

Practical Fly Fishing

BY

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THIS LITTLE BOOK
is
SYMPATHETICALLY DEDICATED
TO
THE WOMEN THE WORLD OVER WHO HAVE
BEEN SO UNFORTUNATE AS TO MARRY
MEN WHO GO A-FISHING!

FOREWORD

Here then is " Practical Fly Fishing," a companion book to my " Practical Bait Casting," and like that little work this is offered mainly as a text book to help the novice through places where there is rocky bottom, rough water and other hard wading.

It will be noted that I have devoted more space, proportionately, to fly fishing for black bass than have other writers, for the following reasons: the more general distribution of the bass offers a far greater number of anglers an opportunity to take them on a fly rod; it is a phase of angling that is becoming amazingly popular; it is a subject that most angling writers have neglected and on which there is little definite data.

I acknowledge with thanks permission granted me by the publishers of the " Chicago Tribune " to include here some material that I had written for their columns. I also thank Call J. McCarthy for posing for pictures; Oscar G. Lundberg for taking them; William Mills & Son, Abbey & Imbrie and Hardy Brothers for permission to reproduce illustrations from their catalogues and many brothers of the angle who have otherwise assisted me — may the South Wind always blow when they go a-angling.

LARRY ST. JOHN.

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PRACTICAL FLY FISHING

HISTORICAL

FISHING IN GENERAL AND FLY FISHING IN PARTICULAR

T*HE Beginning.* The beginning of the ancient and honorable art of taking fishes with an angle is lost in the dim, misty reaches of the past before men made a pictured or written record of events. Nearly all ancient peoples, however, had their quaint and curious fables on the origin of angling and many of these legends tell us that the art was handed down to men from the Gods which is, indeed, a reasonable supposition.

The earliest authentic mention of angling we find in the Book of Job, written about 1500 B.C. The Lord asks him: "Canst thou draw out Leviathan with a hook?" Fish hooks are also mentioned by Amos (IV, 2) written 787 B.C., and the prophecies of Isaiah (XIX, 8), written 760 B.C., sound a warning to unrighteous fishermen: "The fishers shall mourn and all they that cast angles into the brooks shall lament and they that spread nets on the waters shall languish."

In Egypt, the civilization contemporary with that of the Hebrews, angling was no doubt practiced in remote times. Lake Moeris was constructed for a fishing pond about 1500 B. c. and in later days Plutarch tells of the prank played by Cleopatra on Mark Antony. They were fishing together, you will remember, and Mark had divers go down and fasten big lunkers to his hook, which he pulled up in a matter-of-fact way, as if it were an everyday occurrence with him. Cleopatra detected the fraud, however, and invited a number of her friends to come the next day and see what a mighty angler was Mark. Then she had her divers go down and fasten a salted fish to his hook which sort of took the wind out of his sails, so to speak.

The Greeks were fond of angling, and Homer mentions the art several times while with the Romans, who understood fly fishing, it amounted to almost a passion and at least one prominent citizen of that great city was ruined financially by spending too much money on elaborate fish ponds. The poet Oppian saved his father from the wrath of the Emperor Severus by writing a book on angling and many other classical writers were interested in the subject.

Fly Fishing. Although fly fishing was probably practiced much earlier the first mention of it is made by Elian in his "History of Animals," written about 230 A. D. He describes a fly with a purple body and red hackles which was cast with a rod about eight feet long on a line of the same length and trout fisher-

men must derive considerable pleasure in the fact that this pioneer fly was used to catch "speckled fishes." The fly itself is still in use, being the pattern known as the red hackle. It is a killing trout fly and fairly good for bass. Every true fly fisherman should carry one if only for its association. The story of this fly is charmingly told by Mary Orvis Marbury in her "Favorite Flies and Their Histories."

It has been said that our Saxon ancestors earned the tribal designation "Anglo" because of their great skill in hook and line fishing, but it is quite probable that fly fishing was introduced into the British Isles by the Romans. They are also said to have introduced red chickens into Britain and we venture the theory that they took them there not only for cock fighting but to be assured of plenty of red hackles!

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THE TREATYSE

One of the very first books printed in the English language was a sporting work: "The Boke of St. Albans." This volume was printed by Caxton in 1496 and contained, in the second edition, the famous "Treatyse of Fyshynge with an Angle," generally attributed to Julianna Berners "Prioress of the nunnery of Sopewell, near St. Albans, a lady of noble family and celebrated for her learning and accomplishments."

The book contains a number of the crude drawings of that day and, as Marston points out, these old

" cutts" have led many to believe that the text is equally impractical although, as a matter of fact, it contains not a little fishing sense and certainly the Good Dame's praises of angling and her advice on the ethics of the game are decidedly worth-while. The " Treatyse " mentions a number of flies (including the red hackle of iElian) that still are in use.

WALTON, BARKER AND COTTON

This work was followed by a number of other angling books but the crowning glory of all angling literature is that sweet, simple idyl " The C'ompleat Angler," written by Izaak Walton, in his 60th year, and first published in London in 1653. It was unfortunate, however, that Father *Izaak* was not much of a fly fisher himself but got much of his information on the subject from Thomas Barker who wrote a small book entitled " Barker's Delight or the Art of Angling."

Barker, by the way, did not have Walton's quaint and appealing viewpoint nor his writing ability but he was, I imagine, a more finished and practical angler. Besides assisting Walton with his fly fishing problems, he has the distinction of being the first angling writer to write a practical treatise on tying flies; to distinguish between hackles, palmers and winged flies; to describe fly fishing for salmon; to mention a reel and gaff, and to point out the possibilities of getting big fish at night. Says Walton: "I find that Mr. Thomas Barker (A Gentleman who has spent much

time and money in angling) deals so judiciously and freely in a little book of his of angling and especially of making and angling with a fly for trout, that I will give you his directions without much variation." Note, dear reader, that Barker " spent much time and money in angling" and be solemnly warned that he ended his days in an almshouse — which is where most of us are likely to go if good fishing tackle does not become cheaper!

Subsequent editions of Walton's *Angler* contained chapters on fly fishing by Charles Cotton. Cotton had the reputation of being something of a " village cut-up " in his day, but it being unbecoming to point out the shortcomings of a brother of the angle I will not dwell on this. That he was an expert fly fisher and a close friend of the simple, pious Iz. Wa., and was privileged to address him as " Father," convinces us that he was a young man of many admirable qualities.

APOLOGY

Our object in writing this brief and necessarily incomplete historical sketch of angling and fly fishing of olden days is to trace the evolution of our subject mainly and also to impress upon the young angler, whether he be young in years or young in experience, that in taking up scientific angling he at once becomes one of a great brotherhood and practices an art that is of ancient and honorable lineage — the only pastime, incidentally, that has produced a literary classic. Men

of science, art, letters, statecraft and holy callings, from times immemorial, have hearkened to the call of the waters; have been thrilled by the swirling of lusty fishes and consoled by the song of the south wind and have been made " merie in Spyryte " and consequently better men thereby.

EARLY BASS FISHING

One of the very first to write of black bass fishing was Bartram, the naturalist. In 1764 he wrote an account of " bobbing " in Florida for " trout " as black bass are still called in the South. This method, somewhat similar to " skittering," as practiced in the North, consists of manipulating a large treble hook concealed in a tuft of bucktail hair and red feathers called a " bob." This " bob " is tied to a very short, strong line on a long pole. " The steersman paddles softly and proceeds slowly along shore; he now ingeniously swings the bob backwards and forwards, just above the surface and sometimes tips the water with it, when the unfortunate cheated trout instantly springs from under the reeds and seizes the supposed prey." . Bobbing is still practiced but one could hardly call bobbing fly fishing although similar to it in principle and not differing a great deal from the " fly fishing " methods no doubt pursued by our cave-men ancestors in the brave days of old.

FIRST BASS FLY FISHERS

The first fly fishers for bass undoubtedly were the early residents of northern Kentucky, the same good people who developed bait casting and brought the multiplying reel to its present perfection. These men were of British ancestry, educated and of more than ordinary abilities in many ways. Some of them were well-to-do; all of them found ample leisure to indulge their hobby. We suppose that they, or their forebears, brought fly tackle with them from their old homes and northern Kentucky, being neither mountainous nor far enough north for trout, they no doubt used this tackle for taking the bass that were plentiful in the near-by streams. Dr. Henshall informs me that the first man to take up fly fishing for bass seriously was J. L. Sage, the reel maker of Frankfort, Ky., later of Lexington. He made a rod and reel especially for fishing for black bass with flies as early as 1848.

