from the south-east corner of said Township number six (6) John Brown's Tract; thence easterly on said line eighty (80) chains from said boundary of said right of way of said railway; thence southerly at right angles to the last-mentioned line, twenty-one (21) chains; thence easterly and at right angles to the said Township line eighty-four (84) chains; thence to the left thirty-one (31) degrees and thirty minutes, thirty-two (32) chains; thence to the right one hundred ten (110) degrees and thirty (30) minutes, forty-one (41) chains; thence to the right sixty-nine (69) degrees, one hundred six (106) chains; thence to the left eighteen (18) degrees and thirty (30) minutes, one hundred sixty-two (162) chains; thence to the right eighteen (18) degrees and thirty (30) minutes ninety-two (92) chains to the place of beginning, containing three thousand seven hundred and fifty-three (3,753) acres.

Parcel E: Beginning at a point on the west line of said Township number eight (8) one hundred thirty-three (133) chains southerly from the south-east corner of said Township number six (6); thence to the right fifty-nine (59) degrees one hundred twenty (120) chains; thence to the left eighteen (18) degrees and thirty (30) minutes one hundred eighty-six (186) chains and fifty (50) links; thence to the right and parallel to the west line of Township eight (8) one hundred sixty-three (163) chains to the north-east corner of lot number two hundred six (206) of the Fulton Chain allotment; thence along the rear line of said allotment and the rear line of lands of Robert Perrie and Charles Barrett and Mary Sprague to the west line of said Township eight (8); thence northerly along the west line of said Township eight (8) one hundred twenty-six (126) chains to the place of beginning, containing two thousand four hundred and sixty-eight (2,468) acres.

Parcel F: Being all that parcel of land south of the Fulton Chain allotment in said Township number eight (8) containing two thousand one hundred and forty-one (2,141) acres. Said allotment is shown upon a map and survey made by David C. Wood and filed in the office of the clerk of Herkimer County on the 30th day of August, 1893, to which reference is hereby made.

A recapitulation of the above described parcels of land herein agreed to be conveyed show the acreage of each parcel and the total of all parcels to be as follows:

In Township 43,	22,397 acres
In Township 42,	15,501 acres
In Township 5 after deducting also R. R. right of way, 32 acres,	11,170 acres
In Township 38,	3,814 acres
In Triangle north of Town 38,	7,206 acres
In Township Number 8, Parcel A,	2,453 acres
In Township Number 8, Parcel B,	1,762 acres
In Township Number 8, Parcel C,	2,712 acres
In Township Number 8, Parcel D,	3,753 acres
In Township Number 8, Parcel E,	2,468 acres
In Township Number 8, Parcel F,	2,141 acres
Total conveyed,	$75,377 acres

It is expressly agreed and understood that the said above described land is subject to the following exceptions and reservations, viz.:

First Exception and Reservation.—Excepting therefrom the right of way of the Mohawk and Malone Railway Company wherever the same is located across, along and upon any of the lands above described as the same is located by maps of the route and profile of the St. Lawrence and Adirondack Railroad Company heretofore filed in the offices of the clerk of Herkimer County and of the clerk of Hamilton County, to which reference is hereby made, the said St. Lawrence and Adirondack Railroad Company having been heretofore consolidated under the laws of the State of New York with other railroad companies, forming thereby the Mohawk and Malone Railway Company; and excepting and reserving also, for the benefit of the said Mohawk and Malone Railway

SALMON LAKE.—RED HORSE CHAIN.
Township 43, Herkimer Co. (Webb Purchase.)

Company, the right to cut out and remove trees along the east side of the said right of way on Township eight John Brown's Tract, and clear the ground for the sole purpose of affording to passengers on said railway a view from car windows of the mountain scenery in the valleys to the east, said cutting and clearing to be under the supervision of the Board of Fisheries, Game and Forests, and with their permission, and to no greater an extent than they sanction. Reserving also to the said Mohawk and Malone Railway Company the right to cut and remove any trees that may stand upon the lands above agreed to be conveyed along the right of way of said railway, which are likely to fall or be blown upon the tracks of the said Railway Company. And excepting and reserving also the easement of all located highways across, along or upon said land, and also the easement of the highway leading from Beaver River Station on the Mohawk and Malone Railway to the road known as the State Road leading to Stillwater; and also the easement of the roadway from the said highway to Stillwater, to the Beaver River reservoir, to the point known as Grassy Point, on the Beaver River, and also the easement of a projected highway across Township eight from Racquette Lake to Clearwater, and also the easement of a projected highway around the Fulton Chain of Lakes from Old Forge to the upper end of Fourth Lake.

Second Exception and Reservation.—It is also expressly agreed and understood that all of the merchantable soft wood sawing timber standing or being upon Township eight (8) John Brown's Tract, is reserved together with the right of removing the same in the usual course of lumbering operations, doing no unnecessary damage. The manner in which said sawing timber is to be removed is contained in contracts between the parties of the first part and Lemon Thomson, John A. Dix and Edward Thomson, Jr., and Firman Ouderkirk, copies of which are hereto annexed marked respectively B, C, and D, and the same form a part of this contract the same as if here set forth in full.

It is expressly understood and agreed that no softwood sawing timber is to be cut from said Township eight (8) under said contracts hereto attached after eight years from the first day of January, 1895. It being understood, however, that this stipulation does not prevent the removal of any timber previously cut under said annexed contracts upon said Township eight (8) for one year after the expiration of said eight years.

Third Exception and Reservation.—It is also expressly agreed and understood that all the merchantable soft wood sawing timber is also reserved upon all the territory upon the east third of Township five (5) south of the Beaver River, together with the right of removing such timber in the usual course of lumbering, doing no unnecessary damage. The said merchantable softwood sawing timber now being under contract for the removal thereof with one Firman Ouderkirk, which said contract is dated the 21st day of October, 1893, a copy of which is annexed hereto marked "D," and the same forms a part of this contract as if here set forth in full. It is covenanted and agreed by the parties of the first part that all lumbering operations under the said Ouderkirk contract, upon the lands above agreed to be sold and conveyed, are to cease on or before the first day of January, 1898.

Fourth Exception and Reservation.—It is also agreed and understood that the softwood sawing timber is reserved upon the following lots in Township forty-two (42), Totten & Crossfield's Purchase, viz., as are south of the Beaver River: Lots thirty-nine (39), forty (40), forty-one (41), forty-two (42), forty-three (43), forty-four (44), forty-five (45), fifty-two (52), fifty-three (53), fifty-four (54), fifty-five (55), fifty-six (56), sixty-five (65), sixty-six (66), sixty-seven (67), sixty-eight (68), sixty-nine (69), seventy (70), seventy-one (71), seventy-two (72), seventy-three (73), seventy-four (74), seventy-five (75), seventy-six (76), eighty-five (85), eighty-six (86), eighty-seven (87), eighty-eight (88), eighty-nine (89), ninety (90), ninety-one (91), ninety-two (92), ninety-three (93), ninety-four (94), ninety-five (95), ninety-six (96), one hundred five (105), one hundred six (106), one hundred seven (107), one hundred eight (108), one hundred nine (109), one hundred ten (110), one hundred eleven (111), one hundred twelve (112), one hundred thirteen (113), one hundred fourteen (114), one hundred fifteen (115), one hundred sixteen (116).

The merchantable softwood sawing timber upon so much of the said lots in Township forty-two (42) Totten & Crossfield's Purchase, which is south of the Beaver River, is under contract for the removal thereof with the said Firman Ouderkirk and with Patrick and Dennis Moynehan, constitut-

ing the firm of "Moynehan Brothers"; a copy of said contract between the parties of the first part and said Moynehan Brothers is hereto annexed, marked "E," and forms a part of this contract.

Fifth Exception and Reservation.—It is also agreed and understood that a right of way is reserved for the removal of the timber on the water-shed of the Oswegatchie River remaining upon the lands of the parties of the first part not herein agreed to be conveyed, such right of way to be across and over the triangle north of Township thirty-eight (38), Totten & Crossfield's Purchase, and Township thirty-eight (38), Totten & Crossfield's Purchase, to be by roadways only.

Sixth Exception and Reservation.—Reserving also a right of way for teams, wagons and vehicles where now used from the railway stations at Beaver River and Little Rapids on the Mohawk and Malone Railway and over said lands hereinbefore agreed to be sold and conveyed to Township thirty-nine (39), Totten & Crossfield's Purchase, for the use of the owners of said Township thirty-nine (39), Totten & Crossfield's Purchase.

Seventh Exception and Reservation.—It is expressly agreed and understood that the right is reserved to said Webb to cut and remove any of the decaying timber now standing within the present or enlarged flow ground of the said Beaver River reservoir upon the lands above conveyed.

Second.—For a valuable consideration to them duly paid, the parties of the first part covenant and agree that none of the remaining lands in Township eight (8) belonging to the said parties of the first part, or either of them, which have heretofore not been contracted to be sold, shall be used or sold for commercial, agricultural, manufacturing or other purposes, except as mentioned in the said Thomson contracts, but the same shall by the parties of the first part be used and sold exclusively for permanent forestry, hotel, camp and cottage purposes, and that in all deeds of the same from the parties of the first part or either of them, their heirs, successors or assigns, the said lands shall be subject to the restriction binding the purchaser thereof, his heirs and assigns to a perpetual use of said lands for permenent forestry, hotel, camp and cottage purposes. It being understood and agreed that the persons with whom contracts are now outstanding for the sale of lands in said Township eight (8) are John B. Ehrehart, all that part thereof situate west of the railway of the Mohawk and Malone Railway Company; D. B. Sperry, one hundred and five (105) acres, five (5) acres situate near the Big Moose Station, so-called, and the remaining one hundred (100) acres near Eagle Bay adjoining the Fulton Chain allotment; Mary Ann Powers, lots one (1) and two (2); and Mary Sprague, ten acres near the Fulton Chain of Lakes.

It is also for a valuable consideration further agreed that said parties of the first part, or either of them, will not sell to any individual or corporation any lake or substantially the whole of the land under water and immediately surrounding a lake in any of the portions of said Township eight retained by them, but that such remaining lands in Township eight shall be sold by the parties of the first part at such times as they may elect in the same manner and for the same purposes as lands surrounding the Fulton Chain of Lakes have heretofore been or now are being sold by said W. S. Webb, of the first part. The intent being that the parties of the first part will not dispose of their lands in said Township eight (8) so as to afford any individual or club, or association of individuals or any corporation or corporations an opportunity to control the exclusive use of any lake in said Township eight (8) for a private preserve, or the exclusive hunting or fishing privileges of any lands beyond their individual camp site or hotel site. It being agreed and understood that no camp site sold shall exceed twenty-five acres in amount and that no hotel site shall exceed two hundred and fifty acres in amount. It is further promised, understood and agreed that the public shall have the unrestricted right to hunt and fish upon all of the lands in said Township eight (8) which have not heretofore been sold or which in the future may not be sold for camp sites or hotel sites; it being expressly agreed and understood that this hunting and fishing privilege shall not apply to any camp or hotel sites that the parties of the first part, or either of them, their heirs or assigns have heretofore sold or hereafter may sell or convey.

It is expressly agreed and understood that the parties of the first part, their heirs or assigns do not relinquish or release the right to use any present established ways, highways, trails or ways of com-

munication by land or by water from or to any of their lands in said Township eight (8); it being expressly agreed and understood that the parties of the first part, their heirs and assigns shall have the same highway rights of every kind or nature or means of communication upon, across or over said Township eight (8) the same as if the agreement and the deed to be given hereunder had not been made or executed. It is also agreed and understood that all trails and ways of communication of every kind or nature by land or by water across and over the said lands in Township eight (8) belonging to the parties of the first part not heretofore sold or contracted to be sold shall forever remain open and free to the People of the State of New York.

Third.—The parties of the first part, for the consideration herein expressed, jointly and severally agree to release and relinquish to the State and the people of the State of New York any and all claims for damages against the State of New York or any officer or person acting by its authority to lands not purchased and owned and retained by the said Webb and Ne-ha-sa-ne Park Association, and particularly all claims for damages which they, or either of them, have sustained by reason of the construction by the State of New York of the present reservoirs upon the Beaver River at Stillwater and upon the Middle Branch of the Moose River at Old Forge, both in the Town of Wilmurt, Herkimer County, New York, and to discontinue and withdraw from the Board of Claims the aforesaid claim now pending on behalf of said William Seward Webb, such discontinuance and withdrawal to be without costs as against either party.

And the parties of the first part also jointly and severally agree that the People of the State of New York, acting by and through their proper or official agents or their legal representatives by whatsoever name known or designated, may, so far as the parties of the first part, their legal representatives, heirs, successors or assigns are concerned, at any time hereafter raise the said dam at Stillwater on the Beaver River to the height of thirteen feet above the crest of the present dam; and in case said dam at Stillwater is raised to the height of thirteen feet above the crest of the present dam the said parties of the first part jointly and severally for themselves, their legal representatives, successors and assigns agree to release and relinquish any and all claims for damages that may be occasioned to any lands owned by the parties of the first part or either of them by reason of such raising of said dam at Stillwater on the Beaver River thirteen feet above the crest of the present dam. It being expressly agreed and understood that it is not intended hereby to release any damages that may be occasioned to any of the remaining lands of the parties of the first part or either of them by the raising of the said Beaver River reservoir more than thirteen feet above the crest of the present dam at Stillwater.

Fourth.—It is also agreed and understood that the deed of conveyance above provided for shall contain a covenant of warranty on the part of the parties of the first part warranting and defending the parties of the second part in the quiet and peaceable possession of all of the lands herein agreed to be conveyed as against any person or persons lawfully claiming the same or any part thereof, except as follows:

(1) Excepting all highways that may be now located across or over any of the lands herein agreed to be conveyed as to which said highways said covenant of warranty shall not apply.

(2) Except as to all tax sales, tax deeds or tax titles which may originate from the non-payment of taxes levied after the first day of January, 1896, as to which said taxes, tax deeds, tax sales or tax titles this covenant of warranty does not apply.

(3) It is expressly understood and agreed that this covenant of warranty shall not apply to a tract of land now in the lawful possession of the party of the first part (the Ne-ha-sa-ne Park Association) containing about two thousand (2,000) acres of land and described as follows: All that tract of land in the north-east quarter of Township thirty-eight (38), Totten & Crossfield's Purchase, situate in the town of Long Lake, Hamilton County, N. Y., bounded and described as follows: Beginning at a point on the north line of Township thirty-eight, Totten & Crossfield's Purchase, one hundred and twenty-five (125) chains easterly from the north-west corner of the north-east quarter of said township; thence easterly along the northerly line of said township one hundred seven and fifty hundredths (107.50) chains more or less to the south-east corner of the triangle north of Township

thirty-eight which is a hemlock tree. Thence south eighty-six degrees east seven and sixty-five hundredths (7.65) chains to a cedar post on the east line of said Township thirty-eight and west line of Township thirty-seven (37); thence southerly along the line between said Townships thirty-seven and thirty-eight one hundred seventy-two chains more or less to the north-east corner of a small tract of land surrounding the west end of Bog Lake heretofore sold and conveyed by said William Seward Webb to Charles A. Tatum and Edmund C. Converse; thence westerly at right angles to said Township thirty-eight line and along the north line of said last mentioned small tract forty-five (45) chains to the north-westerly corner of said last mentioned small tract so sold and conveyed to said Tatum and Converse; thence forty (40) degrees fifteen (15) minutes to the right, one hundred twenty (120) chains; thence thirty-three (33) degrees to the left one hundred three (103) chains to the line between the east one-half and the west one-half of said township thirty-eight; thence northerly along said last mentioned line ten chains to a point eighty (80) chains south on said line from the north-west corner of the north-east quarter of said Township thirty-eight; thence east, parallel with the north line of said Township, one hundred twenty-five (125) chains; thence north at right angles to the last mentioned line eighty (80) chains to the place of beginning containing two thousand fourteen (2,014) acres. But in case the title of said Association in said parcel of land shall be defective, then for value received the parties of the first part covenant and agree to pay to the People of the State of New York the sum of seventeen thousand ($17,000) dollars upon demand duly made of said first parties by said parties of the second part through their duly authorized officers or agents.

Fifth.—The party of the second part in consideration of the premises agrees to pay the parties of the first part the sum of six hundred thousand dollars ($600,000) for the aforesaid deed and release, which said sum of six hundred thousand dollars ($600,000) is to be paid as follows, viz.: Fifty thousand dollars ($50,000) is to be paid upon the execution and delivery by the parties of the first part to the party of the second part of the deed and release herein provided for on or before the 29th day of January, 1896, and the remaining five hundred fifty thousand dollars ($550,000) is to be paid in ten equal annual installments of fifty-five thousand dollars ($55,000), each one of which said installments is to be paid at the end of each and every year from the 29th day of January, 1896, with interest at the rate of three per cent. per annum, payable semi-annually, the payment of which said sum of five hundred fifty thousand dollars ($550,000) the said Commissioners of the Board of Fisheries, Game and Forests of the State of New York were authorized to provide for in said Chapter 561, Laws 1895, and pursuant thereto the said Commissioners of the Board of Fisheries, Game and Forests of the State of New York authorize and direct the Comptroller of the State of New York to issue ten certificates of indebtedness under his official hand and seal for the remaning five hundred fifty thousand dollars, each of said certificates of indebtedness being for the principal sum of fifty-five thousand dollars with interest at the rate of three per cent. per annum payable semi-annually, said certificates of indebtedness to be consecutively numbered from one to ten both inclusive and dated as of the 29th day of January, 1896, as herein provided for; said certificate Number One is to be due and payable as aforesaid one year from the date thereof with interest at the rate of three per cent. per annum payable semi-annually; said certificate Number Two to be due and payable as aforesaid two years from the date thereof with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Three is to be due and payable as aforesaid three years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Four is to be due and payable as aforesaid four years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annualy; said certificate Number Five is to be due and payable as aforesaid five years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Six is to be due and payable as aforesaid six years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Seven is to be due and payable as aforesaid seven years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Eight is to be due and payable as aforesaid eight years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number

Nine is to be due and payable as aforesaid nine years from the date thereof, with interest at the rate of three per cent. per annum, payable semi-annually; said certificate Number Ten is to be due and payable as aforesaid ten years from date thereof, with interest at three per cent. per annum, payable semi-annually.

Annexed hereto marked "A" and forming a part of this contract the same as if here set forth in full, is a form of said certificate of indebtedness, authorized and approved of by the parties of the second part.

It is expressly agreed and understood that said certificate shall be made payable to the said William Seward Webb, or his order, and all payments or certificates so issued to the said William Seward Webb, or his order, shall be deemed to be a payment to said Ne-ha-sa-ne Park Association of the first part, and as between the parties of the first part all payments herein provided for shall be made to the said Webb of the first part.

Sixth.—And it is especially agreed and understood that the deed herein provided for shall contain a release of dower to all lands herein conveyed upon the part of Eliza Osgood Webb, wife of the said Webb of the first part, who is to join in said conveyance, and shall be delivered to the Comptroller of the State of New York on or before the 29th day of January, 1896, and upon the delivery thereof to the said Comptroller of the State of New York the said Comptroller shall draw his warrant upon the Treasurer of the State of New York for the aforesaid sum of fifty thousand dollars ($50,000), payable to said Webb of the first part, and issue ten certificates of indebtedness as herein provided for, for the remaining five hundred and fifty thousand dollars. Annexed hereto marked "F" is a form of deed to be executed by the parties of the first part as herein provided.

Annexed hereto marked "G" is a sworn survey of said lands.

And it is also agreed and understood that on or before the delivery of said deed the parties of the first part will deliver to the Attorney-General of the State of New York complete and satisfactory abstracts of title of the premises herein described certified to by the clerks of Herkimer and Hamilton Counties; also a search certified to by the Comptroller of the State of New York as to any and all taxes upon said lands. Also certified searches certified by the clerks of the Circuit and District Courts of the United States of the district where the lands above described are located, certifying as to any and all judgments that may be liens upon said lands for ten years last past. This contract shall be subject to the approval of the Attorney-General of the State of New York as to the title to the lands hereby contracted to be conveyed.

Seventh.—The parties of the first part covenant and agree to cut a trail on the lands above agreed to be conveyed from Big Crooked Lake in Township forty-three (43) down through the valley of the outlet of said lake to the junction of said outlet with the trail leading from Gull Lake across the triangle north of Township thirty-eight (38), such trail to be cut by the parties of the first part within one year from the date hereof under the direction of the Commissioners of the Board of Fisheries, Game and Forests of the State of New York as to location and to their satisfaction.

The parties of the first part also covenant and agree at the request of the Commissioners of the Board of Fisheries, Game and Forests to cut out a roadway from the road from Beaver River Station across said Township forty-two (42) on the lands above agreed to be conveyed so as to connect with the road known as the State Road (Carthage and Lake Champlain Road) at or near the boundary line of Township thirty-nine (39), said road to be cut within one year from the date hereof at the request of the parties of the second part or their successors, and to be located as they shall request and be cut to their satisfaction. It being understood and agreed that under this agreement the parties of the first part are not to be liable for the making of any road beyond the cutting of trees, bushes, etc., from such roadway.

Eighth.—All of the covenants and agreements herein contained shall bind the heirs, executors, administrators and successors of the parties hereto.

In Witness Whereof the said Webb of the first part has hereunto set his hand and seal, and the Ne-ha-sa-ne Park Association of the first part has hereunto caused its corporate seal to be affixed and these presents to be signed by its President; and the party of the second part has caused these

presents to be signed and sealed by Barnet H. Davis, Henry H. Lyman, William R. Weed, Charles H. Babcock and Edward Thompson, as Commissioners of the Board of Fisheries, Game and Forests of the State of New York.

WILLIAM SEWARD WEBB. [L. S.]

Witness:
EDWARD M. BURNS.

[Corporate Seal.]

THE NE-HA-SA-NE PARK ASSOCIATION,
By HENRY L. SPRAGUE, *President.*
BARNET H. DAVIS. [L. S.]
HENRY H. LYMAN. [L. S.]
WILLIAM R. WEED. [L. S.]
CHARLES H. BABCOCK. [L. S.]
EDWARD THOMPSON. [L. S.]

STATE OF NEW YORK, } *ss.:*
County of Albany, }

On this 2d day of January, 1896, before me, the subscriber, personally appeared William Seward Webb, to me known, and known to me to be the same person described in and who executed the foregoing instrument, and he duly acknowledged that he executed the same.

[Notarial Seal.]

JAS. W. BENTLEY,
Notary Public, Albany County.

STATE OF NEW YORK, } *ss.:*
City and County of Albany, }

On this 2d day of January, in the year 1896, before me, the subscriber, personally appeared Henry L. Sprague, to me known and known to me to be the President of the Ne-ha-sa-ne Park Association described in and who executed the foregoing instrument, and he duly acknowledged that he executed the same. And the said Henry L. Sprague, being by me duly sworn, did depose and say that he resides in the City, County and State of New York. That he is the President of the Ne-ha-sa-ne Park Association named in and who executed the foregoing instrument. That he knows the corporate seal of said Ne-ha-sa-ne Park Association and that the seal affixed to the foregoing instrument is the corporate seal of said Ne-ha-sa-ne Park Association. That deponent affixed said seal to the foregoing instrument and signed the same as President of the Ne-ha-sa-ne Park Association under authority and direction and by virtue of a resolution of the Board of Directors of said Ne-ha-sa-ne Park Association.

HENRY L. SPRAGUE.

Sworn to and subscribed before me this 2d day of January, 1896.

[Notarial Seal.]

JAS. W. BENTLEY, *Notary Public, Albany County.*

STATE OF NEW YORK, } *ss.:*
County of Albany, }

On this 31st day of December, in the year 1895, before me, the subscriber, personally appeared Barnet H. Davis, Henry H. Lyman, William R. Weed, Charles H. Babcock and Edward Thompson, to me known and known to me to be the Commissioners of the Board of Fisheries, Game and Forests of the State of New York, and they each duly acknowledged that they executed the same and acknowledged that they executed the same as such Commissioners and as the act and deed of the People of the State of New York in whose behalf they were acting.

[Notarial Seal.]

JAS. W. BENTLEY,
Notary Public, Albany County.

At a special meeting of the Commissioners of the Board of Fisheries, Game and Forests of the State of New York, held at the Capitol in the City of Albany, on the 31st day of December, 1895.

Present—B. H. Davis, President; H. H. Lyman, W. R. Weed, C. H. Babcock, Edward Thompson.

On motion of Mr. H. H. Lyman, it was unanimously resolved that the Commissioners of the Board of Fisheries, Game and Forests of the State of New York enter into the foregoing contract with William Seward Webb and the Ne-ha-sa-ne Park Association, and that the Comptroller of the State of New York be directed to draw his warrant payable to William Seward Webb on the Treasurer of the State of New York for the sum of fifty thousand dollars for and on account of the foregoing contract, and that the said Comptroller of the State of New York be authorized and directed to issue certificates of indebtedness on the part of the State of New York as provided for in the foregoing contract to said William Seward Webb and the Ne-ha-sa-ne Park Association, and that the said foregoing contract together with this resolution be directed to be recorded and entered in the book of records in the office of the said Board of Fisheries, Game and Forests.

[Seal.] F. B. MITCHELL,
Secretary.

"A."

CERTIFICATE OF INDEBTEDNESSS OF THE STATE OF NEW YORK ISSUED PURSUANT TO THE AUTHORIZATION OF THE COMMISSIONERS OF THE BOARD OF FISHERIES, GAME AND FORESTS OF THE STATE OF NEW YORK, UNDER LAWS OF 1895, CHAPTER 561.

Certificate No.

OFFICE OF THE COMPTROLLER OF THE STATE OF NEW YORK,
ALBANY, N. Y., *January 29th*, 1896.

THIS CERTIFIES that the State of New York is indebted unto William Seward Webb, of the City, County and State of New York, in the sum of fifty-five thousand dollars ($55,000), the same being part of the purchase price of the lands for the Adirondack Park, heretofore made by the Commissioners of the Board of Fisheries, Game and Forests, pursuant to Laws 1895, Chapter 561, and approved of by the Commissioners of the Land Office of the State of New York, and that the Treasurer of said State of New York will, upon the warrant of the Comptroller of the State of New York, pay to the said William Seward Webb, or to his order, on the day of , 18 , at the office of the Treasurer of the State of New York, the sum of fifty-five thousand dollars ($55,000), with interest thereon at the rate of three per cent. per annum, payable semi-annually.

IN WITNESS WHEREOF, the said Comptroller of the State of New York has hereunto set
[L. S.] his hand and official seal this 29th day of January, 1896.

ALBANY, N. Y., *December* , 189 .
OFFICE OF THE BOARD OF FISHERIES, GAME AND FORESTS OF THE STATE OF NEW YORK.

The foregoing certificate of indebtedness is hereby approved pursuant to Laws 1895, Chapter 561.

BARNET H DAVIS,
HENRY H. LYMAN,
WILLIAM R. WEED,
CHARLES H. BABCOCK,
EDWARD THOMPSON,
Commissioners of the Board of Fisheries, Game and Forests of the State of New York.

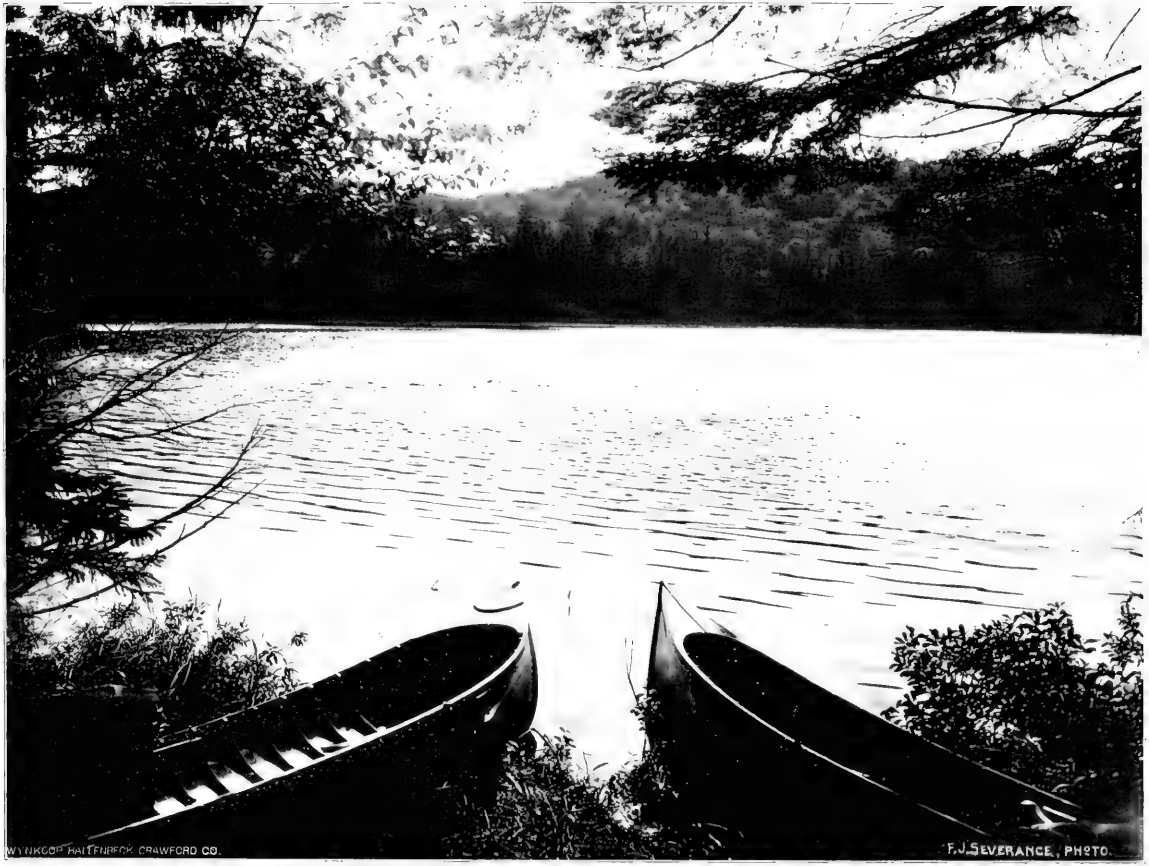
Attest:
[Seal.]
Sec.

"B"

THIS AGREEMENT, made this 7th day of February, 1894, by and between William Seward Webb, of the City, County and State of New York, party of the first part, and Lemon Thomson, of Thomson's Mills, N. Y., Edward Thomson, Jr., of Glens Falls, N. Y., and John A. Dix, of Thomson's Mills, N. Y., parties of the second part.

WITNESSETH, the party of the first part sells and hereby grants and conveys unto the parties of the second part the right and privilege to cut and take during the time stated herein, all the pine, spruce, balsam, hemlock, tamarack, cedar, cherry, ash, basswood and poplar timber, not less than ten (10) inches in diameter at three (3) feet above ground, and suitable for lumbering or manufacturing purposes, now standing on the land of the said party of the first part in Township eight (8) of John Brown's Tract (so called) having a slope or water-shed to the Moose River or its branches or tributaries, excepting all such timber standing on such lands as have been surveyed and laid off into lots along the shores of Second, Third and Fourth Lakes, of the Fulton Chain of Lakes, and excepting also the timber standing within a line to be run at the expense of the party of the first part around and not more than one-quarter mile distant from the shores of such bodies of water as the said party of the first part shall elect to be suitable for hotel, camping or sporting purposes, it being understood that the said line will be run at the maximum distance from the shores of said bodies of water only where necessary to utilize the said shores within the said line for sale or occupancy for hotel, cottage or camping purposes, and that where the party of the first part shall omit to indicate the distance from any body of water by causing the said line to be run as aforesaid, the parties of the second part shall cut over the lands around such body of water close down to the water's edge, and it is agreed that the total amount of land so exempted from the operations of the parties of the second part shall not exceed in quantity and amount in excess of what would be required to reserve twenty (20) rods around the shores of all bodies of water, the area of which is herein excepted. The said timber so sold shall be paid for at the price of six dollars ($6) per acre of the land cut over by the parties of the second part as hereinafter provided, exclusive of the area of the lakes and ponds and lands herein exempted, all the cutting as it progresses to be over contiguous territory, and the lands cut over in any one year not to be isolated from the lands cut over in the previous year; and the said parties of the second part may draw the timber to and pile and bank the same on any of the lakes or streams on said lands belonging to the party of the first part, at suitable and convenient places, but not upon lands where camp sites are established or may be actually sold or leased, it being understood that the party of the first part is bound to provide the parties of the second part with suitable piling ground, and that the party of the first part will not sell or lease camp, hotel or cottage sites on any of the lakes or ponds within the boundaries of the lands herein referred to (excepting on Second, Third and Fourth Lakes of the Fulton Chain of Lakes) until after the parties of the second part shall have cut over the lands surrounding the same, without first permitting the parties of the second part to select and reserve the piling ground they may require for their operations under this contract; the parties of the second part to be allowed to designate piling ground on the land of the party of the first part on the shores of said Second, Third and Fourth Lakes of the Fulton Chain of Lakes within one year from the date hereof, selection to be confined to lands owned by the party of the first part at the time the selection is made, and the party of the first part agrees not to sell all the lands on either shore of any of the said lakes without first giving notice and reasonable time for such selection to the parties of the second part, and any and all selection of piling ground shall be mutually agreed upon by the parties hereto, their agents or representatives, to the end that future camp sites shall not be injured or destroyed by such piling grounds, but if not determined as aforesaid, prior to October first in each and every year, then the matter at issue shall be decided in the following manner: Each party hereto shall choose a disinterested person, and the two persons thus chosen shall choose a third person, and the decision of any two of the said three persons shall govern and bind the parties hereto, and in the event of the party of the first part being unable to furnish the parties of the second part suitable facilities for banking and piling logs to be cut from any particular portion of the lands herein referred to, by reason of the sale of any camp sites prior to the date hereof, the said particular portion of said lands shall be exempted from the operations of this contract, but if cut over shall be paid for and shall only be exempt when so decided by arbitration as provided for herein in the case where piling ground is to be decided upon.

