Report of the Montana Fish and Game Commission 1918

REPORT OF THE

Montana Fish and Game Commission

FOR YEARS 1917-1918

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Where Nature Reigns

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2	C. A. ROBINSON	Columbia Falls	Flathead County.
4	GEO. GARRITY	Alberton	Portions of Mineral and Sanders Counties.
7	F. E. PILLING	Butte	Silver Bow and Deer Lodge. Portions Jefferson, Powell and Granite.
8	J. W. CARNEY	Dillon	Beaverhead and portion of Madison.
9	C. E. ESGAR	Bozeman	Gallatin and portions Broadwater and Madison.
10	A. B. ROSMAN	Townsend	Broadwater and portions Gallatin, Jefferson and Meagher.
11	F. R. BANEY	Eureka	Lincoln County.
12	JOHN T. MOORE	Choteau	Teton, Toole, Blackfoot Indian Res. portions Lewis and Clark, Chouteau.
13	E. C. CARRUTH	Havre	Hill, Blaine and portion of Toole county.
14	W. D. DELPHY	Choteau	Cascade and Choteau Counties.
15	T. A. BERKIN	Roundup	Musselshell, portion Yellowstone and Fergus Counties.
16	P. W. NELSON	Livingston	Park, Sweetgrass and portion Stillwater.
17	GEO. E. MUSHBACH	Red Lodge	Carbon, Bighorn and portion Stillwater County.
18	T. J. THOMPSON	Forsyth	Rosebud County.
19	CHARLES MARRS	Jordan	Dawson, Richland and portion Prairie County.
20	JOSEPH A. WHETSTONE	Opheim	Phillips, Valley and Sheridan.
	W. W. KENNEDY, at large	Missoula	Missoula, Ravalli, and portions Mineral Granite, Powell.
	D. M. HALFORD, at large	Ennis	Madison and portion Gallatin County.
	J. A. WEAVER, at large	Lewistown	Fergus and portion Meagher County.
	HARRY MORGAN, at large	Ovando	Powell and portions Granite, Missoula and Flathead Counties.

Leaving a Consignment of Fry

E. P. MATHEWSON

For many years a member of the State Game and Fish Commission, and the Chairman thereof. E. P. Mathewson is held in the highest esteem by those with whom he worked. Much of the success of fish culture and stream stocking, as well as the preservation of game is due to his untiring efforts. He located and supervised the construction of the Anaconda Hatchery and selected the location for that at Somers. Always interested, enthusiastic, ready with suggestions, resourceful, he is never staggered by difficulties, but rather delights in overcoming them. This tribute is from those who know him best.

Where Fry Soon Grow to Maturity

FISH AND GAME COMMISSION

LETTER OF TRANSMITTAL

January 1, 1919.

Hon. S. V. Stewart,
Governor of Montana,
Helena, Montana.

Sir:

In compliance with Section 1982, R. C. of Montana and as amended by the Act approved March 15th, 1917, your State Fish and Game Commission beg leave to submit its biennial report, embracing its transactions during the years 1917 and 1918.

At the time that the Legislative Assembly convened in January, 1917, the Commission had met with a committee of the State Sportsmen's Association and had carefully framed certain amendments to the then existing fish and game laws, the bill prepared being to all intents and purposes a codification of all existing State Game Laws, with such amendments as seemed proper both by the Committee representing the State Association and the Fish and Game Commission.

The bill as prepared was presented, passed with amendments and approved. Proper and adequate appropriations were made for conducting the fish and game department, and funds therefor provided in the usual manner by the sale of licenses, the cost of which was raised from one dollar to one dollar and fifty cents for residents.

The State fish car, Thymallus, having become unsafe for use, an appropriation of $17,000.00 was provided for the purchase of a new car. It was thought that the amount named would be ample for the purpose, but owing to changed conditions, the higher cost of railroad equipment, and material of all kinds, it was found that the sum appropriated would not purchase even a rebuilt second-hand car, so that after most painstaking efforts your Commission was forced to repair the old car as well as possible and to defer the purchase of a new one. The cost of a new car we found to be not less than $24,600.00 for the plainest type and from that price up to $50,000.00 for a more elaborate one.

Locating Hatchery Near Findley, Montana

Under the conditions found, it was determined to repair and use the old car as long as possible so that use was made thereof for delivery of fry during 1917. In the early Spring of 1918, we again had the car inspected by an expert of the Northern Pacific Railway Company who reported that the car could be used with a reasonable degree of safety so long as hauled on the rear end of trains. In this way three early Spring deliveries were made of Eastern Brook trout fry after which we were notified by the several railway companies that the car was unsafe and would no longer be accepted for transportation.

In this emergency a car was borrowed from the Northern Pacific Railway Company and has been fitted with the necessary air pump, pipes and bunks, and will be used until a demand is made for its return.

It would be most advisable to have a sufficient appropriation made to cover the cost of a new fish car, such amount to be determined at the time the bill is framed therefor. It would be most unwise to buy an expensive or elaborately finished car, it being the judgment of the Commission that a plain, roomy and substantial one would be most satisfactory; it should be new, built according to recent designs, fitted to the needs of the State. It should be remembered in making the plans for a car, that the number of fry produced each year is slowly increasing, that more space will be required each year and that facilities for distribution must be provided, and that without a car for transporting the fry, the work of the hatcheries is of no use except for stocking streams in close proximity.

The law prohibiting the sale of game animals, and birds, or parts thereof, is one of the greatest safeguards against commercializing game that is on our statutes, but there is one class of tradesmen, upon whom it works an injustice, in its present form, and that is the professional taxidermist. As the law now exists, it is unlawful for a taxidermist to dispose of a mounted trophy, even to cover his charges for mounting same, when the trophy is uncalled for by the owner.

In order to make it lawful to sell these trophies, and give the taxidermist a lien for his charges, it is suggested that a law be enacted permitting those who are licensed taxidermists to conduct auction sales of all uncalled for trophies, after advertising same by publication, and after deducting their regular charges for such work, that the balance be paid into the State Treasury, to the credit of the Game and Fish fund.

Counting the Elk in Yellowstone Park—1917

FISH AND GAME COMMISSION

Replenishing the Streams--Fry Planting

The efforts made looking to the replenishing of streams developed by overfishing are fully seconded by the people as well as by fish and game clubs in various parts of the State. While it is manifest that the number of fish caught each year is larger than the year before, this is due to the fact that the automobile has made remote places accessible to those living in cities and towns, that a greater number of people go fishing, it still is found that very good fishing may be had where systematic planting of fry has been done. This statement will be attested by many who have fished the same streams for years in succession. Heretofore, efforts have been largely devoted to the production of the largest quantity of fry possible with the facilities at hand, depending upon local game clubs and sportsmen to do the selection of places and planting in such streams as are most frequented for fishing. Efforts have been directed toward furnishing the proper varieties as well as excluding from streams all such kinds as may be antagonistic to those already inhabiting the waters. In a few instances plantings have been made in lakes and streams above falls where no fish have been found, in all instances with good success. New efforts will be made in this direction in connection with the United States Forestry Department and its officials.

It is more and more apparent that care should be exercised not only in planting but in the careful selection of varieties which are not antagonistic, or destructive to the other kinds of fish. We have heretofore asked those in control of the work of fry distribution for the United States Government to refrain from planting new varieties until some investigation can be made to determine the

Result of a Busy Two Hours

Beautiful Flathead Lake

wisdom of so doing. Many fishermen, enthusiastic over the game or food qualities of fish, will insist upon planting the variety whether suitable for the selected waters or present varieties or not. In this way the progeny of a planting of black bass, made in Echo Lake near the head of Flathead Lake some years ago, have been carried from the land-locked lake where first planted to the Flathead River and from thence have spread until now they are found all the way along Flathead Lake and its outlet as far as Thompson Falls, a distance of not less than one hundred miles. While this fish is a fine, gamey and edible variety, much esteemed by anglers, it is very destructive to trout and other varieties and for this reason its planting has always been discouraged.

Predatory Brown Trout.

Another instance of unwise planting of a new variety is found in the Madison River where Loch Leven or Brown trout have been planted by the United States authorities and are very numerous. The earliest instance we find of the propagation of this variety is in the report of the Commission of Fisheries for 1902, in which year a small number were hatched and distributed from the Northville Station in Michigan, Manchester Station in Iowa and Leadville Station in Colorado. The date when this variety was planted in the Madison River is not known, but it can safely be said that it is rapidly becoming the predominating type in the upper reaches of this river and that it is very predatory in its habits. This has been the observation of all having experience with the fish where planted. In the Gunnison River in Colorado, we understand that efforts are made to rid the waters of the fish because of its predatory habits. It is particularly unfortunate that plantings of this variety have been made in the Madison River, for this is one of the Montana homes of the Grayling. The more aggressive habits of the Loch Leven trout, its undoubted canhibalistic tendencies coupled with an activity and swiftness hardly equalled by other fishes makes it a dangerous denizen.

Game but Destructive.

It is hard to describe the fish in detail, but in general, it may be said to be slim and symmetrical in form with a long head, larger scales than either the Native or Rainbow trout, with irregular shaped black spots and the male fish having in addition, bright red spots along its sides. Its mouth is provided with many sharp inturned teeth, which make it a dangerous enemy to other kinds of fish not so well armed. To do the fish justice it must be admitted that its game

"Where the Fishes Play"

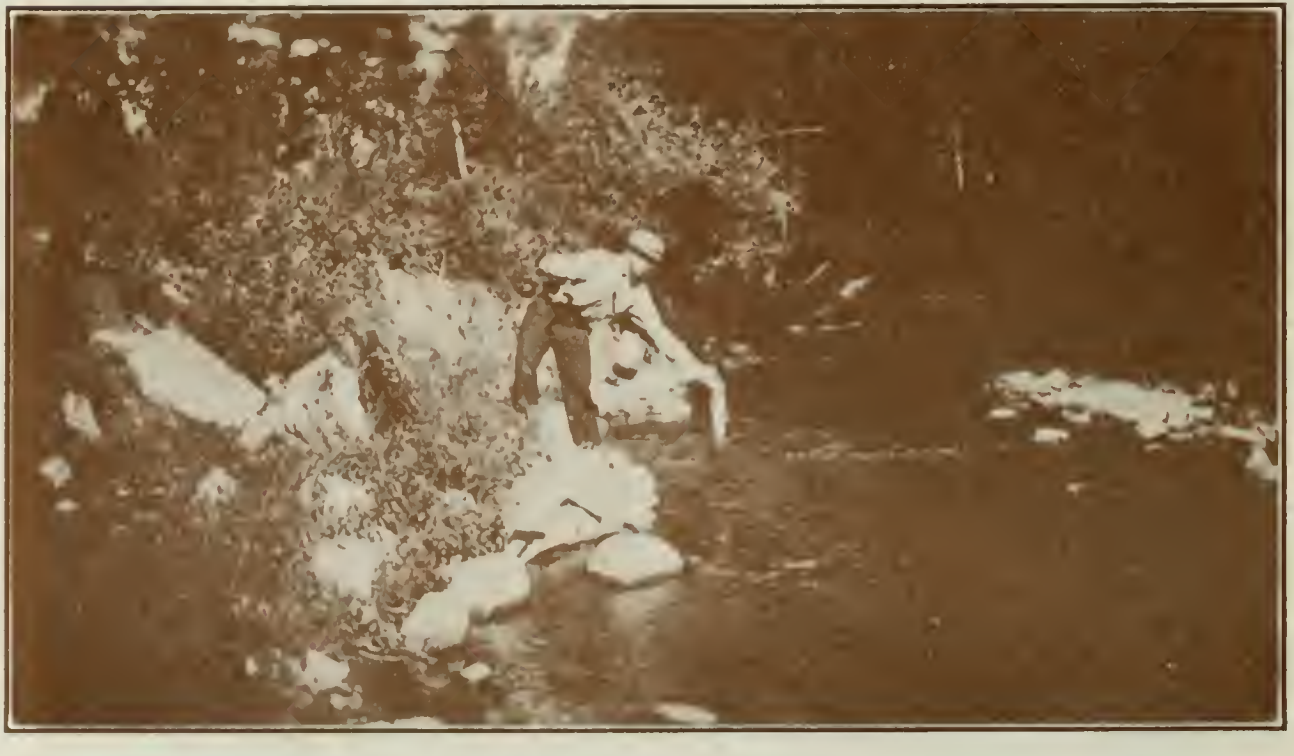
qualities are all that could be desired; it takes the fly or a spoon hook readily, makes a vigorous fight when hooked, does not cease its efforts to escape until finally landed and its flesh is excellent food. Nearly all of these qualities are found in other varieties which are not so destructive to others. It is hoped that the readiness with which this trout takes the artificial lure may result in lessening its numbers, and this will undoubtedly be the result, if no more planting of fry are made.

The Grayling will be in the greatest danger from this trout, for it is not so rapid a swimmer, and has no means for protection being practically devoid of teeth. The waters flowing to the upper Missouri River are the natural home of the Grayling and while formerly they were found in the streams of Michigan, they are now almost extinct in the waters of that state. The only other territory outside of Montana where they may be found is in Alaska. It is very desirable that we should at least do all in our power to keep the streams now containing these fish in their present condition. We have made many plantings of Grayling fry in streams and lakes having a flow toward the Pacific, but so far only two places, Georgetown Lake, in Deer Lodge County, and Little Bitter Root Lake in Flathead County, have proved permanently successful.

The extent of fry planting done in 1917 and 1918 is best shown by the following:

Planting for Two Years.

	1918	1917
Eastern Brook Trout	4,552.000	3,884,500
Rainbow Trout	1,529,000	1,294,800
Black Spotted Trout	3,470,000	4,231,000
Grayling	2,965,000	1,300,000
Montana Whitefish	750,000	240,000
Lake Superior Whitefish	475,000	.....
Silver Salmon	4,998	822,700
Total distribution for years:	13,746,298	11,773,000



Out of the Depths

Stocking the Waters

Dr. Tarleson H. Bran, New York State Fish Culturist

While upon the subject of fry planting it may be well to quote the latest authority upon this subject, Dr. Tarleson, H. Bran, M. S. M. D., the State Fish Culturist of the State of New York, who says:

Under natural spawning conditions, eggs and young fish are exposed to multitudes of enemies. Freshets bring down sediment that covers up and smothers eggs resting upon the stream bottoms. Certain fish, including minnows, suckers, and sculpins, devour great quantities of eggs of other and more valuable species. The larger predaceous fish prey upon the young of practically all species. Diseases may attack fish at any stage of their existence, especially in polutted waters. Consequently it is quite safe to say that a mere fraction of one per cent of all the eggs naturally deposited ever become mature fish. In artificial propagation, on the other hand, the percentage of loss in hatching has been reduced to trifling proportions. The very high state of efficiency attained in the hatcheries makes this phase of fish culture profitable.