NORTHERN WRITERS

While these early bass fishers were plying their craft in Kentucky, bass fishing did not receive the attention it deserved in the North. Frank Forester (Henry W. Herbert), the popular sporting writer of his day, probably never caught a black bass. In an appendix to his "Field Sports" (1847) he says: " Other fish there are, the name of which is legion; the best, perhaps, of these, and the most sporting— after the Trout — is the Black Bass of the lakes,

which will rise freely to a large red and gray fly, made of Macaw, or parrot and Silver Pheasant or Guinea Fowl. . . . There is also a fish called " Trout " to the southward, which is certainly not a trout, though I do not know its correct appellation, which is eagerly pursued and considered a game fish." The " trout," of course, is none other than our friend the large-mouthed black bass.

Brown in his "American Anglers Guide" (1849) went the limit in misinformation by stating that " the black bass has a swallow tail."

Dr. Bethune, the first American editor of Walton's " Angler," a bookish man and a good fisherman, had a better idea of the bass than any of his contemporaries. In one of his notes (1848) he says: ". . . it is impossible to refrain from a brief notice of that fish which is, next to the Salmon family, most prized by the American angler in fresh waters. Angling for him may be begun in June, when he is to be found in about 14 feet of water, among the grass. . . . Nothing can exceed the vigor and liveliness of his play; for he will try every art, even to flinging himself high out of the water, that he may shake off the hook; and the rod must not be kept perpendicular, but moved in various directions, and sometimes even partly submerged, to counteract his rushes, and hold him under the surface. . . . The bass takes the fly freely; a favorite fly being made on a stout hook (the fish's mouth is large) with wings of scarlet cloth and a body of white feather. Other colors have been tried though

not to much advantage. But the best fly is made of scarlet feather or cloth (which is better) with a piece of pickerel's tongue, cut in a fork so as to hang from the bend of the hook." The latter to this day is a favorite lure of the bait caster, but, almost needless to say, not of the fly fisherman!

The only mention of the bass by Thad. Norris in his "American Anglers Book" (1864) states that he caught them skittering a spoon. Genio Scott in his "Fishing in American Waters" (1869) says nothing more of the bass than: " This fish is taken by casting an artificial fly or by trolling with a feathered spoon, with a minnow impaled on a gang of hooks and forming spinning tackle." Robert Roosevelt in his " Superior Fishing" (1865) says: "That evening was devoted to the black bass which took fly and spoon greedily " but as trolling a fly was more commonly practiced than casting it he probably used that method.

That the sport of fly fishing for bass was a long time in getting general recognition may be seen by referring to the files of *Forest and Stream*, where one will find that a spirited controversy was waged in the early '70's on the subject of whether or not a black bass will rise to a fly!

FATHER OF BLACK BASS FISHING

The title of " The Father of Black Bass Fishing " has been earned by Dr. James Alexander Henshall. It was his writings in the periodicals and particularly his " Book of the Black Bass" (1881) that popular-

ized bass fishing in America. His prophecy made in this book that the black bass would eventually become the game fish of the people has been borne out by events.

Dr. Henshall was trained as a surgeon but gave up that calling to engage in fish culture — work that appealed more to his tastes — and his efforts along these lines were crowned with unusual success. At this writing (December, 1918) he is hale and hearty at the ripe age of 83, bearing out Dame Berners' testimony that angling assures " that your aege may be the more floure and the lenger to endure."

PRESENT AND FUTURE

At present fly fishing for bass is enjoying a great revival, more interest being taken in it than in many years and as the advance of civilization unfortunately destroys more trout streams and requires trout fishers to travel farther, many of them, by necessity, will turn to waters nearer home and cast their fraudulent feathers to the doughty knight in shining, green armor that " inch for inch, pound for pound, is the gamest fish that swims."

EARLY TROUT FISHING

The early history of fly fishing for trout in this country is just as disappointing as that of fly fishing for bass. Capt. John Smith in his " A Description of New England," published in 1616, said: "Much salmon some haue found vp the Riuers as they haue

passed," but the doughty captain was no sportsman, for in his description of cod fishing he said: " And is it not pretty sport to pvll vp two pence, six pence and twelve pence as fast as you can hale and veare a line! " But there is no doubt that the amazing abundance of fish life had much to do in attracting men to the New World and several of these old chroniclers made mention of " troute," meaning our common char, found in all New England brooks, and of the land locked salmon in Maine waters.

The first American anglers practiced their art along the Atlantic sea board. Frank Forrester in the first American edition of Walton's " Angler " (1847) gives a detailed description of trout fishing on Long Island and the editor of that fine edition of Walton, Dr. Bethune, gives many illuminating notes on trouting in his day. Daniel Webster and many other anglers annually journeyed to Cape Cod, attracted by the good trouting to be had there.

TACKLE

CONCERNING THE TOOLS OF THE CRAFT

TACKLE is something that anglers use part of the time and talk about and tinker with all of the time. No man can say what the proper tackle is for any kind of fishing as every experienced angler is likely to have ideas of his own on that subject.

There are, however, certain conclusions that generations of skilled anglers have reached through cumulative experience and these are here set down for the benefit of the beginner and the inexpert; I also include some opinions of my own and permission is hereby granted the reader to disagree with me.

It is natural for an angler to love fine tackle and he should buy the best whenever he can. However, all anglers are not rich men and this is especially true of bass fishermen since the black bass, because of his wide distribution, is essentially a poor man's game fish. For this reason I have tried to cover the tackle subject as practically as possible because it is appropriate, not necessarily expensive, tackle that makes fly fishing a pleasure in itself regardless of the heft of one's basket at the end of the day.

THE ROD

HISTORICAL

The " rods " used by the earliest anglers evidently were of native cane of some sort or switches cut " a la small boy " from the stream side. The earliest description of a rod and its making, will be found in Berners* " Treatyse." She goes into detail on the selection and curing of the wood and the making of the rod which, if followed out carefully, would produce a fairly good fishing tool of well seasoned and correctly proportioned wood.

The early fly fishermen of Kentucky caught their bass with rods of native reed, 10 to 14 feet in length and weighing from 4 to 6 ounces. Used with the finest line and excellent reels of their own manufacture, it is apparent that their tackle was as light and neat, if not as luxurious, as what we use to-day.

Dr. Bethune (1848) describes the rod of his choice as follows: " A fly rod should not be more than 14 1/2 feet at the farthest; the butt solid, for you need weight there to balance the instrument and your spare tips will be carried more safely in the handle of your landing net. . . . A rod in 3 pieces is preferred at the stream but inconvenient to carry and, if well made, four will not interfere materially with its excellence; i. e.: the butt of Ash, the first joint of hickory, the second of lancewood and the tip of East India bamboo or, as I like better, the extreme of the tip of

whalebone well spliced on. The rod should be sensibly elastic down to the hand, but proportionately so, for if one part seem not proportionately pliant, the rod is weak somewhere. In some rods there is what is called the double action and such a one I used for years and thought nothing could be better; but, on trying another stiffer, though at first awkward in its use, I learned to like it better."

COMBINATION WOOD RODS

Early American fly rods were often made up of different woods, as described by Dr. Bethune and Wells expresses a preference for this type of wood rod. They are still thus made, and sold for very low prices in England, but American makers do not catalog them. This is regrettable since a rod with butt of second growth white ash and middle joint and tip of lance or greenheart can be made and sold for a few dollars and is ideal for the beginner who can afford to invest only a very small amount in a fly rod.

At present the most favored fly rod materials are steel, solid woods and split bamboo.

STEEL RODS

A present-day steel rod of the better class is wonderfully well made, being of a high class of material imported especially for the purpose. The steel rod is an excellent tool for certain kinds of fishing but the steel fly rod is very heavy and has a listless action compared with a rod of wood or bamboo, although con-

siderable improvement has been made in them of late years. Compared with the old style steel rod the extra light weight model handles a line fairly well and when wrapped solidly with silk it is enormously strong. A friend who fishes for the heavy bass in Florida uses a rod of this kind and speaks highly of it. The regular steel rod of 9 feet weighs 8 $\frac{1}{4}$ ounces; the extra light weight style about 5 $\frac{3}{4}$ ounces.

All Wood Rods

Wells in his " Fly Rods and Fly Tackle " lists and describes more than 20 kinds of wood suitable for rod making but modern makers have settled upon lancewood, dagama, greenheart and bethabarra as being the most satisfactory.

Practically every angling writer and rod maker advises the purchase of a good wood rod if the angler cannot afford a hand-made one of split bamboo. In another work(1) I have disagreed with this advice as regards the short bait casting rod, but as an unusual amount of skill and very good material are required to make a first class bamboo fly rod perhaps a well-made wood rod is the proper tool for the angler wishing to invest only a small amount, or for the beginner who, later on, may acquire more positive opinions as to what constitutes a good fly rod. Later, I will discuss the cheap bamboo rod.