The parties of the second part may drive and boom the timber through the lakes and down the streams on said lands and may erect such dams and booms and flood such lands and improve the water-ways and streams thereon in such manner and to such extent, and, in so doing, take and use



SUMMIT LAKE RED HORSE CHAIN.
Township 43, Herkimer Co. (Webb Purchase.)

such timber and other materials as shall be necessary in order to drive or float logs to mill, except that the Fulton Chain of Lakes and Big Moose Lake shall not be flooded or raised above the present high-water mark, nor shall the waters of any lakes be raised by the parties of the second part while the lakes are covered with ice, so as to destroy or injure growing timber, or after July 1st in each year, unless necessary to take advantage of a natural freshet at a later date to drive logs that remain after the spring drives. It is expressly understood and agreed that the party of the first part does not convey or grant any right to flood the Fulton Chain of Lakes, the waters of the same being subject to the rights of the State of New York for canal purposes. The navigation of the said lakes being a public highway for the purpose of floating logs by the laws of the State of New York, it is agreed on the part of the parties of the second part that the navigation of the said waters by boats shall not be unreasonably obstructed by them in their operations under this contract. And it is expressly agreed and understood that the waters back of any dams erected upon such lands shall not be held or retained longer than is necessary for the purpose of a timber drive.

The parties of the second part may build such roads and erect such camps on said lands to be cut over as may be necessary for the drawing of logs to the piling places and for carrying on lumbering operations, and in so doing may take and use therefor such and so much of the timber growing on said lands to be cut over as shall be fit and necessary, but the lumber camps shall not be located on the shores of lakes where the location is suitable for summer or sporting camps, nor shall roads be constructed so as to interfere with the grounds of camps, hotels or cottages; in case of any disagreement as to the proper location of either lumber camps or roads, the matter shall be referred to a committee of arbitration chosen as hereinbefore provided for in the matter of location of piling grounds and the exemption of lands not to be cut.

The parties of the second part may operate at and from one or more such points on said lands as they may deem proper, and shall, as their operations progress or extend, cut and remove all of the aforesaid timber sold to them and shall not cut upon or over the same land a second time, and shall cut and trim or lop the large branches of tops of trees left on the ground after their operations so the same will fall to the ground under the weight of winter snow; and in felling trees shall use care and diligence to cause them to be so felled as not to unnecessarily injure or destroy other trees standing on said lands.

The parties of the second part shall use due diligence also to prevent the starting of forest fires while conducting any of their operations hereunder, and every reasonable effort shall be made to subdue and extinguish any fires which may occur upon the lands herein referred to, whether the same be caused by their operations or otherwise.

The parties of the second part shall have eight (8) years from the first day of May, 1894, in which to cut the timber so sold to them on said lands, and may, if they deem it practicable, cut and remove the same in less time, no less than three thousand (3,000) acres to be cut over in any one year, provided that three thousand acres remain uncut, except where the cut of previous years exceeds the average of three thousand acres per year, in which event the excess may be counted as applying on the cut of the following year, the timber cut, drawn and piled in the last year of operations hereunder to be removed as soon as practicable thereafter in the usual course of lumbering, when all rights of the parties of the second part shall cease and terminate.

The area of land to be cut over and paid for in each year hereunder shall if possible be agreed upon by the parties hereto, or their agents or representatives, by estimate or otherwise, but if not so agreed upon, then the same shall, prior to May 1st in the year following the said cutting, be determined by a correct survey or measurement of the lands so cut over by a competent and disinterested surveyor, to be agreed upon by the parties hereto, or their respective agents or representatives, and each party hereto shall bear and pay one-half the expense of such survey.

The parties of the second part agree to pay for the timber cut or taken by them from the area cut over in each year, on or before the first day of May in the following year, in value at the rate of six dollars (6) per acre as aforesaid, and in quantity not less than an average of three thousand (3,000) acres per year, and in case of failure to pay for timber cut, in any season, the right of the parties of

the second part to cut timber thereafter on said lands shall, at the option of the party of the first part, cease and terminate; and the parties of the second part may pay installments on or before the first days of February, March, April and May, on account of timber cut during the preceding year, and on all such payments made before May first shall be allowed interest to that date at the legal rate.

The ownership of all the timber on the lands herein referred to, whether standing or cut into logs or lumber, shall be and remain in the party of the first part, until said timber is paid for by the parties of the second part, and the parties of the second part agree to take and pay for all the timber on the said land as aforesaid, and to cut over the area of all said lands not herein excepted, within eight (8) years from May first, 1894; and in case the parties of the second part shall require or need in their lumbering business upon the Moose River, or for their lumber-mill to be erected at the junction of the Moose River, or McKeever, so-called, more of the aforesaid timber in any one year than is taken from the three thousand (3,000) acres so to be cut over as aforesaid, then and in that case the parties of the second part agree to take such excess timber so to be used by them or needed by them in their said business from lands of said Webb in said Township number eight (8) before taking such timber from their own lands or other lands leased by them or upon which they may have or may have acquired lumber rights, provided they can with reasonable convenience take such extra lumber from the said lands of the party of the first part; and the parties of the second part agree to first cut over and take, during the continuance of this contract, such timber for all their lumbering business at Moose River and McKeever from the lands of said Webb in Township number eight (8) before taking such timber from their own lands, or from the lands upon which they may have or may have acquired lumber rights, provided the timber from the said lands is not unavoidably delayed in reaching the mill, thus making it imperative that timber be procured from other sources to supply their wants, and nothing herein contained shall be construed as relieving the parties of the second part from the obligation to pay for all the timber standing on the said land not specifically excepted herein, or to cut over the said land within the period of eight (8) years from the first day of May, 1894.

In case any lands to be cut over hereunder shall be burned over by fires occurring otherwise than by the negligence or agency of the parties of the second part, their contractors, agents or servants, or the timber thereon be injured or destroyed by the elements, the parties of the second part may, at their option, but shall not be obliged to, cut over said lands or take the timber therefrom.

The parties of the second part shall not permit fishing or hunting upon the lands of the party of the first part by any one in their employ or under their authority; and shall promptly report or cause to be reported to the party of the first part, or his agents, any such trespass coming to their knowledge.

The party of the first part shall have the privilege of keeping an inspector upon the ground during the active operations of the parties of the second part hereunder, to see that the provisions hereof are duly carried out, which inspector shall be boarded at the camps of the parties of the second part.

It is especially understood and agreed between the parties hereto that the three hundred and sixty (360) acres of land, or thereabouts, cut over by Garmon and Harvey, as trespassers, near Third Lake, of the Fulton Chain, shall be exempt from the operations of this contract, and that the parties of the second part may reject such portion of the five hundred acres of land lying west of the line of the Mohawk and Malone Railroad as may prove to them to have had the merchantable spruce timber removed therefrom in cutting ties and trestle timber for said railroad.

It is expressly understood and agreed that one of the considerations for the conveyance herein of the rights hereby acquired by the parties of the second part is that the timber product of the lands herein referred to shall reach market from a point known as McKeever, on the Mohawk and Malone Railway, as freight over the said railway. And it is agreed that no portion of said product shall be floated down the Moose River beyond the said point known as McKeever or sold so as to divert the same as freight from the said railway, unless a committee of arbitrators appointed as hereinbefore provided for shall decide that the freight rates charged the parties of the second part over said railway are such as to unjustly discriminate against the parties of the second part.

It is hereby agreed and understood that this contract shall bind the parties hereto, their heirs, executors, administrators, successors and assigns, and all the agreements herein contained are joint and several on the part of the parties of the second part.

IN WITNESS WHEREOF the parties hereto have executed these presents the day and year first above mentioned.

WM. SEWARD WEBB. [L. S.]
LEMON THOMSON. [L. S.]
EDWARD THOMSON, JR. [L. S.]
JNO. A DIX. [L. S.]

Witness: CURTIS N. DOUGLAS.
Witness for Edward Thomson, Jr.: W. W. BORST.

STATE OF NEW YORK, } ss.:
County of New York, }

On this sixteenth day of February, 1894, before me, the subscriber, personally appeared William Seward Webb, to me known and known to be the same person described in and who executed the foregoing instrument, and he duly acknowledged the execution thereof.

FRANK SMITH,
Notary Public, Westchester Co.

Certificate filed in New York County.

STATE OF NEW YORK, } ss.:
City and County of Albany, }

On this 14th day of February, 1894, before me, the subscriber, personally appeared Lemon Thomson and John A. Dix, to me known and known to be the same persons so named and described in and who executed the foregoing instrument, and they duly acknowledged the execution thereof.

J. M. LAWSON,
Commissioner of Deeds, Albany, N. Y.

STATE OF NEW YORK, } ss.:
County of Herkimer, }

On this 26th day of February, 1894, before me, the subscriber, personally appeared Edward Thomson, Jr., to me known and known to be the same person described in and who executed the foregoing instrument, and he duly acknowledged the execution thereof.

ELMER BLAIR,
Notary Public, Herkimer Co., N. Y.

For value received the Ne-ha-sa-ne Park Association sells, assigns, transfers and sets over unto the United States Mortgage Co. all its right, title and interest in and to the within contract to be held by the said United States Mortgage Co. as additional and collateral security for payment of a loan of $300,000 made by said United States Mortgage Co. on July 2d, 1894.

IN WITNESS WHEREOF the Ne-ha-sa-ne Park Association has hereunto subscribed its name and affixed its seal this 18th day of July, 1894.

NE-HA-SA-NE PARK ASSOCIATION,
By HENRY L. SPRAGUE,
President.

Attest:
WILLIAM L. CORDEN,
Secretary.

For value received I do hereby sell, assign, transfer and set over unto the Ne-ha-sa-ne Park Association all my right, title and interest in and to the within contract.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 18th day of July, 1894.

In presence of

WM. SEWARD WEBB.

"C."

THIS AGREEMENT, made this 12th day of November, in the year of our Lord one thousand eight hundred and ninety-five, by and between William Seward Webb of the City, County and State of New York and the Ne-ha-sa-ne Park Association, a domestic corporation created and organized under the laws of the State of New York, parties of the first part, and Lemon Thomson, of Thomson's Mills, N. Y., Edward Thomson, Jr., of McKeever, N. Y., and John A. Dix, of Thomson's Mills, N. Y., composing the Moose River Lumber Company, parties of the second part.

WITNESSETH, that the parties of the first part hereby agree to sell and convey unto the parties of the second part and the parties of the second part agree to take and pay for the right and privilege to cut and take all the pine, spruce, balsam, hemlock, tamarack, cedar, cherry, ash, basswood and poplar timber not less than ten inches in diameter, three feet above the ground and suitable for lumber or manufacturing purposes, at the rate of six dollars ($6) per acre, now standing on the land of the parties of the first part in Township eight (8), John Brown's Tract, so-called, Town of Wilmurt, Herkimer County, N. Y., having a slope or water-shed to the Twitchell Creek, and Beaver River or its branches or tributaries, excepting therefrom that portion thereof which is under contract for lumbering with Firman Ouderkirk, such sale and purchase of the aforesaid soft wood timber is upon the same terms, conditions and limitations, and the said six dollars per acre shall be paid in the same manner as provided for in the contract, dated the 7th day of February, 1894, between said William Seward Webb of the first part and the parties of the second part for the sale and removal of the same kind of softwood timber upon that portion of said Township eight (8), John Brown's Tract, having a slope or water-shed to the Moose River or its tributaries. The intent of this agreement being that all the terms and conditions of said contract of the 7th day of February, 1894, so far as applicable to the Twitchell Creek water-shed on said Township eight, shall apply to and be considered a part of this agreement. It is expressly agreed and understood that no lumbering of any kind shall be conducted within a line of twenty rods around Twitchell Lake without the consent in writing of the parties of the first part, and that no lumber camps shall be built within forty rods of said Twitchell Lake. The same restrictions to apply to such other lakes situate within the above mentioned water-sheds as the parties of the first part shall designate in writing. This agreement to be annexed to the said contract of the 7th day of February, 1894, and to be deemed a part thereof.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the twelfth day of November, 1895.

(Signed) WILLIAM SEWARD WEBB. [SEAL]
THE NE-HA-SA-NE PARK ASSOCIATION. [SEAL]
By HENRY L. SPRAGUE,
President. [SEAL]

Signed and sealed and delivered in the presence of C. H. Burnett as to W. S. Webb and H. L. Sprague.

LEMON THOMSON. [L. S.]
JOHN A. DIX. [L. S.]
EDWARD THOMSON, JR.,
By JNO. A. DIX. [L. S.]
MOOSE RIVER LUMBER CO. [L. S.]

Signed and sealed in the presence of C. J. Cameron.

"D."

ARTICLES OF AGREEMENT made and entered into this 21st day of October, 1893, between William Seward Webb, of the City, County and State of New York, of the first part, and Firman Ouderkirk, of the Town of Ohio, County of Herkimer and State of New York, party of the second part.

WITNESSETH, that for and in consideration of the sum of one dollar ($1) each to the other in hand paid, the receipt whereof is hereby acknowledged, the parties hereto mutually agree to and with each other as follows, to wit:

The said party of the first part hereby grants to the said party of the second part the right to cut all the merchantable spruce, balsam, pine and cherry lumber on the territory within the following lines, to wit

BEGINNING AT THE south-west corner of that division of land known as the easterly third of Township number 5 John Brown's Tract; thence along the southerly line thereof to the north-west corner of Township Number 8, said tract; thence southerly on the west line of said Township number 8 to the intersection of a line run nearly parallel with the north line of said Township number 8 and along said line which passes thirty rods north of the most northerly bay of Twitchell Lake to the westerly line of Township number 42 Totten & Crossfield's Purchase; thence southerly along said westerly line to the south-west corner of said Township number 42; thence easterly on the southerly line of said Township number 42 to the south-east corner of lot number one hundred thirteen (113); thence northerly on the easterly line of said lot number one hundred thirteen (113) and lots one hundred eight (108), ninety-three (93), eighty-eight (88), seventy-three (73), sixty-eight (68), fifty-three (53), forty-three (43), thirty-eight (38), twenty-three (23), and eighteen (18), to the north-east corner of said lot number eighteen (18); thence westerly along the north line of said lot number eighteen (18) and of lots numbers nineteen and twenty (19, 20), and on a continuation of said line to the west line of the east third of Township number five (5) heretofore referred to; thence southerly along said west line to the place of beginning.

It being understood that the party of the first part may require the party of the second part to lumber all or any part of said Township number forty-two (42) lying west of the Hamilton county line, and that part of Townships thirty-eight and forty-three (38, 43) that would naturally come down the Beaver River Valley, provided that reasonable notice be given the party of the second part to prepare to do said work.

The party of the second part shall have the right to enter upon the lands of the party of the first part to make all necessary roads and bridges, and to do all other work essential to proper lumbering operations, including the cutting of small trees for the corduroying of roads where necessary, doing no unnecessary damage. It is further understood that no streams are to be dammed or land flooded without the consent of the party of the first part.

The party of the second part is not to cut any timber within thirty rods of any lake or pond, unless with the written consent of the party of the first part, the lines constituting the boundary about such lakes and ponds to be defined by the party of the first part, but the party of the second part is charged with the duty of calling for the said lines when about to lumber near any of said lakes or ponds.

The party of the second part shall have the privilege of erecting his mills, dwelling and other necessary buildings for the carrying on of the business herein provided, upon the lands of the party of the first part, the location therefor to be agreed upon between the parties hereto from time to time; no building to be put within the fence line except upon the written consent of the party of the first part; and the said party of the second part shall have the right and privilege of removing any buildings so erected, or any machinery or other property therein, from the lands of the party of the first part belonging to him, the said party of the second part, at the termination of this contract, or upon the abrogation thereof by agreement.

The spruce and balsam timber within the above described boundary lines shall not be cut smaller than eight inches in diameter at the small end of the log, and the pine, hemlock and cherry timber shall not be cut smaller than ten inches in diameter at the small end of the log. The spruce and hemlock logs shall be cut thirteen feet four inches long unless otherwise ordered by the party of the first part; and the pine and cherry logs shall be cut ten, twelve, fourteen and sixteen feet long unless otherwise ordered by the party of the first part, and as many of the longer lengths shall be secured as may be consistent with proper lumbering.

It is the intention of this contract to prevent the cutting of less than twelve inches at the stump, three feet from the ground, and smaller trees must not be cut down; also all decayed or seamy trees unfit for lumber must not be cut down. All butt logs suitable for sounding-board lumber are to be piled and skidded in the woods separately, unless otherwise ordered by the party of the first part.

No logs less than eight inches at the small end shall be accepted. All logs skidded after the year 1893 shall be on the skids before snow-fall of the year in which they were cut; and all the roads cut from the main road to the skidway so that hauling can commence with the first run of sleighing.

The lumber to be cut shall be cut in such form and sizes as may be directed by the party of the first part; and in the absence of specific directions from said party of the first part regarding such form and sizes, the party of the second part shall make such form and sizes of lumber as in his judgment can be manufactured from the log to the best advantage of the party of the first part.

All lumber other than sounding-board lumber manufactured under this contract must be manufactured in a workmanlike manner, square edged, butted and free from wane, and of ample thickness to allow for seasoning. The ends of all boards and planks under sixteen feet in length shall be trimmed to such specified lengths as are indicated by the length of logs from which said lumber is cut, unless otherwise ordered. Said lumber after being sawed and trimmed must be immediately piled, so as to prevent staining, unless loaded on cars by order of the party of the first part; and all lumber damaged in being manufactured or from being piled improperly shall be charged to the said party of the second part at the full cost of manufacturing from the stump, with stumpage value added, said stumpage value to be three dollars per thousand feet, board measure, of spruce and balsam, and five dollars per thousand feet, board measure, for pine and cherry. And the party of the second part agrees to pile each width of plank or boards in separate piles.

The party of the first part is to have the privilege of requiring all the butt logs of spruce trees suitable to make sounding-board lumber to be sawed into such, the logs being quartered so that the grain runs vertically and the heart of the logs to be edged away as shown in the drawing, thus:

The edges of the butt quarters of the spruce shall be sawed into what is known as bar stuff, one-half to be one inch thick and one-half to be one and one-quarter inch thick; the width of such bar stuff shall not measure more than three inches in the center so as not to waste any lumber that will make sounding-board stuff.

The party of the second part agrees to use a saw not thicker than a No. 10 gauge, to saw the quartered log into sounding-board lnmber.

The party of the first part reserves the right to use the roads made by the second part in case he desires to cut hemlock or other timber, peel and haul bark, or other commodities and products of the forest; it being understood that preference may be given to the party of the second part to do such work, but if such work be done by the party of the first part or any one acting by his consent or authority, then no interference shall be permitted to the work of the party of the second part while lumbering in that vicinity under this contract.

When logs are cut near township lines, they shall be so skidded that the timber from each township can be scaled separately before removing it to the mill, the said lines to be established by said party of the first part on the application of the party of the second part if not already so established.

The party of the second part shall use due diligence to prevent forest fires, while effecting operations under this contract, and agrees to properly furnish all the assistance in his power to extinguish any fires that may exist on the premises of the party of the first part within reach of any of the operations of said party of the second part, whether set by men in his employ or not. And the said party of the second part also agrees to furnish a night watchman, at his expense, at the mill with instructions to care for the logs and piled lumber as though it was the property of the party of the second part.

The party of the second part agrees to use due diligence to the end that no trees be felled so as to damage the fence or fences upon any of the above described lands, and to promptly give notice of any such mishap, and to take any and all reasonable and proper measures to repair any damages so done, at once, at his own expense. The party of the second part, however, shall not be required to fell or cut any trees that will surely fall upon the said fence or fences.

The party of the second part shall not permit fishing or hunting upon the lands of the party of the first part, by any one in his employ or under his authority, and shall promptly report or cause to be reported to the party of the first part, or his agents, any such trespass coming to his knowledge.

The party of the second part shall cut, haul, saw and manufacture into lumber so much of the timber within said boundary lines as may be called for by the party of the first part each and every year during the continuance of this contract; it being understood that the party of the first part is bound to direct the cutting of at least three million feet each year, and he may require to be cut not to exceed six million feet in one year, and shall give notice in writing to the party of the second part on or before the first day of May in each year of the approximate amount of timber in the log required to be cut and delivered at the mill during the period of one year from that date. The territory from which the timber shall be cut each year shall be so selected and agreed upon between the parties hereto as to insure the removal of the timber from points remote from the mill at which it is to be manufactured in like proportion as nearly as may be with the timber located convenient to said mill. The territory to be covered by each season's operations shall be agreed upon on or before the first day of June in each year, and all the merchantable timber covered by the terms hereof shall be removed from said territory so agreed upon for the season's operations.

The expense of scaling all logs under the operations of this contract, upon which an advance may be asked or be made, shall be borne by the said party of the second part; the party of the first part shall be entitled to have a representative who shall be assisted in securing and making a correct tally of all logs so scaled. Due notice shall be given by the party of the second part to the party of the first part prior to the scaling of any logs to enable the carrying out of this provision.

If the work done or to be done under the operations of this contract shall in the judgment of the party of the first part be in any way neglected or mismanaged, thereby involving his interests, the said party of the first part may call for the submission of the question as to whether the work is so neglected or mismanaged to three persons, one of whom shall be chosen by the party of the first part, one by the party of the second part, and the third agreed upon by the two thus chosen. The decision of the three, or a majority of them, shall be binding upon the parties to this contract, and the expense of procuring the judgment shall be borne by the party against whom the decision is rendered.

In the event of the decision being in favor of the party of the first part, he shall have the undisputed right to enter upon the work and take charge of the prosecution of the same or any part thereof, by his agents or otherwise, and at the expense of the party of the second part.

The party of the first part reserves the right to withdraw from the operations of this contract any portion or portions of the land within the boundaries named on payment to the party of the second part of a sum to be agreed upon as liquidated damages, which sum shall be agreed upon between the parties hereto, and based upon the approximate profit of the party of the second part, that would be derived from the manufacture of the timber covered by the terms of this contract, standing upon the said land so proposed to be withdrawn, but no claim for damages whatever shall be made by the party of the second part on account of the withdrawal of any land from the operation of this contract, after the first day of May, 1898.

The party of the first part also reserves the right to terminate this contract on the following terms, to wit: On six months' notice given in writing in the month of November of any year between the years 1893 and 1898, provided always that the said notice shall give the party of the second part a reasonable time to complete the manufacture of any timber already cut from the stump, and that said notice shall contain a stipulation that a forfeit shall be paid to the party of the second part on or before the day of termination named in said notice as follows: If the said notice be served during November, 1893, then two thousand dollars shall be the sum named in said notice to be so paid. If the said notice shall be served during November, 1894, then two thousand dollars shall be the sum named in said notice to be so paid. If the said notice shall be served during November, 1895, then fifteen hundred dollars shall be sum named in said notice to be so paid. If the said notice shall be served during November, 1896, then one thousand dollars shall be the sum named in said notice to be so paid. If the said notice shall be served in November, 1897, then five hundred dollars shall be the sum named in said notice to be so paid, and if the said notice be served in November, 1898, or during the month of November in any subsequent year, then no payment whatever shall be paid as a forfeit; it being understood that any payment so made in accordance with the notice so served shall be as liquidated damages agreed upon by the parties hereto and not as a penalty.

The party of the second part shall have the privilege of abrogating this contract at any time, by giving six months' notice in writing to the party of the first part of his intention so to do, provided that at the end of said six months he shall have manufactured and delivered as required herein all logs manufactured during the previous years, and shall forfeit his ownership in the buildings, machinery and plant for transacting the business herein provided for which may be upon the premises of the party of the first part, not as a penalty but as liquidated damages, the amount of which is hereby fixed and determined.

The party of the first part shall pay to the party of the second part upon the faithful performance of the agreements herein set forth, to be performed by the said party of the second part, the sum of seven and one-half dollars per thousand feet, board measure, for the manufacture from the stump, of spruce, balsam and pine, and ten dollars per thousand feet, board measure, for the manufacture from the stump of cherry. Hemlock and other timber may be required to be manufactured, by the party of the first part, upon terms to be agreed upon between the parties hereto. Any lumber sawed less than one inch thick shall be reckoned at face measure for the purpose of computing the saw-bill. The aforesaid prices to be paid for the manufacture of said lumber are understood to cover the whole cost and charges for the manufacture from the stump and the delivery of the same, when sawed, upon cars, properly loaded for shipment at the tail of the mill; or, when cars are not provided by the party of the first part, he, the said party of the first part, shall receive said lumber when sawed and properly piled within fifty rods of said mill, at points convenient to the railroad track. It being understood, however, that the party of the second part shall not be called upon to procure the laying of any railroad tracks in order to accomplish the loading, piling or delivery of any portion of said lumber; but that the said railroad tracks, if any are needed, are to be procured by the party of the first part.

The party of the first part shall advance the sum of two dollars per one thousand feet, scale measure, Doyle rule, on the tenth day of each month for all logs skidded and scaled during the preceding month. Also an additional sum of two and one-half dollars per thousand feet for all logs delivered at the mill during the preceding month. The balance of the prices named herein shall be due and payable on the 15th day of each month following that in which the lumber may be shipped or delivered in completed piles as aforesaid.

The party of the first part shall have the privilege of utilizing such of the refuse material at the mill as may not be needed for fuel; it being understood that the party of the second part shall remove and dispose of any portion of such refuse not so utilized by said party of the first part or used for fuel by the party of the second part.

It is also understood that the piling of the lumber in completed piles shall be done in a workmanlike manner, well protected from the weather, and that the piling or loading on cars as aforesaid shall be done on or before the first day of each month, for which payment is to be made; and the marking and measuring of said lumber so piled or loaded by the party of the second part shall constitute a delivery, but no lumber shall be considered delivered unless it shall be in completed piles when not loaded on cars as aforesaid.

The party of the first part shall mark and measure the completed piles or cause the same to be done monthly, on or before the first day of each month, on the application of the said party of the second part.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals the day and year first above written.

W. S. WEBB. [L. S.]
FIRMAN OUDERKIRK. [L. S.]

Witness: EDWARD M. BURNS.

"E."

THIS AGREEMENT, made and entered into, in duplicate, this eleventh day of September, 1895, by and between William Seward Webb, of the City, County and State of New York, of the first part, and Patrick Moynehan, of Glens Falls, N. Y., and Dennis Moynehan, Jr., of Newcomb, N. Y., both individually and as the firm of Moynehan Brothers, of the second part:

BEAVER RIVER — JUST ABOVE STATE DAM.
Showing Improvement made by Removing Stumps and Dead Timber.

WITNESSETH, that for and in consideration of the mutual covenants and agreements herein contained and for and in consideration of the sum of one dollar ($1) each to the other in hand paid at or before the execution of these presents, the receipt whereof is hereby acknowledged and confessed, have agreed as follows:

First.—The party of the second part agrees to cut and deliver as hereinafter provided all the merchantable sawing spruce, pine, balsam, cherry, basswood and white ash timber as may be determined by the party of the first part, standing or being on Township 42 Totten & Crossfield's Purchase, south of the railway of the Mohawk and Malone Railway Company and upon that portion of said Township 42 that is south of the Beaver River the timber from which is tributary to said railway, said timber so to be cut being on the following lots in said Township number forty-two (42), viz.: 54, 55, 56, 57, 67, 66, 65, 64, 74, 75, 76, 77, 87, 86, 85 and 84.

It is understood and agreed that in cutting said timber the parties of the second part are to cut the same into logs in lengths as follows: unless otherwise mutually agreed between the parties hereto, viz.: All spruce butts suitable for sounding-boards are to be cut into logs 13 feet 4 inches in length; all spruce and hemlock for lumber are to be cut into logs 13 feet 4 inches unless otherwise ordered; all pine is to be cut into logs 12 feet, 14 feet and 16 feet in length as the timber will best work to advantage; no 16-foot logs are to be cut unless called for by the party of the first part, save when necessary for a given piece to be cut to advantage, and in case the party of the first part calls for the cutting of 16-foot logs more than is so necessary, such additional 16-foot logs are to be subject to an extra charge of ten cents per standard log for cutting and hauling. The ash, cherry and basswood timber is to be cut into logs of the length of 10 to 14 feet as may be ordered by the party of the first part.

No spruce, hemlock or pine is to be cut that will not measure 10 inches in diameter at the stump 2 feet from the ground; and no ash, cherry or basswood to be cut that will not measure 12 inches in diameter at the stump two feet from the ground.

In cutting said timber the parties of the second part agree to do no unnecessary damage to the remaining timber not cut.

The parties of the second part also, for themselves, their contractors, servants and agents, agree not to set or spread any forest fires; and as to any fires that may occur on any of the lands of the party of the first part adjacent to or accessible to the parties of the second part or their contractors, servants or agents, the parties of the second part agree to aid with their servants, contractors or agents in all possible ways in the extinguishment thereof, whether such fires be occasioned by the servants, agents or contractors of the parties of the second part in their operations under this contract or otherwise.

In cutting said timber the parties of the second part agree to cut or lop all large branches of such tree tops as may remain on the ground, so that the weight of the winter's snow will crush the limbs to the ground.

The parties of the second part agree in cutting said logs to skid, draw and bank all the butt spruce logs suitable for sounding-board lumber separately from the other lumber, and for so keeping said sounding-board butts separate from the other logs the party of the first part agrees to give the parties of the second part five cents per standard log extra compensation.

It is expressly agreed and understood that the parties of the second part, their servants, agents or employees are not to hunt or fish upon said lands, and the parties of the second part agree to prevent all such hunting and fishing; and hunting and fishing implements are not to be brought upon the lands of the party of the first part by the parties of the second part, their servants, agents or contractors; and it is especially agreed that in case any of the employees or agents of the parties of the second part be apprehended in hunting or fishing upon the lands of the said Webb, or if hunting or fishing implements belonging to or used by said parties of the second part, their servants, agents or contractors be found upon the lands of said Webb, the following sum shall be forfeited as liquidated damages to be deducted by the party of the first part out of the moneys agreed to be advanced by him as hereinafter provided.

No fishing tackle or firearms shall be permitted by the parties of the second part, their servants, agents or contractors upon the lands of the party of the first part or in any of the lumbering camps, and for each and every violation thereof the parties of the second part agree to forfeit the sum of twenty-five dollars ($25.00), to be deducted as aforesaid.

No dogs are to be permitted or allowed in or about any of said lumber camps or upon the lands of the party of the first part by the parties of the second part, their servants, agents or contractors, under a penalty of ten dollars ($10.00) for each offense, to be deducted as above.

For every and each deer that may be killed by any of the employees, jobbers or servants of the parties of the second part, they, the parties of the second part, shall forfeit fifty dollars ($50.00), to be deducted as aforesaid.

It is agreed and understood that the parties of the second part in cutting said timber shall have the right to make roads and cut such necessary trees and timber for bridges, crossings, roadways, and camps, and to clear the land for skidways and rollways as may be necessary, doing no unnecessary damage.

It is expressly agreed and understood that no lumber-camps or barns shall be located around or on the shores of any lake or body of water, or on the Beaver River, and that no lumber camps or barns shall be located without the approval first had and obtained of the said party of the first part, and that no lumbering is to be done around the shores of the Beaver River or any lake or body of water nearer than twenty rods without the consent of the said party of the first part first had and obtained, and in case the parties of the second part or any of their contractors, servants or agents lumber along the shores of the Beaver River or any lake or body of water nearer than twenty rods unless by consent of the party of the first part, the parties of the second part shall forfeit the sum of $1,000 to be retained by the party of the first part out of the moneys to be paid by him.

Second.—And the parties of the second part covenant and agree to deliver all of said logs so cut on rollways at places in said Township 42 to be designated by the party of the first part, not to exceed four in number, ready for delivery on flat cars.

As to the delivery of the spruce butt logs suitable for sounding-boards, which are to be cut, skidded and drawn separately from the other logs, in case delivery thereof is required by the party of the first part at a point other than where the main cut of logs is delivered, the parties of the second part agree to deliver the same when and where so required on payment of such extra compensation as is reasonable and fair.

Third.—For performing the above services the party of the first part agrees to pay the parties of the second part as follows:

For cutting, skidding and delivering the said timber in rollways along the said railway, ready for delivery on the cars, ninety cents per nineteen inch standard log. In case the cars furnished by the railway company for transporting said logs be not provided with permanent stakes that will drop down for unloading them, the temporary stakes shall be furnished and provided by said parties of the second part, to be cut from the above lands of the party of the first part, said party of the first part agreeing to pay the expenses of cutting, sharpening and applying said stakes, it being understood, however, that he shall in no event be required to pay more than $5 per one hundred pieces.

The parties of the second part agree to load all of said logs upon the cars of the Mohawk and Malone Railway, the same to be loaded in a safe, substantial and workmanlike manner, for the sum of five cents per standard log, to be paid them by the party of the first part, provided, however, that cars be furnished them and handled by the said Mohawk and Malone Railway Company without unreasonable or unnecessary delay, said parties of the second part agreeing to load per day as many as two train loads of twenty cars each, provided they are so directed by the said Webb. It being understood that at least twenty cars are to be furnished them each day while shipping.