It is in the highest degree desirable that this same efficiency should be extended to the planting methods. The Commission itself plants practically all of its food fish, but at present direct supervision over the game fish practically ceases when the cans of fry or fingerlings are delivered on the platforms of the railway station. In many cases the lack of special knowledge and experience on the part of those who transport the cans to the streams and do the actual planting results in great loss. Thus certain waters that have been stocked with thousands upon thousands of fry and fingerlings during a long period of years still produce, for one reason or another, very indifferent, if any, fishing. The planting of food fish by the Commission, however, is uniformly successful, indicating that proper attention to details will bring results.

Home of the Native Trout

Investigating the Waters.

In order, therefore, to devise more intelligent and effective methods of stocking and protection, based upon thorough knowledge, the Commission has undertaken an intensive investigation of the waters of the State. Some of the principal subjects for investigation are the following: the distribution and habitats of the fish found at present in these waters; their food habits, as determined by analysis of their stomach contents; the supply of natural food available, such as insects, mollusks, crustaceans worms, and acquatic vegetation; the spawning seasons of the various fish; their natural enemies; stream pollution and methods of controlling it; proper open and closed seasons; methods of cooperation between the Commission and associations and individuals interested in propagating or protecting fish.

General Principles of Stocking.

Plans for stocking should be made during the driest part of the preceding season. Only the streams or parts of streams that have not then dried up or become stagnant should be considered in the plans for future planting. Every detail regarding the adaptability of the stream or lake for the fish that it is desired to plant should be carefully considered. Foresight in this direction will save many fish that would otherwise be lost.

The two chief requirements of young fish are protection and food. They need protection from predaceous enemies, freshets, drought and disease. In general, for stream-inhabiting species, the headwaters furnish the most suitable planting points. Here the larger fish are not apt to be present to prey upon the fry. Freshets are not so strongly felt there, and are less likely to wash the small fish downstream. Moreover the chances of pollution are much less. Care must be taken, on the other hand, not to plant the fish in streams or headwaters which may dry up in time of drought. For the young of lake fish the most favorable situations are generally the shallow waters near shore, or on shoals or reefs. In either case, whether dealing with brook fish or lake fish, it is well to discover, if possible, the natural spawning beds, and to plant the young in or close to such places; for it is reasonable to suppose that each

Testing Duck Creek, Upper Madison Basin, for Grayling Spawning Grounds

species has come to choose for its spawning grounds the places that are most suitable for its young to hatch and live in. These situations are likely to be supplied with the natural food that the young require. As the fish grow they will gradually work their way into the deeper and wider waters inhabited by the adults.

While we have only a meagre knowledge of the food of fish at the earliest period of their lives, we know in a very general way what the adults of the commoner species feed upon. It is of particular importance, therefore, when introducing any species into waters where it has not occurred previously, to ascertain whether a suitable supply of its natural food is available. The flood requirements of various species are stated in the pages that follow.

Fry Versus Fingerlings.

Opinions differ as to the superiority of fry or fingerlings for stocking purposes. The expense of rearing fish to fingerling size, and of transporting them at that age, is very considerable. In many hatcheries space is not available for keeping fingerlings, and it is therefore necessary to distribute a large proportion of the annual product before the fish have advanced beyond the fry stage. A very much greater number of fry than of fingerling can be supplied for a given stream. Furthermore, the important instinct of self-preservation is undoubtedly developed better and sooner in fish than are planted at the earlier age. For these reasons many persons consider that the advantages of fry planting outweigh its disadvantages. They believe that more fish will grow to maturity from several thousand fry than from a few hundred fingerlings. The hatcheries of all of the different states and the United States distribute fry, and their experience has demonstrated beyond question that fry planting can be made very effective. The prejudice against fry planting can usually be traced to improper planting methods, or to unsuitable streams. It should not be forgotten that nature herself plants fry exclusively.

Mountain Trout Stream in Winter

Care During Transportation.

The fry and fingerlings of most species are distributed in spring and early summer. The cans containing these young fish are accompanied from the hatcheries by a messenger, who cares for them during the railway journey. The water in the cans must be kept constantly aerated, so that the fish will not suffocate from lack of oxygen. Unless special apparatus is provided, this is done by hand, water being dipped up from the top of the can and allowed to fall back from a height. Such attention is required at least every half hour. The water must also be kept cool, with the use of ice, if necessary. The applicant is notified by telegraph on what train the fish will be shipped. If he does not meet the train, they cannot be delivered, but are carried on by the messenger to the next station where an applicant awaits a shipmnt.

The same car is required during the journey from the railway station to the streams that is given by the messenger on the train. Under no circumstances must the fry or fingerlings be kept in the cans over night without attention. It is necessary to take them directly to their destination and plant them at once. They should be protected as much as possible from jarring while being transported by wagon, to prevent injury to the young fish from being thrown against the sides and bottom of the cans.

Importance of Water Temperature.

Just before actually placing the fish in the water, attention must be given to the temperatures of the water in the can and in the stream. If this vital point is neglected, the entire planting may be for naught, for a difference of only a

In the Early Morning

few degrees between the two waters will kill young fish. A twenty-five cent dairy thermometer will show whatever variation there is. However small the variation may be, the temperatures must be equalized by dipping water from the can into the stream, and from the stream into the can, a little at a time. Another method is to stand the can in the stream, but this takes much longer.

Planting.

When the temperature is right, the can may be emptied. The fish may be dipped out, or carefully poured from the can. In the latter cast, the mouth of the can should be held no more than a few inches above the stream, so that the fry will not be jarred by the impact of the water. The fish should be spread out as much as possible, some being planted in one place, and others a little further away. No more than 500 fingeslings or 2000 fry should be planted per mile in a small stream. The food supply will be in danger of exhaustion in overstocked waters.

Artificial Stream Pools and Side Pools.

One of the very best means that can be adopted for the protection of the fry of stream fish is the building of artificial stream pools. These are formed by dammning up the headwaters of rivulets and little spring creeks. A number of

Trout "Shooting" the Rapids

dams, built of loose rocks, logs or boards, may be advantageously placed a short distance apart on the same stream. They not only insure a good water supply for the young fish in dry seasons, but also prevent them from being swept away by spring freshets. They also largely increase the area in which the natural food supply may grow, and over which the fish may forage for this food. By remaining in these pools near the headwaters, the fry gain security from the larger predaceous fish that lurk downstream. After attaining a suitable size, however, they will of their own accord seek the lower courses. Probably in most

cases the stones or other materials for building the dams may be found on the spot. The structures need not be more than 12 or 15 inches in height. The tops of the dams should be as narrow as possible, and the water should fall over them in at least one place, in order that such fish or trout may leap over the obstruction without difficulty in ascending the stream to spawn in the fall. The beaver dams in the Adirondacks make stream pools on a large scale, and have greatly improved the trout fishing on the streams where they are located.

Side pools may be formed on large streams either by excavating suitable basins near the streams and diverting water through them, or by taking advantage of natural hollows and basins. The inlet from the stream and the outlet of the side pool should be screened to prevent the entrance of fish from the stream, which would prey upon the fry in the side pool. These pools, if sufficinetly large, will provide enough natural food for a considerable number of fry. The fingerlings should be allowed to run into the main stream in the fall. On the headwaters of

He Caught Him

small streams, where large fish are not found, pools of this sort, that will require no screening, can often be made at small expense, and the fry in them will require no attention. Shade can easily be provided on the banks of side pools by the planting of willows and black alders. A few large rocks under which the little fish can hide, and boards supported from the bottom on stones, and weighted down with rocks to prevent floating away, will complete the arrangements.

Receiving and Rearing Stations.

At times it has happened, through the over-production and over-crowding of fry in certain hatcheries, that they have been shipped when the brooks were still icebound or a spring freshet was in full force. In order to tide the fish over until the weather conditions become suitable for planting, several fish and game associations that do planting on a large scale, including those at Rome, Middleville and Sherburne, and at Bennington, Vt., maintain receiving or rearing stations, or both. The receiving stations consist of a series of wooden or galvanized iron troughs, supplied with an abundance of pure running water, and located preferably indoors, where they are shielded from the strong rays of the sun.

The troughs of a receiving station should be regulation hatchery troughs, specifications for which are given in Modern Fish Culture, by Fred Mather. Their good results amply justify the expenses of construction and operation, which are not large. The receiving stations, while designed primarily for emergency use, may be transformed into rear stations to accommodate the young fish until they have reached the fingerling size. Far better than troughs for rearing purposes are large pools with sand or gravel bottoms, and stone, concrete or wooden sides, or sides and bottoms entirely of concrete. Some fish culturists do not favor concrete, believing that its cracks harbor infection. Wood, properly treated with tar, is very satisfactory. Cypress is best, and hemlock is next in order. A high fence of chicken wire, with chicken wire covering the top, will sometimes be necessary to keep out herons and kingfishers. Rearing and receiving stations should be supplied with an abundance of pure, cold running water. Spring water is best, since it is not subject to pollution and flood variation. While the side pools described above can sometimes be made into satisfactory rearing stations for large numbers of fish, they are ordinarily not adapted to the crowding and forcing of a rearing station.

Regular Care Essential.

The station should be so located that regular feeding and attention can be given to the fish. Associations which are now operating rear stations find it convenient to engage someone living nearby as caretaker. Volunteer labor for this purpose is ordinarily not to be advised, as the large number of fish that must be reared in such pools to justify their installation makes regular and responsible attention of much importance. The fish that are confined in rearing stations are subject to any of the diseases and accidents that are liable to occur among hatchery reared fish, and they should accordingly be closely watched. The more the caretaker knows of or can learn about fish culture, the more successful will be the work. In fact successful fish culture is largely a matter of personal efficiency. At the first outbreak of anything that is not understood an expert should be

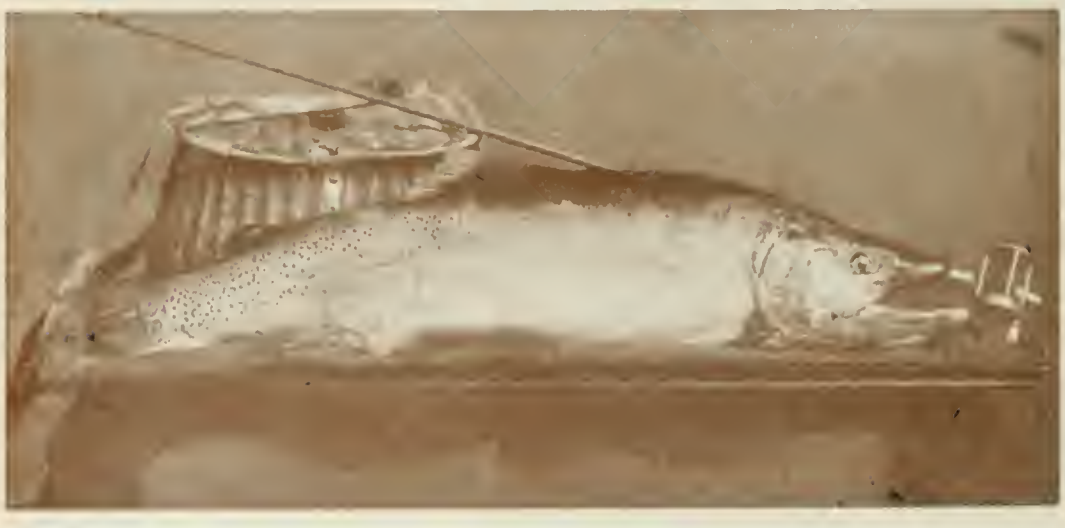
Home of the Rainbow

consulted. The Commission will be glad to render every possible assistance in this direction. Caretakers can learn much by visiting rearing stations already in operation by a number of associations. A trip to a State hatchery, some one of which is easily accessible from any part of the State, is particularly advisable prior to the installation of a rearing station.

While rearing stations are not to be lightly undertaken, the results that they bring in better fishing will justify the labor and expense that they involve.

Pollution of Streams.

All those who are interested in the conservation of the aquatic life of the State realize that pollution of our water courses must be kept at a minimum. There is no more precious gift of Nature than pure water. Yet many of our finest streams, and even some of the lakes, have become practically worthless as fishing waters through the agency of pollution. City sewage, as well as refuse from pulp and lumber mills, dye works, gas plants, dairy plants, metal factories, and various other manufacturing establishments, have long since spoiled the larger rivers. Even small trout streams are not safe from the drainage of cesspools, barnyards, outhouses, kitchen sinks, and garbage heaps. Pollution is an important contributary cause of diseases among fish, so that those which are not driven away at first remain merely to succumb eventually to poison and infection. All waters in which fishing is desired must have their purity safeguarded. It is not exaggeration to say that the greatest menace to fish culture in New York State today is pollution of the waters.



Black Spotted Trout

FISH AND GAME COMMISSION

Survey for Fish Production--Assist Forest People

The State of New York has commenced the task of thorough investigation of its resources for fish production. A Conservation Commission, created for that purpose, commenced work in 1916, with the object of studying the State fishing waters and has recently published a report of much seasonable interest, containing as it does, not only information concerning the streams of Oneida County, in that State, but also many suggestions about the rearing, planting and protection of both fish and streams. Some such investigation should be made in Montana. There are many obstacles to be overcome in a State so large as

A Choice Basketfull

this, but a thorough survey could be made of the principal rivers and streams which could be gradually extended to affluents thereof, and in time could be made to cover remote lakes devoid of fish life. In the investigation of remote streams and lakes the United States Forestry Department could be of much aid, for the rangers go to the most hidden recesses of the mountains, and in many instances have reported bodies of water in very remote places suitable for stocking.

A very complete report has been received by our Commission from District Forester T. A. Fenn, covering all the land locked lakes and many of the unstocked streams found upon the forest reservations of the State which are suitable for fry planting. This detailed report will be found appended hereto, marked Exhibit C.

It is not the present plan of your Commission to try to stock all the lakes named, but rather to reach as soon as possible those most easy of access and later to extend the work to as remote places as may be found advisable with the available fry produced at our hatcheries. To properly stock the large number of streams named or to keep up with demands from the many localities not on Forest reservations will be more than present or contemplated facilities can accomplish. We need more workers, more hatching room in hatcheries, and more eggs to hatch. It should be possible to take a greater supply of native trout

Where the Decoys are Placed

eggs from our own streams, if preparations are made for so doing, but every effort in this direction calls for expenditure of money, and our funds have been inadequate. Other states have pursued the policy of furnishing from its general funds a sufficient amount with which to make permanent improvements; this should be the policy in Montana.

Reports on Streams.

To successfully conduct a survey and furnish the State Fish and Game Commission with the information which would be most useful, individuals who are interested in fishing, or deputy game wardens, could be depended upon for reports.

Fishing in Glacier Park

Information Required.