In considering the purchase of a wood rod the angler must bear in mind that the merits of the sticks

1 " Practical Bait Casting"; Macmillan Co.; New York, 1918.

used in making a rod have much to do with the excellence of the finished product.

LANCEWOOD

Perhaps I am prejudiced as regards lancewood as my first fly rod was of that material and nobly did it perform. The best type of lancewood rod probably is made up with an ash butt as rods made entirely of lancewood are a trifle heavy although some anglers prefer them.

Lancewood comes from Cuba, the best sticks being light yellow in color and free from dark stains. One of the largest American tackle houses claims that lancewood has lost favor mainly because of inferior material being sold as this wood.

A first class hand made rod of lance can be bought for about six dollars; a nine footer weighs about $6\frac{1}{4}$ ounces.

DAGAMA

Dagama also comes from Cuba and is similar to lancewood but is said to be more durable and free from pin knots. It is heavier than lance, a nine foot rod weighing $6\frac{1}{2}$ ounces, and a rod of this material costs about one dollar more.

GREENHEART

In England greenheart is the most popular rod making material, not excepting bamboo, although the latter is making great headway as its merits become bet-

ter known. Greenheart comes from South America and is of the color of walnut, being strong and fairly resilient. It takes a nice finish and makes a handsome rod but compared with bamboo it is somewhat heavy and not quite as "snappy" in action — which is true of all wood rods.

Most of the greenheart used in this country comes from England where tackle makers have become skilled in the selection, cutting and curing of this wood. A good British greenheart rod can be bought in England for a few dollars and an excellent one laid down in America costs from eight to twelve dollars, depending on fittings. A good American maker lists his greenheart rods at nine dollars. An average English-made greenheart rod of 9 feet will weigh 7 ounces.

Bethabarra

Bethabarra, or washaba, is the most expensive wood commonly used in rod making. It is a dark wood coming from British Guiana and is very strong and many anglers prefer it to any other wood. It is slightly heavier than greenheart and is said to hold its shape better. A nine foot American made bethabarra rod weighs about $6\frac{3}{4}$ ounces and costs eleven dollars. A superior selection is sold under the name noibwood.

Bamboo

Beyond a doubt the best fly rod material is good bamboo properly selected, cured, split, glued, and cor-

rectly proportioned. It possesses strength combined with lightness, resiliency, pliancy, power and balance in greater degree than either steel or solid woods.

Formerly anglers and rod makers could draw fine distinctions between male and female Calcutta and Tonkin " canes," but under present conditions good Calcutta is very rare and the word " Calcutta " is becoming merely a trade term. Good bamboo of all kinds is more difficult to obtain and a good piece of Tonkin is better than an indifferent one of Calcutta. Male Calcutta, however, is supposed to be superior to either the female or Tonkin. The cheapest split cane is known as steel vine or African cane. It is light colored and makes up into good, inexpensive fly rods.

SIX STRIP AND EIGHT STRIP

We assume that you know that bamboo is split and then glued together in order to utilize the hard outer enamel and reduce the diameter of the pieces. Some rods are made of bamboo split into six sections (hexagonal) and some in eight (octagonal) but the six strip construction is more often used. Some makers claim that the eight strip, being more nearly a true cylinder, possesses better action but this seems to be more theoretical than practical, while the tiny tips of an eight strip rod are likely to be " soft" due to the comparative amount of glue necessary to hold the pieces together. Eight strip rods cost more than the six strip and if the angler wants a round rod they are preferable to the six strip planed down as planing cer-

tainly must injure a rod. As a general rule a well-made six strip rod leaves little to be desired.

SPECIAL FEATURE RODS

A novelty in bamboo rod making is what is known as the " double built " rods which are made of two layers of split and glued bamboo, one within the other. They are heavier and strong, and it is claimed, hold their shape better, than ordinary rods and are popular for sea and salmon fishing but unnecessary, I believe, in single hand fly rods.

An English innovation is the steel center rod which consists of a fine piece of well-tempered steel running as a core through sections of regular split bamboo. The makers claim this construction gives a rod of superior casting power with only $\frac{3}{4}$ of an ounce added weight. Friends who possess rods of this kind are enthusiastic admirers of this construction for heavy fishing.

An American maker supplies a rod of " twisted bamboo " which he claims equalizes the strain and produces better action. I have never tried a rod of this type so am unable to pass on its merits, but Perry Frazer, in his " Amateur Rodmaking," speaks well of it.

BRITISH AND AMERICAN RODS COMPARED

As a general rule British rods are heavier and longer than those used in this country although the American light rod idea is becoming popular in England and

British rod makers have been forced to cater to this demand both at home and abroad. The average British angler, however, clings to his 12 and 14 foot rods because of his inborn conservatism.

American anglers marvel at the heavy rods and fine terminal tackle used by their British brethren but, as a matter of fact, the difference in weight between American and English rods is in ounces and not in power. British rod makers use heavier fittings and their rods are built heavier in the butt which often is increased by the use of a button and spike that adds as much as 1% ounces to a rod's weight.

Because of this heft in the butt the American angler, whose knowledge of British fly rods has been gained by reading British tackle catalogs, is surprised to learn that a British-made rod of 10 feet and 8 ounces " swings " just as easily as an American rod of the same length and of 2 ounces less weight.

Comparing the best British and American rods I am of the opinion that, even after making allowances for the Britisher's heavier construction, American rods possess more casting power. On the other hand they are poorer finished. That is, they do not display the niceties that one expects when paying twenty-five or more dollars for a fly rod. Good American fly rods are severely plain while British rods are invariably more distinctive in appearance and, with the exception of ferrules, better fitted. My sympathies are with the angler who pays thirty dollars or more for a fine fly rod and who objects to paying three dollars additional

for agate first guide and tip-tops and proportionately for other " extras."

Number of Pieces

Perhaps the ideal fly rod, like the ideal bait-casting rod, would be a single " stick " but such a construction would not fit in well with American fishing conditions — imagine rushing for the 1 :40 with a nine or ten foot rod case! The same objection, but in less degree, applies to the rods of two pieces of equal length, which are popular in Europe. The average American fly rod is made in three pieces — butt, middle joint and tip, with an extra tip — and this seems to meet with general approval.

Wells maintains that the proper form is the three piece rod with an independent handle, his reason being that it enables the angler to turn his rod from time to time and thus equalize the strain and avoid a " set." It is a reasonable theory. " Tourist rods " are usually made up of three tips, two middle joints, two butt joints and an independent handle, for use when the angler goes into the wilderness far from the tackle repair shops. Naturally a rod of this type is expensive.

The trunk, suitcase or " Sunday" rod is made in four, five or six pieces for compactness and extreme portability. Its action, because of the number of ferules is likely to be impaired somewhat and such a rod is recommended only when circumstances make it imperative. I know an angling parson who toted one

of these rods in the tail of his frock coat when going about his parish and many a lusty fish he "snaked" out of wayside streams. The combination rod, consisting of a number of joints to be used interchangeably to make either a bait or fly rod, is a handy tool on canoe trips where weight and space are matters of great moment, and when one wishes to cast both bait and fly, but it is generally the fly rod end of the combination that is least satisfactory.

TACKLE

FERRULES

EARLY American rods were "spliced" and many British rods are now made that way. That is, the end of the joints or pieces are fashioned to fit snugly together and the joining is done by lashing with a piece of thong, wire or adhesive tape. The British have some strange, and to us almost primitive, ideas on ferrules. The best makers have some locking device such as a hook on the male ferrule to engage with a corresponding projection on the female or when they do use a suction or friction ferrule they add a dowel or pin which American rod makers discarded several generations ago.

The best American ferrules are serrated or split. The serrated ferrule is crown-shaped so that each point rests on the flat face or angle of a bamboo rod. Theoretically, at least, this makes the change between resilient wood and unyielding metal less abrupt and eases the strain at the joints — the vulnerable part of a rod. The split ferrule works on the same principle.

Good American ferrules are made of German silver, tempered and retempered until they have almost the hardness of steel. They are shouldered to avoid unnecessary cutting away of wood and the female ferrule

is reinforced with a welt at the open end and is water-proofed by a partition or floor at its base to prevent water getting at the wood. In short, the better class of American ferrule is a decided success.

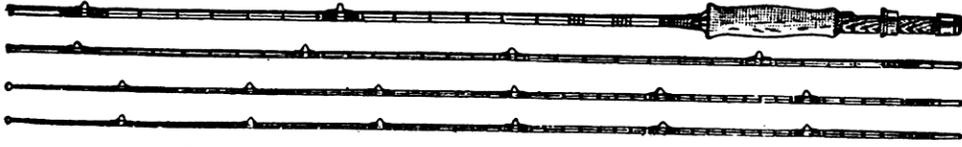
GRASPS

The best material for the hand grasp is cork, either solid or of cork discs over a wood core. Cheap rods have a thin sheathing of cork on the grasp which soon shows signs of wear and the same objection applies to the celluloid and cane wound grasps. The form of the grasp is a matter of taste. The swelled grasp is large in the middle and tapers at the front and rear while the shaped or Wells' grasp flares at both ends. I have rods with both types and can notice little difference in them.