For the performance of the services above provided for the party of the first part agrees to pay to the parties of the second part the sums aforesaid as follows, viz.: forty cents per nineteen inch standard log to be paid when the logs are cut and skidded and the roads cut in proper shape for drawing to the points of delivery, and the balance when the logs are delivered by the parties of the second part at the several points of delivery.

The party of the first part agrees to pay for and furnish all the necessary side tracks.

The scaling and marking of said logs is to be done at the expense of the said party of the first part, but not without the presence and assistance of a scaler, if desired, who shall be either selected or approved by the parties of the second part.

It is expressly agreed and understood that the party of the first part may have at any and all times an inspector who shall have free and unobstructed access for the purpose of inspection to all the lumber works and to all lumber camps, barns and their contents, and the parties of the second part agree to board said inspector at said lumber camps free of charge.

The parties of the second part agree to complete the cutting and delivery of the timber herein referred to within one year from June 1st, 1895.

It is agreed and understood that the covenants and agreements herein contained are joint and several on the part of the parties of the second part; and the covenants and agreements herein contained bind the heirs, administrators and executors of each of the parties thereto.

IN WITNESS WHEREOF the parties hereunto set their hands and seals the day and year first above written.

Signed, sealed and delivered in the presence of

W. SEWARD WEBB. [L. S.]
MOYNEHAN BROS. [L. S.]
PATRICK MOYNEHAN. [L. S.]
DENNIS MOYNEHAN, JR. [L. S.]

STATE OF NEW YORK, } ss. :
County of Franklin, }

On this 3d day of October, 1895, before me, the subscriber, personally appeared William Seward Webb, to me known and known to be the same person described in and who executed the foregoing instrument, and he duly acknowledged that he executed the same.

EDWARD J. DENEEN,
Notary Public.

STATE OF NEW YORK, } ss. :
County of Albany, }

On this first day of October, 1895, before me, the subscriber, personally appeared Patrick Moynehan, to me known and known to be the same person described in and who executed the foregoing instrument, and he duly acknowledged that he executed the same.

JOHN F. HUBER,
Notary Public, Albany County, N. Y.

STATE OF NEW YORK, } ss. :
County of Albany, }

On this first day of October, 1895, before me, the subscriber, personally appeared Dennis Moynehan, Jr., to me known and known to be the same person described in and who executed the foregoing instrument, and he duly acknowledged that he executed the same.

JOHN F. HUBER,
Notary Public, Albany County, N. Y.

"F."

THIS INDENTURE, made this day of in the year of our Lord one thousand eight hundred and ninety between William Seward Webb and Eliza Osgood Webb, his wife, of the City, County and State of New York (the said Eliza Osgood Webb joining in this conveyance for the purpose of releasing her inchoate right of dower in and to any of the lands herein conveyed), and the Ne-ha-sa-ne Park Association, a domestic corporation created and organized under the Laws of the State of New York, parties of the first part, and The People of the State of New York, party of the second part.

WITNESSETH, that the said parties of the first part for and in consideration of the sum of six hundred thousand dollars ($600,000) to them in hand paid by the party of the second part, the said six hundred thousand dollars being paid as follows, viz. : fifty thousand dollars ($50,000) in cash upon the date hereof, and five hundred fifty thousand dollars ($550,000) in ten certificates of indebtedness of fifty-five thousand ($55,000) each as provided for in a certain contract and agreement between the parties hereto dated sixteenth day of December, 1895, the receipt of said fifty thousand dollars ($50,000) and ten certificates of indebtedness for five hundred fifty thousand dollars ($550,000) is hereby acknowledged and confessed, have bargained, sold and conveyed and by these presents do grant and convey unto the party of the second part all of the following lands and parcels of land situate in the Adirondack Park, so-called, in the Town of Long Lake, Hamilton County, New York, and in the Town of Wilmurt, Herkimer County, New York, amounting to seventy-five thousand (75,000) acres or more. Subject to the following exceptions and reservations. Said lands so agreed to be sold and purchased are described as follows:

First Parcel.—All that piece or parcel of land situate in the north-east and north-west quarters of Township number thirty-eight (38), Totten & Crossfield's Purchase, situate in the towns of Long Lake, Hamilton County, and Wilmurt, Herkimer County, New York, bounded and described as follows: Beginning on the north line of Township thirty-eight (38), Totten & Crossfield's Purchase, at the south-easterly corner of lot number twenty-nine (29) in the triangle north of said Township number thirty-eight (38); thence easterly along the northerly line of said Township thirty-eight (38) four hundred and ten and seventy-seven hundredths (410.77) chains to the south-east corner of said triangle north of Township thirty-eight (38) which is a hemlock tree; thence south eighty-six (86) degrees, east seven and sixty-five hundredths (7.65) chains to a cedar post on the east line of said Township thirty-eight (38) and the westerly line of Township thirty-seven (37); thence southerly along the line between said Township thirty-seven (37) and thirty-eight (38) one hundred and seventy-two (172) chains more or less to the north-east corner of a small tract of land surrounding the west end of Bog Lake heretofore sold and conveyed by said William Seward Webb to Charles A Tatum and Edmund C. Converse; thence westerly at right angles to said Township line and along the north line of said last mentioned small tract forty-five (45) chains to the northwesterly corner of said last mentioned small tract so sold and conveyed to said Tatum and Converse; thence forty degrees (40) and fifteen minutes to the right one hundred and twenty (120) chains; thence thirty-three degrees to the left one hundred and three (103) chains to the line between the east half and west half of Township thirty-eight (38) at a point ninety (90) chains southerly on said line from the north line of said Township; thence (20) degrees and fifteen (15) minutes to the right one hundred and ninety-nine (199) chains to the place of beginning, containing three thousand eight hundred and fourteen (3,814) acres.

Second Parcel.—All of the triangle north of Township (38), Totten & Crossfield's Purchase, situate in the Town of Long Lake, Hamilton County, New York, and Town of Wilmurt, Herkimer County, New York, excepting therefrom lot number twenty-eight (28), which contains one hundred and forty acres (140) acres of land more or less, making the amount hereby conveyed seven thousand two hundred six (7,206) acres.

Third Parcel.—All of Township forty-three (43), Totten & Crossfield's Purchase, Town of Wilmurt, Herkimer County, New York, excepting therefrom and reserving therefrom lot number sixty-nine (69) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number seventy (70) containing one hundred fifty and four-tenths (150.4) acres; lot number seventy-one (71) containing one hundred fifty and four-tenths (150.4) acres; lot number seventy-two (72) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number eighty-nine (89) containing one hundred ninety-seven and four-tenths (197.4) acres; lot number ninety (90) containing one hundred fifty and four-tenths (150.4) acres; lot number ninety-one (91) containing one hundred forty and eight-tenths (140.8) acres; lot number ninety-two (92) containing one hundred eighty-four and eight-tenths (184.8) acres; lot number one hundred and one (101) containing one hundred and forty and eight-tenths (140.8) acres; lot number one hundred and two (102) containing one hundred and eighty-four and eight-tenths (184.8) acres; lot number one hundred and three (103) containing one

hundred eighty-four and eight-tenths (184.8) acres; lot number one hundred seventeen (117) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred eighteen (118) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred nineteen (119) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred and twenty (120) containing one hundred forty-eight and eight-tenths (148.8) acres; and that part of lot number one hundred four (104) lying east of a line beginning at the north-east corner of lot number one hundred sixteen (116) in said township and running northerly and parallel to the west line of said lot number one hundred and four (104) to the north line of said lot number one hundred four (104), the part of said lot number one hundred four (104) hereby excepted containing one hundred and seventy-one and six-tenths (171.6) acres, more or less. The whole of said township contains twenty-five thousand one hundred and eighty-eight and thirteen-hundredths (25,188.13) acres; the portion herein excepted and reserved contains two thousand seven hundred ninety and two-tenths (2,790.2) acres, and the part hereby conveyed contains twenty-two thousand three hundred ninety-seven and ninety-three hundredths (22,397.93).

Fourth Parcel.—All of Township forty-two (42), Totten & Crossfield's Purchase, situated in the Town of Wilmurt, Herkimer County, and in the Town of Long Lake, Hamilton County, New York, excepting and reserving lot number seven (7) containing two hundred twenty-five and five-tenths (225.5) acres; lot number eight (8) containing two hundred twenty-five and five-tenths (225.5) acres; lot number nine (9) containing two hundred twenty-five and five-tenths (225.5) acres; lot number ten (10) containing one hundred seventy and five-tenths (170.5) acres; lot number eleven (11) containing one hundred and seventy and five-tenths (170.5) acres; lot number twelve (12) containing two hundred twenty-five and five-tenths (225.5) acres; lot number thirteen (13) containing two hundred twenty-five and five-tenths (225.5) acres; lot number fourteen (14) containing two hundred twenty-five and five-tenths (225.5) acres; lot number twenty-five (25) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-six (26) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-seven (27) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-eight (28) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number twenty-nine (29) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty (30) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number thirty-one (31) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number thirty-two (32) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-three (33) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-four (34) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-five (35) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number thirty-six (36) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-six (46) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-seven (47) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-eight (48) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number forty-nine (49) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty (50) containing one hundred forty-eight and eight-tenths (148.8) acres; lot number fifty-one (51) containing one hundred eighty-two and four-tenths (182.4) acres; lot number fifty-seven (57) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty-eight (58) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number fifty-nine (59) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty (60) containing one hundred ninety-one and eight-tenths (191.8) acres; lot number sixty-one (61) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-two (62) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-three (63) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number sixty-four (64) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-seven (77) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-eight (78) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number seventy-nine (79) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty (80) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-one (81) containing one

hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-two (82) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-three (83) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number eighty-four (84) containing one hundred ninety-six and eight-tenths (196.8) acres; lot number one hundred twenty-one (121) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-two (122) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-four (124) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-five (125) containing one hundred sixty-eight (168) acres; lot number one hundred twenty-six (126) containing one hundred sixty-eight (168) acres; and lot number one hundred twenty-seven (127) containing one hundred fifty (150) acres. Also excepting and reserving that part of lot number forty-five (45) beginning at the south-east corner thereof; thence northerly along the easterly bounds thereof to the north-east corner of said lot; thence westerly along the northerly bounds thereof to the northwest corner of said lot; thence southerly along the westerly bounds of said lot to a point thirty (30) chains northerly from the south-west corner of said lot on the said westerly line thereof; thence south-easterly to a point twenty (20) chains northerly from the south line of said lot on a line running parallel with the westerly line of said lot and at a distance of thirty (30) chains easterly therefrom; thence southerly and parallel with the west line of said lot twenty (20) chains to the south line of said lot; thence easterly along the said south line to the place of beginning, containing one hundred twenty-one and eight-tenths (121.8) acres. Also excepting and reserving all that portion of lot number fifty-five (55) lying north of the right of way of the Mohawk and Malone Railway and east of a line running at right angles to the northerly line of said lot, and thirty (30) chains easterly from the west line of said lot, containing six (6) acres. Also excepting and reserving all that portion of lot number fifty-six (56) lying north of the right of way of said Mohawk and Malone Railway Company containing thirty-nine (39) acres. The whole of said Township forty-two (42) contains twenty-four thousand nine hundred and twelve (24,912) acres, according to Richards' field notes and survey filed in the Secretary of State's office at Albany. The parts hereby excepted and reserved contain nine thousand four hundred ten and six-tenths (9,410.6) acres, including thirty-two (32) acres of the right of way of the M. & M. Ry., according to the same authority and actual measurements of the parts of lots where parts of lots are hereinbefore described, and the part hereby conveyed contains fifteen thousand five hundred one and four-tenths (15,501.4) acres.

Fifth Parcel.—All of the east third of Township five (5), John Brown's Tract, Town of Wilmurt, Hermiker County, State of New York, bounded and described as follows: Bounded on the north and south by the north and south line of said Township five (5); easterly by the west line of Totten & Crossfield's Purchase, and westerly by the easterly bounds of a tract of nine thousand six hundred (9,600) acres surveyed and set off to Lyman R. Lyon in 1876 in an action of partition wherein said Lyon was plaintiff and the Adirondack Company defendant, which said partition deed was recorded in the office of the clerk of Herkimer County in Book 98 of Deeds at page 567, to which reference is hereby made. The said east third of Township five (5) containing eleven thousand two hundred fifty acres of land more or less. Excepting and reserving therefrom the following described parcel, viz.: A piece of land beginning at the north-westerly corner of lot fifty-one (51) in Township forty-two (42), Totten & Crossfield's Purchase; thence south sixty-three (63) degrees west, ten (10) chains; thence south-easterly parallel to the westerly line of Township forty-two (42) forty-eight (48) chains to a point ten (10) chains westerly of the south-west corner of said lot number fifty-one (51); continuing thence north sixty-three (63) degrees east ten (10) chains to the south-west corner of said lot fifty-one (51) in said Township forty-two (42); thence northerly along the westerly line of said lot fifty-one (51) forty-eight (48) chains to the place of beginning, containing forty-eight (48) acres of land.

Sixth Parcel.—All of the following parts of Township eight (8), John Brown's Tract, situate in the town of Wilmurt, Herkimer County, New York, and in the town of Morehouse, Hamilton County, New York, bounded and described as follows:

Parcel A.—Beginning at the north-west corner of Township eight (8), John Brown's Tract; thence easterly along the north line of said Township eight (8), John Brown's Tract, to the north-east corner

of said township; thence south-easterly along the easterly line of said township to the intersection of a line run parallel to the northerly line of said township and at a distance therefrom seventy (70) chains measured on a right angle line from said northerly line of said Township eight (8); thence westerly on said parallel line sixty-eight (68) chains; thence south-westerly to the west line of said township two hundred six (206) chains to a point one hundred sixty (160) chains measured on said westerly line from the north-west corner of said township; thence northerly along the township line to the place of beginning, containing two thousand four hundred fifty-three (2,453) acres of land after deducting the right of way of the Mohawk and Malone Railway Company.

Parcel B.—Beginning at the east line of Township number eight (8) at a point twenty-five (25) chains south-easterly from the south-west corner of Township number forty-two (42); thence south-easterly seventy-five (75) chains along said east line of Township eight (8); thence south-westerly at right angles with said Township line two hundred thirty-five (235) chains; thence north-westerly parallel to the said Township eight (8) east line seventy-five (75) chains; thence north-easterly at right angles with the said Township eight (8) line two hundred thirty-five (235) chains to the place of beginning, containing one thousand seven hundred and sixty-two and five-tenths (1,762.5) acres.

Parcel C.—Beginning at the east line of Township number eight (8) at a point thirty-five (35) chains south-easterly from the south shore of Big Moose Lake at high-water mark; thence south-easterly along the said Township eight (8) line two hundred five (205) chains; thence to the right, one hundred four (104) degrees thirty (30) minutes one hundred and eighty-two (182) chains; thence to the right ninety-six (96) degrees and fifteen (15) minutes one hundred seventy-two (172) chains to a point where a line run at right angles to the said Township eight (8) east line from the place of beginning would intersect the last course; thence along the said line one hundred fifteen (115) chains to the place of beginning, containing two thousand seven hundred twelve (2,712) acres.

Parcel D.—Beginning on the westerly line of Township eight (8) at a point seventy-three (73) chains southerly from the south-east corner of Township number six (6), John Brown's Tract; thence northerly one hundred ninety-three (193) chains more or less to the south boundary of the right of way of the Mohawk and Malone Railway; thence north-easterly along the said south boundary of the said right of way to a line located at right angles with the westerly line of said township, which line if projected would intersect the west line of the said Township eight (8) one hundred ninety-seven (197) chains northerly from the south-east corner of said Township number six (6), John Brown's Tract; thence easterly on said line eighty (80) chains from said boundary of said right of way of said railway; thence southerly at right angles to the last-mentioned line twenty-one (21) chains; thence easterly and at right angles to the said township line eighty-four (84) chains; thence to the left thirty-one (31) degrees and thirty minutes, thirty-two (32) chains; thence to the right one hundred ten (110) degrees and thirty (30) minutes forty-one (41) chains; thence to the right sixty-nine (69) degrees one hundred six (106) chains; thence to the left eighteen (18) degrees and thirty (30) minutes one hundred sixty-two (162) chains; thence to the right eighteen (18) degrees and thirty (30) minutes ninety-two (92) chains to the place of beginning, containing three thousand seven hundred and fifty-three (3,753) acres.

Parcel E: Beginning at a point on the west line of said Township number eight (8) one hundred thirty-three (133) chains southerly from the south-east corner of said Township number six (6); thence to the right fifty-nine (59) degrees one hundred twenty (120) chains; thence to the left eighteen (18) degrees and thirty (30) minutes one hundred eighty-six (186) chains and fifty (50) links; thence to the right and parallel to the west line of Township eight (8) one hundred sixty-three (163) chains to the north-east corner of lot number two hundred six (206) of the Fulton Chain allotment; thence along the rear line of said allotment and the rear line of the lands of Robert Perrie and Charles Barrett and Mary Sprague to the west line of said Township eight (8) one hundred twenty-six (126) chains to the place of beginning, containing two thousand four hundred and sixty-eight (2,468) acres.

Parcel F: Being all that parcel of land south of the Fulton Chain allotment in said Township number eight (8) containing two thousand one hundred and forty-one (2,141) acres. Said allotment

is shown on a map and survey made by David C. Wood and filed in the office of the clerk of Herkimer County on the 30th day of August, 1893, to which reference is hereby made.

A recapitulation of the above described parcels of land herein conveyed shows the acreage of each parcel and the total of all parcels to be as follows:

In Township 43,	22,397 acres
In Township 42,	15,501 acres
In Township 5, after deducting also R. R. right of way, 32 acres,	11,170 acres
In Township 38,	3,814 acres
In Triangle north of Town 38,	7,206 acres
In Township Number 8, Parcel A,	2,453 acres
In Township Number 8, Parcel B,	1,762 acres
In Township Number 8, Parcel C,	2,712 acres
In Township Number 8, Parcel D,	3,753 acres
In Township Number 8, Parcel E,	2,468 acres
In Township Number 8, Parcel F,	2,141 acres
Total conveyed,	$75,377 acres

First Exception and Reservation.—Excepting therefrom the right of way of the Mohawk and Malone Railway Company wherever the same is located across, along and upon any of the lands above described as the same is located by maps of the route and profile of the St. Lawrence and Adirondack Railroad Company heretofore filed in the offices of the clerk of Herkimer County and of the clerk of Hamilton County, to which reference is hereby made, the said St. Lawrence and Adirondack Railroad Company having heretofore been consolidated under the laws of the State of New York with other railroad companies, forming thereby the Mohawk and Malone Railway Company; and excepting and reserving also, for the benefit of the said Mohawk and Malone Railway Company, the right to cut out and remove trees along the east side of the said right of way on Township eight, John Brown's Tract, and clear the ground for the sole purpose of affording to passengers on said railway a view from car windows of the mountain scenery in the valleys to the east, said cutting and clearing to be under the supervision of the Board of Fisheries, Game and Forests, and with their permission, and to no greater an extent than they sanction. Reserving also to the said Mohawk and Malone Railway Company the right to cut and remove any trees that may stand upon the lands above agreed to be conveyed along the right of way of said railway, which are likely to fall or be blown upon the track of the said Railway Company. And excepting and reserving also the easement of all located highways across, along or upon said land, and also the easement of the highway leading from Beaver River Station on the Mohawk and Malone Railway to the road known as the State Road leading to Stillwater; and also the easement of the roadway from the said highway to Stillwater, to the Beaver River reservoir, to the point known as Grassy Point, on the Beaver River, and also the easement of a projected highway across Township eight from Racquette Lake to Clearwater, and also the easement of a projected highway around the Fulton Chain of Lakes from Old Forge to the upper end of Fourth Lake.

Second Exception and Reservation.—It is also expressly agreed and understood that all of the merchantable softwood sawing timber standing or being upon Township eight (8), John Brown's Tract, is excepted and reserved from this conveyance together with the right of removing the same in the usual course of lumbering operations, doing no unnecessary damage. The manner in which said sawing timber is to be removed is contained in contracts between the parties of the first part and Lemon Thomson, John A. Dix and Edward Thomson, Jr., and Firman Ouderkirk, copies of which are hereto annexed marked respectively A, B, C, and the same form a part of this deed the same as if here set forth in full.

It is expressly understood and agreed that no softwood sawing timber is to be cut under said contracts from said Township eight (8) after eight years from the first day of January, 1896. It

ON THE BEAVER RIVER.
Flowed Lands and Damage caused by State Dam.

being understood, however, that this stipulation does not prevent the removal of any timber previously cut under said contracts upon said Township eight (8) for one year after the expiration of said eight years.

Third Exception and Reservation.—It is also expressly agreed and understood that all the merchantable softwood sawing timber is also reserved and excepted from this conveyance upon all the territory upon the east third of Township five (5) south of the Beaver River, together with the right of removing such timber in the usual course of lumbering, doing no unnecessary damage. The said merchantable softwood sawing timber now being under contract for the removal thereof with one Firman Ouderkirk, which said contract is dated the 21st day of October, 1893, a copy of which is annexed hereto marked "C," and the same forms a part of this deed as if here set forth in full. It is covenanted and agreed by the parties of the first part that all lumbering operations under the said Ouderkirk contract, upon the lands above conveyed, are to cease on or before the first day of January, 1898.

Fourth Exception and Reservation.—It is also agreed and understood that the softwood sawing timber is reserved and excepted upon the following lots in Township forty-two (42), Totten & Crossfield's Purchase, viz., as are south of the Beaver River: Lots thirty-nine (39), forty (40), forty-one (41), forty-two (42), forty-three (43), forty-four (44), forty-five (45), fifty-two (52), fifty-three (53), fifty-four (54), fifty-five (55), fifty-six (56), sixty-five (65), sixty-six (66), sixty-seven (67), sixty-eight (68), sixty-nine (69), seventy (70), seventy-one (71), seventy-two (72), seventy-three (73), seventy-four (74), seventy-five (75), seventy-six (76), eighty-five (85), eighty-six (86), eighty-seven (87), eighty-eight (88), eighty-nine (89), ninety (90), ninety-one (91), ninety-two (92), ninety-three (93), ninety-four (94), ninety-five (95), ninety-six (96), one hundred five (105), one hundred six (106), one hundred seven (107), one hundred eight (108), one hundred nine (109), one hundred ten (110), one hundred eleven (111), one hundred twelve (112), one hundred thirteen (113), one hundred fourteen (114), one hundred fifteen (115), one hundred sixteen (116).

The merchantable softwood sawing timber upon so much of the said lots in Township forty-two (42), Totten & Crossfield's Purchase, which is south of the Beaver River, is under contract for the removal thereof with the said Firman Ouderkirk and with Patrick and Dennis Moynehan, constituting the firm of Moynehan Brothers, a copy of said contract between the parties of the first part and said Moynehan Brothers is hereto annexed marked "D" and forms a part of this deed.

Fifth Exception and Reservation.—It is also agreed and understood that a right of way is reserved for the removal of the timber on the water-shed of the Oswegatchie River remaining upon the lands of the parties of the first part not herein conveyed, such right of way to be across and over the triangle north of Township thirty-eight (38), Totten & Crossfield's Purchase, and Township thirty-eight (38), Totten & Crossfield's Purchase, to be by roadways only.

Sixth Exception and Reservation.—Excepting and reserving also a right of way for teams, wagons and vehicles, where now used from the railway stations at Beaver River and Little Rapids on the Mohawk and Malone Railway, across and over said lands above described to Township thirty-nine, Totten & Crossfield's Purchase, for the use of the owners of said Township thirty-nine (39), Totton & Crossfield's Purchase, their heirs and assigns.

Seventh Exception and Reservation.—It is expressly agreed and understood that the right is reserved to the said parties of the first part, their heirs and assigns, to cut and move any of the decaying timber now standing within the present or enlarged flow ground of the said Beaver River reservoir upon the lands above conveyed, and such timber is hereby excepted from this conveyance.

Together with all the right, title and interest therein of the parties of the first part in and to said lands, except such as are herein excepted and reserved. TO HAVE AND TO HOLD the lands and premises above described unto the party of the second part, its successors and assigns forever, subject to the reservations and exceptions above contained.

It is expressly covenanted and agreed between the parties hereto as follows:

First.—The said William Seward Webb and the Ne-ha-sa-ne Park Association for a valuable consideration to them duly paid for themselves, their heirs and assigns, jointly and severally covenant and agree to and with the party of the second part, its successors and assigns, that none of the remaining lands in said Township eight (8), John Brown's Tract, belonging to the parties of the first part, or either of them, which have not been heretofore contracted by them to be sold, shall be used or sold for commercial, agricultural, manufacturing or other purposes except as mentioned in said Thomson contracts, but the same shall by the parties of the first part, their heirs and assigns, be used and sold exclusively for permanent forestry, hotel, camp and cottage purposes, and all deeds of the same from said parties of the first part or either of them, their heirs, successors or assigns, shall contain a clause as to said remaining lands in said Township eight (8), binding the purchaser thereof, his heirs and assigns, to a perpetual use of said lands for permanent forestry, hotel, camp and cottage purposes, it being understood and agreed that the parties with whom contracts are now outstanding for the sale of lands in said Township eight (8), are John B. Ehrehart, covering all that part thereof situate west of the railway of the Mohawk and Malone Railway Company in or about the centre of the west line of the township; Dwight B. Sperry, covering one hundred five (105) acres, five acres thereof situated near the Big Moose Station, so-called, and the remaining one hundred acres (100) near Eagle Bay, adjoining the Fulton Chain Allotment; Mary Ann Powers, lots 1 and 2 of the Fulton Claim Allotment; and Mary Sprague, ten acres near lot twenty-eight (28), Third Lake of the Fulton Chain Allotment.

It is also, for a valuable consideration, jointly and severally agreed by the said Webb and the Ne-ha-sa-ne Park Association of the first part, their heirs, successors and assigns, that they or either of them will not sell to any individual or corporation any lake or substantially the whole of the land under water and immediately surrounding a lake in any of the portions in said Township eight (8), retained by them, but that such remaining lands in said Township eight (8) shall be sold by them at such times as they may elect, in the same manner and for the same purposes as lands surrounding the Fulton Chain of Lakes have heretofore or are now being sold by said Webb of the first part; the intent of this agreement being that the parties of the first part, their heirs or assigns, will not dispose of their land in said Township eight (8) so as to afford any individual or club or association of individuals, or any corporation or corporations an opportunity to control the exclusive use of any lake in said Township eight (8) for a private preserve or the exclusive hunting or fishing privileges of any land beyond their individual camp site or hotel sites, it being agreed and understood that no camp sites sold shall exceed twenty-five acres in amount and no hotel site shall exceed two hundred and fifty acres in amount. It is further promised, understood and agreed that the public shall have the unrestricted right to hunt and fish upon all the lands in said Township eight (8) which have not heretofore been sold or which in the future may not be sold for camp sites or hotel sites; it being expressly agreed and understood that this hunting and fishing privilege shall not apply to any camp or hotel sites that the parties of the first part, or either of them, their heirs or assigns, have heretofore sold or hereafter may sell or convey.

Second.—The party of the second part covenants and agrees to and with the parties of the first part, and this deed is accepted upon the express condition that the parties of the first part, their heirs or assigns, do not release or relinquish the right to use any present established ways, highways, trails or ways of communication by land or by water from or to any of their lands in said Township eight (8); it being expressly agreed and understood that the parties of the first part, their heirs and assigns, shall have the same highway rights of every kind and nature or means of communication upon, across or over said Township eight (8), the same as if this conveyance had not been made or executed.

Third.—The parties of the first part for themselves, their heirs and assigns, covenant and agree to and with the party of the second part that all trails and ways of communication of whatsoever kind or nature, whether by land or by water, across and over the lands in said Township eight (8) belonging to the parties of the first part, or either of them, not herein conveyed or heretofore contracted to be conveyed, shall forever remain open and free to the People of the State of New York.

Fourth.—The parties of the first part, for the consideration herein expressed, jointly and severally hereby release and relinquish to the State and the People of the State of New York, any and all claims for damages against the State of New York or any officer or person acting by its authority to lands not purchased and owned and retained by the said Webb and Ne-ha-sa-ne Park Association of the first part, and particularly all claims for damages which they or either of them have sustained by reason of the construction by the State of New York of the present reservoirs upon the Beaver River at Stillwater and upon the middle branch of the Moose River at Old Forge, both in the town of Wilmurt, Herkimer County, New York, and to discontinue and withdraw from the Board of Claims the claim now pending against said State on behalf of said William Seward Webb. Such discontinuance and withdrawal to be without costs as against either party, and the parties of the first part also jointly and severally agree, for the consideration herein expressed, that the People of the State of New York, acting by or through their proper officers or official agents or their legal representatives by whatsoever name known or designated, may, so far as the parties of the first part, their legal representatives, heirs, successors or assigns are concerned, at any time hereafter raise the said dam at Stillwater on the Beaver River to the height of thirteen feet above the crest of the present dam or construct a new dam whenever necessary to the height of thirteen feet above the crest of the present dam, and in case said dam at Stillwater is raised to the height of thirteen feet above the crest of the present dam, the said parties of the first part jointly and severally, for themselves, their legal representatives and assigns, agree to release and to relinquish any and all claims for damages that may be occasioned to any lands owned by the parties of the first part or either of them by reason of such raising of said dam at Stillwater on the Beaver River thirteen feet above the crest of the present dam; it being expressly agreed and understood that it is not intended hereby to release any damages that may be occasioned to any of the remaining lands of the parties of the first part or either of them by the raising of said Beaver River Reservoir more than thirteen feet above the crest of the present dam at Stillwater.

Fifth.—And the said William Seward Webb and Ne-ha-sa-ne Park Association of the first part, for themselves, their heirs and assigns, jointly and severally covenant and agree to and with the party of the second part, its successors and assigns, that they will forever warrant and defend the party of the second part, its successors and assigns, in the quiet and peaceable possession of all the lands above conveyed as against any person or persons lawfully claiming the same or any part thereof, and also warrant, covenant and agree that the lands hereby conveyed and herein described consist of at least seventy-five thousand acres.

(1) Excepting all highways that may be located across or over any of the lands herein agreed to be conveyed, as to which said highways said covenant of warranty shall not apply.

(2) Except as to all tax sales, tax deeds or tax titles which may originate from the non-payment of taxes levied after the first day of January, 1896, as to which said taxes, tax deeds, tax sales or tax titles this covenant of warranty does not apply.

(3) It is expressly understood and agreed that this covenant of warranty shall not apply to a tract of land now in the lawful possession of the parties of the first part (the Ne-ha-sa-ne Park Association) containing about two thousand (2,000) acres of land and described as follows: All that tract of land in the north-east quarter of Township thirty-eight (38), Totten & Crossfield's Purchase, situate in the town of Long Lake, Hamilton County, N. Y., bounded and described as follows: Beginning at a point on the north line of Township thirty-eight, Totten & Crossfield's Purchase, one hundred and twenty-five (125) chains easterly from the north-west corner of the north-east quarter of said township; thence easterly along the northerly line of said township one hundred seven and fifty hundredths (107.50) chains more or less to the south-east corner of the triangle north of Township thirty-eight which is a hemlock tree; thence south eighty-six degrees east seven and sixty-five hundredths (7.65) chains to a cedar post on the east line of said Township thirty-eight (38) and west line of Township thirty-seven (37); thence southerly along the line between said Townships thirty-seven and thirty-eight one hundred seventy-two chains more or less to the north-east corner of a small tract of land surrounding the west end of Bog Lake heretofore sold and conveyed by said William Seward

Webb to Charles A. Tatum and Edmund C. Converse; thence westerly at right angles to said Township thirty-eight line and along the north line of said last mentioned small tract forty-five (45) chains to the north-westerly corner of said last mentioned small tract so sold and conveyed to said Tatum and Converse; thence forty (40) degrees fifteen (15) minutes to the right, one hundred twenty (120) chains; thence thirty-three (33) degrees to the left one hundred three (103) chains to the line between the east one-half and the west one-half of said Township thirty-eight; thence northerly along said last mentioned line ten chains to a point eighty (80) chains south on said line from the north-west corner of the north-east quarter of said Township thirty-eight; thence east, parallel with the north line of said township, one hundred twenty-five (125) chains; thence north at right angles to the last mentioned line eighty (80) chains to the place of beginning, containing two thousand fourteen (2,014) acres. But in case the title of said Association in said parcel of land shall be defective, then for value received the parties of the first part covenant and agree to pay to the People of the State of New York the sum of seventeen thousand ($17,000) dollars upon demand duly made of said first parties by said parties of the second part through their duly authorized officers or agents. And the said parties of the first part for themselves, their heirs, successors and assigns, jointly and severally covenant and agree to and with the parties of the second part, their successors, heirs and assigns, that they will forever warrant and defend said parties of the second part, their successors and assigns, and that they will indemnify said parties of the second part against all injury, loss and damage which they may sustain by reason or on account of the removal of minerals or fossils from the east third of Township five (5) and Township eight (8) of John Brown's Tract (consisting of about 26,479 acres of land) by the immediate or remote grantors of said parties of the first part or the heirs, successors or assigns of said grantors.

Sixth.—And the said William Seward Webb and Ne-ha-sa-ne Park Association of the first part covenant and agree to and with the said party of the second part to cut a trail on the lands above conveyed from Big Crooked Lake in Township forty-three (43) down through the valley of the outlet of said lake to the junction of said outlet with the trail leading from Gull Lake across the triangle north of Township thirty-eight (38), such trail to be cut by the parties of the first part within one year from the date hereof under the direction of the Commissioners of the Board of Fisheries, Game and Forests of the State of New York as to location and to their satisfaction.