For the purpose of thoroughly systemizing the work of distribution the commission should have a report of streams showing:

1. Source, length, width, depth and water into which it empties.
2. Character of the bottom.
3. Rate of Flow.
4. Color and transparency of the water.
5. Vegetation in and along the stream and amount of shade provided.
6. Character of the surrounding country — whether timbered or open land and whether the stream is likely to be subject to draught, severe floods, or the inflow of a large amount of sediment from the watershed.
7. Temperature.
8. Headwaters and spring tributaries located as possible planting points.
9. Obstructions to the migration of fish.
10. Points at which pollution occurred and the character, and amount.

11. Presence of pools and side holes as places of shelter for fish.
12. The kinds of fish present.
13. As much local information as possible should be obtained regarding the extent to which a stream is fished and the agencies available for carrying on systematic stocking and development, giving name of clubs or names of reliable individuals who would attend to planting of fry.
14. What part of water is diverted for irrigation.

With such information available your Commission could make a more fair distribution of fry than can now be done, when reliance is placed upon individual applications, with only a fragmentary report upon the waters to be stocked. It would also be possible to, in this way, prevent overstocking streams as well as to avoid planting unsuitable varieties, and also to keep track of results obtained.

Three Best Varieties.

Our experience in planting the Eastern Brook trout, as one instance, convinces us that while this fish in its native haunts flourished best in streams fed by springs and having a rapid flow over gravelly bottoms, when planted in Mountain waters better results are obtained from planting made in lakes,

Libby Creek

sloughs, ponds, or other waters having little flow and often with muddy bottom. Careful observation has convinced your Commission, and we so report that the native, black spotted or cut-throat trout (Salmo Clarki) the grayling (Thymallus) and the rainbow trout (Salmo Iredeus) are the three varieties best suited to our lakes and streams. While it is claimed by some that the rainbow trout is destructive to the other species mentioned it is certain that in most of the streams flowing to the Pacific both the rainbow and black spotted trout are native to the same waters, and we are not yet convinced that the rainbow trout are destructive to the grayling, because of conditions in Madison River.

All efforts to stock the streams flowing to the Pacific with grayling have so far failed. In three lakes, the outlets of which flow to the Pacific, the grayling has flourished, that is, in Georgetown lake, where the growth has been remarkable, in the Little Bitter Root lake, near Kalispell, and in a small land-locked lake on the Clear Water river in Missoula County. In the last named lake the fish planted grew to a good size and were then killed by the freezing of the

lake, causing a lack of oxygen in the water. It may be of interest to state that no planting of grayling in waters containing "Dolly Varden" or bull trout, (Sall velinus Malma) has ever been successful. As the last named species is very cannibalistic, an inference is easily drawn as to the reason for failure.

At present all the efforts of the Commission with respect to grayling are directed to stocking the streams where originally found, the two lakes where the plantings have been successfully made and an occasional experiment in new waters, where it is hoped that they may flourish.

Fish and Game Clubs.

Much assistance is given your Commission by Fish and Game Clubs in all parts of the State, as well as by individuals interested in maintaining present conditions or restoring same to a more desirable one.

Thus, the clubs apply for fry and receive same at the nearest railroad station to the streams to be stocked, return the cans to the railroad, furnish information as to violations of the fish and game law, build up a law abiding spirit in communities, and are instrumental in furnishing valuable information as to streams and lakes, as well as rendering assistance in planting of duck food and in making reports of conditions of game, game birds, and the presence of predatory animals. It should be possible through local clubs to put every nearby stream under local supervision, obtain reports concerning results of plantings at stated intervals and at the same time have on such streams suitable places prepared for the reception of fry whereby the loss will be reduced to a minimum. Such places, preferably in small streams, can be easily made by making a small dam of rock which does not prevent the natural flow of the stream but only retards it, so that a pool is formed where food will accumulate from the flow above.

We strongly urge the formation of clubs and that they keep a record of the plantings made, the stream in which and the time when made so that this information may be later available for purposes of comparison.

Irrigation Ditches.

It has been known for many years that irrigating ditches destroy many fish. No method for preventing this destruction has been found which is inexpensive and which involves little trouble. The Utah screen, devised for this purpose, was

Near Belt, on the Great Northern

investigated in 1916 by members of your Commission. The device consists of a devolving wheel which fills the whole intake of a ditch and by mechanical means is caused to revolve in such a way as to become self-changing. The last session of the Legislative Assembly placed at the disposal of the Commission the sum of $500 for the purchase of such wheels as an experiment, but when an effort was later made to obtain the wheels from the makers, we were not able to obtain them. The result is that no wheels have been installed, the appropriation has not been used and destruction of trout in ditches continues, for owners of irrigation ditches can not be pursuaded to protect the intake because of the trouble and expense attendant upon the installation and cleaning of screens. In some streams, where the water is all taken for irrigation we believe that the destruction of fish is more than can be replaced by plantings, hence we have declined to restock unless steps are taken to prevent this loss.

Dams and Obstructions.

The industrial growth of Montana, the development of its resources, has resulted in the building of dams in many streams and rivers. The law now requires a fish ladder or fish way to be installed at all such places, suitable for allowing the migrating fish to go over the dam so that they follow their natural impulse to spawn in the upper reaches of the river or small streams affluent thereto. Many years observation of the results following the building of dams fails to convince that such obstructions to streams are always detrimental. As an example the dam in the Bighole river at Divide may be cited as an example. The dam is a high one, a fish-way has always been maintained there, but no fish have been observed to pass through it, altho at the foot of the dam each year, in the spawning season, many spawning fish assemble, some are caught, many go down river, evidently to spawn in side streams or in suitable places or lower down the stream. We are reliably informed that the number of fish in the river both above and below the dam is greater now than before the dam was built. It is possible that the building of a dam which creates a large lake furnishes to the fish a winter refuge which is availed of and that in this way a dam may become a help, rather than a hinderance to fish life. Many fishermen who witness the frantic efforts of spawning fish to pass a dam or obstruction jump at the conclusion that unless the struggling fish reaches the upper waters of the river to spawn that its natural increase is lost. This need not be true, because if the river itself has suitable spawning grounds, or if tributary streams have like waters and suitable bottom conditions the fish will more than likely seek such places for spawning. The fish which take advantage of the lake or pond created by the dam for a winter refuge are likely to go to upper reaches of the river or to side streams for a like purpose, so that nothing is lost, and perhaps something gained.

It would be useless to require dams or fish ladders in streams where there are no migrations of fish, so that the whole question may well be left to be dealt with by the Commission as occasion may arise.

FISH AND GAME COMMISSION

Stocking the Streams--Results to be Achieved

The task of keeping the streams of Montana adequately stocked is a very difficult one, because of the number of streams to be stocked, the long distances to be traveled in distributing the fry, and the amount of fishing done, so that per force your Commission must do its best to stock streams where the most fishing is done and where the depletion is most evident, and usually near centers of population.

To make the work of the Commission entirely satisfactory, the following results should be achieved:

1. Each available, nearby and much fished stream should be stocked every year with a sufficient number of fry so that the numbers therein should not appreciably lesson. It should be born in mind that there are more fishermen, more fishing and a greater demand for fish for food than ever.

Glacier Park Scene

2. That this result can only be brought about by a careful study of each stream in each county, with a knowledge of its condition, the demands made thereon and then stocking the stream at the proper time with the kind of fry most suitable, using care in making the plantings at the proper places, and according to instructions which will be cheerfully furnished by the Commission.

3. The enforcement of the law with reference to the limit allowed of 25 pounds for a day's catch and the prevention of the use of nets, traps, or explosives for the taking of fish.

We can not too strongly urge upon the people the necessity for a law, found in nearby States, where hatcheries are maintained, which will prevent the taking of game fish during the spawning season.

If fishing could be generally prevented during the months of April and May of each year many millions of eggs would be deposited in the streams much to the advantage of fishermen later and in later years. The taking of spawning fish, coupled with the destruction of mature fish in irrigation ditches, when the water is turned off makes the stocking of some streams almost impossible.

Sale of Coarse Fish.

During the Fall of 1917 and the Winter of 1918, the demand for a cheap food as compared with beef or pork induced the adoption of means to provide for the taking and sale of coarse or non-game fish. To this end arrangements were made for using nets in Lake Bowdoin for the taking of Carp and their sale in Montana at a limited price. In this way many hundreds of pounds of cheap and wholesome food was furnished the people. While no revenue to the State was derived from this arrangement the cheap food supplied was an item, worthy of consideration, besides demonstrating that there is at hand another source from which food may be obtained in appreciable quantities.

White Fish.

For over ten years, efforts have been made to plant the Lake Superior White Fish, (Coregonus Clupeiformis) in the larger lakes of the State. While many millions of fry have been placed in the lakes, particularly in Flathead Lake, we have no proof that they have survived. In any event, while the named variety is plentiful in the St. Marys Lakes, none have been found or caught on the Western slope. Some change should be made in the law to allow the seining and marketing of these fish, safeguarding the game fishes in the meantime by proper restrictions. In the same manner the Rocky Mountain White Fish (Coregonus Williamsoni) which while smaller is almost as palatable, should be by law allowed to be caught and placed upon the market. In 1916, we took over two

million eggs of the last named variety which were successfully hatched in the Somers hatchery and planted in the streams and lakes near by. In as much as this fish spawns in the fall months there is room to handle the eggs when no other variety except Eastern Brook trout is available. In 1917 the effort to procure the eggs proved a partial failure as few fish came to the stream (The Big Fork) to spawn, this showing a rather erratic tendency in spawning migration. We shall continue efforts in this direction with the hope of good results. Most of the streams both East and West of the range are well stocked with this variety, but owing to the fact that it possesses scales, is not so attractive exteriorly and as it has not quite so game a quality as the trout, it is less esteemed.

Flathead River

Notwithstanding its small mouth it takes both the fly and spoon hook readily and makes a good fight when hooked. It should hold a higher place in the estimation of people both as a food and a game fish.

Eggtaking and Eyeing Stations.

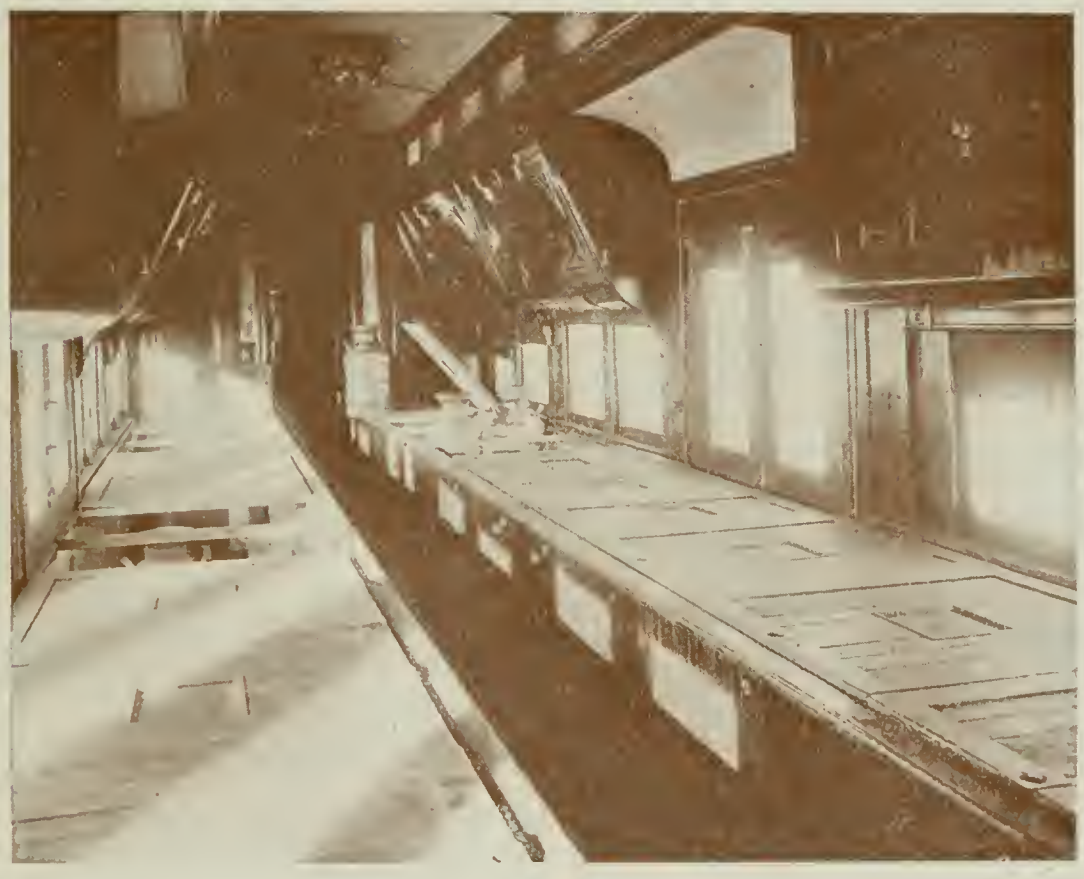
It has been found advisable during the past three years to establish stations in favorable places along streams and at point on lakes where the inlets afford spawning grounds for fish, to build stations where eggs can be obtained for hatching. While it is possible and often imperative, in order to keep the hatcheries in full operation, to buy eggs still the policy adopted which is to avail ourselves of all possible natural available supplies of eggs seems the wise one. For this reason we have provided stations of a more or less substantial character at Georgetown Lake, at Lake Ronan and at Little Bitter Root and at Georgetown we have also erected eyeing stations because in this way a greater per-

centage of eggs are saved than by taking them in a fresh, uneyed state direct to the hatcheries. We hope in time to be able to supply the hatcheries entirely from our own traps and stations, for in this way we obtain eggs from wild fish which are stronger and better than those obtained from brood fish held in ponds, and that is the kind of eggs usually obtained when they are purchased. The cost of taking eggs from our own traps is usually as much as when they are bought, but the quality of eggs is better and the resulting fry stronger. From the eggs taken from fish in our own traps we estimate that there is an output of fry to the extent of more than 90 per cent.