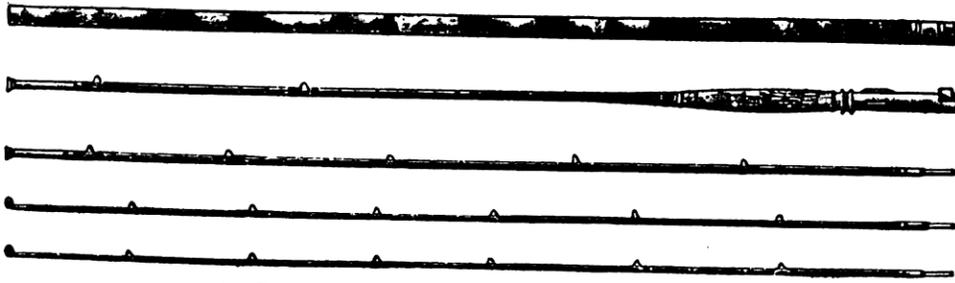
REEL SEAT, ETC.

The reel seat on a fly rod is placed below the hand to keep the reel out of the way and to add weight below the grip for leverage in casting. The reel seat may be either metal, celluloid or "skeleton"—the latter usually being a piece of grooved cedar.

The metal reel seat should be of German silver as this material is superior to the nickel plated brass used on the cheaper rods. German silver is strong, its finish is permanent and never chips and while it tarnishes slightly it can easily be polished. I rather like the British idea of oxidizing all metal parts. With the skeleton or celluloid reel seats a metal butt cap is put



High Grade American Rod (Divine) Showing Skeleton
Reel Seat and Shaped Hand Grasp



High Grade American Rod (Leonard) Showing Metal
Reel Seat and Swelled Hand Grasp

TACKLE

on the rod to take the rear end of the reel base and a metal ring slides down over the forward end. This is adequate for all practical purposes although some makers supply their reel seats with locking devices designed to hold the reel more securely. This cap, ring winding check or taper should also be of German silver. English rods are usually furnished with a " button " or knob of wood or hard rubber at the extreme butt to hold against the body while playing a fish. A detachable butt of soft rubber is sold by all tackle dealers and it is a good substitute for the permanent button. Many English rods have a metal spear at the butt, an idea that has never met with favor among American anglers.

GUIDES AND TIP TOPS

For many years fly rods were made with rings and keepers but at present the snake and English bridge guides are most often used. All agate guides are objectionable on a fly rod because of their weight but an agate or imitation agate first or hand guide and tip top (tip guide) are desirable as they save wear on the line as well as on the guide itself. Steel guides are preferable to those of German silver as the latter are softer and soon wear and fray the line.

WINDINGS

Windings are put on a bamboo rod to help hold the sections together and for decoration. They also have something to do with the rod's action. They are usu-

ally put on in clusters and the color is a matter of taste. There is nothing in metal windings that recommends their use on a fly rod.

Finish

The usual finish of a fly rod is a number of coats of good varnish. Some anglers prefer their bamboo rods to be stained dark green or brown to harmonize with stream-side surroundings on the theory that such a finish is less likely to scare a shy fish. I do not believe that the finish of a rod or its fittings have much to do with its visibility to the fish but these dark rods, wound with "contrasty" silk and finished oxidized are certainly very handsome and if an angler has an artistic craving for such things and wishes to use a shy fish for an excuse I, for one, will not argue the question with him.

Essentials

Several American angling writers once had a controversy as to whether the chief end of a fishing rod is its ability to cast well or to hook and play a fish properly. To me it seemed like arguing on the relative merits of one's right and left leg since a good rod must do both well.

To meet these requirements a rod must possess strength and power combined with lightness and balance, pliancy (bend) combined with resiliency (spring), and these so related as to cast a reasonably long line straight and true with the minimum of effort on the

angler's part, and to hook and land the fish that rise to our flies.

Action

Good action is an indefinite term when applied to a fly rod as every angler's idea of good action is likely to be different from that of his brothers. Some fly fishermen are slow, methodical workers, cast with great deliberation, and prefer the long " weepy " type of rod and its smooth action; others cast " snappy," handle a long line without much regard to delicacy and will use nothing but a rod stiff from butt to tip. Between these extremes you will find a multitude of opinions more or less reasonable.

The English have the theories of rod action whittled down to a fine point, even producing devices to register the number of vibrations in a rod but such matters belong to the manufacturer not the angler.

Ideal Bass Rod

Without going into a tiresome discussion of the technicalities of rod action the ideal fly rod for bass fishing would be along the lines of the rod used by the dry fly fishermen or the tournament type of rod — a rod often described as having " plenty of back bone." Such a rod is a powerful caster, capable of handling a longer line than is commonly used in trouting in this country and with considerable " horse power" in the upper third which is needed as a bass's mouth is bonier and tougher than a trout's and at times one must strike

hard. Furthermore, bass flies are bulkier and take up more water than trout flies and the bass fly fisherman is more often called upon to use spinner, cork bodied flies and other heavy lures. Finally, the bass averages much more in weight than do the trout of most waters and like the trout he is often caught in cluttered-up places where he cannot always be given his head. Such a rod, if of fair weight and length, naturally is not an easy one to use all day and any modifications of it should be along the lines of making it slightly more pliant for ease of casting but the angler should remember that the farther he goes in this direction the farther he gets away from the ideal rod from the standpoint of bass fishing efficiency.

Length and Weight

The rods commonly used for bass fly fishing range from 9 to 10 $\frac{1}{2}$ feet, both inclusive, the 9, 9 $\frac{1}{2}$ and 10 foot lengths being the most popular. Just what length to select depends on the preference and the physique of the man that intends to use it. By this I do not mean that I subscribe to the fine drawn theory that one's rod should be arbitrarily gauged by one's height but a man of slight stature would derive more satisfaction by fishing with a nine foot rod than one of greater length, since the ideal bass rod is not an easy one to " swing " for long periods.

A rod of American manufacture of the correct action should weigh from 4 $\frac{3}{4}$ to 5 $\frac{1}{4}$ ounces in the 9 foot length; 5 $\frac{1}{4}$ to 5 $\frac{3}{4}$ in the 9 $\frac{1}{2}$ foot and 6 to 6 $\frac{1}{2}$

ounces in the 10. One might say that these lengths and weights are almost standard in regions where fly fishing for bass is commonly practiced.

For fishing where bass run heavier than ordinarily, such as in the southern states; for weedy rivers and lakes where the fish must be landed quickly or never; for wide, wind-swept bodies of water or for British rods made along British lines a half or three-quarters of an ounce may be added to the 9 and 9 1/2 footers and a full ounce or even more to those of 10 feet.

One may have his rod made especially for bass fishing but rods made for dry fly trout fishing often prove ideal for our purpose and any fairly heavy trout rod may be used in an emergency.

TROUT RODS

Of the making of many trout rods there is no end and there is a surprising variation of opinion among experienced trout fishermen as to what a trout rod should be. Perhaps it would avoid confusion if they were put into classes in a general way which I will now proceed to attempt.

THE "BABY" TROUT RODS

The so-called "baby" or "fairy" trout rods are dainty little fishing tools seldom over 7 1/2 feet in length and weighing from less than an ounce to 2 1/2 ounces or so. They are not, as one might imagine, mere toys to hang on the walls of the den nor are they practical for general fishing conditions. Casts of from

fifty to seventy-five feet have been made with rods of this type and fish up to two pounds have been landed with them but they are for the expert angler and for the most favorable conditions, such as casting from a boat in water where there are no snags or obstructions of any kind so that the fish can be played with considerable freedom. The difficulties of making a rod of this light weight that will stand up under any kind of fishing bring their cost up.

THE BROOK ROD

A little heavier than the foregoing we have the type of rod that might be called the brook rod, which ranges from 71/2 to 81/2 feet in length and weighs under four ounces. These fine little tools are perfection for fishing small streams where "lunker" trout are not often found.

AVERAGE TROUT RODS

The rod used by the general run of trout fishers will be 9 or 91/2 feet long and weigh anywhere from 4 to 51/2 ounces. Such a rod meets the average (if there be such a thing) fishing conditions that prevail in American waters. There is a wide range of weight here and an equally broad choice of action and relative stiffness.