The parties of the first part also covenant and agree at the request of the Commissioners of the Board of Fisheries, Game and Forests to cut out a roadway from the road from Beaver River Station across said Township forty-two (42) on the lands above conveyed so as to connect with the road known as the State Road (Carthage and Lake Champlain Road) at or near the boundary line of Township thirty-nine (39), said road to be cut within one year from the date hereof at the request of the parties of the second part or their successors, and to be located as they shall request and to be cut to their satisfaction; it being understood and agreed that under this agreement the parties of the first part are not liable for the making of any road beyond the cutting out of trees, bushes, etc., from such roadway.

IN WITNESS WHEREOF the said William Seward Webb and Eliza Osgood Webb, of the first part, have hereunto set their hands and seals, and the Ne-ha-sa-ne Park Association, of the first part, has hereunto caused its corporate seal to be affixed and these presents to be signed by its president, the day and year first above written.

STATE OF NEW YORK, } *ss.:*
County of }

On this 16th day of January, 1896, before me, the subscriber, personally appeared William Seward Webb and Eliza Osgood Webb, his wife, to me known, and known to me to be the same persons described in and who executed the foregoing instrument and they severally duly acknowledged to me that they executed the same.

[Notarial Seal.]

JAS. W. BENTLEY,
Notary Public, Albany County.

STATE OF NEW YORK, } ss.:
City and County of Albany, }

On this 2d day of January, in the year 1896, before me, the subscriber, personally appeared Henry L. Sprague, to me known and known to me to be the President of the Ne-ha-sa-ne Park Association described in and who executed the foregoing instrument, and he duly acknowledged to me that they executed the same. And the said Henry L. Sprague, being by me duly sworn, did depose and say that he resides in the City, County and State of New York. That he is the President of the Ne-ha-sa-ne Park Association named in and who executed the foregoing instrument. That he knows the corporate seal of said Ne-ha-sa-ne Park Association and that the seal affixed to the foregoing instrument is the corporate seal of said Ne-ha-sa-ne Park Association. That deponent affixed the said seal to the foregoing instrument and signed the same as President of the Ne-ha-sa-ne Park Association under authority and direction and by virtue of a resolution of the Board of Directors of said Ne-ha-sa-ne Park Association.

HENRY L. SPRAGUE.

Sworn to and subscribed before me }
this 2d day of January, 1896. }
[Notarial Seal.]

JAS. W. BENTLEY,
Notary Public, Albany County.

"G."

STATE OF NEW YORK, } ss.:
Herkimer County, }

David C. Wood, being sworn, deposes and says that he is a civil engineer and surveyor, and resides in the town of Herkimer, County of Herkimer, and State of New York. That he has been engaged in the business of engineering and surveying for fifteen years last past, and during said fifteen years deponent's principal business has been that of surveying in the Adirondacks, in the Counties of Herkimer and Hamilton. That deponent is familiar with and knows the location of the boundary lines of Townships thirty-eight (38), forty-two (42), forty-three (43), and the triangle north of Township thirty-eight (38) in Totten & Crossfield's Purchase, in the town of Long Lake, Hamilton County, New York, and in the town of Wilmurt, Herkimer County, New York, and also the location of Township eight (8), and the east third of Township five (5), John Brown's Tract, in the town of Wilmurt, Herkimer County, New York, and in the town of Morehouse, Hamilton County, New York.

That deponent has run out, surveyed and located all the boundary lines of said townships and said triangle, and knows the actual location of their said boundary lines, and that deponent has been engaged in the survey thereof for four years last past.

That deponent has made a map and survey of said townships, and has also made a topographical map and survey of said townships, showing the location of the mountains, rivers, streams and lakes as they actually exist upon said lands. That deponent knows the acreage of said townships and the quantities of land therein contained. That the chain and measures used by the deponent in making said surveys conform to the standard as required by the laws of the State of New York, and that deponent has compared his chain with such standard.

Deponent has read over and knows the description of the lands mentioned and described in the annexed contract and deed between William Seward Webb and the Ne-ha-sa-ne Park Association, parties of the first part, and the People of the State of New York, party of the second part, and has carefully compared and gone over the acreage of said lands, townships and lots therein described, mentioned and conveyed, and that the same are correctly described and the acreage thereof correctly given.

D. C. WOOD.

Sworn to and subscribed before me, }
this 30th day of December, 1895. }

F. W. CRISTMAN,
Notary Public.

I do hereby certify that I have verified the computations of acreage of lands as described in the foregoing sworn survey of D. C. Wood, surveyor, and find that the acreage of land contracted to be sold to the State by W. S. Webb and the Ne-ha-sa-ne Park Association equals at least the sum of seventy-five thousand three hundred and seventy-seven (75,377) acres.

HERSCHEL ROBERTS,
Deputy State Engineer and Surveyor.

ALBANY, *December* 31, 1895.

The following offered by the Attorney-General was unanimously adopted:

It appearing from a statement made by Major Edward M. Burns at the present meeting of the Board of Land Commissioners that the following premises, to wit:

East third of Township five and also Township eight, John Brown's Tract (consisting of about 26,479 acres of land), are held and owned by the Ne-ha-sa-ne Park Association and William Seward Webb subject to the rights of previous grantors to remove minerals and fossils; and that said association and said Webb are willing to warrant the title of said lands as against said rights and to indemnify the People of the State in the deed of conveyance against any injury and damage which may be sustained by the People of the State by the exercise of any such rights for the removal of any such minerals and fossils;

Resolved, That the Attorney-General be authorized to approve the search and abstracts of title to be furnished by the grantors, notwithstanding such reserved rights to remove minerals and fossils, provided the deed of conveyance shall warrant and defend the title of the grantors as against said rights of removal and shall contain an agreement to indemnify the People of the State as aforesaid.

On motion of the State Engineer and Surveyor it was unanimously resolved that the Commissioners of the Land Office of the State of New York approve the foregoing contract dated December 16, 1895, between William Seward Webb and the Ne-ha-sa-ne Park Association and the Commissioners of the Board of Fisheries, Game and Forests of the State of New York, and agree to and approve of the form of deed thereto annexed and forms a part of said contract, and that the same be entered at length upon the book and records of the office of the Commissioners of the Land Office of the State of New York.

For convenient reference we subjoin a summary of the lands purchased of Dr. William S. Webb:

	ACRES.
Hamilton County, Brown (John) Tract, Township 8.	
All in Long Lake of a parcel beg. on E. line of Township 35 c. S. E'ly from S. shore of Big Moose Lake at high-water mark, th. S. E'ly 205 c. along Township line, etc.,	443
Totten & Crossfield's Purchase, Township 38.	
B'd N. by Township line, E. 172 c. by Township line to a small tract of land sold to Chas. A. Tatum and Edmund C. Converse, and surrounding the W. end of Bog Lake, S. by the following line, 45 c. by, etc.,	2,996
Triangle North of Township 38.	
26, all in Long Lake,	20
27, same,	140
34, same,	80
35,	160

	ACRES
36,	160
37,	160
38,	145 76–100
39,	48 6–10
42, all in Long Lake,	48
43,	180 12 100
44,	82 88–100

Township 42.

97, all in Long Lake,	64 8–10
98,	196 8–10
99,	196 8–10
100,	196 8–10
101,	196 8–10
102,	196 8–10
103,	196 8 10
104, all in Long Lake,	179 8–10
105, same,	40
116, same,	140
117,	196 8–10
118,	196 8–10
119,	196 8–10
120,	196 8–10
123,	168

Herkimer County, Brown (John) Tract, Township 5.

E. p't b'd W'ly by 9,600 a. set off to Lyman R. Lyon, 11,250 a. ex. 48 a. b'd beg. at N. W. cor. of Lot 51, Township 42, Totten & Crossfield's Purchase, th. S. 63° W. 10 c., etc., ... 11,202

Township 8

B'd N'ly by Township line, E'ly 70 c. by Township line, S'ly by a line running 68 c. par'l with N. line of Township and th. S. W'ly 206 c. to W. line of Township and W'ly 160 c. by Township line ex. right of way of Mohawk and Malone R. R. Co., ... 2,453

Beg. on E. line of Township 25 c. from S. W. cor. of Township 42, Totten & Crossfield's Purchase, and being a rectangular parcel at right angles to E. line of Township 75 c. wide N. and S., and 235 c. long E. and W., . 1,762½

All in Webb of a parcel, b'd beg. on E. line of Township 35 c. S. E'ly from S. shore of Big Moose Lake at high-water mark, th. S. E'ly 250 c. along Township line, etc., ... 2,269

Beg. on W. line of Township 73 c. S. from S. E. cor. of Township 6, John Brown's Tract, th. N'ly on Township line 193 c. to the S. boundary of right of way of the Mohawk and Malone Railway th. N. E'ly along the S. boundary of said right of way to a line at right angles with W. line of Township, which line, if projected, etc., ... 3,753

Beg. on W. line of Township 133 c. S'ly from S. E. cor. of Township 6, of said Tract, th. to the right 59° 120 c., thence to the left 18° 30′ 186 c. 58 l, th. to the right and par'l with W. line of Township 163 c., etc., . . 2,468

All S. of Fulton Chain Allotment, which Allotment is shown by Map and Survey of David C. Wood, filed Aug. 30, 1893, in the Office of the Clerk of Herkimer County, ... 2,141

Totten & Crossfield's Purchase, Township 38.

	ACRES.	
Beg. on N. line of Township at S. E. cor. of Lot 29 in Triangle N. of this Township, th. E'ly along N. line of Township to County line, etc.,	818	

Triangle North of Township 38.

1,	140	
2,	214	36–100
3,	117	24–100
4,	140	
5, 6, each 160 a.,	320	
7,	180	8–100
8,	82	88–100
9,	143	1–100
10, 11, 12, 13, each 164 a.,	656	
14,	146	6–10
15,	143	
16, 17, 18, 19, each 164 a.,	656	
20,	140	
21, 22, 23, 24, 25, each 160 a.,	800	
26, all in Webb,	140	
27, same,	20	
29, 30, 31, 32, 33, each 160 a.,	800	
34, all in Webb,	80	
40 and 41, each 164 a.,	328	
42, all in Webb,	70	9–10
45,	48	6 10
46,	127	3–10

Township 42.

1,	209	
2, 3, 4, 5, 6, 15, 16, 17, 18, 19, each 225½ a.,	2,555	
20,	209	
21,	182	4–10
22, 23, 24, 37, 38 and 39, each 196 8–10 a.,	1,180	8–10
40, 41, each 182 4–10 a.,	364	8–10
42 ex. 6 a right of way of Mohawk and Malone R. R.,	190	8–10
43, same,	190	8–10
44, ex. 4 a., same,	192	8–10
45, beg. at S. W. cor., th. N. on W. line 30 c., th. S. E. to a point 30 c., etc.,	75	
52 and 53, each 196 8–10,	393	6–10
54, ex. 1 a. right of way of Mohawk and Malone R. R.,	195	8–10
55, ex. 6 a. right of way of Mohawk and Malone R. R. and 6 a. all N. of said right of way and E. of a line, etc.,	184	8–10
56, ex. right of way of Mohawk and Malone R. R., and all of lot N. thereof,	153	8–10
65, 66, 67, 68 and 69, each 196 8–10 a.,	984	
70 and 71, each 182 4–10 a.,	364	8–10
72, 73, 74, 75, 76, 85, 86, 87, 88 and 89, each 196 8–10 a.,	1,968	
90 and 91, each 182 4–10 a.,	364	8–10
92, 93, 94, 95 and 96, each 196 8–10 a.,	984	
97, all in Webb,	132	
104, same,	17	
105, same,	156	8–10

ON THE BEAVER RIVER
Forest Destruction caused by a State Dam.

	ACRES.
106, 107, 108 and 109, each 196 8-10 a.,	787 2-10
110 and 111, each 182 4-10 a.,	364 8-10
112, 113, 114 and 115, each 196 8-10 a.,	787 2-10
116, all in Webb,	56 8-10
Township 43.	
1 and 2, each 166 85-100 a.,	333 7-10
3, 4, 5, 6, 7, 8, each 197 4-10 a.,	1,184 4-10
9,	168
10,	60 8-10
11,	150 4-10
12, 13, 14, 15, 16, 17, 18, each 197 4-10 a.,	1,381 8-10
19, 20, 21 and 22, each 166 85-100 a.,	667 4-10
23, 24, 25, 26, 27, 28 and 29, each 197 4-10 a.,	1,381 8-10
30 and 31, each 150 4-10 a.,	300 8-10
32, 33, 34, 35, 36, 37, 38, each 197 4-10 a.,	1,381 8-10
39, 40, 41 and 42, each 166 85-100 a.,	667 4-10
43, 44, 45, 46, 47, 48 and 49, each 197 4-10 a.,	1,381 8-10
50 and 51, each 150 4-10 a.,	300 8-10
52, 53, 54, 55, 56, 57 and 58, each 197 4-10 a.,	1,381 8-10
59, 60, 61 and 62, each 166 85-100 a.,	667 4-10
63, 64, 65, 66, 67, 68, 73, 74, 75, 76, 77 and 78, each 197 4-10,	2,368 8-10
79, 80, 81 and 82, each 166 85-100 a.,	667 4-10
83, 84, 85, 86, 87 and 88, each 197 4-10 a.,	1,184 4-10
93, 94, 95, 96, 97 and 98, each 184 8-10 a.,	1,108 8-10
99, 100, each 156 2-10 a.,	312 4-10
104, ex. 171 6-10 a. E. pt.,	13 2-10
205, 106, 107 and 108, each 184 8-10 a.,	739 2-10
109, 110, each 156 2-10 a.,	312 4-10
111,	182 4-10
112, 113, 114, 115 and 116, each 196 a.,	980
121,	75 6-10
122,	174 3-10
123, 124, 125, 126, each 197 4-10 a.,	789 6-10
127, 128, 129, 130, each 166 85-100 a.,	667 4-10
131, 132, each 197 4-10 a.,	394 8-10
133,	174 3-10
134 and 135, each 75 6-10 a.,	151 2-10
136,	174 3-10
137 and 138, each 166 85-100 a.,	333 7-10
139,	125 85-100
140,	53 78-100

The deed executed by William Seward Webb and wife bears date January 16, 1896. The lands conveyed aggregate 74,584$\frac{62}{100}$ acres; and the consideration is stated at $600,000.

Although the stated consideration is $600,000—the amount actually paid—this sum does not represent the price paid for the land. It greatly exceeds the value of the land as estimated in this transaction. This $600,000 includes the settlement of a very large claim for damages, one which was substantiated before the State Court of

Claims. The amount which the Court would have allowed—had not the matter been settled by mutual agreement—will, of course, never be known. But the digest of the evidence, as given in these pages, indicates that the verdict would have been for a large amount. The reader is free to make his own estimate, and, having done so, to deduct his estimate of damages from the $600,000. The remainder will represent the price paid for the land.

By the terms of the contract, Dr. Webb agreed "to cut a trail from Big Crooked Lake, in Township 43, down through the valley of the outlet of said lake to the junction of said outlet with the trail leading from Gull Lake across the Triangle north of Township 38, such trail to be cut by the parties of the first part (Dr. W. S. Webb) within one year from the date hereof, under the direction of the Commissioners of the Board of Fisheries, Game and Forests of the State of New York as to location, and to their satisfaction."

This new trail was necessary for the use of the public, as the one formerly used crosses the private preserve of the Ne-ha-sa-ne Park, and is liable to be closed, thereby leaving no path for the tourists, guides, hunters and fishermen who want to journey from the Beaver, via the Red Horse Chain, to the Oswegatchie waters.

With this matter in view the Superintendent went to Big Crooked Lake in August, and making a camp there proceeded to select a line along which this new trail could be constructed. Instead of starting from the outlet of Big Crooked Lake, a shorter route with an easy grade was found by leaving the terminus of the present trail at the landing on the lake, and, by passing over the low ground behind the hill on the east side of Big Crooked, strike its outlet farther down. This cut-off saves the trip through the lake and considerable distance along the rocky shore of the outlet.

In accordance with the contract, Dr. Webb sent a force of workmen who constructed a good trail along the route thus selected by the Superintendent, and this trail, now open to the public, furnishes the shortest and easiest path—in fact, the only one—for persons traveling from the Beaver River to "Sternberg's" on the Oswegatchie.

The route lies through a grand primitive forest untouched by the lumbermen, through the most remote and unfrequented part of the entire Adirondack Wilderness. After leaving Chris. Wagner's camp on the Beaver River, the traveler bound for the Oswegatchie will not pass another camp or shanty on the route, except the little log cabin on Salmon Lake, which in summer is occupied by Mr. Lansing Hotaling, of Albany, N. Y. The journey is too long for one day's tramp; for in going by the Red Horse Chain a boat must be carried as far as Big Crooked Lake. There is no public house, nor even a guide's shanty on the way; the tourist or sportsman who would make this trip must sleep on the ground for one night, at least, with no other shelter except what he may improvise for the occasion.

Of the tract bought of Dr. Webb, the 50,125 acres situated north of the Beaver River, extending thence to the St. Lawrence County line, are covered with a primeval forest in which no lumbering operations or timber cutting whatever has been done, and on which no timber right has been granted or reserved.

With the exception of one comparatively small area, it is a dense, unbroken forest. The exception referred to is an opening on the trail north of Salmon Lake, near its junction with the one leading to Witchhopple Lake. This denuded area embraces about 425 acres, on which no tree is standing. It is covered with a thick growth of ferns, and although the fire or windfall that stripped the land occurred many years ago, there is no sign as yet of any reforestation.

There are also a few "beaver" meadows on this tract, the same, in appearance, as those which may be seen at intervals in all parts of the wilderness. On Lot 64, Township 43, there is one of these wild meadows which is over one mile long and about sixty rods wide.

But the tract is remarkably free from openings of any kind, the timber being dense, large and tall. Along the St. Lawrence County line there are some hardwood ridges on which the beeches are conspicuous for their height and diameter, this species attaining here a size seldom seen elsewhere in our northern woods. Throughout the entire tract the forest shows the same composition generally observed on the Adirondack Plateau, with the usual proportion of conifers and merchantable spruce.

The entire region purchased is interspersed with beautiful lakes, some of which, like Salmon and Big Crooked, are unsurpassed in beauty by any in the whole Adirondack Forest. They are well stocked with trout. The principal lakes are Salmon, Witchhopple, Clear, Big Crooked, Burnt, Emerald and Little Rock. There are, also, the ponds known as Wolf, Sand, Trout, and Cage; and the group known as the Five Ponds, with several others, all charming sheets of water hemmed in by dark, primeval woods where both fisherman and hunter can find ample opportunity for enjoyment. No tourist or sportsman should claim a thorough knowledge of the Adirondack Wilderness until he has traversed the region included in this purchase.

From the terms of the contract it will be seen that about one-third of the lands conveyed are subject to a timber right permitting the removal of the soft wood or evergreen trees; also the ash and cherry. The trees which may be removed under these contracts constitute less than fifteen per cent. of the forests standing on the tracts included in these timber rights. The timber which has been cut and which remains to be cut, is composed largely of spruce and hemlock. There is but a small amount, comparatively, of pine, ash, cherry, and poplar. The latter species grows only on burned lands, of which there are none in the Webb tract. There is considerable balsam; but as the contract forbids the cutting of any trees under ten inches in

diameter, the greater part of the balsam will necessarily be left. But little tamarack will be cut; there is no demand for it. Aside from the manufacture of shingles there is little cedar used. The parties who have these timber rights are not cutting all the species which, in their contract, they are permitted to take.

The largest area covered by a timber right is that in which Thomson and Dix are operating. They have eight years from May 1, 1894, in which to remove their timber; after that period the State obtains absolute possession and there can be no more cutting. Moynehan Brothers have finished their contract, and Ouderkirk will be through with his soon. The lumbering done under these contracts is free from many of the objectionable features which are too common in similar operations elsewhere in the Adirondack forests. The jobbers were obligated to "cut and trim or lop the large branches of tops of trees left on the ground after their operations, so the same will fall to the ground under the weight of winter snow"; and in felling trees to "use care and diligence to cause them to be so felled as not to unnecessarily injure or destroy other trees standing on said lands."

The contracts prohibited any cutting within twenty rods of the shore of lakes and ponds; also, any dams that, by flooding or back flow, might injure the trees along the shores of Big Moose Lake or the lakes of the Fulton Chain.

Although a timber right exists on these lands it must be remembered that no trees under ten inches in diameter on the stump—three feet from the ground—can be cut; on part of the tract this diameter is fixed at twelve inches. No small trees, such as are cut for pulp wood on other lands, can be removed. As a result, this forest will furnish thirty years hence another cutting of spruce.

At present, the State is prohibited by the new Constitution from utilizing the mature timber in its forests or obtaining any revenue from its woodlands; and many years must elapse before this Constitutional restriction can be removed. When the State is ready, at some future time, to undertake forestry operations on these lands, the spruce will have attained a size sufficient for a second cutting.

Attention is called to the easement granted by Dr. Webb in the contract, on Township 8, wherein the State acquires certain desirable privileges on the lands in that township not included in the 74,584 acres purchased. By the terms of the contract, the 15,000 acres which were reserved and not sold to the State, are placed under permanent forest condition. The public is granted a free right of way through the township, over the trails as now used, with access to all the beautiful lakes in that tract. No fishing and hunting privileges are reserved, and the entire township is now open to our citizens.

STATE DAM ON THE BEAVER RIVER.

Litigation of Titles

In the Forest Preserve.

IN 1885 "the care, custody, control and superintendence of the Forest Preserve" was entrusted by law to the Forest Commission. In the performance of these specific duties the Commission was obliged from time to time to commence legal actions against persons who were cutting timber on lands in the Preserve. The defendants in these suits, in many cases, set up as a defence that the title was not properly vested in the State, and that the tax title through which the State acquired possession was not valid, owing to various reasons alleged by the respective defendants.

These suits for trespass were necessarily brought by the Forest Commission in the legitimate performance of their duties, and when the question of title was raised in connection with these cases this further litigation devolved on the Commission also. The suit once begun could not be abandoned by the plaintiffs, although the additional questions thus to be determined were widely different from the object of the original suit, and, to some extent, foreign to the aims, purposes, and duties of the Department.

Litigation of land titles has no connection with forestry; but it has so happened that it became incidental to and inseparably connected with the prosecution of persons who insisted on despoiling the timber lands of the Preserve. The Commission has thus been obliged to protect not only its forests, but the title to the land itself.

It is a matter of congratulation that, during twelve years of constant litigation over these titles to lands in the Forest Preserve, the State has not lost a single suit. Though confronted at times by adverse decisions in the lower courts, the final verdict has always been in favor of the State.

Prominent among these suits is the celebrated case of The State vs. Benton Turner, which has been in the courts for eleven years. In 1886 the defendant cut a large amount of timber on the southeast quarter of Township 24, Great Tract One, Macomb's Purchase, Franklin County, N. Y., a tract of land which the State acquired through the tax sales of 1877. The defendant refusing to recompense the State for the damages inflicted on the forest, the People, through the Forest Commission, brought a suit, which was tried in March, 1887. The jury rendered a verdict of $1,250 in favor of the plaintiff. The defendant then appealed, and the State's title was confirmed by the Court of Appeals. But the litigation did not end here. In the meantime, while the case was in the courts awaiting adjudication, the defendant obtained from the Comptroller, Hon. Edward Wemple, a cancellation of the tax sale by which the State had obtained its title. The application for this cancellation was

granted by Comptroller Wemple on December 31, 1891—the day on which his term of office expired—and Turner obtained nominal possession of the land. He then made preparation to cut and remove the timber on the 7,500 acres included in the tract. But the Forest Commission, through its superintendent, immediately obtained from the courts an injunction restraining Turner from cutting any timber or entering on the land until the title was adjudicated. The Forest Commission then applied to Comptroller Wemple's successor, Hon. Frank Campbell, to set aside this action of his predecessor. This application being denied, the Forest Commission sought by a writ of certiorari to compel Comptroller Campbell to review the proceedings by which the cancellation of the State's title was effected. The Supreme Court held that the Forest Commission had no power or authority to prosecute such a writ. The Forest Commission carried their case to the Court of Appeals, where the decision of the General Term was reversed. This decision of the Court of Appeals has such an important bearing on the power and authority of this Department that we deem it proper and pertinent matter for our official report. We accordingly reprint the decision for the information of the Legislature and all others interested:

THE PEOPLE OF THE STATE OF NEW YORK ex rel. THE FOREST COMMISSION, Appellant, *v.* FRANK CAMPBELL, Comptroller of the State of New York, Respondent. No. 1.

THE SAME *v.* THE SAME. No. 2.

1. APPEAL—REVIEW OF DISCRETION. The quashing of writs of certiorari, on the specific ground that the relator had no power or authority to obtain or prosecute them, is not exempt from review on appeal, on the ground that it is an exercise of discretion.

2. APPEAL—FINAL ORDER. A final order in a special proceeding, which determines the same, is reviewable in the Court of Appeals.

3. FOREST COMMISSION—CONTINUOUS BODY. The forest commission has been a continuous body since its creation under chapter 283 of the Laws of 1885, and proceedings instituted by it may be prosecuted and defended to final effect, the same as if the act of 1885 had not been repealed.

4. CERTIORARI—§2127, CODE OF CIVIL PROCEDURE. A writ of certiorari, sued out in the name of the State on the relation of the forest commission, to review a decision canceling the title of the State to lands acquired at a tax sale, is, "by or in behalf of a person aggrieved," within the meaning of section 2127 of the Code of Civil Procedure.

5. FOREST COMMISSION AS RELATOR. The forest commission, as relator in a writ of certiorari sued out in the name of the State, is not required to act in the names of the individual members composing it.

People ex rel. Forest Com. v. *Campbell*, 32 Hun, 338, 614, reversed.

(Argued February 1, 1897; decided March 2, 1897.)

APPEALS from orders of the General Term of the Supreme Court in the third judicial department, entered January 8, 1895, which quashed writs of certiorari in each of the above-entitled proceedings.

Proceeding No. 1 was instituted to review the action of former Comptroller Wemple in canceling the sale of certain lands made to the State in 1877 within the limits of the forest preserve for unpaid taxes. This cancellation was granted upon the ground that certain taxes had been paid before the sale. Application was thereafter made to Comptroller Campbell, the successor of Comptroller Wemple, to set aside this cancellation of the State's title, and the same having been denied, the second proceeding seeks to review that action of the Comptroller.

At the General Term the respondent moved to quash two writs upon two grounds:

1. That the relator, The Forest Commission, is not the party aggrieved by the determination sought to be reviewed and is not entitled to sue out the writ.

2. That the relator, The Forest Commission, is not a body corporate and must act in the names of the individuals composing it.

This motion was granted without considering the merits and on the specific ground in each case "that the relator, The Forest Commission, has no power or authority in a case like this to obtain or prosecute such writ."

William P. Cantwell for appellant. The orders are appealable to this court. (*People ex rel.* v. *McCarthy*, 102 N. Y. 631; *People ex rel.* v. *Comrs., etc.*, 97 N. Y. 37.) The proceeding is on behalf of, and in the name of, the People of the State of New York. (L. 1885, ch. 283, § 11.) The forest commission is a governmental agency—a unit, acting as a corporation acts, by and through its aggregate character. Its powers are given, not to the commissioners, but to the commission. Its duties are imposed, not upon the individuals who compose it, but upon the commission itself. (Code Civ. Pro. §§ 605, 1313, 2146; L. 1893, ch. 43; 23 N. Y. 224; 54 Barb. 145; 7 Lans. 220; *People* v. *Turner*, 145 N. Y. 451.) No valid objection can be raised upon the ground that the forest commission and the comptroller, both being the servants and agents of the State, cannot antagonize or oppose each other in an action, or that a certiorari cannot be used by one department of the State government to review the action of another. (2 Jacob's Fisher's Dig. 1756, 1768; Code Civ. Pro. §2120, subd. 2.) The argument "that any action or proceeding which the forest commission is by law authorized to prosecute must be so prosecuted either in the name of the People of the State, or in the names of the individuals composing the commission," is untenable. (*People ex rel.* v. *Coleman*, 41 Hun, 307; *People ex rel.* v. *Cholwell*, 6 Abb. Pr. 151; *People ex rel.* v. *Cook*, 62 Hun, 303.)

Frank E. Smith for respondent. The orders of the General Term are not appealable to this court. (*People ex rel.* v. *Stilwell*, 19 N. Y. 531; *People ex rel.* v. *Tax Comrs.*, 85 N. Y. 655; *People ex rel.* v. *Hill*, 53 N. Y 547; *People ex rel.* v. *Comrs., etc., of Brooklyn*, 103 N. Y. 370.) The appeal to this court abated on the repeal of the law which created the forest commission. (L. 1895, ch. 395; Code Civ. Pro. §§ 1298, 1930.) The writs were properly quashed by the General Term as improvidently granted. (Code Civ. Pro. §§ 1929, 2127, 2129, 2130; *People ex rel. Comrs. of Land Office*, 135 N. Y. 447; L. 1885, ch. 283, § 11; L. 1893, ch. 332, § 112; *Supvrs. of Galway* v. *Stimson*, 4 Hill, 136; *People ex rel.* v. *Bd. of Comrs.*, 97 N. Y. 37.) No questions relating to the merits of the orders made by the comptroller are now before this court. (Code Civ. Pro. § 191; *Lake* v. *Gibson*, 2 N. Y. 188; *Wilkins* v. *Earle*, 46 N. Y. 358; *Hackett* v. *Belden*, 47 N. Y. 624; *Delaney* v. *Brett*, 51 N. Y. 78; *Peterson* v. *Swan*, 119 N. Y. 662.)

BARTLETT, J. This appeal calls upon us to determine the powers of the forest commission under the original act of its creation (Chap. 283, Laws of 1885) and subsequent legislation upon the same subject.

A brief statement of the facts will make clear the situation which led to the institution of these proceedings. At a tax sale in 1877 the comptroller bought in the property in question, being a part of the present forest preserve, and in June, 1881, executed a deed to the State, which was recorded on the 8th of June, 1882, in Franklin County.

In March, 1887, the People of the State of New York commenced an action in the Supreme Court against one Benton Turner to recover the possession of a quantity of saw logs cut by him upon the premises in question. While this action was pending in April, 1890, the defendant Turner, claiming to be the owner of the premises, applied to Comptroller Wemple to cancel the State's title under the sale of 1877 and the subsequent deed from the comptroller. This application was opposed before the comptroller by the forest commission on the ground that the pending action against Turner would determine the question of title between him and the State. Comptroller Wemple, following this suggestion, postponed the hearing.

In April, 1891, this action was decided in favor of the State, and the record therein was filed with the comptroller by the counsel for the forest commission, who insisted that the judgment was a complete answer to Turner's application. Comptroller Wemple's term of office expired on the 31st day of December, 1891, and on that day he made the order canceling the State's title on Turner's original application.

Two preliminary objections to the hearing of this appeal are made by the respondent.

It is urged that the orders are not appealable, for the reason that the granting or withholding of the writ was wholly within the sound discretion of the court below, and the reasons which induced it to act or refrain from acting are not open to review. This objection is not well taken. The writs were quashed on the specific ground that "the relator, the forest commission, has no power or authority in a case like this to obtain or prosecute such writ."

This is a final order in a special proceeding, and, as it determines the same, it is reviewable in this court. (*People ex rel. Vanderbilt* v. *Stilwell*, 19 N. Y. 532; *People ex rel. Mayor* v. *McCarthy et al.*, 102 N. Y. 631; *People ex rel. Second Avenue R. R. Co.* v. *Board of Comrs., etc.*, 96 N. Y. 37, 42.)

The second objection is to the effect that this appeal has abated by reason of the repeal of chapter 283 of the Laws of 1885, creating the commission, by chapter 395 of the Laws of 1895, whereby a new forest commission was created, without providing that the new board should be substituted for the old in pending suits, and that no motion has been made to revive these proceedings in the name of the new board.

It is true that, by the schedule of "Laws Repealed," annexed to chapter 398 of the Laws of 1895, it appears that chapter 283 of the Laws of 1885 is repealed, but it also appears, by the schedule annexed to chapter 332 of the Laws of 1893, that the Law of 1885 was repealed at that time. This repetition is obviously a mistake.

This objection is without force, however, for the reason that the Statutory Construction Law (Chap. 677, Laws 1892) contains general saving clauses as to all legislation carrying out the revision of the general laws.

Section 31 reads in part as follows, viz.:

"The repeal of a statute or a part thereof shall not affect or impair any act done or right accruing, accrued or acquired, or liability, penalty, forfeiture or punishment incurred prior to the time such repeal takes effect, but the same may be asserted, enforced, prosecuted or inflicted, as fully and to the same extent as if such repeal had not been effected; and all actions and proceedings, civil and criminal, commenced under or by virtue of any provision of a statute so repealed, and pending immediately prior to the taking effect of such repeal, may be prosecuted and defended to final effect in the same manner as they might if such provisions were not so repealed."

Section 32 contains the following: "The provisions of any chapter of the revision of the general laws, of which this chapter is a part, so far as they are substantially the same as those of laws existing at the time such chapter takes effect, shall be construed as a continuation of such laws, modified or amended according to the language employed in such provisions, and not as new enactments."