Planting Fry

Hatcheries of the State--Work That Is Being Done

The hatcheries are now in first class condition, those at Anaconda and Somers being supplied with concrete hatching troughs, which are more satisfactory than the wooden ones formerly installed. The buildings at both hatcheries are in good condition as repairs are made as needed thus saving from deterioration the very creditable structures there erected. We have required employes, where other duties



Fish Car Interior

did not not prevent, to devote any spare time they may have to care of grounds and buildings as well as improvements of water supply and stock ponds. The water supply at Anaconda is very satisfactory since steps have been taken to prevent water algar and moss as well as other minute water vegetation from entering the troughs; but at Somers there was some trouble experienced with a flow of sand and mica as well as from the water becoming too warm because it flows too great a distance from the source in a spring to the hatchery without adequate shade. This has now been remedied. Arrangements have now been made to convey the water in pipes buried a sufficient depth to maintain the same uniform temperature which is found at the source. The owner of the adjoining land has caused some trouble by claiming ownership of the water and by failing to use proper care in driving stock across the open part of the water course above the intake thus causing mud and sand to flow into the hatching troughs. The danger of smothering eggs on the trays has been avoided by constant vigilance, but if conditions do not change, if the water cannot be kept cool and free from sediment with the precautions now being taken or if the annoyance and detrimental conditions can not be prevented by law, it would be best to move the plant to some other site where better conditions

Far from the Haunts of Men

would be found. There is no immediate call for action in this regard but rather a condition to be kept in mind so that if the necessity for action arises we may be in a position to act at once. The output of the hatchery is satisfactory, the location is such that many eggs of native trout are available from streams not too remote for practical purposes, but the work of the State should not be hampered by petty annoyances or wilful interference.

For Ultimate Economy.

During the years 1916, 1917 and 1918, considerable money has been spent in building egg-taking stations and traps. This is a movement in the direction of ultimate economy, for the money heretofore spent in the purchase of eyed eggs will, in part be saved, and in time we will be able to procure all eggs necessary from our own waters. This condition is in the main true now, so far as native trout (native

White Fish and Grayling) eggs are concerned, but the introduced species such as Rainbow trout are not yet found in sufficient numbers to afford a supply. The only available station for taking eggs from Rainbow trout is at Willow Creek on the Madison River. At this point the United States Government has installed a plant and annually takes the eggs from all available fish, not only Rainbow but Grayling and native trout eggs. By an agreement with the Superintendent of the United States hatchery at Bozeman, the State is given a part of the eggs taken at this point, in return for which the State furnishes a man to patrole the waters adjacent to the station to prevent poaching.

Anaconda Hatchery.

The traps previously installed on North Flint Creek, tributary to Georgetown Lake, located twenty miles west of Anaconda, were badly damaged by flood waters during the month of June, 1918. The Commission was obliged to replace them, as these traps supply the State hatcheries with something over six million grayling fry each year.

The new traps were installed by Mr. Barney Steele, the present foreman of the Anaconda hatchery. They are 80 feet long, 16 feet wide, and the side and walls, 4 feet high; well bedded in the ground and protected by large quantities of good sized boulders against the flood waters. The traps are divided into eight compartments, four on either side of the main alley running the length of the trap. These compartments are usually designated as "live boxes."

Georgetown Lake is a beautiful artificial body of water, approximately twenty miles of uneven shore line, and is fed by the North Fork of Flint Creek and Stewart Mill Creek, with an occasional overflow from Silver Lake, a magnificent body of water situated some six miles east of Georgetown Lake, on the head waters of Warm Spring Creek. Flint Creek flows to the Southwest and enters the lake on the North boundary line. Stewart Mill Creek flows North and enters the lake on the South boundary.

At the confluence of Stewart Mill Creek with the waters of Georgetown Lake, there is installed traps, from which are taken Rainbow and native trout eggs during the spring months, and brook trout eggs during the fall months. The Mill Creek station eggs are eyed at the eyeing station located on a large spring at the source of the creek approximately one-half mile south of the spawning traps.

Flows to Pacific.

Georgetown Lake is one of two lakes in Montana whose waters flow to the Pacific, the other being Little Bitter Root Lake, located twenty-five miles west of Kalispell in Flathead County, they being the only waters tributary to the Pacific Ocean that Grayling have ever been successfully propagated in.

The quantity of fish of the different species taken from Georgetown Lake during the year would undoubtedly total many tons. As it is tributary to Anaconda, Butte and Phillipsburg and accessible by splendid auto roads, the sportsmen from all sections of the State make it a point, some time during the fishing season, to visit Georgetown Lake. On many Sundays during the summer months 150 to 200 autos may be counted parked about the lake. These cars will undoubtedly average not less than four people to the car, all, or nearly all, busily engaged in catching trout and Grayling.

There is planted each year by the Commission in the waters of Georgetown a great many thousand fry, as it is quite necessary to protect and keep up the spawning grounds for the benefit of the fishermen.

At the present writing we have in the Anaconda hatcheries about one million brook trout eggs that have been taken at the Mill Creek station on Georgetown Lake, and will be ready for distribution in the spring months of 1919.

Native Cut Throat Trout

To Control the Poachers--Law Now Inadequate

The present law with respect to poaching within the authorized restricted boundaries, not more than one mile in length along the banks of lakes and streams, is not adequate to afford complete protection to the egg-taking stations. The law should forbid the catching of fish entirely during the spawning months and this would save millions of eggs from destruction by the catching of spawning fish. Such a law would place a greater burden upon the office of the State Game Warden, but the task of patrolling the streams could be accomplished, especially with the aid of local fish and game clubs, and the officers of the United States Forestry Department. Ultimately by the creation of a favorable public sentiment the law would become almost self executing, especially if the beneficial results anticipated should be shown by experience.

Game Warden's Office.

Since the State Game Warden became the Secretary of this Commission there is closer touch with the activities of his office. Many grave questions arise, and serious situations presented. Notwithstanding constant watchfulness and activity on the part of deputies and a watchful care over all parts of the State to prevent violations of the law there are many arrests. Attached hereto marked "Exhibit C"

Eastern Brook

is an itemized list of arrests and convictions, during the past two years, showing the amounts collected in fines and other particulars with reference to the activities of the office. The Legislative Assembly at the Fifteenth session increased the resident fishing and hunting license from $1.00 to $1.50. Under the old law persons who undertook the sale of such licenses were allowed a fee of ten cents for so doing. Under the present law no such compensation is allowed, hence some trouble has been found in securing agencies through which sales can be made. The deputy game wardens, and in some cases county officers attend to this matter, but the

deputy game wardens are so often in the field attending to their duties that they are not present to supply the license when it is necessary. The sales of licenses have been quite up to expectation and the revenue derived therefrom as much as anticipated. The amount demanded for non-resident licenses is so great that not many are sold.

Violations by Non-Residents.

While it is believed that local hunters and fishermen residing outside the State, along the west and south boundaries of the State, frequent Montana territory to fish and hunt, the long boundary line prevents an adequate patrol and no remedy can be suggested to correct the evil.

There are doubtless infractions of the game law in remote and sparcely settled sections of the State, but all reports of such are carefully investigated and if sufficient proof obtained offenders are prosecuted.

No sufficient data is obtainable to show the effect of the restriction placed by the last Legislative Assembly upon the killing of one deer by each hunter in a season. The tabulated statement appended will show the number of prosecutions for killing deer and elk contrary to law. The truth of the matter is that wolves and coyotes destroy more deer than are bagged by hunters. The bounty offered by the State is enough for the killing of these animals, and when coupled with the present value of a hide should induce those skilled in the art to engage in the work as a business. No suggestion has been made for the adoption of other methods or greater rewards to bring about greater destruction of these pests which annually collect a large toll in the destruction of live stock as well as game birds and animals.

After a Day's Shooting

Propagating Game Birds--Individual Co-operation

The last Legislative Assembly directed that one-third of the amount collected for licenses should be used in propagating game birds and encouraging their increase.

The only practical way so far found for doing this work is to interest individuals so situated that they can breed the birds and when mature turn them into the fields and furnish enough foods of the approved varieties to local clubs for planting. Steps have been taken in both of the directions indicated, but it is too soon to report results. The work in this direction will be limited because of trouble in finding persons willing to undertake the work of rearing birds in the one case, and in procuring the planting of duck food in the other. There

Found in the Timber

would be little doubt of obtaining favorable results could a sufficient amount of work be done in this direction. In all instances where efforts have been made to obtain persons to hatch eggs of wild birds supplied by the state pay has been demanded and given. There has been no offers of voluntary service from any direction and if the policy of increasing the number of game birds is to be adopted permanently then a game bird farm should be bought, equipped and operated under the authority of the State. This course has been adopted with marked success in some of the Eastern States and may be a wise policy for Montana, for it is generally admitted that game birds are rapidly decreasing in numbers, and that state propagation is the only effective way to remedy the shortage. No provisions are now made by law for the establishment of a State game farm, although such a move has been discussed from time to time at meetings of the Game and Fish Commission, and the conclusion may be that the cost would be so great that the plan would not meet with the approval of the Legislative Assembly.

Where Wild Game Abounds

Distribution of Quail and Pheasants.

During the fall and winter of 1917-18 your Commission has planted approximately thirty-one dozen Gamble Quail, and two dozen pair Ring Necked Pheasants throughout the State. These were widely distributed with the view of determining the location best suited to the propagation of this variety of game birds. These birds were placed on ranches where they were well provided with natural shelter and in close proximity to grain stocks in order that they might secure an abundance of food during cold weather.

2	dozen	to Sid Willis	Collins
5	dozen	to Thos. Marlow	Missoula
5	dozen	to T. A. Berkin	Roundup
2	dozen	to Wm. Harker	Billings
2	dozen	to Thos. Evans	Thompson Falls
2	dozen	to Andy Rosman,	Townsend
2	dozen	to Nelson Story, Jr.	Bozeman
1	dozen	to S. O'N. C. Brady	Livingston
2	dozen	to Wm. P. Sullivan	Square Butte
2	dozen	to Lowe Brothers	Glendive
2	dozen	to Geo. Mushbach	Red Lodge
2	dozen	to Al Truscott	Miles City

The above birds are of the Gamble variety and in addition two dozen pair of Ring Necked Pheasants were planted in Flathead and Lincoln Counties. Excellent results were obtained from the dozen birds sent to Flathead County. From four hens 150 birds were raised to maturity and with little effort. Successful breeders of poultry can raise these birds in numbers, the Ring Neck Preasant is a very hardy bird and will doubtless succeed in many parts of Montana. It is an excellent article of food.

Summer Home of the Elk

Habitat of the Mountain Goat

FISH AND GAME COMMISSION

Federal Migratory Bird Treaty Act

Under the law of the United States the shooting of birds is prohibited from sunset to half an hour before sunrise.

The Federal migratory bird treaty act regulations prohibit throughout the United States the killing at any time of the following birds:

Band-tailed pigeon; common ground doves and scaled doves; little brown, sandhill, and whooping cranes; wood duck, swans; curlews, willet, upland plover, and all shore birds (except the black-bellied and golden plovers, Wilson snipe or jacksnipe, woodcock, and the greater and lesser yellowlegs); bobolinks, catbirds, chickadees, cuckoos, flickers, flycatchers, grosbeaks, hummingbirds, kinglets, martins, meadowlarks, nighthawks or bull-bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, waxwings, whip-poor-wills, woodpeckers, and wrens, and all other perching birds which feed entirely or chiefly on insects; and also auks, auklets, bitterns, fulmars, gannets, grebes, guillemots, gulls, herons, jaegers, loons, murres, petrels, puffins, shearwaters, and terns.

Under the Federal migratory bird treaty act the sale of all migration game birds is prohibited throughout the United States, except for scientific or propagating purposes, or of waterfowl raised on farms or preserves under proper permit from the Secretary of Agriculture.

Where Nature Rules Supreme

Watching for the Enemy

Alien Gun Law--Montana Alien Gun Law as It Applies to Crees

(Opinion of Attorney-General Ford.)

The indiscriminate slaughter of young birds and ducks and the robbing of the nests of shore birds in the vicinity of the Little Rocky Mountains, in Phillips County, led State Game Warden DeHart to propound the following query to Attorney-General Ford:

> "In order that we may be fully advised and that we may not exceed our authority, we want to ask you if, in your judgment, the Cree Indian (who is considered by the United States Government to be an alien, and classed as a ward of the Canadian Government), would not come under the Alien Gun Law, and be entitled to the same treatment as other aliens in so far as being entitled to have in his possession fire arms?

In reply Mr. Ford advised the Game Warden as follows:

"The Alien Gun Law, Chapter 38, Session Laws of 1913, requires every alien, in order to be entitled to have in his possession any gun, pistol, or other firearm, to pay a gun license of $25.00, provided, however, that no such license shall be

This Collie Has Been a Devoted Step-Mother

required of any alien who shall be the holder of the $25.00 fish and game license required by law. The $25.00 fish and game license referred to in this act was the license required by Section 1976, Revised Codes, as amended by Section 2 of Chapter 130, 1909 Session Laws, to be procured by an alien desiring to fish and hunt. By subdivision 4 of Chapter 1 of Chapter 173, 1917 Session Laws, a class 'D' license must be procured by an alien in order to hunt and fish, the fee therefor being $50.00. This latter act in express terms repeals Chapter 130, 1909 Session Laws, so that the license fee for the general hunting and fishing license required of an alien is now $50.00 instead of $25.00. The result is that no gun license is required of an alien who holds a class 'D' license issued in accordance with the provisions of subdivision 4 of Section 1 of Chapter 173, Session Laws of 1917, but an alien who does not hold such class 'D' license must procure the gun license required by Chapter 38, 1909 Session Laws, before he can lawfully have possession of any gun, pistol or other firearm.

Status of the Cree.

"A Cree Indian is a ward of the Canadian Government and an alien and should be treated exactly the same as any other alien. If such an Indian is the holder of a class 'D' hunting and fishing license he is entitled to the possession of a gun, pistol or other firearm without having the license provided for in Chapter 38, 1909 Session Laws, but if he is not the holder of such class 'D' license, then, before he can lawfully have possession of any gun, pistol or other firearm, he must procure the gun license required by said Chapter 38, Session Laws of 1909.

"You should not, however, overlook the fact that a Cree Indian, as an alien, is entitled, upon the payment of the proper fee therefor, to a class 'B' license provided for by Section 1 of Chapter 173, Session Laws of 1917, which will permit him to take fish, but not to hunt game."

FISH AND GAME COMMISSION

Plans for the Future--Survey of Streams

The plan for future usefulness which are now in contemplation by your Commission are:

1. To perfect a survey of the State and list all lakes, streams, and rivers, tabulate them so that the kinds of fish therein, the character of water, sources of pollution, if any, quantity of fry planted and when, together with results may be at all times available.

2. To prepare and send out instructions for the planting of fry, to all fish and game clubs, and to all interested individuals asking therefor.

3. To stimulate an interest in the establishment of breeding or temporary holding ponds to care for fry at different distributing points while awaiting permanent planting in lakes and streams.

4. To arrange for the purchase and hatching of the eggs of such game birds as may be suitable to the climate.

5. By all reasonable means to inspire a respect for the law and to arouse a spirit of true sportsmanship.

In some respects at least there is abundant evidence of the success of the work carried on by the Commission. While no estimate can be made or judgment formed as to the effect of planting the native trout in streams already containing them, we do know that in many lakes, and in some streams which formerly contained none of these fish there are now plenty of them. So far as the introduction of new species is concerned we have ample evidences of marked success.