HEAVY TROUT RODS

The heavy trout rod class overlaps the bass rods and the same weights and lengths are often used. That is, 9 to 10 feet in length and from 5 to 8 ounces in

weight, the latter being for the heavier fishing such as is found in Lake Superior waters and the larger streams of the far west.

DRY FLY RODS

The dry fly rod approximates the bass fly rod, or rather the bass fly fisher has seized upon the dry fly rod — or one similar to it — as his very own. American anglers most often use the so-called tournament weights in their dry fly fishing. That is, 9 foot rods weighing $4\frac{3}{4}$ ounces and $9\frac{1}{2}$ footers that scale $5\frac{3}{4}$ ounces. Anglers often work out their own ideas in dry fly rods and we know one expert who fishes with floating flies with an $8\frac{1}{2}$ foot rod that weighs four ounces. It is interesting to note that the late Mr. F. M. Hal-ford, the famous English dry fly expert, reduced the weight of his dry fly rods as he gained in experience. His last model, which he pronounced as perfect, was $9\frac{1}{2}$ feet in length and weighing with spear and other heavy British fittings, 8 ounces, 14 drachms. We note a similar tendency among our more expert dry fly men.

TESTING

The best test for a fly rod is a season's use on the lake or stream but no tackle dealer is going to sell his rods on that basis. The average inexperienced fly fisherman will go into a tackle store, pick up a rod, swing it a little, discuss it much and then buy or reject it, depending on the salesmanship of the tackle man. Perhaps a skilled rod maker can get an idea of

a rod's action by swinging it a few times; I cannot and I am sure that the average angler can do no better.

To really know what one is buying he should rig the rod up with reel and line and actually cast with it. For this reason I prefer to buy from a small tackle shop where I am known and where the owner will permit me to take a rod home and give it a try-out. That is the real way to buy a rod but it is not always possible.

In buying a wood rod do not get one that is stained which hides imperfection of grain. Examine it carefully for bad spots. In buying any rod hold it out straight and "sight" along its length. It should droop a trifle at the tip; if the dip is extreme try another as this fault will increase when the rod is put into use. A tip may be a trifle too stiff in a new rod as use will remedy that. If the rod is satisfactory so far slowly roll it over — the droop should remain constant during a complete turn of the rod; if the tip is inclined to stick out at an angle during the rolling process it signifies a bad spot some place.

Now put a reel and line on the rod, run the line through the guides and tip-top and fasten the end of the line to some heavy object. Then put a strain on the rod and note its curve. When you release the strain the tip should fly back to normal with speed and snap and a good rod should stand this test from every angle.

Finally, make a few imaginary casts with the rod and note if it feels right in your hand. If it does you have tested it as much as possible under the circum-

stances. It is better to take a little care in selecting a rod in the first place than to try to "get used to it" later on if you find it not up to your ideal.

HIGH GRADE BAMBOO RODS

We have given some idea of comparative prices of wood rods but the great range in prices in split bamboo rods is something bewildering to the beginner. They can be bought for from seventy-five cents to seventy-five dollars. Obviously one is not going to get a first class rod for seventy-five cents nor for seven dollars and fifty cents. On the other hand it is not necessary to invest thirty or more dollars for a rod fit to fish with. For from ten to twenty-five dollars one can get a first class bamboo fly rod — one good enough for the father of his country if it is selected carefully.

The raw materials — unsplit bamboo, fittings and varnish — of a thirty-five dollar fly rod can be bought in the open market for about twelve dollars. The difference represents profit, workmanship and selection. It requires not only considerable mechanical skill to produce a good bamboo fly rod but rare good judgment as well. From hundreds of pieces of unsplit "canes," all looking to the untrained eye pretty much alike, the rod maker must select a few coming up to his standard and likely, in his estimation, to produce the ideal he has in mind. Pieces with "shakes," borings, soft spots and other imperfections are discarded and the ones selected are then cut out roughly by machinery or split by hand with a dull knife, when other im-

perfections are often discovered. From what remains the skilled rod maker matches up as to toughness, resiliency, etc., enough pieces to make a rod. These pieces are carefully cured and then tied together in the form of a rod and again tested. At this critical stage unforeseen imperfections may come to light. If they finally come up to standard the pieces are glued up and the rod making proceeds. This, in a brief and general way, is the method of making a fine hand-made split bamboo rod. The pieces that were rejected in the various tests may go into cheaper rods. From this the prospective rod buyer can get an idea as to why bamboo rods vary so in price and why certain makers, who have reputations to maintain, charge what appears to be a "stiff" price for their output which, so far as surface appearances go, is nothing extraordinary. A few makers also have secret processes for improving bamboo.

Cheap Bamboo Rods

Unfortunately all anglers cannot afford to pay twenty or more dollars for a fly rod and he then can buy either a hand-made one of solid wood or a cheaper one of bamboo.

As stated before, a fine hand-made bamboo rod is a matter of selection but American factory efficiency has been applied to producing rods as well as other things and everything considered the present day machine-made bamboo rod is surprisingly good — for the money. The splitting machines used in modern rod factories

do remarkably well when one considers the good, bad and indifferent material they work with and by making a careful selection one often gets a fairly good rod for a small investment. I have owned a number of cheap bamboo fly rods that were good fishing tools and it is a notable fact that you see more rods on the streams costing less than fifteen dollars than those costing more than that amount.

CARE AND REPAIR

The chief merit of the steel rod is that it requires little care and stands much abuse. Bare spots should be touched up with enamel when they appear to guard against rust and the rod should be wiped, preferably with an oily rag, before being put away and the ferrules should be kept oiled. Otherwise a steel rod will take care of itself. Wood rods are inclined to dry rot and to warp or become crooked and they should be kept well varnished at all times — which protects them from changes of temperature and moisture.

The principal objection to the bamboo rod is that it requires care. A good bamboo rod should not be used for trolling or for strip, slack line, Lake Greenwood or pump pole casting. If you want to use these fishing methods get a cheap wood or steel rod for the purpose.

No fly rod should be left lying on the ground at all or in a boat for any length of time; neither should it be permitted to lean against a tree or side of a building and don't leave it lying in the hot sun if you can avoid

it. Every well-regulated camp should have a rack for the rods.

After using a rod straighten it carefully with the hands, wipe it off with a dry cloth and insert the ferrule stoppers, if your rod has them, before putting it in its case. It is a good plan to use tips alternately and have one hanging up straightening at all times.

Keep the ferrules oiled or rub them along the side of your nose when rigging up. Never twist a ferrule that sticks. Grasp it as close up as possible and pull straight and steady; get some one to help you if necessary. A friend avoids all ferrule trouble by carrying a small pack of the finest steel wool. When a ferrule gets balky he rubs the male end with the wool, oils it, inserts it as far as it will go in the female, gives it a couple of turns and repeats until he has a good fit. Never use pumice, emery or a file on a ferrule.

The best place to store a rod not in use is in a dry room of cool and even temperature. Hang it up by the tip if possible, and it will always keep straight; otherwise hang each joint small end up. If the tips have a set straighten them carefully with the hands and suspend them with a small weight at the lower end.

If kept in a warm room, especially where there is steam heat, the wood will expand and shrink with the varying temperature and this will loosen the ferrules. Go over your rods early in the spring and either send them to the tackle repair shop or put them in shape

yourself. Frayed windings, and sometimes all of them, should be renewed, shaky ferrules reset and the rod given several coats of good varnish applied with a camel hair brush in a warm room and dried where dust cannot get at it. In fact frequent varnishing is "heap good medicine" for wood and bamboo rods and one could pervert a proverb in this connection: Spare the varnish and spoil the rod. If the tips have developed a tendency toward "softness" renew the windings at closer intervals. If you must keep your rod on its form be careful not to tie the strings too tightly.

When going on a fishing trip far from home it is advisable to carry one of the repair kits sold by the tackle dealer. I hope you will never have to use it but you will feel better if you have one along.

CASES

A rod case is a good investment. Rods carried on forms in a light canvas bag are likely to get smashed. The cases of sole leather are best but expensive. The stiffened, leather covered cases are sold at a low price and do nicely. A cloth roll of many partitions — one piece of a rod to a pocket — to go into the case economizes on space and enables one to carry a number of rods or several rods and a landing net frame and handle.

REELS

HISTORICAL

THE first mention I can find of a reel is in "Barker's Delight or Art of Angling" published in 1651. He says: "Within two foot of the bottom of the rod there was a hole made for to put in a wind, to turn with a barrell, to gather up his line and loose it at his pleasure."

Walton, who acknowledges his indebtedness to Barker for fly fishing information, mentions a reel but apparently never saw one. The dear old fellow cleverly "camouflages" his lack of information by merely mentioning "a wheel" and dismissing the whole subject with the remark: "which is to be observed better by seeing one of them than by a large demonstration of words."