The policy of the legislature in treating repealing statutes as amendatory in character is further illustrated in this connection by enactments subsequent to these proceedings. Chapter 488 of the Laws of 1892, section 276, being an act for the protection, preservation and propagation of fish, birds and wild animals in the State of New York, and the different counties thereof, and which is at the present time a part of the "Fisheries, Game and Forest Law," as existing January 1st, 1896. (1 R. S. [Banks' 9th ed.] p. 871.) See, also, sections 304, 305 of the statute last referred to (pp. 931, 932).

We are of opinion that the forest commission since its creation under the Laws of 1885 has been a continuous body, and that all actions and proceedings instituted by it may be prosecuted and defended to final effect the same as if the act of 1885 had not been repealed.

We, therefore, overrule the preliminary objections to the hearing of this appeal, and come to the consideration of the merits.

The respondent insists that the forest commission is not a party aggrieved under section 2127 of the Code of Civil Procedure, which provides that "an application for a writ must be made by or in behalf of the person aggrieved by the determination to be reviewed." Also, that the commission is not a body corporate, and must act in the names of the individuals composing it.

These points will be considered together.

It is necessary to determine the precise powers conferred upon the forest commission by chapter 283 of the Laws of 1887. The first section of the act creates the commission; the seventh section defines what lands shall be known as the forest preserve, and the ninth section declares "the forest

commission shall have the care, custody, control and superintendence of the forest preserve." The subsequent provisions of the act confer numerous and detailed powers upon the commission, but those bearing upon this case are to be found in section 11, which provides, among other things, as follows: "The forest commission may bring, in the name or on behalf of the People of the State of New York, any action to prevent injury to the forest preserve or trespass thereon, to recover damages for such injury or trespass, to recover lands properly forming part of the forest preserve, but occupied or held by persons not entitled thereto, and in all other respects for the protection and maintenance of the forest preserve, which any owner of lands would be entitled to bring." The section proceeds to confer upon the commission detailed powers in bringing actions for trespass, and then closes as follows: "With the consent of the Attorney-General and the Comptroller, the forest commission may employ attorneys and counsel to prosecute any such action, or to defend any action brought against the commission or any of its members or subordinates arising out of their or his official conduct with relation to the forest preserve. Any attorney or counsel so employed shall act under the direction of and in the name of the Attorney-General. Where such attorney or counsel is not so employed, the Attorney-General shall prosecute and defend such actions."

It will thus be observed that the commission is given the absolute care, custody, control and superintendence of the forest preserve, and are authorized for its protection and maintenance to bring any and all actions and proceedings which an owner of land would be entitled to institute. The commission may retain counsel with the consent of the Attorney-General and Comptroller, and if this is not done, it is made the duty of the Attorney-General to act in their behalf.

The act clearly contemplates not only actions brought by the commission in the name of the State, but actions against the commission or any of its members or subordinates arising out of their official action.

It is difficult, when we consider these sweeping provisions, to believe that it was not the intention of the legislature to clothe the commission with the amplest and most complete powers to represent the State in the forest preserve.

It would seem that when the title of the State, acquired at a tax sale, is canceled for any reason, it should be entitled to invoke the remedy accorded the individual suitor, which is the right to review, by certiorari, proceedings which led to the cancellation.

The party aggrieved in this proceeding is the State of New York, and the writ of certiorari has been sued out in the name of the State on the relation of the forest commission. The respondent urges that this is not a proceeding in the name of the State. We are of opinion that it is, and that the forest commission stands as the representative of the State and acts as relator in this proceeding merely to conform it to the ordinary procedure in respect to form.

The case of *People* v. *Turner*, referred to in the opening of this opinion, was affirmed in this court (145 N. Y. 451), and it was there held that the State was placed in constructive possession of the lands in question through the comptroller's purchase and deed, but that subsequently it was in actual possession by reason of the creation of the forest commission and the powers and duties devolved upon it by the act of 1885. The possession of the commission is the possession of the State.

It has been the general policy of the State in recent years to confine applications for cancellation of titles *to the purchaser at the tax sale*, and the creation of the forest commission, with the ample powers conferred upon it, was designed, among other things, to protect the state against improper and unlawful applications of the comptroller to set aside titles.

It was essential that the State should be represented by a board having full power to protect and maintain its rights in the wild and unsettled portion of the State embraced within the limits of the forest preserve.

These views lead to the conclusion that the writs were improperly quashed. As the learned General Term quashed the writs on the ground that the forest commission had no power to prosecute them, the orders appealed from should be reversed, with costs, and the proceedings remitted to the Appellate Division to hear them on their merits.

All concur.

Orders reversed.

Decrease in Area

Of the Forest Preserve, Through Cancellation of Titles.

THE loss of lands in the Preserve through defective titles was small as compared with the decrease in area in former years, when a cancellation of the State's title was granted so often for trivial or technical reasons. During the past two years the Comptroller has refused to entertain any application for the cancellation of a tax sale unless the application was made by the purchaser at the sale. This is in accordance with the decision of the courts, that the owner of the land, who defaulted his taxes, already had had his day in court; and that the application for cancellation could be made only by the purchaser at the sale.

Lands are sometimes sold at a tax sale through mistake. The tax may have been paid, but owing to some clerical error was not credited to the tax payer; or the land may have been exempt from taxation, or it may have been doubly assessed, both as resident and non-resident, or it may have been assessed in the wrong tax district. There are instances where persons, having paid all their taxes regularly for years, were surprised to find their lands scheduled on the printed land list of this Department as part of the Forest Preserve Now, when a citizen learns that through some error, clerical or otherwise, the State has acquired a tax deed to his land, he finds it exceedingly difficult to remove this cloud on his title. He cannot apply, as formerly, to the Comptroller to have the mistake corrected by a cancellation of the sale, because he was not the purchaser at the sale. The purchaser is the only one, under the ruling of the courts, who can apply; and the purchaser seldom, if ever, has any need to make such an application. His interest always lies in the opposite direction; he wants the sale to stand.

In view of this condition of affairs, some persons, whose property appeared on the list of lands in the Forest Preserve as having been acquired by the State at tax sales, appealed to the Legislature for relief and obtained the enactment of the following laws:

CHAPTER 219, LAWS OF 1896.

AN ACT to authorize the Comptroller to hear and determine the application of William McEchron and James N. Ordway as surviving executors and trustees of and under the last will and testament of James Ordway, deceased, for cancellation of Lots Number 102 and 103, Fourteenth Township, Pond's Survey, Totten & Crossfield's Purchase, Essex County, for unpaid taxes.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Jurisdiction is hereby conferred upon the Comptroller of this State to hear and determine the application of William McEchron and James N. Ordway, as surviving executors and trustees of and under the last will and testament of James Ordway, deceased, for cancellation of the sale of Lots Number 102 and 103, Fourteenth Township, Pond's Survey, Totten & Crossfield's Purchase, Essex County, for unpaid taxes. Said McEchron and Ordway, as said executors and trustees, claim to be the owners thereof, and the said Comptroller is hereby authorized to act upon said application in the same manner and with the same effect as if the application were made by the purchaser at the tax sale.

SEC. 2. Prior to the hearing upon said application, the said McEchron and Ordway shall cause to be served upon the Attorney-General of the State of New York a notice of such hearing.

SEC. 3. This act shall take effect immediately.

CHAPTER 220, LAWS OF 1896.

AN ACT to authorize the State Comptroller to hear and determine the application of John W. Olmstead for cancellation of the sale of 1877 of Lot 63, Jerseyfield Patent, Fulton County, as sold at said sale for unpaid taxes.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Jurisdiction is hereby conferred upon the Comptroller of this State to hear and determine the application of John W. Olmstead for the cancellation of the 1877 tax sale of Lot 63, Jerseyfield Patent, Fulton County, as sold at said sale for unpaid taxes, and conveyed therefrom to the People of the State of New York, said Olmstead claiming to be the owner thereof; and the said Comptroller is hereby authorized to act upon said application in the same manner and with the same effect as if the application were made by the purchaser at the said tax sale.

SEC. 2. This act shall take effect immediately.

CHAPTER 926, LAWS OF 1896.

AN ACT to authorize the Comptroller to hear and determine the application of John Anderson for cancellation of the sale of southwest corner, Lot Number 48, and southeast corner Lot Number 49, Township Number Twelve, Warren County, for unpaid taxes.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Jurisdiction is hereby conferred upon the Comptroller of this State to hear and determine the application of John Anderson for cancellation of the sale of southwest corner, Lot Number 48, and southeast corner, Lot Number 49, Township Number Twelve, Warren County,

for unpaid taxes, said John Anderson claiming to be the owner thereof; and the said Comptroller is hereby authorized to act upon said application in the same manner and with the same effect as if the application were made by the purchaser at the tax sale.

SEC. 2. Prior to the hearing upon said application the said John Anderson shall cause to be served upon the Attorney-General of the State a notice of said hearing. Said notice shall be served at least fourteen days before the date of hearing.

SEC. 3. This act shall take effect immediately.

CHAPTER 927, LAWS OF 1896.

AN ACT to authorize the Comptroller to hear and determine the application of Andrew C. Thurston and William H. Parker for cancellation of the sale of Lot Number 8, Range 6, Great Tract, Dartmouth Patent, Warren County, for unpaid taxes.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Jurisdiction is hereby conferred upon the Comptroller of this State to hear and determine the application of Andrew C. Thurston and William H. Parker for cancellation of the sale of Lot Number 8, Range 6, Great Tract, Dartmouth Patent, Warren County, for unpaid taxes, said Thurston and Parker claiming to be the owners thereof; and the said Comptroller is hereby authorized to act upon said application in the same manner and with the same effect as if the application were made by the purchaser at the tax sale.

SEC. 2. Prior to the hearing upon said application, the said Andrew C. Thurston and William H. Parker shall cause to be served upon the Attorney-General of the State a notice of said hearing. Said notice shall be served at least fourteen days before the date of hearing.

SEC. 3. This act shall take effect immediately.

In compliance with these laws, the Comptroller granted hearings in the various cases. The applicants were represented by counsel. The State, on its part, was represented at each hearing by the Superintendent of Forests and by Mr. Edward H. Leggett, of the Attorney-General's office. Evidence was offered on both sides and arguments were made by the attorneys. A cancellation was granted in each case, except that of John Anderson (Chapter 926), in which no hearing has been held as yet.

The first case involved the title of the State to Lots 102 and 103, Township 14, Pond's Survey, Totten & Crossfield Purchase, Town of Minerva, Essex County, N. Y. The applicants, who were acting as executors of the estate of James Ordway, late of Glens Falls, N. Y., alleged, in support of their application for a cancellation of the tax sale under which the State obtained its title, that the land was assessed as non-resident at a time when it was occupied and used as a farm, and that, consequently, the taxes were improperly levied and the tax sale was invalid. The Comptroller granted the application on these grounds. These two lots, embracing 438 acres, were accordingly stricken from the land list of the Preserve.

The next application, made pursuant to Chapter 220, asked for the cancellation of the State's title to Lot 63, Jerseyfield Patent, Town of Stratford, Fulton County, N. Y. In this case the applicant claimed that in certain years, which were included in the tax sale, the land was assessed both as resident and non-resident; that it was doubly assessed, and that the resident tax was paid. The application was granted, and this lot, containing 583 acres, was dropped from the list of lands in the Forest Preserve.

The next hearing, held pursuant to Chapter 927, involved the State's title to a tract of primitive forest on Lot 8, Range 6, Great Tract, Dartmouth Patent, Town of Thurman, Warren County, N. Y. The applicant asked for a cancellation of the tax sale on the ground that this lot belonged to the Adirondack Railway Company and was exempt from taxation until 1883. On the part of the State, contention was made that the period of exemption had expired before the levying of the tax. The application, however, was granted, and the 234 acres were withdrawn from the Forest Preserve.

These proceedings, made possible only through special legislation, resulted in a decrease in area of the Preserve amounting to 1,255 acres. It should be stated, however, that the taxes were illegally levied and that the subsequent tax sale was invalid. The owners of these lands did not intend at any time to default their taxes, and in one case actually paid them.

It should also be borne in mind that there is a wide difference between cancellations granted under such conditions and the cancellations formerly granted for trivial or purely technical reasons—cases where the owners intentionally defaulted their taxes and abandoned their lands.

The John Brown Farm.

THE State Legislature passed a law, signed by the Governor on March 25, 1896, by which it accepted the deed of gift made March 29, 1895, by Henry Clews and wife, conveying to the people the Adirondack land situated in North Elba, Essex County, known as the John Brown Farm. This land, which is mostly under forest cover, may also be described as Lot 95, Township 12, Old Military Tract, Thorn's Survey. By the terms of the Act—Chapter 116, Laws of 1896—the land conveyed is "dedicated" and must be "used for the purpose of a public park or reservation forever."

John Brown lived on this farm prior to his participation in the slavery war in Kansas; and his family were living there at the time of his raid at Harper's Ferry. After his death his body was brought there from Virginia for burial, in accordance with a request made by him shortly before his execution, which occurred at Charlestown, Va., December 2, 1859.

In 1870, an association of twenty persons was formed through the efforts of the late Miss Kate Field, of Washington, D. C., for the purpose of purchasing and preserving the property; and the farm which had already been offered for sale was bought accordingly, $2,000 having been subscribed for the objects of the Association. Through its agent, Mr. Henry Clews, of New York City, the farm was transferred to the State of New York as already shown.

The deed conveys all of Lot 95, containing 243¾ acres, excepting one-eighth of an acre. This reservation is the little burial plot, the ownership of which still remains in the heirs of the Brown family, and which was not included in the land purchased.

About forty acres have been cleared; the remainder is covered by the forest. The two-story, unpainted frame house built by John Brown in 1850 stands near the little enclosure in which his remains are buried. The house and barn are in a fair state of preservation, the Association having kept a resident custodian on the premises. This custodian, Mr. Reuben Lawrence, was retained by this Commission when the property was turned over to its care.

Brown was buried in accordance with his request close by a massive rock of outcropping granite that lifts its gray, irregular surface near the porch of the farmhouse. On a perpendicular wall of this rock, near the foot of the grave, may be seen the letters J. B., which he cut there before he left home, as an indication where his body should be laid when his restless, dangerous life should reach its end.

At the head of the grave is an old-fashioned tombstone which Brown brought from Connecticut where it had stood at his grandfather's grave. A second inscription

now records the death of John Brown at Harper's Ferry; and below this is a third inscription recording the death of Oliver Brown, who was also killed there. On the reverse of the stone is the epitaph of Frederick Brown, who was "murdered" in Kansas. Watson Brown, another son who was killed in the fight at Harper's Ferry, is also buried in the enclosure, his remains having been recovered from an anatomical museum twenty years after his death, and brought home to North Elba.

The most noticeable feature of the burial plot is the inscription chiselled in large letters on a slope of the massive granite outcrop, a stony ledge which nearly fills the small enclosure. Here in large, deeply cut characters, appear the words

JOHN BROWN
1859

There is something about this gray and rugged rock, with its simple but deeply graven letters, that appeals to the sentiment of every visitor. It is strongly suggestive of Brown's character, and makes a fitting and impressive memorial.

In 1886, Colonel Francis L. Lee, of Boston, Mass., made a journey to North Elba, taking with him a skillful stone-cutter, who, acting under Colonel Lee's instructions, cut the large and deeply furrowed letters and figures in the rock. The hard, flinty nature of the stone made the work exceedingly difficult, and several days were consumed in the task. The inscription will stand for centuries, and be eligible long after the bronze and marble epitaphs of to-day shall have been erased by the hand of Time.

A good description of the homestead and surrounding country was written by Thomas Wentworth Higginson, who visited the place immediately after Brown's capture at Harper's Ferry. In describing the spot, the house, and the family life that once existed within its hospitable doors, he said:

"The traveler into the enchanted land of the Adirondacks has his choice of two routes from Keeseville to the Lower Saranac Lake, where his out-door life is to begin. The one least frequented and most difficult should be selected, for it has the grandest mountain pass that the Northern States can show. After driving twenty-two miles of mountain road from Keeseville, past wild summits bristling with stumps, and through villages where every other man is black from the iron foundry, and every alternate one black from the charcoal pit, your pathway makes a turn at the little hamlet of Wilmington, and you soon find yourself facing a wall of mountain, with only glimpses of one wild gap through which you must penetrate. In two miles more you have passed the last house this side of the Notch, and you then drive on over a rugged way, constantly ascending, with no companion but the stream which ripples and roars below. Soon the last charcoal clearing is past, and thick woods of cedar and birch close around you—the high mountain on your right comes nearer and nearer, and close beside, upon your left, are glimpses of a wall, black and bare as iron, rising sheer

for four hundred feet above your head. Coming from the soft marble country of Vermont, and from the pale granite of Massachusetts, there seems something weird and forbidding in this utter blackness. On your left the giant wall now appears nearer, now retreats again; on your right foams the merry stream, breaking into graceful cascades, and across it the great mountain, Whiteface, seamed with slides. Now the woods upon your left are displaced by the iron wall almost touching the roadside; against its steep abruptness scarcely a shrub can cling, scarcely a fern flutter; it takes your breath away; but five miles of perilous driving conduct you through it; and beyond this stern passway, this cave of iron, lie the lovely lakes and mountains of the Adirondacks, and the homestead of John Brown.

"The Notch seems beyond the world, North Elba and its half dozen houses beyond the Notch, and there is a wilder little mountain road which rises beyond North Elba. But the house we seek is not even on that road, but behind it and beyond it; you ride a mile or two, then take down a pair of bars; beyond the bars, faith takes you across a half-cleared field, through the most difficult of wood-paths, and after half a mile of forest you come out upon a clearing. There is a little frame house, unpainted, set in a girdle of black stumps, and with all heaven about it for a wider girdle, on a high hillside; forests on north and west; the glorious line of the Adirondacks on the east; and on the south one slender road leading off to Westport, a road so straight that you could sight a United States Marshal for five miles.

"There stands the little house, with no ornament nor relief about it—it needs none with the setting of mountain horizon. Yes, there is one decoration which at once takes the eye, and which, stern and misplaced as it would seem elsewhere, seems appropriate here. It is a strange thing to see any thing so old, where all the works of man are new! but it is an old, mossy, time-worn *tombstone*—not marking any grave, not set in the ground, but resting against the house as if its time were either past or not yet come. Both are true—it has a past duty and a future one. It bears the name of Captain John Brown, who died during the Revolution, eighty-three years ago; it was his tombstone brought hither by his grandson bearing the same name and title; the latter caused to be inscribed upon it, also, the name of his son Frederick, 'murdered at Osawatomie for his adherence to the cause of freedom' (so reads the inscription); and he himself has said, for years, that no other tombstone should mark his grave.

"For two years, now, that stone has stood there—no oath has been taken upon it, no curses been invoked upon it—it marks the abode of a race who do not curse. But morning and noon, as the sons have gone out to their work on that upland farm, they have passed by it; the early light over the Adirondacks has gilded it, the red reflection of sunset has glowed back upon it; its silent appeal has perpetually strengthened and sanctified that home—and as the two lately wedded sons went forth joyfully on their

WINDSOR HALLENECK FRAMINGHAM

THE JOHN BROWN FARM AND HOMESTEAD.

father's call to keep their last pledge at Harper's Ferry, they issued from that doorway between their weeping wives on the one side and that ancestral stone upon the other.

"The farm is a wild place; cold and bleak. It is too cold to raise corn there; they can scarcely, in the most favorable seasons, obtain a few ears for roasting. I was there on the first day of November; the ground was snowy, and winter had apparently begun —and it would last till the middle of May. They never raise anything to sell off that farm, except sometimes a few fleeces. It was well, they said, if they raised their own provisions, and could spin their own wool for clothing.

"Ten years ago, Gerrit Smith gave to a number of colored men tracts of ground in the Adirondack Mountains. The emigrants were grossly defrauded by a cheating surveyor, who, being in advance of his age, practically anticipated Judge Taney's opinion, that black men have no rights which white men are bound to respect. By his villainy the colony was almost ruined in advance; nor did it ever recover itself; though some of the best farms which I have seen in that region are still in the hands of colored men. John Brown heard of this; he himself was a surveyor, and he would have gone to the Adirondacks, or anywhere else, merely to right this wrong. But he had another object: he thought that among these men he should find coadjutors in his cherished plan. He was not wholly wrong, and yet he afterwards learned something more. Such men as he needed are not to be *found* ordinarily; they must be *reared*. John Brown did not merely look for men, therefore: he reared them in his sons. During long years of waiting and postponement, he found others; but his sons and their friends (the Thompsons) formed the nucleus of his force in all his enterprises. What services the females of his family may have rendered, it is not yet time to tell; but it is a satisfaction to think that he was repaid for his early friendship of these New York colored men, by some valuable aid from freed slaves and fugitive slaves at Harper's Ferry; especially from Dangerfield Newby, who, poor fellow! had a slave wife and nine slave children to fight for, all within thirty miles of that town.

"To appreciate the character of the family, it is necessary to know these things; to understand that they have all been trained from childhood on this one principle, and for this one special project; taught to believe in it as they believed in their God or their father. It has given them a wider perspective than the Adirondacks. Five years before, when they first went to Kansas, the father and sons had a plan of going to Louisiana, trying this same project, and then retreating into Texas with the liberated slaves. Nurtured on it so long, for years sacrificing to it all the other objects of life, the thought of its failure never crossed their minds; and it is an extraordinary fact that when the disastrous news first came to North Elba, the family utterly refused to believe it, and were saved from suffering by that incredulity till the arrival of the next weekly mail.

"I had left the world outside, to raise the latch of this humble door amid the mountains; and now my pen falters on the threshold, as my steps did then. This house is a home of sacred sorrow. How shall we enter it? Its inmates are bereft and ruined men and women, as the world reckons; what can we say to them? Do not shrink; you are not near the world; you are near John Brown's household. 'In the world ye shall have tribulation; but be of good cheer: *they* have overcome the world.'

"Having had the honor of Captain Brown's acquaintance for some years, I was admitted into the confidence of the family, though I could see them observing me somewhat suspiciously as I approached the door. Every thing that was said of the absent father and husband bore testimony of the same simple, upright character. Though they had been much separated from him for the last few years, they all felt it to be a necessary absence, and had not only no complaint to make, but cordially approved it. Mrs. Brown had been always the sharer of his plans. 'My husband always believed,' she said, 'that he was to be an instrument in the hands of Providence, and I believe it too.' 'This plan has occupied his thought and prayers for twenty years.' 'Many a night has he lain awake and prayed concerning it.' 'Even now,' she did not doubt, 'he feels satisfied, because he thinks it will be overruled by Providence for the best.' 'For myself,' she said, 'I have always prayed that my husband might be killed in fight rather than fall alive into the hands of the slaveholders; but I can not regret it now, in view of the noble words of Freedom which it has been his privilege to utter.' When, the next day, on the railway, I was compelled to put into her hands the newspaper containing the death warrant of her husband, I felt no fears of her exposing herself to observation by any undue excitement. She read it, and then the tall, strong woman bent her head for a few minutes on the seat before us; then she raised it, and spoke calmly as before.

"I thought that I had learned the lesson once for all in Kansas, which no one ever learns from books of history alone, of the readiness with which danger and death fit into the ordinary grooves of daily life, so that on a day of a battle, for instance, all may go on as usual; breakfast and dinner are provided, children cared for, and all external existence has the same smoothness that one observes at Niagara, just above the American Fall; but it impressed me anew on visiting this household at this time. Here was a family out of which four noble young men had, within a fortnight, been killed. I say nothing of a father under sentence of death and a brother fleeing for his life, but only speak of those killed. Now that word *killed* is a word which one hardly cares to mention in a mourning household circle, even under all mitigating circumstances, when sad, unavailing kisses and tender funeral rites have softened the last memories; how much less here, then, where it suggested not merely wounds, and

terror, and agony, but also coffinless graves in a hostile land, and the last ignominy of the dissecting-room.

"Yet there was not one of that family who could not pronounce that awful word with perfect quietness; never, of course, lightly, but always quietly. For instance, as I sat that evening, with the women busily sewing around me, preparing mother for her sudden departure with me on the morrow, some daguerreotypes were brought out to show me, and some one said, 'This is Oliver, one of those who were killed at Harper's Ferry.' I glanced up sidelong at the young, fair-haired girl who sat near me by the table—a wife of fifteen, a widow at sixteen; and this was her husband, and he was *killed*.

"As the words were spoken in her hearing not a muscle quivered, and her finger did not tremble as she drew the thread. For her life had become too real to leave room for wincing at mere words. She had lived through, beyond the word, to the sterner fact, and having confronted *that*, language was an empty shell. To the Browns killing means simply dying—nothing more; one gate into heaven, and that one a good deal frequented by their family: that is all.

"No; this family work for a higher price than fame. You know it is said that in all Wellington's despatches you never meet with the word GLORY—it is always DUTY. In Napoleon's you never meet with the word DUTY—it is always GLORY. The race of John Brown is of the Wellington type. *Principle* is the word I brought away with me, as most familiar in their vocabulary. That is their standard of classification. A man may be brave, ardent, generous—no matter; if he is not all this from principle, it is nothing. The daughters, who knew all the Harper's Ferry men, had no confidence in Cook, because 'he was not a man of principle.' They would trust Stevens around the world, because 'he was a man of principle.' 'He tries the hardest to be good,' said Annie Brown in her simple way, 'of any man I ever saw.'

"It is pleasant to add that this same brave-hearted girl, who had known most of her father's associates, recognized them *all* but Cook as being men of principle. 'People are surprised,' she said, 'at father's daring to invade Virginia with only twenty-three men; but I think if they knew what sort of men they were there would be less surprise. I never saw such men.'

"The children spoke of their father as a person of absolute rectitude, thoughtful kindness, unfailing foresight, and inexhaustible activity. On his flying visits to the farm, every moment was used; he was 'up at three A.M., seeing to everything himself,' providing for everything, and giving heed to the minutest point. It was evident that some of the older ones had stood a little in awe of him in their childish years. 'We felt a little pleased sometimes, after all,' said the son, 'when father left the farm for a few days.' 'We girls *never* did,' said the married daughter, reproachfully, the tears

gushing to her eyes. 'Well,' said the brother, repenting, 'we were always glad to see the old man come back again; for if we *did* get more holidays in his absence, we always missed him.'

"Those dramatic points of character in him, which will of course make him the favorite hero of all American romance hereafter, are nowhere appreciated more fully than in his own family. In the midst of all their sorrow, their strong and healthy hearts could enjoy the record of his conversations with the Virginians, and applaud the keen, wise, simple answers which I read to them, selecting here and there from the ample file of newspapers I carried with me. When, for instance, I read the inquiry, 'Did you go out under the auspices of the Emigrant Aid Society?' and the answer, 'No, sir; I went under the auspices of John Brown,' three voices eagerly burst in with 'That's true,' and 'That's so.' And when it was related that the young Virginia volunteer taxed him with want of military foresight in bringing so small a party to conquer Virginia, and the veteran imperturbably informed the young man that probably their views on military matters would materially differ, there was a general delighted chorus of 'That sounds just like father.' And his sublimer expressions of faith and self-devotion produced no excitement or surprise among them, since they knew in advance all which we now know of him, and these things only elicited at times a half stifled sigh as they reflected that they might never hear that beloved voice again.

"References to their father were constant. This book he brought them; the one sitting-room had been plastered with the last money he sent; that desk, that gun, were his; this was his daguerreotype; and at last the rosy little Ellen brought me, with reverent hands, her prime treasure. It was a morocco case, inclosing a small Bible; and in the beginning, written in the plain, legible hand I knew so well, the following inscription, which would alone (in its touching simplicity) have been worthy the pilgrimage to North Elba to see:

"'This Bible, presented to my dearly beloved daughter, Ellen Brown, is not intended for common use, but to be carefully preserved *for her* and *by her*, in remembrance of her father (of whose care and attention she was deprived in her infancy), he being absent in the Territory of Kansas from the summer of 1855.

"'May the Holy Spirit of God incline your heart, *in earliest childhood*, "to receive the truth in the love of it," and to form your thoughts, words, and actions by its wise and holy precepts, is *my best wish*, and *most earnest* prayer to Him in whose care I leave you. Amen.

"'From your affectionate father,

"'JOHN BROWN.

"'APRIL 2, 1857.'

WYNKOOP HALLENBECK CRAWFORD CO.

STONE ERECTED IN COMMEMORATION OF THE DEED OF GIFT.

"This is dated two years ago, but the principles which dictated it were permanent. Almost on the eve of his last battle, October 1, 1859, he wrote home to his daughter Anne, in a letter which I saw, 'Anne, I want you first of all to become a sincere, humble, and consistent Christian, and then (this is characteristic) to acquire good and efficient business habits. Save this, to remember your father by, Anne. God Almighty bless and save you all.'

"John Brown is almost the only radical abolitionist I have ever known who was not more or less radical in religious matters also. His theology was Puritan, like his practice, and accustomed as we now are to see Puritan doctrines and Puritan virtues separately exhibited, it seems quite strange to see them combined in one person again. He and his wife were regular communicants of the Presbyterian Church, but it tried his soul to see the juvenile clerical gentlemen who came into the pulpits up that way and dared to call themselves Presbyterians—preachers of the Gospel with all the hard applications left out. Since they had lived in North Elba, his wife said but twice had the slave been mentioned in the Sunday services, and she had great doubts about the propriety of taking part in such worship as that. But when the head of the family made his visits home from Kansas, *he* commonly held a Sunday meeting in the little church, 'under the auspices of John Brown,' and the Lord heard the slaves mentioned pretty freely then.

"In speaking of religious opinions, Mrs. Brown mentioned two preachers whose sermons her sons liked to read, and 'whose anti-slavery principles she enjoyed, though she could not agree with all their doctrines.' She seemed to regard their positions as essentially the same. I need not say who the two are—the thunders of Brooklyn and of Boston acquire much the same sound as they roll up among the echoes of the Adirondacks.

"Now that all is over, and we appear to have decided for the present not to employ any carnal weapons, such as steel or iron, for the rescue of John Brown, but only to use the safer metals of gold and silver, for the aid of his family, it may be necessary for those who read this narrative to ask, What is the pecuniary condition of his household? It is hard to answer, because the whole standard is different, as to such matters, in North Elba and in Massachusetts. The ordinary condition of the Brown family may be stated as follows: They own the farm, such as it is, without incumbrance, except so far as unfelled forests constitute one; they have ordinarily enough to eat of what the farm yields—namely, bread and potatoes, pork and mutton —not any great abundance of these, but ordinarily enough. They have ordinarily enough to wear, at least of woollen clothing, spun by themselves; and they have *no* money. When I say this, I do not merely mean that they have no superfluous cash to go shopping with, but I mean almost literally that they have *none*. For nearly a

whole winter, Mrs. Brown said, they had no money with which to pay postage, except a tiny treasury which the younger girls had earned for that express object, during the previous summer, by picking berries for a neighbor three miles off.*

"The reason of these privations simply was that it costs money to live in Kansas, in 'adherence to the cause of freedom' (see the tombstone inscription again), but not so much to live at North Elba, and therefore the women must stint themselves that the men might continue their Kansas work; but when the father came upon his visits, he never came empty handed, but brought a little money—some plain household stores, flour, sugar, rice, salt fish; tea and coffee they do not use. But what their standard of expense is may be seen from the fact that Mrs. Brown seemed to speak as if her youngest widowed daughter was not totally and absolutely destitute, because her husband had left a property of five sheep, which would belong to her. These sheep, I found on inquiry, were worth at that place and season $2 a piece: a child of sixteen, left a widow in the world, with an estate amounting to $10! The immediate financial anxieties of Mrs. Brown herself seemed chiefly to relate to a certain formidable tax bill, due at New Year's time; if they could only weather *that*, all was clear for the immediate future.

"How much was it, I asked, rather surprised that that wild country should produce a high rate of taxation. It was from $8 to $10, she gravely said; and she had put by $10 for the purpose, but had occasion to lend most of it to a poor black woman, with no great hope of payment; and one of the first things done by her husband, on recovering his money in Virginia, was to send her, through me, $15, to make sure of that tax bill.

"I see, on looking back, how bare and inexpressive this hasty narrative is; but I could not bear to suffer such a privilege as this visit to pass away unrecorded. I spent but one night at the house, and drove away with Mrs. Brown, in the early frosty morning, from the breezy mountain home which her husband loved (as one of them told me) 'because he seemed to think there was something romantic in that kind of scenery.'

"There was, indeed, always a sort of thrill in John Brown's voice when he spoke of mountains. I shall never forget the quiet way in which he once told me 'that God had established the Alleghany Mountains from the foundation of the world, that they might one day be a refuge for fugitive slaves.' I did not then know that his own home was among the Adirondacks.

"Just before we went, I remember I said something or other to Salmon Brown about the sacrifices of their family, and he looked up in a quiet, manly way, which I

* At that time there were very few summer visitors in the Adirondacks, and none in the vicinity of North Elba.

shall never forget, and said briefly, 'I sometimes think that is what we came into the world for—to make sacrifices.' And I know that the murmuring echo of those words went with me all that day as we came down from the mountains and out through the iron gorge, and it seemed to me that anyone must be very unworthy the society which I had been permitted to enter who did not come forth from it a wiser and a better man."