The Rainbow trout in the Madison River, and Georgetown Lake, are examples of the growth of a new species which give us much encouragement. Many cases of a less marked character could be cited.

In the Fall of 1916 we purchased one million eyed eggs of the Chinook and Quannat salmon from the State of Oregon which were hatched, one-half at Somers and the other half at Anaconda.

This was an experiment made because of reports of success following a like move in other localities. The eggs were successfully hatched and the resulting fry planted in various lakes and streams with small loss. While we have not heard from many of the plantings made the reports which have been received are favorable. For instance, we planted the fry in lakes on the Clearwater River in Missoula County on April 12th, 1917. On July 6th, 1918, quite a number were caught ranging in length from thirteen to sixteen inches and in weight from a pound to a pound and a quarter. While it is known that the species will not reproduce when confined to fresh water, that reproduction only follows a stay in salt water, if the results above stated are found to be in any way general the plan of rearing and planting fry should be followed, Montana waters probably contain many thousand pounds of this desirable food fish, if the fry planted in Flathead Lake alone should thrive, not only would the problem of making this large body of water a producer of much food, but it would direct our energies properly in the future in our efforts to stock this and other large lakes with a proper variety.

Mr. R. E. Clanton, the Master Fish Warden of Oregon, under date of July 11, 1918, writes:

"We have had considerable experience in planting Chinook Salmon in our lakes close to Portland. For the first two years there were no apparent results, last year being the first that was taken—and they are now very plentiful. We are arranging to put in from 100,000 to 150,000 fry in this lake annually."

Salmon in Flathead.

The following report submitted by Major M. D. Baldwin concerning the salmon planted in or near Flathead Lake, may be of interest:

REPORT OF THE MONTANA

About twenty months ago some six hundred thousand eyed eggs of the finest and best fish known to the waters of the Pacific ocean, viz., the Quinnat or Chinook salmon, were obtained by the Montana Game and Fish Commission, through the instrumentality of Hon. W. M. Bickford, member of this Commission, and were hatched at the State fish hatchery near Somers, and thereafter planted in a number of the lakes of Flathead County. This is the first effort to propagate this species of fish in Flathead waters and the result has been very gratifying, and such as to encourage the further propagation of this splendid salt water fish in our fresh water lakes.

Anglers have been catching the King salmon in several of these lakes, notably in Flathead, Ronan, Rogers, Foy and Bitter Root Lakes, in goodly numbers, and of remarkable size considering the short time since they were planted, their weight ranging from two to four pounds. It is a game fish and affords rare sport. This fish in its native waters has attained a weight of one hundred pounds, but averaging as caught in the Columbia River about twenty pounds. We may reasonably look for this fish to attain a large size in our fresh waters and it may yet prove the commercial fish desired for the wants of the people of Montana.

Elk in Sun River Game Preserve

Whether it will propagate itself here remains to be ascertained; but if so it will prove a valuable asset. If but one-third of the fish planted in our waters survive, i. e., two hundred thousand, we should now have at least five hundred thousand pounds of this fish, worth at least twenty cents per pound, and the salt water fish of this specie sells in our markets at thirty cents per pound.

A number of our local anglers have caught several of these fish and pronounce them of fine quality and flavor.

The several varieties of our fish that have been introduced and planted in our waters have taken kindly thereto and found a congenial home therein, especially the Eastern Brook, and Rainbow trout, as well as the small mouth Black Bass and Grayling; and now we have the King salmon. We have hopes that the large White Fish will materialize as they have been planted in large numbers, but this is not a game fish and can only be taken with nets and seines.

When to Plant.

The cost of eyed eggs is now one dollar per thousand, and while to keep either lakes or streams stocked with this fish it will require the purchase and hatching of eggs annually, it is a serious question as to whether the fry should be planted in streams or not. To get first hand information we have corresponded with the authorities in other states where the Chinook salmon has been tried but the reports are conflicting as to results. All of the persons addressed agree that plantings should only be made in lakes,—land-locked if possible—and not in streams or rivers,

Under date of August 6, 1918, Hon. John W. Titcomb, State Fish Culturist of New York, writes:

"On general principles, I have been opposed to introducing into our New York and New England lakes a species of fish which cannot be depended upon to reproduce naturally. In other words, it seems to be a waste of good material to depend upon public funds entirely to stock lakes with fish without expecting nature to aid in continuing the reproductive feature which keeps up the fishing.

"Both the Chinook and Silver salmon grow very rapidly in our inland lakes. I should not expect that they would give you any results whatever in the streams of Montana, and I should select only very large lakes in which to introduce them, even if you do not expect them to reproduce. I would not advise planting them in any lakes where there are native trout, if you wish to continue to maintain good fishing for the trout; the salmon being of much larger growth will, of course, be very destructive to the trout, and, unless the lakes are of large area, they will clean up everything in a few years and then not have sufficient food to maintain themselves in quantities."

Hon. Geo. H. Graham, of Massachusetts, under of August 24, 1918, writes:

"You will never have any success with any kind of salmon unless they are held in the lakes and not allowed to run down stream. If the lakes have outlets you must provide a screen. The Atlantic salmon are very destructive to trout but I know of no place where the Chinook salmon have destroyed trout.

"They grow much faster than the Atlantic salmon and are easier to raise. If you have suitable waters, with lots of smelt in them and will hold these salmon until they are 3 to 5 inches long before liberating them I am sure that you will have success.

Our Limit of Blacktail

"Some people advise against these fish, acting on prejudice and not on knowledge. They advise you to introduce the Atlantic salmon when they know you will be unable to get the eggs. All through the State of Maine the people know that where the Atlantic salmon has been introduced the trout have disappeared while they have had no experience with the Chinook.

"It is predicted that when the Chinook was introduced into Lake Sunapee, N. H., that he would destroy the Sunapee trout which is a deep water trout and feed on the bottom during the summer, but this was not the case. More Aureolus-Sunapee trout have been caught this year than ever before."

Other letters received show a remarkable growth of this fish, some of them weighing as much as twenty pounds, but at what age it is not stated. Hon. R. E. Clanton, Master Fish Warden of Oregon, reports favorable results from plantings made in a lake near Portland and that other plantings will be made in the future.

From the information thus obtained we submit that eggs of the Chinook salmon should be purchased to the extent of a half million each year;—that the fry should be planted in land-locked lakes where they very few or no trout; that the plantings be continued from year to year in all places where satisfactory results are obtained; that no plantings should be made in streams, and that full reports be made as to results.

The effect of plantings made in 1917 will not be fully known until 1919, but for the winter work of the year 1918-1919 there should be procured at least a sufficient number of eggs to continue plantings in all places where it is now known that they have been successful.

Montana Moose at Home

Protecting the Bear

By James A. Macguire, Editor Outdoor Llfe

There is and has been a growing sentiment among many sportsmen for several years that bears should be considered game animals, and protected under the laws of all states. Many of the states have adopted this view of the matter, and afford protection to these animals. Some of the leading sportsmen's Associations of the United States have made a vigorous campaign along these lines, and are largely responsible for the enactment of laws affording protection to this usually homeless family.

Montana is probably the home of as many, if not more bears than any state in the Union, and to date they may be hunted, trapped and murdered during every month of the year. They are only protected by their habits of annual hibernation, and if, by chance, their dens are discovered during this period, they are dispatched while in a helpless condition.

Aside from the fact, that I believe bears are entitled to protection, I also believe that such protection from trappers, will largely aid in the protection of other game animals, such as deer and elk, for many professional bear trappers have no scruples against shooting deer or elk in the spring time to use as bear bait for traps.

Sun Rivei Game Preserve

Aside from the steel traps and deadfalls used for the capture of bear, there is a practice in vogue in Western Montana, that is even more brutal and revolting than permitting these animals to suffer hours and, perhaps, days, after having a heavy steel trap clamped on one foot, shutting off all circulation of blood in that portion of the limb, below the clamps and causing untold agony to the captured beast, and that is, the practice of using ten gallon casks, in which sharpened spikes have been driven in a slanting direction through the sides of the cask at the upper or opened end, and alluring bear bait attached to the closed end, on the inside of the cask. These are placed in localities that bear frequent,

and when discovered by the bear, his natural curiosity aided by hunger will impel him to thrust his head in the cask to investigate. The sharpened spikes do the rest, and the poor creature is blindfolded and muzzled, until his misery is ended by a shot from the brave (?) trapper.

Bear of all varieties, except silver tips or grizzlies are shy of mankind, and only under the most severe strain, will they attack hunters.

Black bear and brown bear will keep out of sight of mankind, and it is only by accident or design of the most skilful hunters that man approaches within shooting distance of these animals.

Their flesh is usually edible. The fur is valuable, but principally so in the late spring. They are not usually predatory, except in few instances, where individual species will acquire the habit of killing hogs or possibly sheep, and the latter habit is often acquired by our highly prized members of the domestic canine family.

In short, bruin has all the elusive shy traits that call for the best efforts of the hunter to attain a true sportsman's ambition, in a free for all game of animal cunning against the hunter's skill. The flesh is much prized and the hide is a desirable trophy. Then why not protect this truly game animal against the unfair, cruel treatment he has received from trappers and pot hunters for years?

Getting His Dinner

Big Game Season

By D. H. Werforn, Anaconda, Montana

The present season on big game—elk and deer—from October 1st to December 15th is too long, and extends to too late a date. This has been the law for two years last past, and if continued is a serious menace to both varieties of big game, and will result in the extermination of elk within a few years, and the countless number of deer in various sections of the State, will rapidly disappear, but on account of the greater numbers will continue to exist for a longer period than the elk.

This extension of season was enacted by the Legislative Session of 1915, and at the urgent behest of a member from one of the counties adjacent to the Yellowstone National Park, where elk hunting is not indulged in as a sport only, but as a source of supply of winter meat for local ranchers, and frequently as a

Nine Days Outing on Beavercreek

source of supply of meat for all the year, as the elk killed by the hired hands and sons of the families of farmers, are placed in a pickling solution, and used as corned meat during the harvesting and threshing season of the following year, after they are killed.

The mild seasons that preceded 1915 for two or three years were unusual, as a severe storm generally occurs during the month of November, which causes the herds of elk to leave the National Park in large numbers. Many of these naturally fall under the bullets of the hordes of hunters, who are assembled from far and near, awaiting the annual exodus. When the storm occurs in the early part of November, as it did this year, the word is spread throughout the State, and even far beyond our borders, with the result that many hunters, hearing the conditions around Gardiner or on the Upper Gallatin River, will rush to the hunting grounds, and three or four times the usual numbers of elk will be killed,

A Summer Home, Deep Creek, Broadwater County

Vote for Double Barrel--Pump Gun Out of Date

and it is the writer's prediction that if the present late season is continued, there will occur a slaughter in one season of the future, that will forever bring the blush of shame to the cheek of every sportsman in Montana, who has not consistently and continually opposed December hunting.

What has been said concerning elk is equally applicable to deer, as an early storm brings them to the lower foothills, from the high mountains, and when deep snow prevents a return to the more secure regions of the higher crags, the helpless deer are hunted for two weeks longer than they should be. They fall

A Cruel System

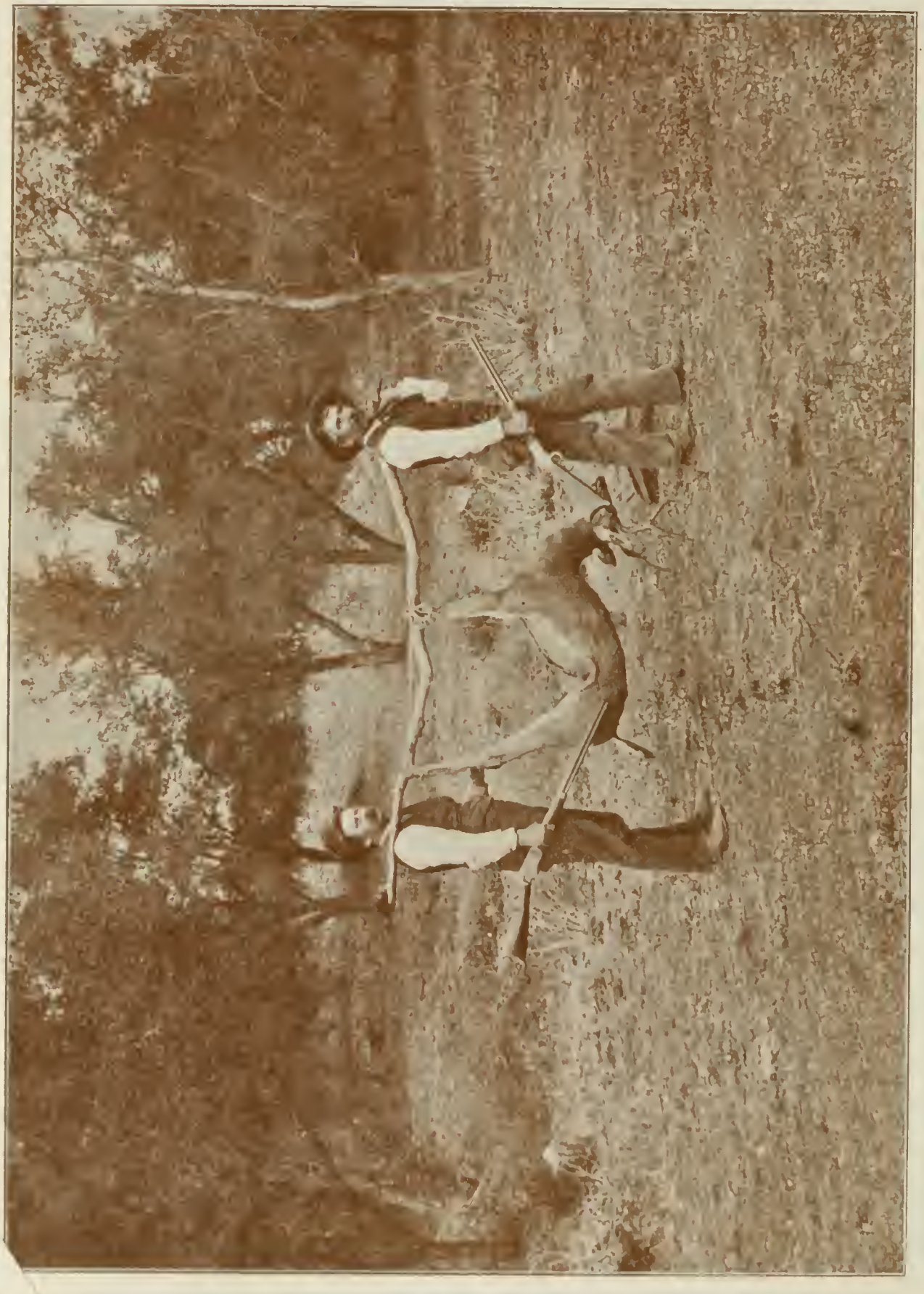
in multitudes under the ruthless onslaught of hunters armed with high power rifles. This is not alone the opinion of the writer, but the expression of hundreds of sportsmen who have spoken to me concerning this matter, during the past two open seasons.