Venables showed a picture of a reel in his "Experienced Angler" in 1662.

The winch of Barker, Walton and Venables was a large, grooved wooden spool of the type still used in England and known as the Nottingham reel.

The early Kentucky bass fly fishermen, according to Henshall, used a reel similar to the Nottingham which they made from a large sewing thread spool fitted with a frame, handle and base made by the local tinker.

Some of them also used imported reels or the multipliers which they made themselves with wonderful skill as early as 1810.¹

The earliest click reel turned out especially for fly fishing for bass was made by J. L. Sage of Frankfort, Ky., in 1848. It is still in excellent fishing condition and is of solid brass measuring $2\frac{3}{8}$ inches in diameter and $1\frac{1}{4}$ inches between head and tail plates. It has a permanent click which is placed in the head instead of the rear as is usual in click reels. It has an unusually sweet song.

This reel was presented by Mr. Sage to Dr. Henshall during the World's Fair at Chicago, who in turn has passed it down to the writer. Needless to say it is one of my prize possessions. The reel is pictured in the illustration showing the correct way to grasp the rod.

USE OF THE REEL

Compared with the bait-casting reel the winch for fly fishing plays a minor part. It is used mainly as a storage place for surplus line, to wind in excess slack and occasionally, depending on one's style of fishing, to play a fish.

¹ Henshall credits the invention of the multiplying reel to Gee. Snyder of Kentucky, giving the date of his first reel about 1810. According to R. B. Marston, editor of the *Fishing Gazette* (London) Onesimus Ustonson advertised " the best sort of multiplying brass winches, both stop and plain " in 1770.

THE SINGLE ACTION REEL

Many generations of fly fishermen have favored the single action or click reel and it seems to meet all requirements, being free from complications and of sufficient speed and power for all practical purposes.

The single action reel is a simple winch without gearing, making one turn of the spool to each revolution of the handle. The click consists of a toothed wheel (ratchet) working against a wedge-shaped piece of metal (pawl) supported by a spring to permit movement in either direction, the idea being to retard the action of the reel enough to prevent over-running. The contact of the pawl against the revolving ratchet produces a rapid clicking sound known as "the song of the reel," very pleasing to the ears of all true anglers and of great inspirational value to the poetically inclined. The click mechanism is generally placed in the rear end of the reel and is either permanent or actuated by a sliding button on the tail plate.

FORM AND MATERIALS

Click reels vary as to form and dimensions but the majority of modern fly fishermen prefer the contracted type, made very narrow to avoid the necessity of guiding the line on the spool; with plates of large diameter and a large drum or spindle to prevent kinking the line and to speed up retrieving.

The working parts of a reel should be of the best material — finely tempered steel and bronze as softer metals soon wear. The materials most often used in making the frames and spools of click reels are aluminum, aluminum alloy, gun metal, German silver, nickel plated brass or one of these metals in combination with hard rubber or "ebonite."

FINISH

The English make fine reels of the large narrow style, noted the world over for their honest workmanship and fine finish, many of them being made of aluminum alloy, finished either all black or with just enough bright metal to furnish a pleasing contrast. Although I do not take much stock in the theory that bright metal scares a fish I prefer those with the dark finish — a preference shared by many of our most expert fly fishers.

WEIGHT

It is regrettable that many of the English reels are too light in weight to balance American-made bass and heavy trout rods, it being axiomatic that to secure proper balance the combined weight of reel and line should be at least 1.5 times the weight of the rod. American reels, especially the newer models, also tend toward excessive lightness.

I discussed this question once with a reel maker who said: " I agree with you that most fly fishing reels are too light in weight but somehow the angling

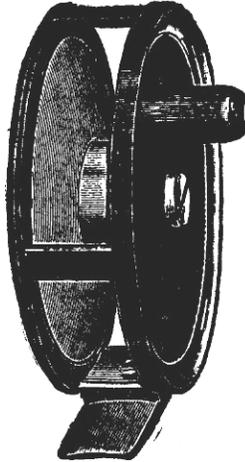
public has the idea that lightness is a virtue and competition forces us to make what the angler wants; not what he ought to have." Some anglers, who have learned the value of weight below the hand, add heft to their reels by winding on lead wire before putting the line on the reel.

ENGLISH REELS

Many English reels of the contracted type are provided with large rings of agate for line guides; regulated clicks; detachable spools and other refinements. Besides being well made, English reels are often designed to take apart easily for quick and frequent cleaning which is a worthwhile feature.

With 35% duty added to their price these English reels cost in this country more than the general run of fly fishermen care to pay, although an increasing number of American anglers are buying them, especially those models of the revolving head plate type which combine neatness, simplicity and strength.

A narrow reel of average proportions should be at least 3 inches in diameter to hold twenty-five yards of



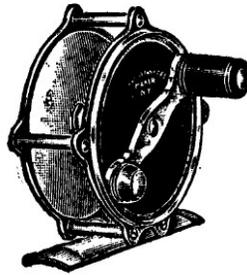
Large, Narrow Reel
(British)

level or thirty yards of tapered E line or 31/8 to 31/2 inches for equal lengths of size D. A large reel is advisable as it enables one to splice his fly line to fifty yards or so of linen line for extra heavy fishing.

Good English reels retail in America at from six dollars to forty dollars.

AMERICAN REELS

The average American click reel is smaller in diameter and has a wider spool than the contracted type although large, narrow reels have been made in this country for many years. The old type of American reel is heavier, as a rule, than those of British make, which is



desirable to balance the light-in-the-butt American fly rods. They are usually made of metal and hard rubber; sometimes entirely of metal.

Click reels made in this country have a rated capacity based on undressed line which M) often confuses the inexperienced.

Hard Rubber and
Metal Reel American

Raised Pillar Type. What is known to the trade as the 80 yard size will hold 25 or 30 yards of E line and the 100 and 150 yard sizes are about right for 40 yards of E or 30 yards of D line. Reels with raised pillars hold more line than those of equal size and of ordinary construction.

American click reels of nickel and rubber, of a

size suitable for bass fishing, retail at from two to four dollars; in German silver, at from five to eight dollars.

HANDLES

I can see no virtue in the balanced handle on a click reel, even when it runs under a protecting band, which should always be provided for this type of handle. The plain, crank handle is less objectionable but better still is the small, unobtrusive knob used on the revolving head plate type of reel.

AUTOMATIC REELS

The automatic reel consists of a spool operated by a spring which is wound up both by a revolving drum or key and by stripping line from the reel. The retrieving of the line is controlled by a lever, which releases the tension of the spring, operated by the little finger of the casting hand.

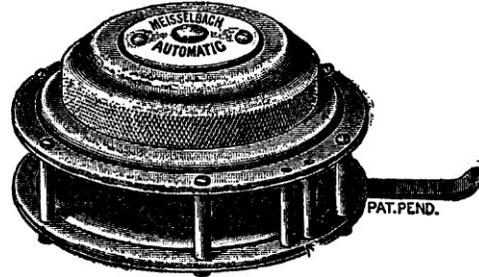
I once heard an angler, who should have known better, heap abuse on the automatic reel on the ridiculous assumption that the user of a reel of this type hooks his fish, touches the lever and hauls the struggling victim to the net, willy-nilly!

The object of the automatic feature is to take care of slack line expeditiously, which it does. I do not fancy this kind of a reel myself but I know very expert fly fishermen that do. Not the least of its merits is the fact that it is of ample weight; also well-made and not expensive, costing on an average, five dollars.

The size usually made for trouting will not hold

enough line for all-around use but some makers turn out a special size for bass fishing.

Automatic reels are more mechanical and complicated than click reels, hence more liable to accidents and the user should have a spare reel of some kind to act as a substitute in case of emergency — which, for



ROLLERS

Automatic Reel

that matter, is good advice regardless of the kind of reel one uses.

THE MULTIPLYING REEL

The multiplying reel is geared so that one turn of the handle will produce two turns of the spool in the double multiplier, four in the quadruple, etc. This is a decided advantage in casting from the reel, work requiring sustained action and free running, but it is of no particular value in fishing with flies. However, the average multiplying reel is provided with a click so that it can be used for fly fishing and a few fly fishers prefer it for the purpose, not agreeing with old Christopher North who pronounced the multiplying

reel " the invention of a fool." The principal objections to the multiplier, from the viewpoint of the ordinary angler, are the liability of the line catching on the prominent, balanced handle and its low, wide construction requiring the line to be guided on the spool to prevent it piling up and jamming against the pillars. From my own experience in fly fishing with a multiplier I would not recommend a beginner to buy one for the purpose, especially as he can secure a suitable click reel for a few dollars, but the bait caster who already owns one would be justified in using it for once-in-a-while fly fishing, if he is economically inclined.