Whatever views may be held as to John Brown's methods and questionable acts, popular sentiment seems to have largely condoned his crime. He has been awarded a prominent place in history by the many thousands who regard him as the Apostle of Freedom and forerunner of the great events which a few years later established the principles for which he fought and died. Public opinion has modified during the decades that have elapsed since his death. It is now universally conceded that slavery was the cause of the great Rebellion, and, so, people are not disposed to make much distinction between the fighting at Harper's Ferry and that which succeeded it. Many believe, as they sing, that his soul went marching on, and that his wraith might have been seen in the cloud of cannon smoke that drifted away from the field at Appomattox.

In formally accepting this property on behalf of the State, it was deemed a proper occasion for some ceremony, with public exercises of an appropriate character. The farm having become the property of the State, it was decided to erect a flag-pole on the grave, on which the national colors should be displayed daily, to better point out the spot to which thousands now make a pilgrimage each year.

A large United States flag having been donated by Colonel Henry H. Lyman —an ex-member of this Commission,—a day was designated for the pole-raising and unfurling of the flag. Notice was given, informally, that the event would take place July 21, 1896, and on that day a large concourse of people from all the country side. joined by the numerous guests from the summer hotels in that vicinity, gathered at the old homestead. The people came on foot, in carriages, and in the four-in-hands furnished by the hotels.

It was a perfect day. Through the purple haze hanging over the wide, forest-covered landscape, the encircling mountains loomed in solemn and impressive grandeur. Everyone seemed to feel the quiet influence of the scene and the importance of the historic traditions which the event recalled. The throng included the young, the middle-aged and the old. Here and there gray-haired men were telling to a younger generation the story of John Brown—"Old Osawatomie Brown." If the narrator touched but lightly on the story of his outlawry and crime, it was only to better

dwell on an enthusiastic recital of his courageous deeds and kindly nature. Gathered around the grave were little groups that recalled the lines written nearly forty years ago:

"And then the humble poor will come
In that far-distant day,
And from the felon's nameless grave
They'll brush the leaves away;
And gray old men will point the spot
Beneath's the maple's shade,
As children ask with streaming eyes
Where old John Brown is laid."

The occasion was also deemed a proper one for the unveiling of a large monumental stone which had just been erected on the grounds in commemoration of the deed of gift conveying the property to the State. This monument consists of a huge block of granite, nine feet in height and four feet square. Three of its sides present an unfinished surface of broken rock; on the front is a large polished panel, on which is chiselled this inscription:

JOHN BROWN'S FARM.

DONATED TO THE PEOPLE OF THE
STATE OF NEW YORK
BY

KATE FIELD,	ANNA QUINCY WATERSTON,
LEGRAND B. CANNON,	ISAAC H. BAILEY,
SALEM H. WALES,	HENRY CLEWS,
WILLIAM H. LEE,	CHARLES STEWART SMITH,
SIMEON B. CHITTENDEN,	GEORGE CABOT WARD,
D. R. MARTIN,	GEORGE A. ROBBINS,
JACKSON S. SCHULTZ,	CHARLES C. JUDSON,
ISAAC SHERMAN,	HORACE B. CLAFLIN,
ELLIOT C. COWDIN,	JOHN E. WILLIAMS,
SINCLAIR TOUSEY,	THOMAS MURPHY.

A. D. 1896.

This stone stands outside the little enclosure in which the grave is situated. It was erected on a large granite boulder whose surface, at a proper height above the surrounding turf, furnished a solid and appropriate foundation. Previous to the assembling of the people it was draped with a large United States flag which concealed it from view.

The lofty flagstaff, hewn from a tall spruce that grew on the farm, was quickly raised and put in place; and then the flag was run up by Commissioner Thompson

WINKOOP HALLENBECK CRAWFORD CO. PUBLIC EXERCISES AT THE TRANSFER OF THE JOHN BROWN FARM TO THE STATE.

and unfurled amid enthusiastic cheers. The assemblage then gathered around the monument which commemorated the deed of gift, and while the large audience sang strong and tunefully the national hymn, "America," the stone was unveiled by two old men, Leander and Frank Thompson, whose two brothers were killed while fighting under John Brown at the railroad bridge at Harper's Ferry. This ceremony having concluded, the throng moved to the house, on the opposite side of the grave, where the further exercises were held.

The meeting was called to order by General Edwin A. Merritt, of Potsdam, N. Y., the President of the Day. On the platform were seated Hon. Charles H. Babcock, Hendrick S. Holden, William R. Weed, and Edward Thompson, of the Forest Commission; Hon. William J. Morgan, Deputy State Comptroller; Hon. Ashley W. Cole, Private Secretary of Governor Morton; Hon. Henry H. Lyman, State Excise Commissioner; Hons. Thomas H. Wagstaff, Taylor J. Eldredge, Jotham P. Allds, John B. Fitzgerald, William W. Armstrong and Philip W. Reinhard, Jr., members of the State Legislature. Scattered through the large audience were prominent men from various parts of the Union, all in accord with the spirit of the occasion.

After a solemn invocation by the Rev. Dr. Brinkhurst, of Chicago, General Merritt made an introductory address, during which, as representative of the donors, he formally tendered the property to the care of the State authorities present.

The following letter from Mr. Henry Clews, of New York, was read:

BANKING HOUSE OF HENRY CLEWS & CO.
NEW YORK, July 14, 1896.

Commissioners of Forests, Albany, N. Y.

Gentlemen:—I have your favor of the 13th inst., and in reply beg to say that the deed of the John Brown Farm stood in my name for about twenty-five years. The property was purchased in 1870 by a number of gentlemen who contributed the necessary funds thereto. It was purchased with a view of perpetuating the memory of John Brown. The property was turned over to me as trustee.

The only persons now living beside myself are: Charles Stewart Smith, ex-President of the Chamber of Commerce; Le Grand B. Cannon, of Burlington, Vt.; Hon. Thomas Murphy, former Collector of the Port of New York; Hon. Salem H. Wales, Isaac H. Bailey, and George Cabot Ward, former agent for Baring Brothers, of London.

I regret exceedingly that I cannot be present on the occasion of the unfurling of the flag over the grave of John Brown. I will convey your invitation to some of my associates, and hope that one of them, at least, will be able to attend the ceremony.

Very truly yours,

HENRY CLEWS.

Col. Ashley W. Cole, who was present as the representative of Governor Levi P. Morton, then accepted the property on the part of the State of New York. In brief, well chosen words, he thanked the Association for its gift, and pledged the State to the fulfillment of its aims and purposes.

The audience, led by a strong choir of selected voices, joined in singing the old army song,

"John Brown's body lies a mouldering in the grave,
But his soul goes marching on."

The grand old chorus, "Glory, glory, hallelujah," was sung with a vigor and spirit that sent waves of melody out over the quiet valley, and as the last rich harmonies died away the echoing mountains gave back the antiphonal response,

"His soul goes marching on."

Colonel Henry H. Lyman, of Oswego, N. Y., a veteran of the late war, was introduced and delivered the oration. The audience listened with close attention and at the close the speaker was greeted with long and earnest applause.

An interesting scene followed. Lyman Epps, an old colored man, with his family, mounted the platform and sang the hymn, "Blow ye the trumpet, blow!" to the old familar tune of Lenox. He had lived in North Elba many years, and had been an intimate friend of John Brown's household before Brown went to Kansas. This hymn was a favorite with these men. Together they had often sung it at family prayers, and in the little church where John Brown sometimes preached; and when Brown was buried, Epps stood there that bleak, wintry day, and sang it at his grave. To Brown the words always seemed to have a prophetic meaning.

"Blow ye the trumpet, blow!
The gladly, solemn sound;
Let all the nations know
To earth's remotest bound.
The year of Jubilee has come,
Return ye ransomed people home."

The Epps family represented the bondmen in whose cause John Brown died. As they arose to sing an impressive stillness pervaded the scene. They were good singers; for old man Epps had once been a singing master in a small way, and his little choir was trained to sing the different parts. The good old-fashioned tune with its quaint fugue never sounded sweeter than it did that summer afternoon; and above all the other voices could be heard the clear but plaintive notes of the old man's tenor. The singing concluded, the exercises closed with a benediction, pronounced by the Rev. Father Lynch, of Connecticut.

The exercises having closed, a platoon of veterans from one of the Grand Army Posts in the vicinity fired three volleys over the grave, the customary salute at a soldier's funeral. And so Captain John Brown, thirty-six years after his death, received the military honors which were not possible in 1859.

The sentiment which actuated this large and representative assemblage was in startling contrast to the universal execration which the mention of Brown's name evoked everywhere before the war.

> "For Humanity sweeps onward; where to-day the martyr stands,
> On the morrow crouches Judas with the silver in his hands;
> While the hooting mob of yesterday in silent awe return
> To glean up the scattered ashes into History's golden urn."

With the transfer of the property to the State there has arisen a desire for information regarding John Brown and his acts. As Colonel Lyman's oration relates largely to these matters, it seems proper that it should be inserted here.

Oration of Hon. Henry L. Lyman at North Elba, N. Y., July 21, 1896.

John Brown! A most common-place name indeed! What is there in it to stir our souls as with the memory of something terrible and grand? Not the simple name! No, there are and have been thousands of John Browns; but the world never had and never can have but one 'John Brown of Osawatomie.' That name is so deeply engraven on the everlasting tablets of fame, so closely interwoven with the supreme and terrible incidents of American history, that it will live forever, a synonym for liberty.

Names of men sometimes come to stand for principles; and principles are eternal. Long after yonder huge rock, the fitting monument which bears his name so deeply carved by loving hands on its flinty side, shall have crumbled into dust, the name of John Brown will be remembered and glorified throughout the world as the highest exponent of freedom and equal rights.

Let us hastily traverse the history and works of the man who bore this illustrious name, to perpetuate whose memory we meet here to-day.

John Brown was born in Torrington, Conn., May 9, 1800, and died at Charlestown, W. Va., December 2, 1859; hence, was but fifty-nine years of age. The only warrant for his common title of "*Old* John Brown" is the numerous exciting and important events crowded into his remarkable career. His was a life not measured by years, but by deeds. Only the last twenty years of his life contain anything of special public interest or of extraordinary nature; but to fully understand the man, his strange character and his impulsive fanatical career, we must review his whole life and examine its directing and controlling influences. He was of English, Welsh and Dutch blood,

his ancestors being of Puritan stock and among those sturdy immigrants who first settled New England. The history of the early Colonial and Indian wars is replete with recitals of the valorous deeds of John Brown's Pilgrim forefathers.

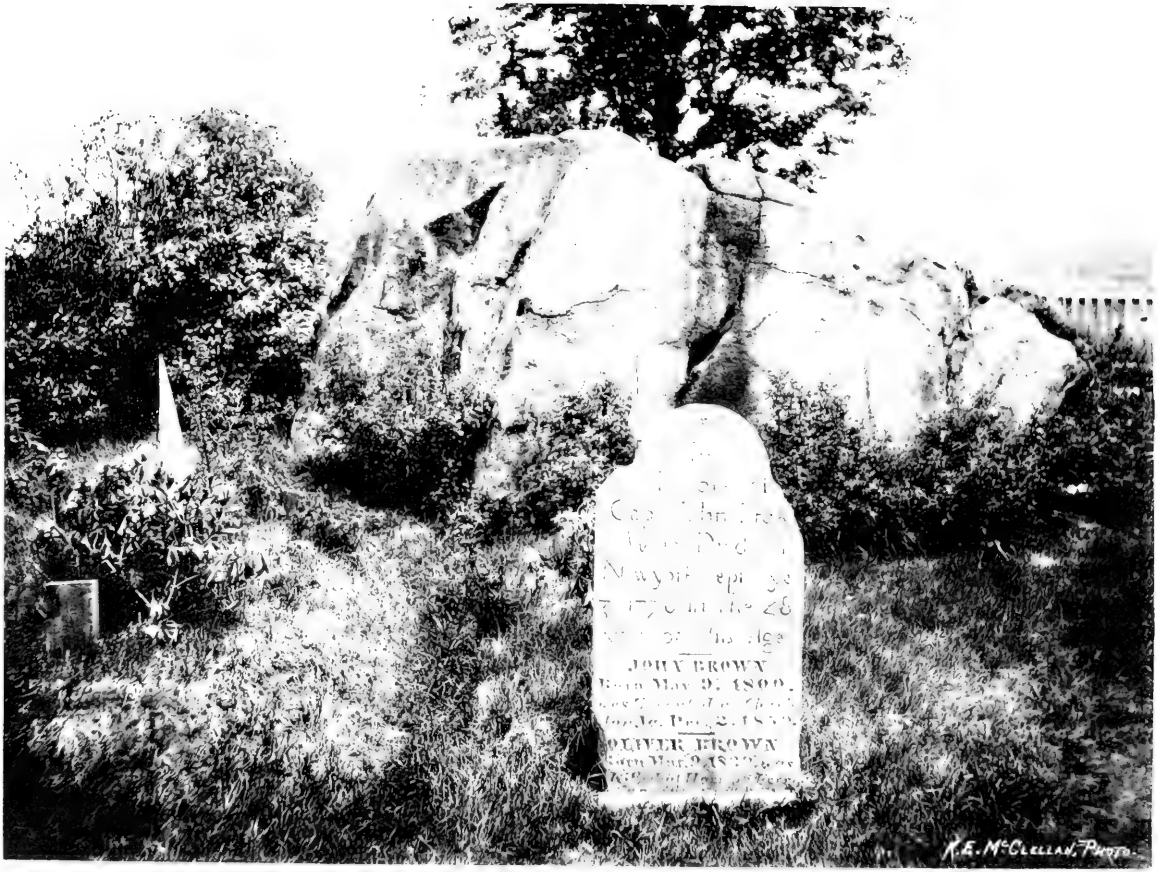
He was the oldest son of Owen Brown, and named after his grandfather, John Brown, a captain in the Revolutionary War. His grandfather Mills, on the mother's side, was also a captain in the same war. Many of his direct ancestry and kinsmen were distinguished people in their day and generation, among whom were several noted preachers and teachers—men who mixed their religion and worldly business, who practiced what they preached and fought for what they prayed. No plebeian blood ran in his veins. He never had the thoughts or feelings of a serf or an inferior; yet the lowly and oppressed always had his warmest sympathy and hearty assistance.

His father was a tanner and shoemaker, and John was early taught the same trade. The family moved in 1805 to the Western Reserve, in the State of Ohio. John's early life in the western wilderness did much to form and develop his fearless and independent character. From early youth he delighted in difficult undertakings and dangerous exploits. At the age of twelve he was entrusted with taking a large drove of cattle over one hundred miles through the almost unbroken wilderness, infested by wild beasts and savages, to be delivered to the United States soldiers at the front, the war of 1812 being then in progress. On this trip he imbibed his first impressions and hatred of slavery by seeing a well-disposed negro boy of about his own age abused and cruelly beaten by his master with an iron shovel; and he says that he then and there swore eternal war on slavery.

From the age of fifteen to twenty he lived at home, following his trade as a tanner in his father's establishment, showing wonderful ability as managing foreman, and exhibiting in a marked degree the qualities of self-confidence, positive expression and imperious authority, combined with kindness and gentle consideration of others' rights, for which he became so noted.

He also acquired a great fondness for and knowledge of cattle. This taste he gratified after moving onto this farm, which at one time he had stocked with a fine herd of Devons, the first thoroughbred cattle seen in this section.

Of a religious turn, he began to study for the ministry, going east to a theological school kept by an uncle in Plainfield, Mass.; but his eyes failing, he was forced to abandon that ambition. He returned to Ohio, where he was married, in 1820, to Dianthe Lusk, by whom he had six children. She died in 1832, and in 1833 he married Mary Ann Day, of Meadville, Pa. In all, he was the father of twenty children, of whom but ten grew to manhood. Three were killed while battling by his side and upholding the principles he taught—Frederick at Osawatomie; Watson and Oliver at Harper's Ferry.



WINKOOP HALLENBECK CRAWFORD CO.

JOHN BROWN'S GRAVE.

He followed tanning and land surveying in his Ohio home until 1826; then removing to Richmond, Pa., he pursued the same avocation until 1835, when he returned to Ohio and continued in the same business, adding thereto dealing in land, which he followed until 1839. The panic of 1837 ruined him as a land speculator, and in 1839, returning again to Hudson, Ohio, where his father, Owen Brown, still lived, he began sheep raising and wool business. Of a hopeful, sanguine temperament, and a restless, migratory disposition, he could not wait for prosperity or fortune to come to him, but sought it wherever he saw the best prospects.

About this period the belief, or infatuation, that he had a divinely appointed special mission to perform had taken strong hold of him. The loud moans and plaintive calls for help and deliverance of millions in hopeless, helpless thraldom were ringing in his ears.

His daily prayers for the relief of the oppressed and down-trodden bondsmen grew stronger and more earnest, even to a degree that at times his righteous soul almost indignantly questioned the wisdom and justice of the Almighty.

He had already confided to his wife his plans for the rescue of slaves and the destruction of slavery, and had her sympathy and consent, although she fully understood that it meant the consecration of the lives of the whole family to the cause, and, perhaps, the ruin and destruction of their happy home.

In 1843, he moved to Akron, Ohio, where he was sadly afflicted by the death of several of his family; and, in 1846, to Springfield, Mass., where he went to act as agent of the sheep and wool men of the Western Reserve. Again his business was a failure, as may have been expected of a man whose mind and strength were now being wholly given to devising methods and means for inaugurating the conflict of force and arms through which he hoped to crush the powerful institution of slavery.

His various schemes for the liberation of the slaves had now ripened and taken shape, and he had about him men who had become strongly attached to him and thoroughly imbued with his own ideas and visionary schemes. These he kept on the lookout for others who could be trusted and used by him as leaders in the intended raids he had planned and the insurrections which he hoped to incite and successfully carry out. They also assisted in the helping of fugitives, a business in which he was always active.

He visited England in 1848–9, ostensibly to advance his wool interests, but really to look for financial assistance, and to study the situation there in reference to his coming onslaught on the slave power.

His hope of securing wealth with which to wage war at his own expense had failed, and from this time on his operations were carried on principally through the financial aid of zealous abolitionists, whose faith in John Brown's honesty was unbounded.

He found it impossible to find any colored man of suitable character, ability, and courage to make leaders. His trusty sons he had reared and trained for the fray; but he needed colored men of the "Nat Turner" type to go among their fellows in bondage, and incite insurrection and rebellion, and lead them in a fight for liberty.

On his return from Europe, in 1849, he learned that Gerrit Smith, who had large holdings in this Adirondack region, had conceived the scheme of giving small farms to such colored men as would occupy and cultivate the same, and that quite a colony had already located here in North Elba, under the *apparently* kind offer of that famous abolitionist. I say *apparently* kind offer, with all due deference to the good man now gone, because of the unwelcome and perhaps uncharitable thought which has always crowded itself upon me (and especially since coming to North Elba), that had Gerrit Smith fully understood the situation and better appreciated the necessities and character of the poor colored people whom he wished to befriend, he would have located them upon some of the more fertile lands which he held in Oneida, Oswego, Madison and other lower counties, rather than in the rocky hills and mountains of frigid old Essex. But he doubtless had his own reasons, other than economical, for the selection of this then far out of the way spot for the trial of his philanthropic experiment, and we will not criticise the acts and motives of the noble-hearted Gerrit Smith, who for so many years and at such a large expense maintained that famous line, that close corporation of which John Brown was also an active member, known as the "Underground Railroad," which, during the dark days of the enforcement of the hated Fugitive Slave Law, conveyed safely so many men and women from slavery to freedom. Here in North Elba, in the fastness of these Adirondack mountains and lakes, and right where we now stand, was a well-known, well-guarded station of that celebrated subterranean line, a sort of half-way place, where the poor, exhausted fugitive could rest and recuperate without fear of his pursuers.

Brown, hoping to make this scheme of Gerrit Smith's forward his own plans, applied for and received this farm, and settled here as one of the colony, cleared off a part of this land, and made this wild and beautiful spot and this plain old house his home from 1849 until his death, when, through the wishes of his family, it became the burial-place of his bruised and mangled body; and now, through the kind offices of noble friends and admirers, who long since purchased and held it as a sacred spot consecrated to his memory, it becomes his eternal resting-place, to be perpetually guarded, protected and cared for by the great commonwealth of the State of New York, whose high and honored official representatives are here to-day to formally accept the trust and take possession of these historic premises.

Whether or not John Brown realized his hope of organizing his colored neighbors for armed operations against his sworn enemy, I am not informed; but from this

lowly wilderness home he went out with his stalwart sons and other kindred who implicitly believed in and blindly followed him, to destroy with fire and sword those whom he deemed the enemies of God and man. Through the aid and co-operation of prominent abolitionists in central New York, he was instrumental in assisting many a fugitive slave through this wild wilderness country on his way to freedom in Canada.

From the fact of his residence here in the Adirondacks, many supposed that Osawatomie Brown was the owner of the famous John Brown's Tract, and the mistake is yet very common. In 1798, John Brown, of Providence, R. I., became the owner of 210,000 acres of land on the Macomb Purchase, in what is now the counties of Herkimer, Lewis and Hamilton. For years he made strenuous efforts and spent large amounts of money to encourage settlement and develop that tract, which took his name. He built houses for settlers and gave away considerable land to induce and promote settlement, but to no avail. Finding the land and location unsuited to agriculture and too remote from market for lumbering, he undertook to develop mining, building in the depths of the great wilderness the famous old forge at the foot of the Fulton Chain, which is said to have produced a few pounds of iron ore costing more than an equal number of pounds of gold.

His operations, though unsuccessful, gave prominence to the locality and great notoriety to his name, and the whole Adirondack region became better known as "John Brown's Tract" than by any other title; but the John Brown of this great forest region and pioneer reputation died in 1803 at the age of seventy-three, or when Osawatomie was but three years of age.

Another common error fixes his home and burial-place in Kansas. The flag we raise here to-day will help correct these mistakes and will become a guiding beacon to the patriotic pilgrims who seek this shrine, as well as a certificate to the world that here lived and here lies *Osawatomie Brown.*

He was restless and eager to do all that he could to accomplish his ultimate object; and abandoning the farm to his wife and children, he takes the field, determined to find or speedily make the opportunity which is to give him victory. As you can see for yourselves, it could produce no great income, but it made a pleasant, economical home and safe retreat for his family while he was absent pursuing his schemes and carrying on his campaigns, and a haven of rest to which he could come when wearied and worn.

In 1851 he organized, in Springfield, Mass., a band of colored people which he called the "Gileadites," who were to forcibly resist the capture and return of fugitive slaves, no matter by what authority claimed. He gave them written instructions and articles for their guidance, which contained some features not in the Ten Commandments, although covered perhaps by the Golden Rule and Declaration of Independ-

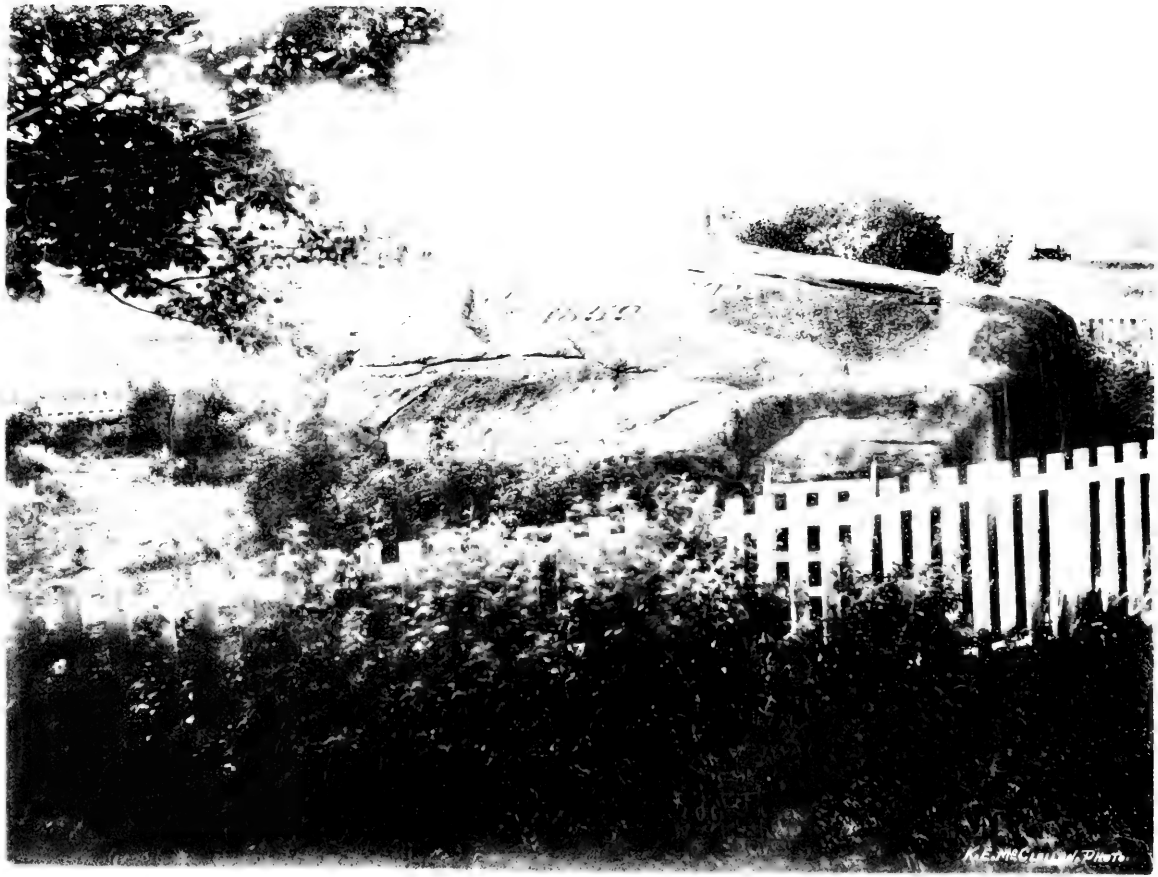
ence. It does not appear, however, that any practical results were obtained through this organization. A new field now opened for the development of his cherished ambition. Fierce political agitation and opposition had inflamed and exasperated the slave owners, and they were earnestly pushing the institution into heretofore free territory with the desperate determination to make it a national institution. Through the domination of sectional interests, the extension and protection of slavery became the Government policy, and its highest court was made to announce as law the most damnable proposition ever promulgated by a bench of civilized judges, viz., that by virtue of and under our Constitution, "a colored man has no rights which a white man is bound to respect"—a decision which defeated itself and did more to give the slave his liberty than any sentence ever spoken or written except the emancipation of Abraham Lincoln, of which it was the very antithesis.

The Missouri Compromise, which had heretofore kept slavery within certain limits, was repealed in May, 1855, and Kansas and Nebraska at once became the field of a hot strife for occupation and control between the pro-slavery and free-soil men. The so-called "free-soil" included all opposed to the further extension of slavery, most of whom, however, strongly opposed any interference with it where it already existed. Brown saw and improved this opportunity to secure allies and assistance for his own purpose which was nothing short of total abolition. In the spring of 1855, he followed his four stalwart sons, John, Owen, Jason and Frederick, who had already migrated and settled a few miles from Osawatomie, Kansas. He did not go as a settler, but as a volunteer soldier to fight the slave power which had decided to hold the newly opened territory at any cost and at all hazards.

The struggle in Kansas was well under way before John Brown went there in the Fall of 1855, and money and arms were being freely contributed for the aid of the free-soil men. The Browns were poor and very destitute, but were occasionally given financial aid through friends and acquaintances, who favored the free-soil doctrine, while they abhorred abolitionists. Anti-slavery meetings held at Syracuse and Utica by the old-fashioned abolitionists, also raised and sent them a little money. Brown saw that the free-soil party and abolitionists were now working to the same end and gladly accepted aid from both.

His operations in Kansas were of a character to force the fight between freedom and slavery, a policy severely criticised by many good free-soil men of the time. He soon became the prominent figure of the Kansas raids and disturbances.

The border ruffians from Missouri and other states gave him plenty of cause and excuse for the bold unrelenting guerilla warfare he carried on. United States marshals and territorial officials were over-zealous to stamp out of these territories every free-soil man or terrorize him into abject submission and silence. Fire and pillage,



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THE JOHN BROWN ROCK.

robbery, imprisonment and murder were the means used by the pro-slavery marauders, who had, in addition to superior numbers, the moral advantage of its being understood that they were representing the Government and carrying out its laws.

Under the pretense of the proper enforcement of law, Government officials co-operated with ruffians and marauders who had invaded the country to capture and control it, maltreating and cruelly abusing all who were suspected of free-soil principles, insisting that a breath of criticism against slavery was treason deserving instant death. But the undaunted *Old* Brown and his men were on the alert and returned the inhuman treatment inflicted upon themselves and others in kind and with a vengeance. He believed that stern, unrelenting retaliation, which required two lives for one, would quickest subdue his fiendish adversaries.

He divided his little force so that they could appear at different and widely separated points simultaneously, and while he kept the enemy confused and in ignorance of his numbers, struck blows which staggered and destroyed them. His bold adventures by day and fearless attacks by night filled his foes with fear and trembling as of one having superhuman power.

That he could have effected such important results and caused such wild excitement and commotion in the whole country, or, as he says, "Fairly raised hell from below," with so few men, is now the wonder of the world. His six sons and one son-in-law, Henry Thompson, of this town, were about all of his regular reliable force; the balance, never exceeding twenty or thirty, were recruits for temporary service or volunteers for special raids.

The bulletins sent out by his enemies in those times always magnified his force and doings, which was just what he wanted and pleased him greatly. For example, certain dispatches sent by Senator Atchison read thus: "August 5th, 1856. The notorious John Brown with three hundred abolitionists made an attack upon a colony of Georgians, murdering two hundred and twenty-five, one hundred and seventy-five of whom were women, children and slaves."—"August 12th. At night, under the same Brown, three hundred abolitionists attacked Franklin, robbed, plundered and burned."—Again, "August 15th, Brown with five hundred abolitionists, mounted and armed, attacked Treadwell's settlement."

Brown, at this time, had no mounted men whatever. The real facts were that other and larger forces of free-soil men under General Lane and others were operating in Kansas; but Brown, with his handful of followers, on account of his daring attacks and intrepid successful fighting against odds, had become the central figure of the Kansas war, and all startling occurrences and alleged outrages were charged to him.

Of the famous fight at Osawatomie on August 30th, 1856, he says in his report dated September 6th, 1856: "I had no organized force but twelve to fifteen new

recruits. I placed twelve recruits in a log house to defend the town. I then gathered fifteen more men together who were armed with guns, and started in the direction of the enemy, who were approaching the town in line of battle. I gave up the idea of doing more than to annoy them from the timber into which we all retreated. I had no time to recall the twelve in the log house, and lost their assistance in the fight. I met Captain Cline with twelve or fifteen men and he went with us into the timber on the south shore of the Osage. When the enemy's left wing approached within rifle shot, we began firing and soon threw their line into disorder. Captain Cline's men soon got out of ammunition and retired. After the enemy rallied we kept up our fire until, by the leaving of one and another, we had but six or seven left. We then returned across the river. We had one man killed in the fight; one shot when crossing the river, and two wounded and two or three yet missing." The enemy's loss he reports as thirty-one or two killed and forty or fifty wounded. Other records verify this report and show that Brown had forty-one men, all told, in the fight at Osawatomie, the enemy about four hundred. His son Frederick, not attached to his force, had been surprised and killed in the road that same morning by a pro-slavery preacher who was with the advance force of the enemy.

I cannot stop to recount his numerous adventures and battles, all characterized by the reckless daring of one who feared not death, and controlled, directed, and determined by the wisdom of one who overcame force by cunning, supplemented by audacious bravery.

Impoverished by the long campaigns he had made at his own expense, one son killed, another made a maniac by cruel abuse while a prisoner, and the third son, and his son-in-law Thompson severely wounded, all destitute, having been stripped of every kind of property, in the fall of 1856, with impaired health, he sorrowfully left the country he had so effectively helped to defend. But the people of the whole country had learned who he was and for what he fought, and even those who disapproved his course had learned to admire the self-sacrifice and earnest character of Old John Brown of Osawatomie.

Southern papers and partisans used him as a terrible example and representative of the hated abolitionist, and began to suggest and argue the propriety of cutting loose from a people who upheld and encouraged such outlaws.

His abandonment of the work in Kansas was not that he had become faint-hearted in the cause, but that he might go to the north and east in hopes of rousing the anti-slavery element of the country to active work. He thought the time had come for real aggressive warfare against slavery. He believed that by invading their country and arming the slaves, and showing them that the day of their deliverance was

at hand, they would rise and fight for and secure their own freedom, although it does not appear that he publicly advocated the plan of invasion.

Through his efforts a few hundred rifles and some money was secured for the Kansas free-soil settlers. Instead of promptly sending them all into Kansas, as expected, some of these rifles were kept under his control until the Harper's Ferry affair. He seemed to have great faith in that ancient weapon, the pike, and contracted for a thousand of them. Some of these were also retained for the Virginia raid, as he believed that in the hands of ignorant men unused to fire-arms the pike was the best weapon.

Disappointed in not being able to obtain funds with which he hoped to raise, equip and maintain a mounted force for the Kansas struggle yet in progress, he went back west, although he says: "I did not intend to settle in Kansas unless I happened to find my last home there."

In the winter of 1858 he again left Kansas for the east, where he cautiously unfolded his plans for the attack upon slavery in its eastern stronghold to a few trusted friends. He found no one of any standing who agreed with him, all realizing the foolhardy impotence of such a course. His answer to their objections was: "Twenty men in the Alleghanies can break up slavery in two years."

In the summer of 1859, Theodore Parker and a few other Massachusetts abolitionists had a general knowledge of his intention to organize an expedition to free the slaves, and are said to have approved the same and furnished some means without knowing the details of his plans or his point of attack.