In 1911, when the open season on deer closed December 1st, on account of an early storm, the deer were slain by the thousands—an estimate based on careful reports from each warden's district in the State, placing the number at 15,000. In the vicinity of Whitefish in Flathead County, 3,500 were killed during the last fifteen days of November of that year.

Are not these facts sufficiently alarming to warrant the Montana Legislature in closing the season at least as early as November 30th of each year?

Mr. Vernon Bailey, a member of the United States Biological Bureau, has carefully compiled statistics from data laboriously obtained by actual count of the number of elk in Yellowstone Park, during the season of 1915-1916. His contention is that over thirty per cent of the elk exist there now, that did five or six years ago.

Upon a report to the Biological Department of the conditions, which Mr. Bailey found to exist, concerning the depleted number of elk in the Yellowstone National Park, this department is in receipt of a letter from Dr. H. W. Henshaw, Chief of the Biological Bureau, calling attention to the result of Mr. Bailey's investigations, and urging the necessity of more stringent regulations, to protect this variety of game, in the immediate future. In fact Dr. Henshaw expressed the fear, that the entire Gallatin herd of elk may be wiped out during the season of 1916.



Taking Home the Spoils

Chinook or Blue Back Salmon--New Species in Ronan Lake

In November, 1916, the Fish and Game Commission obtained over a million eyed eggs of the Chinook salmon from Bonneville, Oregon, for hatching in the hatcheries of Montana, one-half of these being sent to each hatchery; the fry obtained being planted in the spring of 1917 in lakes most accessible from the point of hatching.

In November, 1918, while taking the Eastern Brook trout in Ronan Lake with a net, in order to obtain eggs for hatching purposes, fish strange to the waters were found. Major W. D. Baldwin of the Commission at once pronounced the sample shown him Blueback salmon. As there remained some doubt in the minds of members, owing to the fact that none of this species had ever been planted, samples were sent to Hon. R. E. Clanton, Master Fish Warden of Oregon, for purposes of identification. His reply to the letter of inquiry about the fish caught and submitted is as follows:

"Bonneville, Oregon, Dec. 3, 1918.

"I am in receipt of your letter of November 27th, and, also the box of fish which arrived today. These specimens are no doubt Kingsley's Dwarf salmon, or, in other words, Bluebacks,—and Major Baldwin was right in his classification of same.

"We have a dwarf salmon in Wallowa Lake, this State, but they are very much smaller in size than the specimens sent. I have not been able to exactly locate Ronan Lake on the map, from which the fish were taken, but it must necessarily be upon a tributary of the Columbia or these fish would not have been found there.

"As you are perhaps aware the nature of the Columbia River Blueback is to proceed up a stream upon which there is a lake at the head; the parent fish deposits the spawn in the inlet, and the young fish after hatching drop down in the lake, the most of them remaining until they are about eighteen months old before leaving for the ocean. Therefore, from the fact of remaining in fresh water until they become adults they do not attain the size of their brothers which go to the salt water. Upon reaching a period of four or five years of age they go up the inlets and spawn, afterwards drifting down into the lake to die, as their parents go up from the salt water and die after depositing their spawn. It is my opinion that the progeny from the salmon which remain in the lakes become less from year to year. It seems that for some reason many of these fish remain after staying over the second year period; this perhaps is the reason that the fish in Wallowa Lake are much smaller than those in Ronan Lake.

Oregon Is Interested.

"The U. S. Bureau of Fisheries and the State of Oregon have spent considerable money and time in efforts to locate where the Columbia River Bluebacks spawn. We have determined beyond doubt that there are no lakes in Oregon, Idaho and Washington which the parent fish can reach, same having been barred by irrigation dams, etc;—and the fact that these fish are found in Ronan Lake, at perhaps one-half the size of the average Columbia River Blueback coming from the ocean, leads me to believe that it is possible that some of these succeeded in reaching the lake. I would be very glad if you will advise me whether or not Blueback or Red Fish of larger size than the specimens sent have been taken from Ronan or any other lake which is tributary to the Columbia.

"Our fish interests on the Columbia River are very anxious to artificially propagate our Blueback.

"I would also be glad if you would advise me of the number of fish—similar to the specimen sent me—spawned, and the size of the eggs taken from them. Or, better yet, if it is possible for you to do so, I should be glad to have you send me a few thousand eggs so that I could hatch them out here. It may be that the eggs from these fish would be as large as the ordinary Blueback, and, if so, we might find a place where a sufficient number of eggs could be taken to justify the experiment.

"In conclusion would say in regard to this matter, if we could succeed in finding where the Columbia River Blueback spawn in your state, we would be glad to establish a station, and in return for favors shown could furnish you all the Chinook eggs and perhaps Steelhead which you could handle.

"Trusting to hear from you at your earliest convenience, I am,

"Yours very truly,

"R. E. CLANTON,

c/g "Master Fish Warden."

First of the Kind.

It may be stated as a fact that never until November, 1918, have any fish resembling the ones submitted for examination been caught in Ronan Lake. It has always been thought impossible for salmon to proceed further up the waters

Jumping Up the Jacks

of the Columbia than Kittle Falls, Idaho, for any purpose and while the waters of Lake Ronan ultimately reach the Columbia River, the distance is so great and the obstacles so numerous that it has been thought impossible for any of the salmon family to reach the waters of Montana for spawning purposes.

The thought has occurred that a mistake was made by the authorities in selecting the eggs sent in 1916 and that instead of receiving Chinook salmon eggs that in fact the Blueback eggs were sent, hatched and planted. Whichever way we account for the presence of this beautiful fish in our waters the fact that the fish is present is a source of satisfaction, and if as in the present instance they are able to reproduce in fresh water without going to the ocean the waters in which they are now found may become populated without further effort by State authorities.

Report of the Bitter Root River

Instead of making a report of the Bitter Root River upon blanks furnished by the State Fish Commission, which are deemed inadequate for that purpose, the following is a general statement covering the territory embraced within the limits of that watershed.

From the confluence of the East and West Forks of the Bitter Root River to the point where it flows north into the Missoula River at a point about five miles west of the City of Missoula, it is sixty-six miles "as the crow flies." Each fork has many tributaries and is approximately twenty-seven miles in length. At the point of confluence, a beautiful, clear river is formed, having many pools, rapids and eddies with water ranging in temperture from thirty-two degrees in Winter to fifty-four degrees in Summer. At the confluence and for some miles below the bottom is sand, gravel, rock and in sloughs mud, but with very few sloughs until a point on the river below Hamilton is reached.

The river flows through a country which is well protected by brush and timber its entire length, and with numerous farms and much cultivated land below the old town of Grantsdale, while above that point the valley is narrow with less farming land and more timber, brush and other bank protection.

Current Is Swift.

The current is rather swift, and only commences to flow more sedately when it reaches a point opposite Stevensville. Between Florence and Hamilton, a distance of perhaps twenty-six miles, the river is divided into many channels; in some places as many as five being found in going from East to West across its course; this characteristic is noticeable in a less degree north of Florence.

It will be readily seen that the width, depth and rate of flow cannot be given with any degree of accuracy. The width increases with the inflow of side streams, and varies with the season of the year, ranging from thirty feet in deep, narrow places to two hundred feet in wider reaches, while an equal variation will be found in the depth and temperature for the same reasons.

At nearly all seasons of the year the water is clear and cold, while in the time of Spring floods, it becomes cloudy, and at certain seasons, usually in August, there are found many drifting pieces of particles of green moss detached by the current from the bottom and carried in suspension with the flow.

The waters are naturally inhabited by the native or cutthroat trout, the Dolly Varden trout, the Williamson whitefish and in the lower reach by squaw-fish and suckers, the last two named species being formed largely in the dead or black waters. Numerous varieties have been planted, including Eastern Brook, Rainbow and Steel-Head trout and Grayling; none of the latter variety surviving, although many fry have been planted. Very few of the Rainbow and less of the Steel-Head are reported caught, so that the results of plantings of these varieties are regarded as nugatory, while the Eastern Brook trout plantings are in a measure successful. The last named variety thrives best in sloughs, backwater from the river and in more quiet streams where deep holes and still water is found.

Has Many Affluents.

Flowing from the Bitter Root range of mountains on the West are numerous streams having a marked generally similarity as to length, depth, rate of flow and surroundings. A list of these streams of most importance will be appended hereto, those having a lake or lakes at the source marked with a star.

A description of one would answer for all, for they all have the same general characteristics. The streams vary in length from about twelve miles for the smaller ones to twenty-six miles for the larger. They flow rapidly from source through canyons to the point where they debauch therefrom onto the bench lands lying to the West of the Bitter Root River, bench lands used for farming. All of the streams have the waters appropriated for irrigation to the extent of the full flow thereof. During the Spring floods, the waters flow into the Bitter Root

River, but at other seasons the water is all taken out in ditches so that no water flows to the river. Where the streams flow in the canyons, there are many fish, almost entirely of the cut-throat variety, and in some of the lakes at the source of streams the fishing is excellent; but owing to the rough country through which the streams flow, and the trouble experienced in reaching the lakes, not much fishing is done in either lakes or streams.

It is, no doubt, true that many thousands of trout go into the irrigating ditches and die. There is, at present, no way to prevent this loss and perhaps none can be devised which will entirely prevent it. It seems a pity that the loss of such a source of food should continue, and that the clear, sparkling floods which pour down from these uncontaminated sources should not be made to yield their share of sustenance to our people. The subject is one well worthy of the careful consideration of our law-makers.

Streams From the East.

The streams affluent to the Bitter Root from the East are less in number and importance than those entering from the West. There are only six, the names of which will be found on the list subjointed. The same general description as that given of the west side streams will apply, except that the mountains from which

On Guard

the streams flow are not so high, the canyons are not so narrow nor access to the upper waters so difficult. All the water from these streams has been appropriated and is used for irrigation, so that during the irrigating season little, if any, water reaches the main river.

The streams designated as the East Fork and West Fork always carry a good volume of water, and seepage, as well as percolation, make up the flow of the river during the Summer months.

The result of diverting the side streams and the use of this water for irrigation results in a higher temperature in the main river than would otherwise be the case; this has not lessened the number of fish, although the rate of flow has decreased somewhat, in the past thirty years, and this fact may account for the occasional presence of green moss above mentioned.

There are many sloughs, small side branches and shallows where fry may be planted to advantage and the results obtained from the plantings heretofore made appear to be satisfactory. While some reaches of the river flow through farming lands, there is little or no posting, nor much objection made to fishing along its banks at any point; in fact, the sentiment of people living there is quiet favorable toward efforts made to restock the stream.

Many white fish are caught during the Fall and Winter months; these supply a considerable quantity of food, many considering the fish superior to the trout in this respect.

The East and West Fork may well be described together. They are rapid flowing mountain streams, with many small tributaries, flowing through narrow valleys and surrounded by high pine-clad hills and with limited areas of farming land along their courses. Both streams have their source near the boundary line between Montana and Idaho, flow in a northeasterly and northwesterly direction to a confluence approximately eight miles south of the town of Darby. The scenery is beautiful for the whole length of both streams. Many people spend their vacations in and along the banks, and the resort at Warm Springs on the East Fork is each year becoming more popular.

Conditions for Propagation.

The general conditions with respect to fish propagation in the Bitter Root River are, on the whole, favorable. For a distance of about thirty-six miles of the lower reaches of the river, there are no irrigating ditches diverted, the stream is comparatively deep and clear, with many deep, shady pools, riffles and lots of spawning grounds, on beds of gravel which are found in many places.

While reports of catches made and size of fish caught cannot always be depended upon as correct, there are a sufficient number of well authenticated reports which will warrant the statement that at present there are many large native or cut-throat trout caught, that the average catch in the proper season is as great as at any time in the past, and that the efforts made to keep the stream supplied with fish have been successful.

It is the belief of the writer that efforts to stock this river should be confined to planting native and Eastern Brook trout for the reason that the Grayling do not live, and that other game fish do not prosper so well. The stream has always been noted for the number and excellence of its native trout; the surroundings are manifestly favorable for its growth and the sentiment of the people is favorable to the protective laws.

The river may be stocked from Missoula, for points along the North end, from Florence, Stevensville, Victor, Hamilton or Darby, for points along its course and at all the places mentioned are found persons ready and willing to plant fry at any time.

TRIBUTARIES.

West Side.

Name	Length in Miles
Lolo	24
Carlton	12
Sweeney	12
Buss	13
Kootenai	15
Big Creek	22
Sweathouse	23
Bear	23
Fred Burr	24
Mill	26
Blodgett	25
Sawtooth	22
Roaring Lion	18
Lost Horse	22
Rock	26
Tin Cup	24
West Fork	45

East Side.

Name	Miles Length in
Miller Creek	18
Eight Mile	15
Burnt Fork	26
Skalkaho	22
Weeping Child	19
East Fork	36

Lake Como—Six miles long and one mile wide.

A Montana Minnow

Big Blackfoot River--Where Trout Are Plentiful

The Big Blackfoot River has its source in the main range of the Rocky Mountains in Lewis and Clark County, flowing with many meandering turns for a distance of about seventy-two miles to a confluence with the Missoula River at a point seven miles east of the City of Missoula. Its many tributary streams, its canyons, gorges, bordering meadows, as well as the pine forests that in many places line its banks give to the river a charm not often found even in the most noted of rivers. The flow of the river is as varied as is the character of the country through which it flows. Commencing as a mountain stream flowing a devious course through a rather narrow valley it soon reaches a wider valley, and at a point near the town of Lincoln receives its first large tributary known as Landers' Fork. Both are fine, clear mountain streams well supplied with native trout and from about the point of confluence westward the river flows through a rather narrow canyon, with many twists, turns, pools and rapids to the east side of Kleinsmiths' Flat, at which point the surrounding country opens into a wide valley and the current of the river slackens until for a distance of seven miles the

Pondera Lake

flow is quote moderate. Just to the west of the Kleinsmiths' Flat the North Fork of the Blackfoot joins the parent stream and from this point the rate of flow is quickened so that from this point onward the flow may properly be described as rapid. It is not to be said that there are no quiet places, for there are many pools, rapids as well as deep eddies.

At a point still more to the west, and about six miles west of Ovando, Montour Creek, a most beautiful trout stream flows into the Big Blackfoot and three miles more to the west Cottonwood Creek, an equally beautiful stream makes a confluence.

At a point forty-one miles east of Missoula the Clearwater River flows into the Blackfoot adding about one-quarter to the total flow of the big river.

REPORT OF THE MONTANA

Sources in Mountains.