American multiplying reels are the standard of excellence wherever fine tackle is used. They range in price from sixty cents to sixty dollars.

Care of the Reel

Whatever kind of reel the fly fisher uses he should take care of it, keeping it oiled and free from sand and dirt. To clean properly the reel should be taken apart carefully, all gummed oil and dirt removed with benzine, alcohol or kerosene (safer) and all openings cleaned with an oiled rag on a hardwood stick. When this is done re-oil all moving parts and carefully reassemble the reel. Those made of aluminum alloy should also be wiped on the outside with an oily rag to prevent tarnishing and this treatment will not hurt any reel. A scheme I use is to slightly oil the inside of a chamois reel bag (price fifty cents) and keep the reel in that which, in turn, goes into a regular leather

reel box which costs about a dollar. Thus stored a reel is always in good order and less likely to be broken when traveling.

THE LINE

EVOLUTION

Early fly fishermen used lines of twisted and braided horse hair and Dame Berners gives explicit directions for selecting, coloring and making a line of this material. Later silk was mixed with hair to reduce its roughness. Finally, when manufacturers learned to braid silk by machinery, hair was eliminated entirely as a line material. I have one of these old braided hair lines, and although of too large diameter to render through the guides of a modern rod, I tried it once and satisfied myself that one *can* cast with it — I prefer the modern lines.

OILED LINES

Early braided silk lines were filled with linseed, or some other oil, to give them weight and to make them waterproof. Some anglers still use the oiled lines but mainly for economy as they are inferior to the enameled.

HARD ENAMELED LINES

I believe the process of enameling a line is of American origin; anyway American hard enameled lines were for many years the world's standard of excellence.

They are usually made of a good grade of Italian or Japanese silk, hard braided, and finished by a process that is more or less of a trade secret. It may be said generally that the best American hard enameled lines combine good weight, beautiful finish, flexibility, with just enough stiffness to cast well, and extraordinary wearing qualities. These lines range in price from three to ten cents a yard, depending on quality and taper, and are usually sold on cards holding twenty-five or thirty yards. They come in a variety of colors, a popular one being the so-called "mist" or "water" tint,— a sort of green-gray.

BUYING HINT

The fault most likely to develop in a hard enameled line is that the finish will chip or "knuckle." Therefore in buying a line of this kind examine its finish carefully, rejecting those that show rough spots, "bubbles" or other indications of imperfect finish. Take an inch or two and double it with a hard pinch. If the enamel is weak it will crack and produce a white powder or a light spot.

SOFT ENAMEL LINES

With the increased popularity of dry fly fishing in England British makers produced a line of softer finish and more flexibility than the hard enameled which is known generally as the vacuum dressed line.

Vacuum dressed lines are braided solid and the waterproofing material is applied in a vacuum chamber from

which the air is exhausted by a powerful rotary pump. This enables the dressing to saturate thoroughly every fibre of the silk so that it becomes a part of the line itself and not merely a coating on the surface. After being treated in this manner several times the lines are cured and then carefully polished by hand so that they have a full roundness with a finish that will not chip or become sticky. These lines are very heavy, soft and flexible with little tendency to kink and are the last word in elegant fly fishing lines. They may be had either level or single or double tapered. The usual color is brown.

Current catalog prices of English vacuum dressed lines range from ten to twenty cents a yard; the American made, about fifteen cents a yard. Prices vary with the different sizes and tapered lines cost more than the level.

TAPERED AND LEVEL LINES

The tapered line, as its title suggests, has a middle of given size and gradually thins toward one end in the single taper and both ends in the double tapered, this being accomplished by leaving out a certain number of threads in the braiding process. Tapers vary; one American manufacturer is making his standard lines with 8 foot tapers and his tournament lines, very popular with some anglers, with very long front taper and with the middle or "belly" and the back taper made short.

Whether one should use a tapered or level line de-

depends on his style of fishing. If he uses his bass tackle for trout fishing (which I guess most of us do) and he casts a floating fly for the spotted princes of our colder waters, he should, by all means, use a tapered line. If he uses only a wet or sunken fly or fishes for bass exclusively, a level line is recommended.

A compromise is the single tapered line enabling the angler to use the tapered end for dry fly fishing and the level end for wet flies, for casting in a high wind or for bass.

Naturally a tapered line eventually ends up level from the weakened part being snipped off from time to time.

SIZES

The custom among angling writers to recommend a certain size of line for certain kinds of fishing without any consideration of the weight and action of the rod, is to be condemned because the line should match the rod to secure the most satisfactory results.

I know of cases where young anglers have followed such recommendations and secured an unsuitable line and gave fly fishing up in disgust, claiming it "too much like work." Investigation showed that they had lines too heavy or too light for their rods and such circumstances require much effort to make a good cast.

Taking a well-known and excellent American-made vacuum dressed line as a standard the proper sizes of lines would be approximately as follows: For American rods weighing less than 4 1/2 ounces, size F, tapered

or level; for American rods weighing $4\frac{3}{4}$ to $5\frac{1}{4}$ ounces, size E, tapered or level; for American rods weighing $5\frac{1}{2}$ to 6 ounces, size D tapered, size E level; for American rods weighing 6 ounces or more, size C, tapered or level.

Much, of course, depends on the action of the rod. A stiff rod requires a heavier line than a limber one and a British rod having considerable weight in the butt can handle a smaller line than an American rod of the same ounces.

English makers use numbers to designate the sizes of their lines. One well-known make corresponds with American sizes as follows:

English size	5;	American size	B.
“	“ 4;	“	“ C.
“	“ 3;	“	“ D.
“	“ 2;	“	“ E.

STRENGTH

The enameled line is made very heavy compared with the soft light line used in bait casting. Bait casters judge their lines by their test in pounds and it is for the benefit of the bait caster taking up fly fishing that I bring up this subject. No ordinary fly rod can lift three pounds and experiments show that a fish pulls approximately its own weight — and a standard Size E fly line tests around 25 pounds! It is a good plan to snip off an inch or so of line from time to time. Failure to do so has often resulted in a lost fish.

CARE OF THE LINE

Whether one uses a hard or soft enameled, level or tapered line it should be given proper care as a well-treated line improves with use and a good one should last several seasons of hard fishing.

The best and simplest treatment for a hard enameled line is an occasional rubbing with the line dressing the line manufacturers make for the purpose.

Vacuum lines should be frequently dressed with deer fat or mutton tallow. This is sold in flat tin boxes and the best way to apply it is to run the line through it, taking care that the line does not rub against the sharp edge of the box. Then rub it down thoroughly with a pigskin line greaser or an old leather glove. This treatment is used primarily to make the line float for dry fly fishing but it also serves to keep the line supple and in good condition. After being long in use a vacuum dressed line can be returned to the factory for re-enameled at a nominal charge, which is one of the advantages of having an American-made line.

Tournament casters add to the fat treatment a coating of powdered graphite which they polish until it shines like the proverbial "nigger's heel." This enables the caster to make long "shoots" but is "mussy" and makes the line unduly conspicuous in the water and is of no value in fishing.

Sand is bad for an enameled line. The line should be dried after being used and all sand removed. A line should not be kept on the reel any longer than neces-

sary. After a day's fishing I strip all line from the reel and leave reel and line on a chair and rewind it on just before leaving for the stream.

Between trips and during the winter the line should be removed from the reel and either coiled in a large, loose hank and thrown in a drawer or stored on a large line dryer or grooved hoop made for storing a line. Treated thus, one's line will be free from kinks when he keeps his tryst with the fishes the following spring.

LEADERS

PURPOSE AND EVOLUTION

The leader is the delicate connecting line between the necessarily coarse line used in fly fishing and the dainty, feathered creations we use as lures. Its principal use is to decrease the visibility of the line and to avoid weight at the end of the cast.

Early anglers used leaders of horse hair and the first fly fishers of Kentucky used fine sewing silk.

SILK WORM GUT

Silk worm gut was first used for leaders in the middle of the 18th century. This material is not the intestine of the silk worm but the contents of the cocoon spinning sacs which lie folded on either side of the worm's alimentary tract. As soon as the worm is ready to spin its cocoon the tip of this spinning material appears at the worm's " mouth." At this stage the worm is taken

and immersed in vinegar, which ends the career of the worm and commences that of the leader. The spinning material is then stripped from the worm and it hardens immediately on coming in contact with the air. Our leader material comes from Spain via England.

STORE LEADERS

Those who have neither the time nor inclination to tie their own leaders can buy them ready tied at the tackle stores. The two yard lengths of light, medium and heavy trout, light bass and heavy bass are most often used, depending on the average size of the fish in the waters one frequents.