Affairs in Kansas were getting too tame for him, or strategic reasons were controlling, when he wrote to a friend: "I consider it my duty to draw the scene of excitement to some other part of the country." How well he succeeded, we older people well remember.

John Brown had no ill-will or hatred for the slave-holder personally. His relentless animosity was against the institution, and his untiring energies were all directed against it, and he considered it but God's will that those who wilfully or unfortunately stood in the way should be removed. In this, his Puritanic belief was that of the most radical Jesuit.

His articles of faith he often expressed in this language: "I believe in the Golden Rule and the Declaration of Independence. They both mean the same thing, and it is better that a whole generation—men, women and children—pass off the face of the earth by a violent death than that one jot of either should fail in this country."

He decided upon Harper's Ferry as the spot to strike the first blow, on account of the arms and tools stored there with which he intended to equip the thousands of slaves in its vicinity, allowing those who chose to do so to fight their way to the

North, and expecting the more patriotic to join him in his retreat to the mountain strongholds of the Blue Ridge, from whence he intended to carry on uncompromising war until he could dictate terms of peace to the terrified masters.

The story of this raid, resulting in his capture, trial and hurried execution, all know. It would make a book of itself, and its detailed recital is quite too lengthy for this occasion; but it may be appropriate and interesting at this time to give the roster of the army as listed by himself, October 10, 1859, with which he struck the blow that shocked the whole nation and echoed round the world:

John Brown, commander-in-chief; John H. Kagi, adjutant and second in command; five captains; seven lieutenants; nine privates; total, twenty-three.

They had never been mustered altogether. The extra officers were to command companies that he expected to recruit on the Virginia side. Three privates and one lieutenant failed to cross the river, leaving but nineteen in his Grand Army of Invasion, five of whom were colored men. Six of the force were of his own family by birth or marriage; and five of those died in Virginia. Owen Brown, who had not crossed with his father, was the only one of the family to escape. Of the nineteen who crossed the Potomac with him, October 16, ten were killed or died of their wounds and seven were hanged; two made their escape.

I have neither time nor disposition to recount the details of this, his last battle, nor to describe the scene of his heroic death on the scaffold, surrounded by numerous batteries of artillery, thousands of armed men, and hundreds of high public officials, all of whom fairly trembled from the terror which his presence inspired. Able writers and famous orators and poets have given it eternal renown, and I will draw the curtain on this final act in his tragic career by simply quoting his last-written message, indited upon the morning of his execution. It reads as follows:

CHARLESTOWN, *December* 2d, 1859.

"I, John Brown, am now certain that the crimes of this guilty land will never be purged away but with blood"—a prophecy all too soon fulfilled; and

> "Bloodily closed what bloodily began,
> With slaughter of this far-foreseeing man,
> Whose spirit from the scaffold where he died
> Armies and Senates could inspire and guide."

Speaking of his mission a little previously, he had used these words: "I expect nothing but to endure hardship, but I expect to win a great victory, even though it be like the last victory of Sampson."

How apt the figure, and how quickly and literally were his expectations realized! Like blind old Sampson, he had shaken the very foundations of that temple of sin which to him had so long been a hateful abomination, and with the sacrifice of his own life had ensured its overthrow and destruction.

WYNKOOP HALLENBECK CRAWFORD CO.

JOHN BROWN'S WRITING-TABLE, CHAIR AND BOOKCASE.

John Brown in his day was believed by most people to be a rabid fanatic, and, by some, even a lunatic. To-day everyone admits that both he and his strange career were but the natural outgrowth of conditions and influences then existing—conditions which agitated and controlled the country to a degree almost incredible. Only those who lived in those exciting times and witnessed the fearful excitement can realize the deep-seated animosities which were aroused over the issues involved. I mean the period from 1844 to 1860, when good neighbors and close friends were shaking their fists in each others' faces and threatening and even doing personal violence on account of political differences, at the bottom of all of which lay the question of American slavery in some form.

The adoption and legalization of human slavery and the passage of laws to foster and protect it by this democratic, Free Republic, whose proud boast was freedom and equal rights, was an act grossly inconsistent and repugnant to the moral sense of all, and its consideration and discussion stirred the depths of men's feelings as could no other topic.

African slavery was an inheritance of our Colonial days, a dower from our mother-land, which through greedy commercial interests had established and continued the abomination in her colonies.

The War of the Revolution was waged for the liberties of the whites only, but during its progress and upon its successful close, eminent, high-minded statesmen, even slave-owners of the South, then advocated that it was the opportune time to rid the land of the great evil. But by a most glaring inconsistency, both slavery and freedom were incorporated in our fundamental law. Statesmen, patriots and politicians alike then realized the terrible wrong and danger of the situation. Jefferson gave vent to his condemnation of the wrong when he said: "I tremble for my country when I remember that God is just."

Slavery and free democracy were not only inconsistent, but hostile, warring forces and elements which were continually contending for predominance; and from the adoption of the Constitution to the Emancipation Proclamation, the question in some form was a disturbing element which divided and antagonized not only politicians but friends and neighbors as well.

That slavery ever had apologists or defenders outside of those directly interested in slave property and slave products is a wonder to all. Even the old slave owners themselves now look back with horror upon those times in which they lived in a continual nightmare of uncertainty and dread, and with a feeling of thankfulness that they are gone, never to return.

Nothing shows more strikingly the universal unpopularity and early condemnation of slavery, than the reference to it so carefully and blindly made by our forefathers in

the Constitution, in which they called slaves "persons held to labor," not daring to use the word "slave" in the instrument which guaranteed liberty and equal rights; and again, when they say: "The migration or importation of *such persons* as any of the States now existing shall think proper to admit, shall not be prohibited." How smooth and innocent that sounds for a warrant which consigned millions of human beings to hopeless servitude! Is the innocent-sounding phrase simple permission to allow our Anglo-Saxon cousins and others to come to this happy land of freedom to enjoy its blessings and privileges? Not that; its soft, delusive verbiage was suggested only by a guilty conscience, and was framed to cover and conceal the terrible iniquity it was to legalize and perpetuate.

Wendell Phillips once said: "It is the John Brown in men's consciences which makes them hate slavery." Perhaps it was the "John Brown" already in the consciences of the framers of the Constitution which made them state that damnable proposition in such velvety words.

Had they boldly, or even carelessly, made it read: "The African slave trade and slavery incident thereto is hereby authorized and shall not be prohibited," it would have caused war long before John Brown's day.

The conflict between slavery and freedom was aggressive and constant, as well as irrepressible. It was responsible for the Seminole, Mexican, Kansas and all other wars and bloody disturbances up to and including the War of the Rebellion. Other questions which divided the people and parties were discussed and settled; but this could never be settled and was ever present to disturb the peace of the country and engender hatred between sections.

John Brown and his career was but a natural and legitimate result of such conditions. The time had come for the supreme and final test, and he, the humble instrument in the hands of Providence, glorified himself by inaugurating the struggle that ended in glorifying his country and its grand old flag, which we now raise and unfurl in honor of his memory.

And here let it proudly float, a grand and conspicuous landmark, over the spot where lies the body of that wonderful man of the nineteenth century, who lived and died for his fellow-men. Let it be a constant living reminder of that divinely exalted sentiment which, long before the poet had given it expression, filled the soul and inspired the noble deeds of the intrepid hero and martyr who here peacefully rests under its shadow.

"In the beauty of the lilies Christ was born across the sea,
With a glory in his bosom which transfigures you and me:
As he died to make men holy,
Let us die to make men free,
While God is marching on."

Forest Fires.

THE reports from the town Firewardens show that 116 fires occurred in the Adirondack and Catskill counties during the year ending September 30, 1896, and that the average amount burned at each fire was about 257 acres. The total area thus damaged is reported at 29,817 acres. This amount seems large; but the reports show that much of this territory was waste land. The total damage, as estimated, amounts to $35,640. Less than two per cent. of the acreage burned over was in the Forest Preserve.

Although, in many instances, the Firewarden did not report the cause of the fire, it is evident, from those who did so report, that most of the fires were caused by farmers who were clearing land.

The month of May, 1896, was unusually dry. The drought commenced in April, and extended late into the next month. The ground being dry, and rain expected hourly, the farmers apparently took advantage of the weather to clear some of their land by burning brush, stumps, etc., usually termed "fallow burning."

Many times, instead of raining, a high wind would spring up, and the fire would soon be beyond control. The number of fires in this month was eighty-four, being two-thirds of the whole number for the year.

Many of the Firewardens neglected to report the means employed to extinguish fires; but it appears that the most effectual method used was, to dig a trench around the fire, or, when in the forest, to "back fire"—that is, to burn over a strip of land in advance of the flames. An effectual way also reported, in some cases, was to scrape or sweep away the leaves in front of a fire, thus depriving it of fuel. This, in connection with the use of whips made of green bushes, proved a very good method in some cases. It is presumed that in many instances where the means employed is not reported, that the fire was put out by rain.

The following is a summary by counties of the fires reported:

Report of Forest Fires
For the Year Ending September 30, 1896.

ADIRONDACK COUNTIES.

Clinton County.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRE
Aug. 4, 1896	Black Brook	75	$100 00	Unknown
Sept. 2, "	Black Brook	50	50 00	Unknown

Essex County.

May 17, 1896	Minerva	50	$50 00	Clearing land
May 18, "	Minerva	30	20 00	Not stated
May 6, "	Keene	50	40 00	Burning brush
May 7, "	Keene	12	10 00	Clearing land
July 1, "	Keene	50	100 00	Travelers
June 27, "	Willsborough	.	.....	Dropping burning match
May 19, "	Lewis	15	25 00	Clearing land
	St. Armand	5	.....	Clearing land
	St. Armand	10	25 00	Burning brush
May 17, "	Jay	3	10 00	Uncertain
Aug. 5, "	North Elba	1	5 00	Campers
Sept. 9, "	North Elba	20	15 00	Clearing land
May 3, "	North Elba	20	30 00	Clearing land
Aug. 27, "	Elizabethtown	1	.....	Campers
May 10, "	Schroon	900	200 00	Clearing land

Franklin County.

May 16, 1896	Malone	10	$20 00	Unknown
May 18, "	Malone	25	10 00	Clearing land
May 18, "	Malone	75	20 00	Unknown
May 20, "	Malone	10	15 00	Unknown
June 23, "	Malone	5	.....	Burning brush
July 2, "	Franklin	5	15 00	Locomotive
July 3, "	Dickinson	2	5 00	Burning brush
July 25, "	Dickinson	10	20 00	Unknown
July 28, "	Dickinson	4	5 00	Berry pickers
July 28, "	Waverly	500	750 00	Clearing land

FULTON COUNTY.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRES
Oct. 23, 1895	Johnstown	51	$100 00	Unknown
May 11, 1896	Johnstown	20	40 00	Picnic party
May 13, "	Johnstown	45	150 00	Smokers
Aug. 23, "	Caroga	1	.....	Campers
May 12, "	Mayfield	50	25 00	Burning brush

HAMILTON COUNTY.

May 10, 1896	Morehouse	10	$5 00	Not stated
May 6, "	Morehouse	3	.....	Deviltry
May 9, "	Morehouse	15	.....	Travelers
May 8, "	Arietta	75	75 00	Uncertain
May 11, "	Arietta	75	75 00	Not stated
May 10, "	Benson	270	500 00	Incendiary
May 10, "	Benson	490	500 00	Incendiary
May 10, "	Benson	350	700 00	Incendiary
May 10, "	Benson	1,070	2,000 00	Not stated
	Benson	100	50 00	Unknown
May 5, "	Hope	600	600 00	Clearing land
May 10, "	Hope	225	300 00	Firing stumps
May 8, "	Hope	100	300 00	Set maliciously
Aug. 29, "	Hope	3	.....	Clearing land
	Indian Lake	20	15 00	Unknown
May 10, "	Indian Lake	500	100 00	Clearing land
May 12, "	Wells	75	25 00	Unknown
May 14, "	Wells	125	100 00	Unknown
May 11, "	Lake Pleasant	40	40 00	Uncertain
May 6, "	Long Lake	6	25 00	Clearing land
July 4, "	Long Lake	1	.....	Lightning

HERKIMER COUNTY.

May 8, 1896	Wilmurt	350	$500 00	Unknown

LEWIS COUNTY.

May 10, 1896	Greig	5	$25 00	Not stated
May 10, "	Greig	2,000	2,000 00	Not stated

ST. LAWRENCE COUNTY.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRE
May 17, 1896	Clare	100	$100 00	Unknown
Aug. 10, "	Pitcairn	25	150 00	Unknown
May 18. "	Russell	100	200 00	Unknown
May 18, "	Russell	30	20 00	Stove pipe
May 18, "	Hopkinson	1	.....	Burning log heaps

SARATOGA COUNTY.

Oct. 28, 1895	Ballston	5	.....	Locomotive
May 16, 1896	Edinburgh	65	$100 00	Unknown
	Edinburgh	1,500	2,000 00	Not stated
Apr. 27, "	Malta	500	500 00	Not stated
May 9, "	Malta	200	100 00	Clearing land
July 1, "	Corinth	15	150 00	Locomotive
Sept. 1, "	Corinth	12	40 00	Locomotive
May 4, "	Wilton	125	100 00	Locomotive
July 1, "	Wilton	15	200 00	Locomotive
Dec. 16, 1895	Half Moon	2	5 00	Locomotive
July 22, 1896	Half Moon	14	10 00	Clearing land

WARREN COUNTY.

Oct. 19, 1895	Johnsburgh	60	$100 00	Hunters
May 11, "	Johnsburgh	35	65 00	Burning brush
May 9, "	Hague	1,200	1,200 00	Clearing land
May 7, "	Stony Creek	25	25 00	Smokers
May 9, "	Stony Creek	50	50 00	Unknown
May 10, "	Stony Creek	1,540	2,000 00	Clearing land
May 8, "	Thurman	225	300 00	Clearing land
May 12, "	Thurman	390	200 00	Set maliciously
May 5, "	Luzerne	50	100 00	Unknown
June 27, "	Warrensburgh	50	100 00	Clearing land
May 8, 1896	Warrensburgh	22	.....	Clearing land
May 5, "	Caldwell	100	500 00	Clearing land
May 11, "	Chester	300	300 00	Unknown
May 9, "	Hague	350	.....	Clearing land
May 5, "	Hague	300	415 00	Unknown
Oct. 22, "	Hague	15	.....	Clearing land

WASHINGTON COUNTY.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRE
June 26, 1896	Fort Ann	16	$50 00	Burning brush
Sept. 9, "	Fort Ann	1	.....	Burning bee-tree
May 14, "	Fort Ann	20	10 00	Unknown

CATSKILL COUNTIES.

DELAWARE COUNTY.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRE
May 9, 1896	Andes	75	$400 00	Clearing land

SULLIVAN COUNTY.

Oct. 26, 1895	Lumberland	250	$250 00	Not stated
May 10, 1896	Lumberland	500	200 00	Not stated
May 10, "	Lumberland	300	300 00	Not stated
May 8, "	Forestburg	2,000	3,000 00	Locomotive
May 9, "	Cochecton	650	500 00	Not stated
Apr. 26, "	Fremont	12	200 00	Locomotive
May 6, "	Fremont	450	150 00	Unknown
May 26, "	Fremont	450	500 00	Unknown
May 9, "	Bethel	15	.....	Clearing land
May 15, "	Bethel	15	.....	Clearing land
May 10, "	Highland	1,000	940 00	Unknown
May 5, "	Tusten	600	550 00	Unknown
May 9, "	Tusten	250	300 00	Unknown
May 14, "	Tusten	500	300 00	Unknown
May "	Thompson	400	400 00	Berry pickers
Apr. 23, "	Thompson	100	150 00	Berry pickers
May 6, "	Thompson	1,000	1,000 00	Berry pickers
May 10, "	Delaware	800	800 00	Clearing land
May 11, "	Cochecton	500	1,500 00	Tramps
Apr. 22, "	Bethel	25	20 00	Unknown

ULSTER COUNTY.

DATE	TOWN	ACRES	DAMAGE	CAUSE OF FIRE
Oct. 26, 1895	Shandaken	4	.....	Hunters
June 8, 1896	Shandaken	2,000	$2,000 00	Unknown
	Shandaken	750	1,000 00	Unknown
May 10, "	Gardiner	1,100	2,300 00	Not stated

SUMMARY OF CAUSES.

Clearing land, burning fallows, etc.,	41
Locomotives,	9
Incendiary,	6
Berry pickers,	4
Campers,	3
Hunters,	2
Travelers,	2
Smokers,	2
Burning match,	1
Picnic party,	1
Lightning,	1
Tramps,	1
Bee-tree,	1
Stove-pipe,	1
Unknown or not stated,	41
	116

A BURNT FOREST.

LOG JAM IN HUDSON RIVER AT BIG BOOM, NEAR GLENS FALLS.

Stream Flow in Relation to Forests.*

By GEORGE W. RAFTER, C. E.

THE general subject announced in the title to this paper was discussed by Mr. Thomas P. Roberts, at the Boston meeting, in September, 1885, and also by Mr. C. C. Vermeule, at the annual meeting for 1895, and by others. I wish to address myself particularly for a moment to the views announced by Messrs. Roberts and Vermeule. The position taken by these two gentlemen is in effect that forests influence stream flow only in a very slight degree or not at all. My proposition, on the contrary, is that forests not only do influence stream flow, but the influence is so exceedingly marked, that of the two contiguous New York State drainage areas, one in forest and the other deforested, the deforested area may show as much as five or six inches less annual run-off because of change in water yielding capacity due purely to deforestation. If it is true that there is such a difference as this, not only should the fact be well understood by everybody, but the gentlemen taking the contrary view may as well cease to advocate the error, if on no other ground than that error once announced is persistent and will require labor to eradicate.

In attempting to show the contrary of the proposition championed by Messrs. Roberts and Vermeule I shall refer extensively to data gathered during the past four years in the State of New York.

Let us first briefly consider the views of Mr. Roberts. This author begins by stating that he "will not undertake to deny that the conservation of the rainfall in local districts is aided by forests," but he attempts to distinguish between local rains and general storms, and between summer, fall, winter and spring floods. On such a basis he arrives at the final conclusion that "the popular opinion no doubt will long be that the destruction of forests increases the height of floods, but I am persuaded it is not a belief founded on established fact." Mr. Roberts' position as defined throughout his paper is that rainfall is conserved by local districts, but that for large areas several thousand miles in extent there is such a balance of conditions as to lead to essentially the same result whether the area is forested or deforested. I shall myself

* This paper, which was read at a meeting of the American Forestry Association, is particularly interesting because it embodies the result of several years of investigation by Mr. Rafter, who has been employed by the State Engineer and Surveyor as expert in charge of the extensive hydrologic and hydraulic surveys made necessary by the canal enlargement, and the development of several large storage projects in this State.

show further along that this view is in some degree true, but for reasons totally different from those urged by Mr. Roberts, whose views are so far indeed from representing the actual fact that we may say, in effect, that he has totally misapprehended the real significance of the phenomena.

Mr. Roberts devotes a considerable portion of his paper to controverting the views of Sir Gustave Von Wex, Imperial and Royal Ministerial Councillor of Austria, and chief engineer of the Improvement of the Danube River at Vienna, who in a splendid series of papers has discussed the whole question of deforestation with reference to its effect upon streams, in a more thorough manner than can be found elsewhere; and while it is true that some of his conclusions have been disputed, he still gives on the whole a larger body of facts bearing upon this question than can be found in any other place.*

Inasmuch as Mr. Roberts has stated a number of the main points of Von Wex's chief paper, I will not expend time in further referring to that phase of the matter here.

In combating Von Wex's views, Mr. Roberts relies mostly upon records of the Ohio River and its tributaries, the tabulations which he gives being records of gauge and flood heights kept at various points on the Allegheny and Ohio Rivers, as for instance at Oil City, Freeport, Pittsburg, Wheeling, Marietta, Point Pleasant, Portsmouth, Cincinnati, Louisville, Evansville and Cairo. On incomplete evidence derived from the records of a single stream, many of which are somewhat conflicting, Mr. Roberts brushes away the entire work of Von Wex so easily that I cannot but look upon his positive final conclusion as being in the nature of a joke, the more especially since he begins his paper with one. Mr. Roberts' faith in his own views may be inferred when I mention that Von Wex has given the data for from fifty to one hundred years of the principal rivers of Europe. Without wishing to disparage Mr. Roberts' views in any way, I may still venture to say that they are, in my opinion, so far from representing the real state of the case that I should not trouble myself to controvert them at all except for the reason already stated that error once fixed in the mind is sometimes difficult to eradicate.

The paper of Mr. C. C. Vermeule, to which I have referred, treating on the general subject, may be found in Volume XI. of the proceedings of this Association. In combating the views of Mr. Vermeule, I desire to say that I have a very high appreciation of the labors of that gentleman in connection with questions relating to yield of streams. I have read his various reports with considerable interest and profited greatly thereby. On this particular point of the relation of forests to stream

* For reference to Von Wex's several papers, see footnote on page 645 of report of the Genesee Storage Surveys, Appendix 7 of the Annual Report of the State Engineer and Surveyor of the State of New York, for the fiscal year ending Sept. 30, 1896.

flow I can not but think he is entirely wrong, possibly due to the fact that the New Jersey data on which he chiefly bases his conclusions are too restricted in their scope to give any certain conclusions on the point in question whatever. By way of illustrating this statement I may merely refer briefly to two points.

(1) Mr. Vermeule announces in the paper in question, and also in several of his reports appearing in the annual reports of the Geological Survey of New Jersey, what he calls the discovery, that there is a definite, certain relation between temperature and the total loss of water from a drainage area, which he has properly designated under the general term evaporation, the word evaporation, in this case, meaning absorption by plants, evaporation proper, and various other losses.

(2) Mr. Vermeule also states that he knows of no more accurate way to compare the relative total evaporation from forested and deforested areas than by measuring the rainfall in comparison with the run-off, the difference of the two making total evaporation as defined in the preceding. In this way he says we obtain natural conditions, and include in our computations not only direct evaporation from the soil but also the water absorbed by vegetation, much of which is exhaled into the atmosphere. He also holds that this method is far preferable to the attempts to measure evaporation on a small experimental scale which have frequently been made. Working on this line he ignores all of the valuable data of forest meteorology which have been obtained abroad, and which cannot be safely ignored by any person attempting to study this question on its merits. However, by ignoring such data and basing conclusions only on a comparison of rainfall with run-off as determined by several series of gaugings of streams extending over a number of years, Mr. Vermeule is forced to conclude that "the effect of our New England and Middle state-forests upon the total run-off of streams, hence upon evaporation, is not important enough to be shown in the measurements of stream flow." I can not but think that in stating this proposition so strongly Mr. Vermeule has in reality—although without doubt inadvertently—written that which on the whole tends to perpetuate an exceedingly mischievous error. I hold indeed that had he studied the subject more broadly he would, with his fine turn for philosophical analysis, have arrived at quite different conclusions. In discussing this proposition, Mr. Vermeule depends upon data derived mostly from observations in New Jersey. My first criticism of his data is that with the exception of the records applying to the drainage areas of the Passaic and Hackensack Rivers, the periods covered are entirely too short for any final indication whatever. Certainly, they are far too short for any such sweeping generalization as that just quoted. The Passaic record which he cites in his report on forestry in Northern New Jersey, in the annual report of the State Geologist of the State of New Jersey for the year 1895, covers a period of seventeen years, while the Hackensack

River record covers a period of eight years. The other New Jersey data studied cover periods as follows: Ramapo River, 2 years; Pequamock River, 3 years; Musconnetcong River, 2 years; Pequest River, 2 years; Paulins Kill River, 2.5 years; Raritan River, 4 years; Delaware River, 4 years; Great Egg Harbor, 3 years.

For data derived from other States, Mr. Vermeule cites the following: The Sudbury River in Massachusetts, a 16-year record; Croton River, New York, 14 years; Connecticut River, 13 years; the Nashaminy Creek, Pa., 7 years; Perkiomen Creek, Pa., 7 years; Potomac River, 6 years. In regard to the Sudbury and Croton, I shall cite you directly records covering, for the Sudbury, a period of twenty-one years, from 1875 to 1895, inclusive, and for the Croton, records covering a period of twenty-seven years, from 1870 to 1896, inclusive.

In addition to the Sudbury, in Massachusetts, I shall also cite you two other Massachusetts records—namely, the Lake Cochituate and Mystic Lake records. The Lake Cochituate watershed is adjacent to the Sudbury, and subject substantially to the same meteorological conditions, while the Mystic Lake watershed is distant from twenty to thirty miles, and somewhat nearer the ocean than the Sudbury and Cochituate areas. The Cochituate record covers the period of thirty-three years, from 1863 to 1895, inclusive; while the Mystic Lake record covers a period of eighteen years, from 1878 to 1895, inclusive.

As stated by Mr. Desmond FitzGerald, the Sudbury River has a drainage area of 75.2 square miles; the Mystic, 26.9 square miles, and the Cochituate 18.9 square miles, the three together forming the present source of Boston's water supply. The Sudbury is hilly, with steep slopes and some large swamps within its borders. The Cochituate, although adjoining the Sudbury, is entirely dissimilar. The slopes are flat and sandy with the surface mostly modified drift, while the Sudbury is mostly composed of unmodified drift The Sudbury and Cochituate watersheds are northwest of Boston, while the Mystic lies to the north of Boston about thirty miles distant from the Sudbury and Cochituate. The surface of the Mystic watershed is steeper than the Cochituate, and less steep than the Sudbury. In order to determine whether there is any easily traceable relation between mean temperature, rainfall, run-off and evaporation, I have tabulated the records of not only these three drainage areas but of all other drainage areas considered, in the following manner: The months from December to May, inclusive, are taken as the storage period; June to August, inclusive, make the growing period, while September to November, inclusive, make the replenishing period. In the storage period the temperature is low, and the run-off a very large per cent. of the total rainfall. In the growing period vegetation is active and temperature is high, and the run-off is only a very small per cent. of the total rainfall. In the replenishing period vegetation is inert and the temperature

PULP WOOD AT PALMER, UPPER HUDSON RIVER.

decreasing, with a consequent increase in the amount of rainfall appearing in the run-off. For each year I have tabulated under the foregoing divisions the mean temperature of each month, the total precipitation for each month, the total run-off for each month, and the evaporation of each grand division—that is to say, the total evaporation for the storage period, the growing period, and the replenishing period, as well as the mean temperature for the whole year. Confining ourselves for the present to the Sudbury, Cochituate, and Mystic drainage areas, we are struck first of all with the fact of the exceeding persistency of the evaporation element. By way of showing this saliently we may consider the following means for each of these three streams, beginning with the Sudbury. For this stream we have:

INCHES ON THE WATERSHED.

	RAINFALL.	RUN-OFF.	EVAPORATION.
Storage period, ...	23.28	17.58	5.70
Growing period, ...	10.82	1.66	9.20
Replenishing period, . . .	11.76	3.02	8.70
Total, . . .	45.86	22.26	23.60

For the Cochituate area the figures are as follows:

	RAILFALL.	RUN-OFF.	EVAPORATION.
Storage period, ...	23.08	14.89	8.19
Growing period, ...	11.44	2.14	9.30
Replenishing period, . . .	12.31	3.37	8.94
Total, . . .	46.83	20.40	26.43

For the Mystic area the figures are:

	RAINFALL.	RUN-OFF.	EVAPORATION.
Storage period, ...	22.41	15.08	7.33
Growing period, ...	10.85	2.25	8.60
Replenishing period, . . .	10.81	2.61	8.20
Total, . . .	44.07	19.94	24.13

From the foregoing tabulations we learn that the mean rainfall of the Sudbury area for the period covered was 45.86, the mean run-off was 22.26 inches, and the mean evaporation, 23,60 inches. For the Cochituate the mean rainfall was 46.83 inches, the run-off, 20.40, and the evaporation 26.43 inches. For the Mystic area, the mean rainfall was 44 07 inches, the run-off 19.94 inches, and the evaporation 24.13 inches. From these figures we learn that the mean rainfall of the Cochituate area for

the period of thirty-three years was 1.03 inches greater than the mean rainfall for the Sudbury for twenty-one years. The mean run-off of the Cochituate for the same period was 20.40 inches, as against 22.26 inches on the Sudbury; or in spite of the fact that the mean rainfall of the Cochituate was 1.03 inches greater for the periods considered than that of the Sudbury, still the mean run-off of the Cochituate was 1.86 inches less than that of the Sudbury. For the Mystic the rainfall was 44.07 inches, run-off 19.94 inches, and mean evaporation 24.13 inches.

The temperature records at hand for these three drainage areas are not entirely satisfactory, no record having been kept for the Sudbury and Cochituate previous to 1881, since which time a record has been kept at South Framingham. In order to fill out the tabulations complete, the temperature record used previous to 1881 is that kept at Cambridge, Massachusetts. Basing our conclusion on such data we obtain a mean temperature for the Sudbury drainage area of 47° F.; for the Cochituate area, a mean temperature of 47.7° F.; for the Mystic area we have a complete record from 1878 to 1885, inclusive, and for the balance of the time I have used the Chestnut Hill reservoir record, whence we obtain a mean temperature of 48.5° F.

A study of the detailed records on a number of different lines has thus far failed to show for these three areas any clear relation between temperature and run-off. The indications, on the contrary, are, as might be reasonably expected when one studies the question broadly, that there are a number of other elements of so much importance as to make temperature only of secondary importance. It is not intended to say, however, that there is not some relation between temperature and run-off; but, it is intended to say, that Mr. Vermeule's conclusion that the whole matter is simply one of relation of temperature is so far from the fact as to in effect invalidate any conclusion he may have put forth on the subject under discussion.

In regard to the persistency of the evaporation element we may note that on these three Massachusetts drainage areas the evaporation groups itself at about the same point. For the Sudbury, the mean evaporation for the whole period considered is, as shown, 23.60 inches. The minimum year of the whole period considered was 1883, when the run-off for the storage period was 9.70 inches; for the growing period, 0.86 inches; and for the replenishing period 0.84 inches, giving a total of 11.40 inches for the whole year. The rainfall that year was—storage period, 16.78 inches; growing period, 5.61 inches; replenishing period, 8 93 inches, giving a total of 31.32 inches for the whole year. Even with a rainfall of only 31.32 inches in 1883, still the evaporation rose to 20.12 inches, or to only 3.48 inches less than the mean, while the rainfall for the same year was 14.34 inches less than the mean. If we trace out the figures of the Cochituate and the Mystic areas we shall find the same interesting fact, namely, that in years of low rainfall the persistency of the evaporation element is such that it

must be essentially satisfied first of all before any water can run off; and, further, that the evaporation element is so exceedingly persistent that it only varies in a moderate degree from year to year.

The Sudbury, Cochituate, and Mystic drainage areas are not heavily timbered. As to just the proportion of timber on each, I am not at present able to present the figures, but as the result of journeying over these areas a number of times I should say, albeit in a somewhat off-hand way, that the proportion of timber is so small as to exercise comparatively little influence on the run-off, it being apparently well established that drainage areas which are nearly denuded, or, at any rate, so far denuded that the winds sweep freely through the small quantity of timber remaining, are substantially in the same condition as completely deforested areas. Assuming, then, that the mean temperatures of these areas are substantially as stated, we must conclude that the differences in run-off which appear are due almost entirely to marked difference in character of soil of the drainage areas. In view of the long records available for these three Massachusetts areas we must conclude further that, as regards them at any rate, there are elements other than the temperature which Mr. Vermeule has unfortunately stated as of no importance at all.

Space will not permit of pursuing the analysis of the Massachusetts records to any length. For the benefit of those interested in the general subject I may state that the tabulations referred to are given in full detail in a report to the Honorable State Engineer and Surveyor and the Honorable Superintendent of Public Works of the State of New York, on the Upper Storage Surveys, which will appear in the annual report of the State Engineer and Surveyor for the fiscal year ending September 30, 1896, and which will be issued in two or three weeks. A large amount of additional data, to some of which I shall refer in the succeeding pages of this paper, are also given in the same report as well as in the report on the Genesee River Storage contained in the same volume. All of this data so far as used in the present paper I have been permitted to use in advance of their publication in the reports of the Department by courtesy of the Honorable State Engineer and Surveyor.

We may now refer to some of these data gathered in the State of New York, considering first the drainage area of the Upper Hudson River. In 1895, the Legislature made an appropriation for the purpose of surveying and examining that portion of the Upper Hudson drainage area within the boundaries of the State of New York, with a view to determining the practicability and expense of constructing a series of storage reservoirs, to furnish water for the enlarged Champlain Canal as well as to compensate the manufacturers on the stream below the point where water for the Champlain Canal is taken on account of the diversion for the use of that canal. The surveys in question have thus far been in my charge.