All of the affluents mentioned have their origin in ranges of mountains to the north and flow in a general southerly direction, all are fairly well stocked with native trout, with bull trout, and whitefish, while the main river has all of these named varieties as well as Rainbow trout in some localities where plantings have been made.

There are no streams of any consequence flowing into this river from the South. The Clearwater may be worthy of mention because of one peculiarity. It has its origin in Sumit Lake, flows a distance of about forty miles, and in that distance passes through five lakes of varying size. These lakes are named, commencing at the source and proceeding towards the mouth, Rainy Lake, Alva Lake, Inez Lake, Seeley Lake and Salmon Lake.

To the west of Seeley lies Placid Lake the waters of which flow by way of Owl Creek into the Clearwater.

The presence of so many lakes along the course of this river naturally results in a much warmer summer temperature than in most mountain streams, but this fact does not prevent the presence of numerous trout and may account for swarms of squaw fish and suckers in all of the lakes named as well as in the connecting links between the lakes named.

Few Irrigating Ditches.

One noteworthy fact may be mentioned, and that is that at no point along the Blackfoot River itself, and in few places on its tributaries are there any irrigating ditches into which fish may go and die when the water is turned off. Another fact may be mentioned as bearing upon the question of stocking the river itself is that there are few places where fry can be planted to advantage. The river is large, deep, generally speaking swift with few side channels, backwater sloughs or shallow places where fry would be protected from the larger predatory fish. Plantings of Rainbow trout have proved successful, but Eastern Brook trout have only shown good results in side streams, and in more quiet waters tributary thereto.

The planting of fry should be conducted from various points; that is to say, from the source of the river to a point about four miles west of Lincoln the plantings should be made from Helena; from the last named point to Helmsville fry should be planted from Helmsville. From Ovando the river and tributary streams may be stocked as far west as the Cottonwood, and from this point westward fry should be distributed from Missoula.

This river as well as all its tributary streams is much fished by anglers from many points, some coming from as far as Butte and Helena.

Fish Life Does Not Suffer.

During the spring floods the waters become muddy from the washing of soft banks, but at other seasons the water is very clear and cold. Fish life does not suffer from the muddy waters of spring-time while all tributary streams retain their clearness at all times.

There have been lumber operations on the lower twenty miles of the river resulting in logs being floated to Bonner during the high water of June, but this does not appear to have any effect upon the fishing. As there are large tracts of timber lying adjacent to this river, and its tributaries it is reasonable to expect that such operations may continue for many years.

There are no sources of contamination worthy of mention, no industries along its course except farming, and no posting of either the river or its tributaries.

From past experience it would seem wise to encourage the planting of Rainbow trout fry, although good results would probably follow the planting of Native trout in all branches and in the upper reaches.

The main Big Blackfoot River is a most beautiful stream, the delight of many fishermen and one worthy of any effort on the part of the State Fish Commission and such efforts in the past have met with hearty support from the inhabitants.

Flathead Fish Hatchery--Distribution Reaches Millions

Eli Wilton, in charge of the Flathead Fish Hatchery, Somers, Montana, makes the following report to the State Fish and Game Commission, of operations for the season ending December 1, 1918:

We have had quite a successful year, having distributed some four million four hundred thousand trout fry in the waters of Montana, to say nothing of the distribution of five hundred thousand Lake Superior white-fish and about one million Montana white-fish. We have at present about five hundred thousand Eastern Brook trout eggs in the hatchery taken from local lakes and private ponds, also about fifty thousand blue-back salmon eggs taken from salmon seined at Lake Ronan, and one hundred and twenty-five thousand Montana white-fish eggs secured at Bigfork.

The Eastern Brook eggs were principally secured from Mr. A. E. Johnson's private pond at Fortine, Mont., these eggs have not been officially measured yet so can not give exact number, but as soon as they befome eyed they will be

Scene on Flathead Lake

measured. The remaining eggs were secured from Eastern Brook trout seined upon the spawning bed in Lake Ronan, this being our first attempt at securing eggs in this manner.

Quite a number of Eastern Brook were taken some weighing three pounds but we were a little late and some had already spawned; another year it should yield better results.

Blue-Back Salmon Surprise.

Upon pulling the seine we were greatly surprised to find many bright red fish. The males were very broad and rather short, with high hump backs and a ferocious looking set of teeth, the female being smaller and meek looking fish not unlike the native trout in shape and looks, the average weight being about one pound. Upon close examination of the fish and comparison with description given in manual

published by Dr. David Starr Jordan, they appear to be Blue-Back salmon, or what is sometimes called Red fish. I secured about fifty thousand eggs from this variety. The fish was evidently planted in the spring of 1916 and was mixed among the Chinook salmon eggs secured from the Oregon Fish Commission. This fish has also been reported from several other lakes, in fact Lake Five, Rodgers, Beaver Bay, (White-fish Lake) and Foys Lake. We sincerely hope this fish may meet with the hearty approval of the public.

Chinook Salmon.

This beautiful silver sided fish, planted in many lakes of this locality, is certainly making good with the anglers, as they have nothing but praise for it. As yet I have only heard of it being taken in two lakes, Ronan and Foys Lake. At Ronan Lake a great many have been taken both by fly casting and on the trowling spoon, some have attained four pounds weight, and when hooked invariably leap several times out of the water, but for some unknown reason quite a number have come ashore dead, without bruises or other mutilations. So far I have no report of this happening in other lakes. This fish was planted from the hatchery in the spring of 1916.

Montana White-Fish.

We made the usual attempt to trap this fish at Big fork again this fall but for some unknown reason the fish did not run up as well as usual, and we were compelled to be content with only one hundred and twenty-five thousand eggs which are now being eyed in the hatchery. These fish have not run well at Bigfork for the past two seasons and I am of the opinion that the extensive logging operations at the head of Swan Lake has something to do with it.

Improvements During Year.

The improvements about the hatchery consist chiefly of cement work, built during the fall months. We replaced the old cement retaining wall running along the roadway on the west side of the hatchery, the old wall having completely fallen down. This wall is now one hundred and twelve feet long, by two feet high, twelve inches thick at the bottom and seven inches at top, well reinforced with woven wire, and has a four-inch drain tile laid back of it to insure drainage. At the end of this wall near the cement fish pond we constructed a flight of steps four feet wide. This leads to the grounds above the retaining wall. We also built a winding flight of steps at the other side of the pond leading to the house. Our next step in the way of improvement was a cement fountain fifteen feet in length by seven feet in width. This we did not get completed before freezing weather came on. This fountain is near the new road that runs down past the ice house and up past the hatchery giving free access to hatchery and grounds.

The water supply for the hatchery has been greatly improved by the extension of the main pipe line some three hundred feet to a new head or cement basin. As we have to deliver most of our fish to the State fish car at the Somers dock we must have a good, reliable boat, capable of carrying forty or fifty cans at a trip. For this purpose we built a flat bottom barge with a tunnel stern. When completed with engine taken out of the old boat, and wheel placed up in the tunnel, it will be capable of running in six inches of water. The water about the dock gets very shallow in late fall, and the boat we now have is unable to get up to the elevator as it draws almost three feet of water when loaded. I expect to install the engine in the barge this winter.

FISH AND GAME COMMISSION

Trout Fishing in Fergus--Sportsmen Set an Example

To show the results which have been obtained from suggestions heretofore made by the Commission with reference to its planting of fry in a proper place and with reasonable care, the Commission submits the following letter from Judge Roy E. Ayers of Lewistown:

Lewistown, Montana, March 30th, 1917.

"Hon. J. L. DeHart,
"State Game Warden,
"Helena, Montana.

"My Dear Mr. DeHart:

"On behalf of the Fergus County Anglers' Club and the Lewistown Rod & Gun Club, I desire to extend to you thanks of these Associations and an expression of their appreciation of your efforts and the efforts of your Department, and of the Fish Commission, in sending us the four cars of fry during the year 1916.

"All of these fish were planted in good fishing streams, and I do believe that we saved a larger percentage than usual of the fry conveyed to the streams. Last year we built three different ponds, or temporary nurseries, at the mouth of small streams emptying into the larger streams. In one we planted fifty thousand Eastern Brook, in another fifty thousand Natives, and in still another about one hundred fifty thousand Grayling. In the fall just before the streams began to freeze we removed the dams and screens to let all of the little fish into the main stream, and by that time they were indeed big enough to take care of themselves and to battle with the heavier waters. In these three nurseries, as we choose to call them, I do not believe we lost a single fish over and above the normal loss.

"In our two associations we have a total membership of about two hundred men and three women, all of whom are true sports.

"By an unwritten law, promulgated and enforced by ourselves, and with the full consent of the land owners, we created a reserve of about two miles in length near the head of one of our principal streams. In this reserve we planted about fifty thousand Natives and Eastern Brook, and agreed by our unwritten law to protect them absolutely for a period of two years. A violation of this unwritten law will be punished summarily, without resort to civil courts. However, we have no knowledge yet of its violation.

"We now have some of the best trout fishing in the State of Montana, and with your continued assistance and the assistance of the Fish Commission, we expect to make it much better. We have a large number of good fish streams in this County, including Flat Willow and the McDonald Creeks, tributary to the Musselshell, and all of the tributaries of the Judith River. We have transported fry as far as forty miles and had them in the creek within two hours after they left the car. There have always been plenty of volunteers to meet the fish car with automobiles and full gasoline tanks to distribute the fish at any time of the day or night to the places we indicate. As a matter of fact, the only complaint I have ever heard is that we were unable to get fry enough to supply the demand. I believe our Clubs can clean a fish car quicker and distribute the fry more expeditiously and successfully than any other Club in the State. At least we are willing to challenge any of them to a contest.

"We also desire to congratulate the Fish Commission upon securing an appropriation for a new fish car, and trust that when the new car is built the same may be named "J. B. Gnose," in honor of one of the truest sportsmen in the State; that the new car may make its maiden trip with a load of fry for Lewistown, and that the man in charge will be Senator Gnose.

"With best wishes from all of the members of our associations for the success of your Department and the Fish Commission, I am

"Very gratefully yours,

"ROY E. AYERS."

Taking His Bath

Magpies

FISH AND GAME COMMISSION

Display at the Fair--Educate the Public

Since our last biannial report, your Commission has erected a building at the State Fair grounds in Helena for the purpose of making a display of the fish of Montana at all annual State fairs.

The object to be accomplished by the expenditure of the money for building was to increase the interest of the people at large in the subject of fish cultivation and propagation, as well as the stocking of streams. The building has proved to be a very attractive place for visitors at the State Fair grounds, and we have been able since the year 1916 to make exhibits of native, as well as other fish found in the waters of Montana, without appreciable loss. It is hoped that, by annually making such an exhibit as our facilities may allow, we may be able to show the progress of your Commission in the introduction of new species of fish suitable for the waters of Montana, and also to increase the consumption of fish as a food. Efforts in the direction of increasing the consumption of fish have been made by the general Government with some success, and during the past three years many species

Yellowstone Park Scene

which were not considered eatable have become a common article of food, particularly along the Atlantic coast, and in places where many varieties are found, some of which have not heretofore been considered suitable for consumption as food. In this connection it may be well for us to call attention to the fact that many of the course fishes found in Montana like the squaw fish, sucker and carp are excellent food and while some of the species mentioned contain more small bones than the trout, it is still a fact that all of the course fish mentioned are

Looking Over the Country

good food, particularly in the early spring months when the water is cold. The cat fish of the upper Missouri and lower Yellowstone rivers are also accepted generally as good food fish.

If afforded the proper support, it is our intention to continue a display of different varieties of fishes at all annual meetings of the State Fair, and we trust thereby to arouse, or in any event increase, the interest of the people in the work of the Commission and in keeping the streams well stocked with proper food fish.

After the Day's Sport

FISH AND GAME COMMISSION

Agreement With Forest Service

The Game and Fish Commission Proposes to Enter into the following Agreement with the United States Government

For the purpose of securing better enforcement of the Game and Fish Laws of the State of Montana, it is hereby mutually agreed by and between the District Forester, District 2, Forest Service, and the State Game and Fish Warden of Montana:

1. That under the State Game Laws no differentiation can be made between violators of the law. The law, therefore, should be enforced equally as to all violators.

2. The Forest officers, because of their familiarity with the areas in which the larger portion of the game of the State exists, can and should assist by their own personal actions and attitude, in securing the proper respect and enforcement of the State Game Laws. All Forest Rangers, Assistant Forest Rangers, and other Forest officers who, in the judgment of the District Forester, can, because of the character of their field work, be of assistance in the enforcement of the State Game and Fish Laws, will be appointed by the State Game and Fish Commissioner as Deputy State Game Wardens without pay authorized to enforce the Game Laws. All Forest officers appointed Deputy State Game Wardens shall assume the following prescribed duties:

(a) To pay strict attention to the Game and Fish Laws and by personal actions and attitude assist in creating the right public attitude and sentiment toward the protection of game and fish and the enforcement of the Game and Fish Laws.

(b) Report all cases of violation of the Game and Fish Laws to the State Game and Fish Warden, Capitol Building, Helena, or to the regularly employed Deputy State Game Warden in whose district the offense occurs.

(c) To make arrests only in flagrant cases, when it is impossible to notify the State Game and Fish Warden, or regularly employed Deputy State Game Wardens in whose district the offense occurs, and the offender would otherwise escape.

(d) To furnish all information available which will assist officers of the State in apprehending or prosecuting violators of the Game and Fish Laws.
(e) Where Forest officers make arrests, or assist in the prosecution for violation of the Game and Fish Laws, a full report should be made to the Supervisor, who will transmit copies of it to the District Forester and the State Game and Fish Warden.

Will Keep Records.

(f) To keep a record as far as is practicable of the total number of game animals by classes killed in his district and to secure as far as practicble census of total number of deer, elk, moose, mountain sheep and antelope within his district, giving in detail the condition of the various game animals, and such suggestions, looking toward the improvement of game conditions, as appear necessary; this information to be furnished to the Forest Supervisor for general compilation and report to the District Forester, for the basis of his report to the State Game and Fish Warden at the end of the season.

3. Photographs of game animals may be taken to illustrate game conditions or reports.

4. Supervisors will be furnished with a list of all Deputy Game Wardens in the State, with their addresses.

5. The State Game and Fish Warden will be furnished with a State map showing the location of all Forests, and the headquarters and names of all Forest Supervisors.

6. Supervisors will furnish the local Game Wardens within the vicinity of his Forest with a map showing telephone connections of Forest Service and headquarters of Forest officers appointed Deputy Game Wardens.

To Assist In Fire Prevention.

7. Regular Deputy State Game Wardens will notify Forest officers of any fires which are discovered on or contiguous to the National Forests, and will render any possible assistance in extinguishing them.

8. The State Game and Fish Warden will report to the District Forester any instances in which the Forest officers fail to carry out the terms of this co-operative agreement. The Forest Supervisor will report to the District Forester any cases in which the Assistant or Deputy State Game Wardens fail to take action when cases of violation are reported. Such cases will be taken up with the State Game and Fish Warden by the District Forester.