In order to ascertain the mean temperature of the Upper Hudson drainage area I have gathered all available temperature records, as for instance those of Albany, from 1825 to 1895, inclusive, a period of 71 years; Glens Falls, from 1879 to 1895, inclusive, a period of 17 years; Keene Valley, from 1879 to 1895, inclusive, a period of 17 years; Fairfield Academy for certain years from 1827 to 1849, in all 19 years; Lowville Academy for certain years from 1827 to 1848, in all 19 years; Johnstown Academy, certain years from 1828 to 1845, in all 14 years; Granville Academy, from 1835 to 1849, a period of 15 years; and Cambridge Academy certain years from 1827 to 1841, making in all 14 years. The monthly means have been carried out as well as the yearly means, giving as a yearly mean of all, 45.6° F. A number of the foregoing stations are, however, not in the Upper Hudson drainage area, but in or near regions of similar elevation and general meteorological characteristics, and without doubt represent very nearly the mean temperatures of the adjacent regions actually lying within the Upper Hudson drainage area. Mean temperatures have also been kept by the State Weather Service at Saranac Lake, and at a number of other points either in or in the vicinity of the Hudson River drainage area. Tabulations of the same are given in the Hudson Storage Survey reports. The mean temperature of the Northern Plateau, as defined by the State Weather Service, and which includes the Adirondack region, on and in the southern slope of which the Hudson River takes its rise, has also been taken into account. The State Weather Service observations only begin in 1889, and the period covered to date is therefore too short for final conclusions. The record so far as kept at Saranac Lake indicates a mean temperature there of 41° F. For tentative purposes the Northern Plateau may be taken at from 42 to 43° F.

In order to obtain the mean precipitation on the Upper Hudson watershed, the available rainfall data have been treated in a manner similar to that already described for the mean temperatures, with the result of showing that for Albany, Glens Falls, Keane Valley, Western Massachusetts, the Northern Plateau, Lowville Academy, Johnstown Academy, Cambridge Academy, Fairfield Academy, Granville Academy, and for a number of other places with short records not now specifically stated but which may be found in detail in the reports, the mean rainfall is about 37.5 inches. For the few years covered by the records of the State Weather Service the means are about 40 inches, but the objection already stated to the unqualified use of short temperature records applies with equal force to rainfall records. As regards both, the general proposition is that we must gather data covering a sufficient number of years to give a mean, which will not be essentially altered if we carry the observations to any greater number of years whatever. On this point I cite you to a paper on Fluctuations in Rainfall, read by Alexander Binnie, Esq., C. E., before the Institution

UNDEVELOPED WATER POWER ON THE INDIAN RIVER.

of Civil Engineers of England in 1892, and which may be found in Volume CIX. of the proceedings of that Institution.

In this paper Mr. Binnie takes up a number of long rainfall records and by analysis of them arrives at the conclusion that a rainfall record only five years in length may be subject to a possible error of 32 per cent.; a 10 years' record to an error of 7.7 per cent.; a 25 years' record to an error of 5.8 per cent.; a 35 years' record to an error of 3.5 per cent.; a 40 years' record to an error of 2.9 per cent.; a 45 years' record to an error of 2.6 per cent., and a 50 years' record to an error of 2.5 per cent. Hence, Mr. Binnie concludes that a carefully kept rainfall record thirty-five years in length is as good a record for a longer period, and that safe conclusions may be based upon such a record within the limit of an error of about 2.5 per cent. It is carefully worked out conclusions of this character which indicate the uncertainty of basing anything final on records of two or three years, and a thorough appreciation of the importance of this proposition has led me to question the validity of the conclusions of Messrs. Roberts and Vermeule. I doubt their conclusions, because analysis shows that neither has used data of sufficient extent to indicate safe conclusions.

In regard to the run-off of the Upper Hudson River, we have a fairly complete record from 1888 to 1896, inclusive. By way of comparison of run-off with temperature and precipitation I have tabulated in the manner already detailed for the Sudbury, Cochituate and Mystic areas the mean temperature, precipitation, run-off and evaporation for the years 1891 to 1896, inclusive, using the temperature and precipitation of the Northern Plateau as given by the State Weather Service in its monthly publication. In 1891 the total rainfall was 42.96 inches, the total run-off 26.56, and the evaporation 22.4 inches. In 1892 the total rainfall was 53.37, the run-off 33.08, and the evaporation 20.79 inches. A comparison of the two years 1891–92 as regards the evaporation is exceedingly interesting. The rainfall in 1892 was 10.91 inches, while the evaporation was only 0.39 greater than in 1891; that is to say, as already pointed out in discussing the Massachusetts data, the evaporation is persistent at about the same figure whatever the rainfall may be. For instance, as illustrating this position further we may take the year 1893 when the total rainfall dropped to 42.18 inches or within 0.78 inches of what it was in 1891, whereupon the evaporation showed 20.27 inches or practically the same figure as in 1891. In 1894, however, somewhat different meteorological conditions prevailed, and with a rainfall of 41.37 inches the evaporation rose to 22.00 inches. In 1896, when the rainfall rose to 45.21 inches, the evaporation was 22.33 inches. The mean evaporation of the six years covered is 21.14 inches.

We may say, then, as a tentative conclusion subject to correction up to the period when we shall have at hand about thirty-five years' data, that the evaporation on the

Upper Hudson area may be placed under present conditions at about 21 or 22 inches per year. In regard to the forestation of this area it may be stated that the portion in the State of New York has an average of about 80 per cent. in forest. Different parts of this vary considerably. The area of the Schroon River, amounting to 560 square miles, is about 75 per cent. forest; the area of the Upper Hudson, of main North River, including 1,200 square miles, is about 85 per cent. forest, some of it being nearly unbroken primeval forest; the area of the Sacandaga River, which is about 1,100 square miles, and which is still largely primeval forest, is fully 90 per cent. forest, the clearings here being probably scant 10 per cent. of the whole. The balance of the Upper Hudson area in the State of New York is from 60 to 70 per cent. forest. That portion of the area included in Western Massachusetts and Southern Vermont is stated at about 50 to 60 per cent. forest, giving as a mean something like 80 per cent. forest for the whole. Of the several subdivisions of the Upper Hudson drainage area, the Sacandaga River is distinctly the best water yielder. As regards evaporation we may say, therefore, with the limitations already made as to final definite conclusions, that a drainage area of 4,500 square miles, averaging 80 per cent. forest, may be expected in the latitude of Northern New York to give an evaporation loss of from 21 to 22 inches per year.

The following are the complete Hudson River figures for 1894–6:

	RAINFALL.	RUN-OFF.	EVAPORATION.
1894, ...	41.37	19.37	22.00
1895, ...	36.67	17.46	19.21
1896, ...	45.21	23.63*	21.58

Let us now consider the data of the Genesee River, also in the State of New York. Surveys of the headwaters of this stream, with reference to constructing storage reservoirs thereon, were first made by the State Engineer and Surveyor's Department in 1890. In the absence of appropriations nothing further was done on these surveys until 1893. In that year other appropriations became available and the work was placed in my charge, and has so remained from that time to the present. A large amount of data has been gathered, which may be found (1) in the annual report of the State Engineer and Surveyor of the State of New York for the fiscal year ending Sept. 30, 1893; (2) in the annual report for 1894; (3) in the annual report for the year 1896, to be published in a few weeks. Gaugings of this stream and one of its tributaries known as the Oatka Creek are available for the years 1890–91–92–94–95–96, the record for 1890 to 1892, inclusive, being that of the Oatka Creek, and the record for 1894 to 1896, inclusive, being that of the main Genesee River. The total

* This figure is erroneously given in the Genesee Storage Report at 22.88.

area above the point of gauging on the Oatka Greek is 27.5 square miles, but this area is so located that its run-off may be fairly considered typical of that of the entire Upper Genesee drainage area, and hence the figures given are fairly applicable to the whole. The drainage area of the main river itself above the point of the gauging is 1,070 square miles. These drainage areas are rolling, somewhat mountainous country, with deep valleys and high hills. The average elevation of the Oatka Creek drainage area is about 1,500 feet above tide water, while the Upper Genesee area above the point of gauging will average perhaps 1,700 to 1,800 feet above tide water. For the year 1890 the rainfall of the Oatka Creek drainage area is taken at 47.54 inches. The gaugings are not complete for that year, but so far as available give the following: For the growing period, June to August, inclusive, a run-off of 2.51 inches; for the replenishing period, September to November, inclusive, 5.75 inches. For the year 1891, the total rainfall was 38.12 inches, with a run-off of 14.05 inches and an evaporation of 24.07 inches. In 1892, the rainfall was 41.69 inches, the run-off 15.42 inches, and the evaporation 26.27 inches. These figures are exceedingly interesting. Although the rainfall for 1892 was 3.57 inches greater than in 1891, still the run-off was only 1.37 inches greater, the evaporation in 1892 being 2.20 inches in excess of 1891, or a total of 26.27. The mean temperatures of the years 1891 and 1892 were practically the same, being 45.70° F. for 1891, and 45.40° F. for 1892.

Taking the run-off of the entire Upper Genesee drainage area of 1,070 square miles, we have the following:

	RAINFALL.	RUN-OFF.	EVAPORATION.
1894, ...	47.79	19.38	28.41
1895, ...	31.00	6.67	24.33
1896, ...	41.68	12.80	28.88

The foregoing figures are again interesting as illustrating the persistency of the evaporation element without regard to temperature; thus in 1894, with a rainfall of 47.79 inches, the evaporation from the Upper Genesee area was 28.41 inches. Again, in 1896, when the rainfall was 41.68 inches, the evaporation was 28.88 inches; but in 1895, with a rainfall down to the probable extreme minimum of only 31 inches, the evaporation fell to 24.33 inches. Taking into account, then, that three years is not a sufficient length of time to give final conclusions, we may say, as a tentative proposition purely, that, on the Upper Genesee area, with full or nearly full rainfall, we may expect a yearly evaporation of something like 26 to 28 inches, but when the yearly rainfall is at or about its minimum the evaporation will probably fall to about 24 inches. Comparing these figures with those already given for the Upper Hudson area, we may draw the further tentative conclusion that the difference in evaporation between the Upper Hudson area and the Upper Genesee area is something like 5 or 6

inches per year, this difference representing approximately the difference in the State of New York between a forested and deforested area. In considering the significance of this tentative conclusion we should bear in mind that the Upper Genesee area is practically bare of forest.

The data of the Croton River may also be referred to. For this stream I have tabulated the rainfall, run-off, evaporation and temperature for a period of 27 years, from 1870 to 1896, inclusive. The data of such tabulation, as derived from the records of the Croton Water Department, have been properly corrected for the storage of the several reservoirs on that area, so that the figures given in the table represent the true run-off of the stream. The average annual rainfall of the Croton area may be taken at 48.40 inches, and the average run-off of the river for 25 years at 24.6 inches, the difference of the two, representing the evaporation, amounting to 23.8 inches. In 1883, with a rainfall of 43.15 inches, the evaporation amounted to 27.2 inches. In 1888, with a rainfall of 63.6 inches, the evaporation amounted to 25.7 inches, but in 1880, with a rainfall of only 38.50 inches, the evaporation still amounted to 23.20 inches. Speaking generally we may say, therefore, that the evaporation of the Croton area is persistent at about 24 inches per year, which demand must be satisfied so long as the area remains in the present condition and before there is much surplus water to appear as run-off. The area of the watershed above the point of gauging is 338 square miles, and the percentage of timber area does not exceed about 25 per cent. A considerable portion of this is wild land covered with such scant forest growth and brush as to afford very little protection. Hence we may say that such forest growth on the Croton area as has value in conserving stream flow probably does not much exceed about 20 per cent. There is, however, between 2 and 3 per cent. of storage on reservoir surfaces which has some effect on the aggregate run-off. Generally the Croton area is hilly, with the rock mainly gneissic, overlaid with drift and gravel frequently to considerable depth. There are also some swamps.

As another interesting stream in the Eastern United States we may mention the Muskingum River, in Ohio, of which records are available from 1888 to 1896, inclusive. This stream mostly issues from the flat areas of Central Ohio where there is very little timber, and shows such lower run-offs as may be expected from that kind of an area. In 1888, with a rainfall of 42.60 inches, the evaporation amounted to 32.28 inches. The run-off for that year was 10.32 inches. In 1889, the rainfall was 35.88 inches, the run-off 8.22 inches, and the evaporation 27.66 inches. In 1890, the rainfall was 46.97 inches, the run-off 26.84 inches, and the evaporation 20.13 inches. In 1892, the rainfall was 41.74 inches, run-off 13.38 inches, and evaporation 28.36 inches. In 1893, the rainfall was 42.36 inches, run-off 16.20 inches, evaporation 26.16 inches. In 1894, the rainfall was 30.51 inches, the run-off 8.70 inches, and the

UPPER SCHROON RIVER VALLEY. A WELL FORESTED DRAINAGE AREA.

evaporation 21.81 inches. In 1895, the rainfall was 29.84 inches, the run-off 4.90 inches, and the evaporation 24.94 inches. For the year 1896 the data, although at hand, has not yet been reduced. As we have already seen, the Upper Genesee River in Western New York gave in 1895, with a rainfall of 31 inches, a run-off of only 6.67 inches. On the Muskingum River for that year, with a rainfall of 29.84 inches, the run-off was only 4.90 inches. The evaporation of the Genesee River, in 1895, was 24.33 inches, and of the Muskingum River, 24.94 inches. The year 1895 was undoubtedly the year of about minimum rainfall for both these drainage areas; hence we may draw the tentative conclusion that on deforested areas for the belt of country included by these two streams, the evaporation will be for the year of minimum rainfall somewhere in the vicinity of 24 to 25 inches. After this element is satisfied, whatever surplus there may be will appear as run-off in streams. This conclusion, it must be remembered, applies only to these areas while in their present deforested state. The mean temperature of the Genesee area is about 43° F., and that of the Muskingum from 48° to 50° F. The incomplete state of the tabulations to which I have referred render it impossible to give the final figures at this time. The drainage area of the Muskingum River is about 6,000 square miles. A considerable portion of this area is of a clayey character, the surface formation being that known to the State Geologists as bowlder clay. In many places it exists to a great depth and is stated to have radically changed the preglacial courses of the streams. It has little porosity and water sinks into it with difficulty. Springs are rare, and by the middle of July many of the streams dry up and so remain until late into the fall. A considerable portion of the Muskingum drainage area has been thoroughly underdrained by the tile drainage.

As another stream we may refer to the Des Plaines River in Illinois, of which more or less complete gaugings have been kept, from 1886 to 1897, inclusive. In 1889, the mean rainfall of the Des Plaines drainage area, as deduced by taking the means of a large number of stations in Illinois and Wisconsin, was 34.99 inches; the run-off, 5.06 inches; the evaporation, 29.93 inches. In 1893, the rainfall was 26.96 inches, the run-off 10.14 inches, and the evaporation 16.82 inches. In 1894, the rainfall was 27.94 inches, the run-off, 7.70 inches, the evaporation, 20.24 inches. In 1896, the rainfall was 39.08 inches, the run-off 6.69 inches, and the evaporation 32.39 inches. As a tentative conclusion we may say, then, that with full rainfall the Des Plaines River drainage area will show an evaporation in its present deforested state of about 30 inches per year. With deficient rainfall, the evaporation will be less in some proportion to the deficiency.

The reservoirs on the Upper Mississippi may also be referred to. Taking the records as kept at the Pokegama dam, where the total area of contributing watershed

is 3,265 square miles, with about 585 square miles of water surface included in the lakes and reservoirs above the dam, we have for the period of 11 years, from 1885 to 1895, inclusive, a mean rainfall of 25.06 inches. The run-offs for this period have not yet been computed for inches on the watershed, but as a general statement we may say 25 inches of rain a year yields from this area from 4 to 5 inches of run-off. In years of minimum rainfall, when the total is as low as about 20 inches, the run-off does not exceed 3.5 inches. The area drained by the Upper Mississippi is now mostly heavy forest with a mean temperature of from 38° to 40° F. If the forest were entirely removed there is no reason to doubt but that streams in this area, which now yield some water during the entire summer season, would become entirely dry during a considerable portion of the year, the same as is true of many of the tributary streams of the Muskingum and Des Plaines Rivers.

The astonishing persistency of the evaporation element for given conditions was, so far as I am aware, first pointed out by Messrs. Lawes, Gilbert and Warrington in their classical paper on the Amount and Composition of the Rain and Drainage Waters Collected at Rothâmpsted, published in the Journal of the Royal Agricultural Society of England, in 1831. As to why evaporation exhibits such persistency these distinguished authors consider it largely due to the fact that the two principal conditions which determine large evaporation, namely, excessive heat and abundant rain, very rarely occur together; the result is, especially in the English climate, a balance of conditions unfavorable to large evaporation. In a wet season when the soil is kept well supplied with water there is at the same time a more or less saturated atmosphere with an absence of sunshine, while in dry seasons the scarcity of rain results in great dryness of the soil with scant, slow evaporation.

The problem of the relation of rainfall to run-off and evaporation has attracted the attention of meteorologists and working engineers for many years, and in England and some of the other countries of Europe records have been kept as far back as fifty to seventy years ago, and the results tabulated with reference to a solution of this problem. Among other interesting data, a large amount of which has been obtained in England, we may refer to percolation data as derived from the use of drain guages. In the paper by Messrs. Lawes, Gilbert and Warrington already referred to we have a record of rainfall and the percolation through the Rothamsted drain gauges from 1870 to 1890. Space will not permit of describing these interesting experiments in this place, but those interested in them may find the whole matter in detail in the original paper of the Journal of the Royal Agricultural Society of England, already referred to, or an abstract may be found in my second report on the survey of the Upper Hudson Valley, included in the annual report of the State Engineer and Surveyor of the State of New York for the year 1896, and about to be published. At Rothampsted, where

these experiments have been carried on, the average rainfall for twenty-one years was 30.29 inches. The mean percolation for the same period through a drain gauge forty inches in depth was 15.16 inches, leaving a mean evaporation for the period of 15.13 inches. The maximum evaporation for the whole period is 19.63 inches, or 4.50 inches more than the mean; the minimum evaporation was 11.03, or 4.10 inches less than the mean. The maximum run-off through the drain gauge was 26.03 inches in the year 1878–79, when the rainfall was 41.05 inches, the evaporation for that year being 15.02 inches, or within 0.11 of the mean. The minimum run-off through the gauge was 5.40 inches in 1872–74, when the rainfall was 21.69 inches. We learn from these figures the much greater range of the run-off than of the evaporation; that is, the maximum run-off was 10.87 inches greater than the mean run-off, and the minimum 9.76 inches less. Hence, the range of the run-off above and below the mean is more than twice the range of the evaporation above and below the mean. If we examine the several tabulations of stream flows in the United States already referred to, we shall find a somewhat similar law running through the whole series, and which again not only illustrates the extreme persistency of the evaporation element but shows that evaporation from a drainage area is broadly independent of temperature. Many other interesting drainage experiments have been made in England which cannot be referred to in this place for lack of space. A fairly complete résumé of the data may, however, be found in the forthcoming Upper Hudson River storage report. The run-off data of a number of foreign streams are also referred to in that report.

Lack of space necessarily prevents presenting anything like complete figures at this time, and I may, therefore, simply state that as the result of making very extensive tabulations of data I reach the conclusion that the deforestation of a drainage area will, in the State of New York and in that vicinity, probably decrease the annual water yield of the area from four to six inches. This conclusion I desire again to say is tentative. It is merely what a broad study of the data indicates, and I reserve the right to modify it as further data are gathered. At the present time such a tentative conclusion may be drawn from the data at hand. It may also be drawn from the data studied by Mr. Vermeule when the said data are studied broadly.

We have seen in the foregoing that some, at any rate, of the current views as to the relation of forests to stream flow may be properly modified. As a final division of this present discussion I desire to lay before you briefly my present understanding of how it is that deforestation may not only affect floods but that it also leads to an actual decrease in total run-off.

In the first place, the classical experiments on forest meteorology which have been made abroad by Dr. Ebermayer and others have shown a considerable decrease in the mean temperature in forests over that in the open. If, then, Mr. Vermeule's

proposition that there is a direct relation between mean temperature and run-off is correct, so marked a relation indeed that a difference of one degree in mean temperature will make five per cent. difference in the annual run-off for a given drainage area, it follows, with the certainty of a proposition in geometry, that forests must have a marked effect on the run-off. Moreover, the forest meteorological observations have further shown that evaporation, not only from water surfaces but from bare as well as littered soils, is very much less in thick forests than in the open. The effect of the forest is here exceedingly marked. Indeed, it has been shown that as a mean of the months from April to October, inclusive, evaporation from soil under forest litter within the forest is only 13 per cent. of what it is from a water surface in the open, whereas evaporation from the bare soil in the open is 93 per cent. of what it is from a water surface in the open. Again, a water surface in the woods, in localities where the water is fairly surrounded by heavy timber, gives only 36 per cent. of the evaporation, from April to October, inclusive, that occurs on a similar water surface in the open. Mr. Vermeule and the gentlemen championing the other view may ignore data of this character if they wish to, but I frankly say I cannot afford to ignore such data.

As further data which cannot be safely ignored we may refer to some of the results obtained by Mr. FitzGerald in his evaporation experiments at Boston. In determining winter evaporation Mr. FitzGerald found by experimenting upon blocks of ice, that, when the blocks were so placed as to be subject to air currents, the loss was much greater than when exposed to the same temperature in still air. These results appeared even in zero temperature. We may apply them directly to a drainage area, where, when the same is covered with primeval forest, the force of the wind is so much broken as to make a distinct difference in the wasting away of snow during the winter. As illustrating the possible magnitude of such loss, we may cite that on one occasion Mr. FitzGerald found evaporation from an ice surface, with the wind at twelve miles an hour, proceeding at the rate of 0.2 inches per day. A number of experiments were made as to the evaporation from ice exposed to wind in comparison with evaporation from the same substance when protected in a covered and cold shed through and into which the wind could not enter, with the result of showing that the wind was an exceedingly important factor in winter evaporation, and that, therefore, whenever we do anything which tends to give the wind free access to the snow covering on a drainage area, we have done that which will lead to a large loss of water from the area. It is facts of this character which emphasize the injury done to streams by extensive deforestation.

As to the relation of the foregoing facts to flood flows we may point out that there is a certain balancing of conditions. Thus, on a deforested area we may expect the

LUMBERMAN'S DAM BELOW LAKE PLEASANT.

snow falling during the winter months to so far waste away under the influence of unobstructed winds as to be, when the spring break-up comes, considerably less in quantity than it would be if the area had been protected by heavy forests. The result is that while the snow will melt quicker under the influence of higher spring temperatures than it would if in the forest, still the quantity to be melted is, by reason of the said gradual wasting, considerably less than where the opposite condition obtains. On the other hand, with the snowfall protected by a forest covering, the wasting away at time of high spring temperature is slower than on an exposed area subject to the same meteorological conditions. The forest meteorological observations show that this conclusion must be essentially true. We have then a set of conditions in which the effect of the forest in increasing the tendency to extreme flood at the time of the spring break-up by the storage of large quantities of snow, is modified by the greater loss from evaporation taking place on a deforested area during the entire winter season. Hence, as regards floods caused by the sudden melting of winter snows, there is an essential balance, the net result being, in the case of deforested areas, a shortening of the time of extreme spring run-off, with, by reason of gradual wasting away during the winter, ordinarily no special increase in height of floods.

As regards floods due to heavy rains either in the spring or fall, and which occur without reference to the spring break-up, a similar line of reasoning applies. Exposure of the ground of the deforested area leads to a more rapid evaporation from the surface, with quicker exhaustion of the surface moisture. Hence, usually, the ground in the open is in good condition at the beginning of an extreme rainfall to absorb considerably more water, before large quantities begin to run off, than it would be if covered with forest. In this way a balance of spring, summer, and fall flood conditions is likewise attained on the deforested area the same as during the winter. The rational conclusion appears to be easily drawn therefore (1) that while deforestation does actually decrease the net annual run-off of streams, still (2) it does not *per se* necessarily materially increase the height of floods. As meeting, therefore, the objection of Mr. Roberts it remains to point out that the mere fact of non-increase of floods is absolutely no proof that there is not a material decrease in total run-off from deforested areas.

In considering the foregoing views we must not overlook that thorough under drainage of catchment area may so decrease the time of maximum run-off as to increase flood heights. This is especially true in any region where large open drainage ditches have been cut. It is within my experience that the regimen of a stream has been entirely changed by drainage alone. On this point a large amount of interesting and useful data is at hand, but which cannot for lack of space be introduced here.

As another class of data applying to the problem in hand we may refer to the results obtained in experiments relative to the quantity of water required by different classes of forest trees and by the principal cereals and other farm crops as well as various grasses, vineyards and potatoes, by E. Risler, who carried on an exceedingly interesting study on these points at his farm near Nyon, Switzerland, a number of years ago. Risler's results may be found cited by Ronna in his Manual, Les Irrigations; also Risler's paper, Recherches sur l'Evaporation du Sol et des Plantes, etc., and in other places. The following from Risler gives the best available information as to the daily consumption of water by various crops and two classes of forest trees, the water being supplied in such quantity as to produce the best result in the growing plants.

Meadow grass requires from	. . . . .	0.134 to 0.267	inches
Oats	" "	0.140 to 0.193	"
Indian corn	" "	0.110 to 0.157	"
Clover	" "	0.140 to	"
Vineyards	" "	0.035 to 0.031	"
Wheat	" "	0.106 to 0.110	"
Rye	" "	0.091 to ——	"
Oak trees	" "	0.038 to 0.035	"
Potatoes	" "	0.038 to 0.055	"
Fir trees	" "	0.020 to 0.043	"

Applying these figures, we learn that ordinary farm crops may take up from twelve to fifteen inches of water over the whole area cropped during the growing period. Forests in the same way may take up in their growing period from April to August, inclusive, from four to five inches, while cleared areas which are uncultivated probably absorb from seven to eight inches. Forests then not only use less water than cultivated areas, but they further tend to increase the summer flow of streams by holding back the water in accumulations of leaves, mosses, and forest litter until it can be gradually absorbed into the soil. If we examine in detail the figures as to run-off of the Hudson River in comparison with those of the Genesee and other deforested drainage areas, we learn that a forest area may yield more than double the flow during the growing season than will be obtained from a deforested area. Again, on cultivated areas the quality of the leading crop will materially influence the run-off. Thus streams issuing from an Illinois prairie where Indian corn may occupy from 50 to 60 per cent. of the total area will give a very different summer flow from streams similarly situated but issuing from areas with crops demanding less moisture than Indian corn.

If the foregoing data are even approximately true, it follows that in many places the run-off of streams is gradually decreasing, not only by reason of decrease in forest area, due to clearing up lands for agricultural purposes, but is even changing because of the varying quality of crops raised from year to year. The fact that such changes are taking place has been very strongly impressed upon me in a number of litigations in which I have been at different times employed where the question of damages for diverting water from streams, either for municipal or manufacturing purposes, has been the leading issue. Invariably in such cases a large number of old residents have been sworn as witnesses for the plaintiff and have testified that formerly, say thirty, forty, or fifty years ago, as the case may be, the stream in question had a sufficient summer flow to operate a mill of a given capacity. In Western New York, where several of these cases have occurred, there are many mills from sixty to seventy years old, in which, up to the time of changing from the old-fashioned grinding process to the roller process, the machinery was substantially as it was made at the original erection.

However valuable water privileges at these mills may have been originally, it is nevertheless certain that now a number of them are practically worthless during several months of the summer and fall of the average year. In order to present a valid reason why the water power of streams in Western New York may be less valuable now than forty or fifty years ago, I prepared for use in one of the litigations an extended discussion of this question. The discussion in question applies particularly to drainage areas in Wyoming County, in Western New York, the run-off data being from gaugings of the Oatka Creek for the years 1890–91–92.

Wyoming County is an elevated region of the same general character throughout. Formerly it was covered with heavy pine, hemlock, oak, beech, maple, ash and elm forests. At the present time the forest area is exceedingly small, and what there is left of it is so scattered and so open as to exercise almost no effect on stream flow. In order to illustrate the progressive changes which may take place in the water-yielding capacity of a given drainage area I compiled from the U. S. Census for each decennial period from 1830 to 1890, inclusive, the statistics as therein given for Wyoming County, the assumption being that whatever was true of Wyoming County must be substantially true of the Oatka Creek drainage area of 27.5 square miles situated in the central part of the county. The census data give the total area, total improved area for a portion of the period, tilled area and permanent meadows, total unimproved area, woodland and forest area, and the miscellaneous unimproved area. As illustrating the changes which have taken place in Wyoming County since 1850, I may merely cite from the tabulations that, with a total area of 337,840 acres, the total improved area was 223,533 acres in 1850, and 356,880 acres in 1890. The total

unimproved area was 164,307 acres in 1850, and only 30,960 acres in 1890, of which 26,960 was woodland and forest, and 4,000 miscellaneous unimproved area.

Again the tables show that in 1850 there were 50,035 acres in clover seed and grass seed, wheat, rye, corn, oats, peas, beans, potatoes, barley and buckwheat, while in 1890 the same crops showed 71,915 acres. In 1850 the area in oats amounted to 18,132 acres, while in 1890 it amounted to 29,083 acres. Barley in 1850 covered 2,409 acres, and in 1890, 14,164 acres. Again the area in hay amounted in 1850 to 62,563 acres, and in 1890 to 80,446 acres. The total tons of hay in 1850 were 75,076; in 1890, 105,134 tons. Probably the statistics as pertinent as any to the case in hand are those relating to changes in live stock. For instance, in 1850 the total number of milch cows was 10,022, while in 1890 the total number was 22,919. The total number of horses, mules, milch cows, oxen, and other cattle in 1850 was 40,812, while the total number of all these classes of stock in 1890 was 44,810. Considering the total of hoof cattle, we might say that the increase had not been so great, but when we consider the total of improved area in comparison with the unimproved area in 1850, and also in comparison with the amount of stock then and in 1890, we see at once that in 1850 the principal pasture area of the country must have been in forest, whereas the pasture in 1890 must have been, as in fact I know it to have been, largely in permanent meadows. Referring to Risler's results as to the amount of water required for crops we learn at once the great increase in water demand for supporting crops from 1850 to 1890.

Taking into account the foregoing data I further prepared a table giving the per cent. that each crop actually raised in 1850 was of the total area in the country assigned to forest area, fallow land, etc., each in its proper area. Similar data have been prepared for each census period to 1890, inclusive. From such tabulation I learned that in 1850 the area in wheat, rye, oats, barley, and buckwheat was 10 per cent. of the whole; Indian corn, 2 per cent.; potatoes, 0.7 of one per cent.; long grass, 16 per cent.; short grass, 20 per cent.; fallow land, orchards, peas, beans, and miscellaneous, 11 per cent.; and forest, 40 per cent. Without giving the details of 1860, 1870, and 1880, we may pass to 1890, in which year the following percentages were found: wheat, rye, oats, barley, and buckwheat, 7.9 per cent.; Indian corn, 0.7 of one per cent.; potatoes, 1.6 per cent.; long grass, 20.8 per cent.; short grass, 33.5 per cent.; fallow land, orchards, peas, beans, miscellaneous, 25 per cent.; clover, 1.5 per cent.; and forest, 9 per cent. It will be noticed that the forest area had changed from 40 per cent. in 1850 to 9 per cent. in 1890. Taking Risler's data as a basis it was then easily computed that wheat, rye, oats, barley, and buckwheat would require 9.2 inches of water on the actual area cropped to fully supply their demands; Indian corn would require 12.2 inches; potatoes, 4.3 inches; long grass, 19.3 inches; short

MILL AND WATER POWER ABANDONED ON ACCOUNT OF DEFORESTED DRAINAGE AREA.

grass, 15.4 inches; fallow land, peas, beans, orchards, and miscellaneous, 12 inches; clover, 12.9 inches; and forest, 3.6 inches. Proceeding on this line it was ascertained that in 1850, the total depth of water over the entire area of Wyoming County, required to fully support vegetation as it existed in that year, amounted to 10.17 inches; in 1850 it amounted to 11.15 inches; in 1870, to 11.89 inches; in 1880, to 13.24 inches; and in 1890, to 13.57 inches. Hence the conclusion seemed to be safely drawn that in 1890, due to changes in forest area and to quality of crops grown, the amount of water required in Wyoming County to support vegetation during the growing season would amount to 3.4 inches more than in 1850. Why a mill stream in Wyoming County, which was ample for all demands in 1850, entirely failed in 1890, seemed, therefore, fully explained.

In order to determine whether such conclusion was in accord with the rainfall records of Western New York a large number of such were tabulated in periods in the manner already described, with December to May, inclusive, making the storage period; June to August, inclusive, the growing period; and September to November, inclusive, the replenishing period. From a tabulation of the rainfall records kept at Middlebury Academy, in Wyoming County, for certain years—seventeen in all—from 1826 to 1848, inclusive, the mean rainfall for the growing period was determined at 9.52 inches. In 1832 it was only 6.76 inches. The maximum at Middlebury Academy was 14.36 inches in the growing period of 1828. Tabulating more recent records it was found that at Arcade, in Wyoming County, from 1891 to 1896, the mean of the growing period was 13.61 inches; the minimum of 9.62 inches occurring in 1894. At Le Roy, in the adjoining County of Genesee, the mean of the growing period from 1891 to 1895, inclusive, was 10.31 inches; the minimum being 6.61 inches in 1894. At Rochester the records show a mean of the growing period for the years from 1871 to 1896, inclusive, of 8.29 inches; the minimum of the growing period being only 5.0 inches in 1887. It appeared, therefore, that at the present time, with the drainage areas almost entirely deforested, streams must necessarily be very low during the summer season of nearly every year. Practical observation in Western New York amply confirms this theoretical deduction.

The foregoing data as to summer rainfall show why it is that even fully forested areas are sometimes subject to drought. When the growing period rainfall sinks to 5.0 or 6.9 inches, even a forested area will be dry. The difference is that in a large forest area summer droughts occur only occasionally, while in Western New York, under present conditions of forestation, they occur about every other year. Failure to appreciate just this difference has frequently misled investigators.