9. The State Game and Fish Warden will pay all expenses of Forest officers incurred in making arrests, including transportation and subsistence for themselves and persons under arrest, said payment to be made upon properly signed vouchers,

A Camp in Glacier Park

taken and paid for by said Forest officers; provided, that witness fees shall be paid Forest officers only when it is necessary for the Forest officer to take leave without pay from his official duties in order to attend and give testimony.

10. When duly authorized by the State Game and Fish Warden, Forest officers holding commissions as Deputy Game Wardens may issue game and fishing licenses and accept therefor all fees as provided by the Game Laws of the State.

11. In the approval of this agreement it is generally understood that Forest Service business will be given first consideration by Forest officers, and the enforcement of the Game and Fish Laws will be subordinate to their duties as Forest officers.

Breeding the Pheasant

By W. D. Baldwin

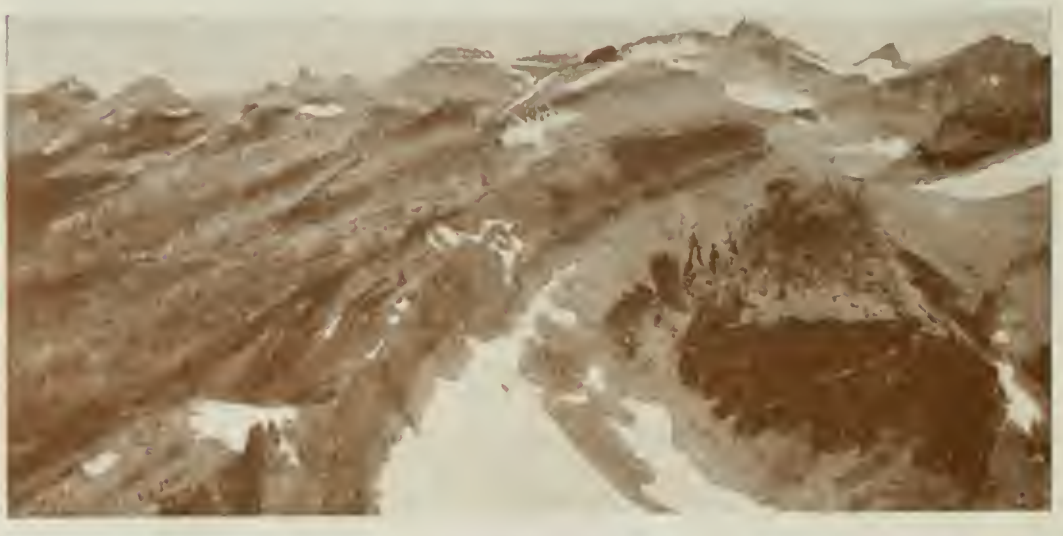
In November, 1917 the Commission purchased from M. A. Cheesman of Murray, Utah, twenty-four pair of Ringnecked pheasants, having in view the breeding thereof as an addition to the game birds of the State of Montana. Idaho, Washington,

On the Kootenai

and Oregon having heretofore experimented in this behalf now have in many parts of these States a sufficient number of these birds to permit the shooting of a limited number during the hunting season.

Eighteen pairs of these birds were shipped to Deputy Game Warden Frank Baney, at Eureka, Montana, and by him placed in the hands of those desirous of propagating the same. During the past summer I visited Eureka and made inquiry

Winter Feeding



In Glacier Park

as to what success was had with the birds shipped in Lincoln county. The altitude is lower and the season longer, led to the belief that conditions were perhaps more favorable for pheasant raising in the Tobacco Plains country than elsewhere; however, the results in Lincoln county have not so far proved satisfactory.

Six pairs of these birds were sent to Kalispell and placed in the hands of Mrs. John Kennedy, an experienced breeder of fine poultry. Two of the birds received by her died, but from the five pheasant hens remaining she raised one hundred and fifty pheasants, and had a number of late eggs from which perhaps fifty more birds might have been raised, but it was not deemed advisable to bring them out. Mrs. Kennedy's facilities in the way of suitable ground for the birds are

In Ambush

too small for raising pheasants in large numbers, as the same was comprised in one city lot; but she met with good success, and seemed to have no more trouble than with domestic poultry. The young birds ate all the potato bugs on her place, hence the pheasant should prove a valuable asset to our farmers.

Of the birds so raised by Mrs. Kennedy fifty were planted on two islands in Flathead lake, viz., Shelter Island and Cedar Island. These islands contain about thirty acres each of land, with an abundance of excellent shelter and free

Waterfowl are Plentiful

A Hungry Elk

from predatory animals. They will be supplied with grain during the coming winter. They from one island to the other and may later spread out to the main land around Rollins Bay. They seem to be very hardy and are now in full plumage.

A few pair were sent to Polson and placed in the hands of those who will endeavor to raise the same and turn loose the increase next season. Six of these birds were placed in the hands of G. H. Adams at his home on Flathead lake about six miles South of Somers, where they are doing very well.

The original stock, as well as about sixty young birds are in the care of Mr. Minar, a farmer near Somers, Montana, and we expect to make some satisfactory arrangement with Mr. Minar for breeding a large number of pheasants the coming season. His farm seems favorably situated for this purpose and he is very much interested in the propagation of these birds.

We feel very much encouraged with the result in Flathead County, and inasmuch as the pheasant is a very hardy bird it ought to thrive in many parts of the State, and prove a valuable game bird.

Honored Guests of Nature

REPORT OF THE MONTANA

Report of J. L. DeHart

State Game and Fish Waredn

Arrests for Violating Game and Fish Laws

	1918	1917	1916	1915
Allen Gun Law Violations	93	27	42	64
Attempting to Kill Wild Swan				4
Attempting to Sell Wild Swan				1
Catching Fish Unlawfully				6
Dynamiting Fish	4	1		8
Fishing Without License	23	39	18	26
Killing Deer Out of Season	10	12	10	9
Killink Sage Hens, Pheasants Chickens, Grouse	5	5	9	5
Killing Elk Out of Season	1	7	8	8
Killing Mt. Sheep	1	1		
Killing Mt. Sheep Out of Season				1
Killing Antelope	2	1	1	4
Killing Moose	1	1		2
Killing Elk Protected Territory		3	3	
Killing Over Limit Deer		1	4	
Killing More Than Limit Rocky Mountain Goat				2
Killing Mountain Goat			1	
Killing Ducks Out of Season	2	5	4	1
Killing Fawn				5
Killing Beaver Unlawfully	6	1	6	6
Spearing Fish				4
Selling Gamefish	2	2		2
Possession Wrong License	14	12	7	24
Fishing With Grab Hook		3		2
Fishing Within Spawning Station	4		1	2
Possession More Than 10 Gamefish Less Than 6 Inches	1			
Fishing and Hunting Without License			2	
Fishing With Set Net			1	
Snagging Fish	2	3	2	
Hunting Without License	10	16	13	24
Selling Beaver Skins	2	2	2	7
Selling Deer Hides	1			
Ship Deer Hides Without Permit	5	2	1	
Selling Elk Teeth	2	3	2	
Selling Antelope Head	1			
Seining Fish Unlawfully	11	1	2	4
Shipping Beaver Hides Without Permit	6		2	1
Unlawful Possession Fish Net	1	1	2	1
Unlawful Possession 8 Deer Hides	1			
Possession Over Limit Game Fish	1	6		2
Offering Elk Head for Sale		1	1	1
Trapping Without License on Game Preserve				1
Selling Deer Head				1
Hunting on Game Preserve	4	2	2	5
Dumping Debris In Fishing Stream	1	1		1
Guiding Without License		2	1	1
Selling Venison				1
Obtaining License by Fraud		2		1
Unlawful Possession Beaver Hides	2		1	
Issuing Residence License to An Alien			1	
Issuing Unofficial Receipts		1		
Serving Trout at Cafe Table			1	
Shipping Elk Without Permit		1	1	
Loaning License			2	
Shipping Deer on Another's License			1	
Killing Brant Oue of Season			1	
Possession Over Limit Chickens		4		
Possession Over Limit Ducks		1		
Illegal Possession Sheep Head		1		
Offering for Sale Rocky Mountain Goat Hide			1	
	219	171	156	237

Law Violations by Counties.

	1918	1917	1916	1915
Beaverhead	34	10	20	15
Bighorn	1			
Broadwater	2	2	4	6
Carbon	11	11	2	14
Cascade	1	8	5	30
Chouteau	2	2	1	1
Custer	2		2	6
Dawson		8	2	3
Deer Lodge	3	7	5	6
Fergus	9		12	10
Flathead	5	8	6	15
Gallatin	9	6	16	13
Granite			6	3
Hill	4		1	
Jefferson	5	1	2	2
Lewis and Clark	6	11	2	13
Madison	11	2	4	1
Meagher			3	21
Mineral	4	3	1	3
Missoula	7	9	4	8
Musselshell	40	2	6	15
Park	15	9	12	11
Powell	3	2	3	
Ravalli	3	12		7
Richland			3	
Rosebud	2	1	6	2
Sanders	7	11		
Silver Bow	6	7	4	4
Stillwater	3	5		3
Sweetgrass	1		3	2
Teton	9	9	6	1
Valley			1	4
Wibaux			2	
Yellowstone	4	4	4	12
Wheatland		6		
Lincoln	10	10	8	6
Sheridan		5		
	219	171	156	237
Convictions	209	144	123	193
Pending	3	10	22	22
Dismissals	5	10	10	15
Acquittals	2	7	1	7
	219	171	156	237
Served Jail Sentences	10	7	7	41
Fines Imposed	$7,743.50	$5,543.50	$4,214.00	$6,148.50

LICENSES AND PERSONS ISSUED IN 1915.

67792	Resident citizen	at	$ 1.00	$ 67,792.00
994	Non-Resident Citizen Fishing	at	2.00	1,988.00
158	General Non-Resident Citizen	at	25.00	3,950.00
27	Limited Non-Resident Citizen	at	10.00	270.00
21	General Alien	at	30.00	630.00
163	Alien Fishing	at	5.00	815.00
222	Official Receipts	at	1.00	222.00
994	Shipping Permits	at	.50	497.00
46	Guides Licenses	at	10.00	460.00
9	Private Pond	at	5.00	45.00
44	Seining Licenses form "A"	at	5.00	220.00
	Confiscations			472.08

REPORT OF THE MONTANA

LICENSE SALES AND PERMITS ISSUED IN 1916.

69466	Resident Citizen	at	$ 1.00	$ 69,466.00
1092	Non-Resident Citizen Fishing	at	2.00	2,184.00
206	General Non-Resident Citizen	at	25.00	5,150.00
32	Limited Non-Resident Citizen	at	10.00	320.00
13	General Alien	at	30.00	390.00
170	Alien Fishing	at	5.00	850.00
181	Official Receipts	at	1.00	181.00
12	Private Pond	at	5.00	60.00
30	Seining "A"	at	5.00	150.00
45	Guides	at	10.00	450.00
1136	Shipping Permits	at	.50	568.00
1	Alien Gun	at	25.00	25.00
				$ 79,794.00
	Confiscations			918.40

LICENSES AND PERMITS ISSUED IN 1917.

72113	Resident Citizen	at	$ 1.50	$108,170.00
1012	Non-Resident Citizen Fishing	at	3.00	3,036.00
25	Limited Non-Resident Citizen	at	15.00	375.00
4	General Alien	at	50.00	200.00
231	Alien Fishing	at	5.00	1,155.00
127	Official Receipts	at	1.50	190.50
17	Private Pond	at	5.00	85.00
48	Seining "A"	at	5.00	240.00
14	Seining "B"	at	5.00	70.00
46	Guides	at	10.00	460.00
1159	Shipping Permits	at	.50	579.50
2	Alien Gun	at	25.00	50.00
213	Beaver	at	10.00	2,130.00
5	Special Elk	at	25.00	125.00
73	General Non-Resident Citizens	at	50.00	3,650.00
				$120,516.00
	Confiscations			936.54

LICENSES PERMITS ISSUED IN 1918

(The records for this year are incomplete, being up to number 50, as 1918 acccount does not close until April 30, 1919)

42744	Resident citizen	at	$1.50	$64,116.50
741	Non Resident Citizen Fishing	at	3.00	2,223.00
19	General Non Resident citizen	at	50.00	950.00
9	Limited Non Resident citizen	at	15.00	135.00
3	General Alien	at	50.00	150.00
3	Alien Gun	at	25.00	75.00
207	Alien Fishing Licenses	at	5.00	1,035.00
12	Official Receipts	at	1.50	18.00
42	Seining "A"	at	5.00	210.00
8	Private Pond	at	5.00	40.00
6	Seining "B"	at	5.00	30.00
2	Special Elk	at	25.00	50.00
100	Beaver	at	10.00	1,000.00
27	Guides	at	10.00	270.00
256	Shipping Permits	at	.50	128.00
				$70,430.50
	Confiscations			975.77

In Memoriam

Henry Avare died December 5th, 1918, at his home in Butte, Montana; he was aged 50 years.

The deceased had been for four years Chief Game Warden of Montana and eight years Deputy. His death was the result of a complication of cancer and tubercular troubles.

He is survived by his wife, Kate Avare. Burial services were held at Butte, Montana, on December 9th, 1918, and his remains were interred in Holy Cross Cemetery.

Henry Avare leaves a record of faithful, honest and conscientious public service

He stood high in the estimation of his fellows in the service and was respected by his fellowmen generally and it is with sorrow and profound regret that this record is made of his untimely death.

ROBBED

(A Western Father presents his twelve-year-old Son with a new Gun).

Oh, where is the game, daddy? Where is the game
That you hunted when you were a boy?
You've told me a lot of the game that you shot;
No wonder such sport gave you joy.
I'm old enough now to handle a gun;
Let me be a sportsman, too.
I'd like my fair share of clean out-door fun,
And I want to shoot, just like you.

But where are the birds, daddy? Where are the birds?
I can't put them up anywhere!
You had your good sport with the wild flocks and herds,
And surely you saved me my share.
And where is the big game that roamed around here
When grandfather came here with you?
I don't see one antelope, bison or deer.
Didn't grandfather save me a few?

Why don't you speak up, dad, and show me some game?
Now, why do you look far away?
Your face is all red, with what looks like shame!
Is there nothing at all you can say?
What! "The game is all gone?" There is "no hunting now?"
No game birds to shoot or to see?
Then take back your gun; I'll go back to the plow;
But, oh! daddy, how could you rob me.

—W. H. T.

Dedicated to the Fathers of Boys in the States Still Inhabited by Grouse, Quail and Deer.

Read at the organization convention of the Minnesota Game Protective League, Clinton M. Odell, President; Minneapolis, August 27, 1915.