SIZE OF GUT

Considerable saving can be made by tying leaders and it affords both a pleasant and profitable method to while away a winter evening or two.

Gut for leader tying is sold in hanks containing on an average twenty-five strands running from ten to fourteen inches in length. These hanks consist of either the Spanish assortment, containing good, bad and indifferent strands, or are made up in packages of selected strands by the dealer and sold at a higher price.

Systems of grading differ, but a sensible way is as follows:

Refina, extra light trout.

Fina, light trout.

Regular, trout size.

Padron, black bass size.

Marana, heavy bass.

Double thick marana, salmon size. Of these the bass fisherman will use mostly Regular, Padron and Marana, while the trout fisher will use these sizes and then down to the finest drawn gut.

A prominent English tackle house catalogs gut, and gives its diameter in thousands of inches, as follows:

Regular (13-14) ; Padron 2nd (14-16) ;

Padron 1st (15-16 1/2); Marana 2nd (16 1/2-17 1/2);

Marana 1st (18-19).

BUYING HINT

If one buys the selected assortments of gut mentioned above he will be more certain of getting good material. Generally, good gut is smooth and perfectly round and strands with flat places should be rejected. By running the gut through the fingers slowly one can usually detect these bad spots or they can be seen by holding the strand so that the light shines along its length.

COLOR

Many anglers draw fine distinctions between colors of leaders although some prefer it just as it comes from the tackle store. There are a great many ways to dye gut, the simplest, and I believe the best, being those given many years ago by Salter: "To stain hair or gut a pale sorrel color let it remain a few

minutes in a cup of strong coffee or black tea. To give it a pale slate color, mix water and black ink in equal parts and put the hair or gut in it for a moment only. For a grayish water color (mist) dissolve a little alum and indigo in boiling water, let it stand until it is cold and dip the hair or gut in it until it has acquired the tint you wish."

These worth-while directions might be added to in order to secure a greenish tint for fishing in the weeds. This can be done by using green writing fluid instead of the black, recommended above for obtaining the slate color. I do not believe in putting gut in hot solutions.

TYING LEADERS

Before one attempts to tie gut into leaders the strands should be soaked in luke-warm water to make it flexible.

There are several knots to tie the short strands together; the best, in my opinion, being the single and double water knots as they are known in this country or the fishermen's knots as they are called abroad.

The single knot (figure 1) is made by laying the



Figure 1

ends of two strands along side of one another and tying a simple knot around each with the free end of the other. When pulled tight these knots jam against each other making what appears to be one knot. The

strands should be shaken slightly as the knots come together. Finish by snipping off the over-hanging surplus.

The double knot (figure 2) is made similarly except that a double knot is tied before tightening. Of the two I prefer the single knot because it is smaller



Figure 2

although not quite as secure unless very carefully tied. Some anglers weave a tiny length of gut between the strands to act as a cushion before drawing taut but this I believe to be unnecessary. If one wishes he can insert the knotted end of a loop or strand between the knots for dropper fly before pulling them together.

In using either knot it takes from six to eight strands, depending on their length, to produce a leader approximately six feet long which is the most favored size for general fishing.

The best knot I know for making a loop at the ends of the leader is shown in figures 3, 4 and 5, labeled Favorite Loop. A double loop is loosely made on the end of the leader. The free end is placed between the loops, the upper loop is pulled through the lower and both pulled taut. This knot holds well, lies flat and will not cut.

If the angler uses snelled flies and fishes with more than one fly the best leader is made by looping together

two three footers with loops at both ends. The snelled dropper fly can then be attached by simply inserting its end between the two loops. If more than one dropper fly is desired or if a strand to attach an eyed fly is wanted it can be tied to the leader as shown in figures 6 and 7.

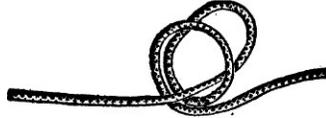


Figure 3

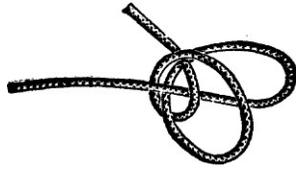


Figure 4



Figure 5

One can learn these knots in a few moments by practicing with heavy jute cord such as is used by hardware dealers and others selling heavy merchandise.

I use only one fly and my favorite leader for bass is tapered, the upper two-thirds being of bass size, the lower third of heavy trout strength, the whole being slightly over 5 feet in length. My trout leaders vary

in weight, according to conditions. Six feet is my wet fly length and 7 1/2 or 9 feet for dry fly fishing.

TESTING

After the leaders are made they should be stretched, permitted to dry and then be carefully labeled and put

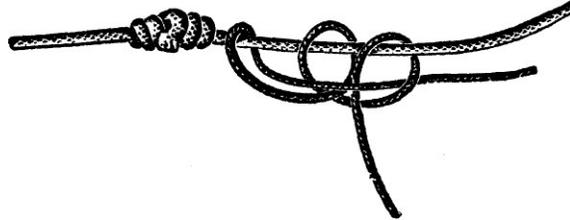


Figure 6

away. Some writers recommend testing each leader by making it pull three or four pounds against a spring

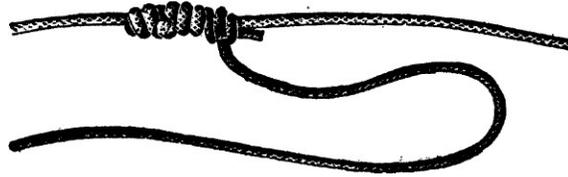


Figure 7

scale. A two pound pull is enough and the angler will soon learn to test his leaders with his hands without putting undue strain on them. At any rate beware of permitting some Herculean guide testing them with *his* hands — it cost us four dollars' worth of good leaders once!

LEADER BOXES

Leaders for immediate use should be soaked the night before and carried in a regular leader box which is provided with pads of felt to hold moisture. Spare leaders and gut strands can be carried in the tackle book. I know a good angler who carries his leaders in a home-made leader box improvised from a tobacco can. I suspect that he does it to impress his wife with the fact that he is an economical man, since he can get an aluminum leader box for about twenty cents; ones finely finished in oxidized copper cost up to \$1.50. I do not recommend the combination leader and fly boxes.

CARE OF LEADERS

Anglers were of the opinion once that gut should be kept immersed in alcohol but nowadays it is stored by wrapping it in chamois or dark heavy paper and keeping it away from the light.

SUBSTITUTE GUT

Silk worm gut has a number of faults and a real substitute is much desired. One substitute is made of Japanese fiber or twisted silk treated with oil or shellac which in use soon becomes flimsy and worthless. Another is said to be a sort of "conglomerate gut" produced by drawing the gut from a great many worms at the same time. Its chief merit is that it is made without knots, except loops at the ends, and its "flat"

finish makes it practically invisible in the water. It is very durable but must be soaked before being used the same as ordinary gut.

MISCELLANEOUS TACKLE

An important part of the angler's outfit, and one that he likes to use with reasonable frequency, is the landing net.

For wading, a short handled net is preferred by most anglers although where the streams are swift and rocky the long British net handle with a spike in the end is a big help. The short handled net may be either one whose handle folds, which is carried by a button or is tucked in the top of the waders, or one with an elastic cord that goes over the shoulder.

For boat fishing the long handled net used by the bait caster is satisfactory. For permanent camps it can have a one-piece handle and a solid frame but for ease of carrying the folding frames with jointed handle are most convenient. Cheap nets are made of cotton, the better grades being of braided linen fish line and are more durable.

CREELS, STRINGERS AND BAGS

The creel for large trout and bass fishing should be as large as possible. Creel straps should be the patent kind that go over the left shoulder with a belt to hold the creel close to the body. This leaves the right shoulder unencumbered for casting.

Many anglers prefer to string their bass, on account

of their weight, and tie the string to a belt loop and make the fish transport themselves. When fishing from a boat a stringer, or better still, a fish bag is to be preferred since it keeps the fish alive. Fish that are not kept in a bag should be killed at once — humane and keeps the catch in better condition.

TACKLE BOX AND TACKLE BOOK

The angler who fishes entirely from a boat may use a tackle box such as his fancy dictates but for wading, space and weight make a tackle book desirable. This is made long and narrow with many gusseted pockets. In it one carries spare leaders or gut, hooks, scales, scissors (handy for snipping gut) tape or ruler, sinkers, split shot, swivels, oil can, connecting links, camera films, stringer, repair kit, fly or mosquito dope, line re-leaser, pliers, and all the other little knick-knacks that anglers use or think they use.

Accessories for dry fly fishing are mentioned in the chapter on that subject.

FLIES

SOMETHING ABOUT FRAUDULENT FEATHERS

EVOLUTION

THE early history of trout flies has been touched upon in another chapter. Possibly the first fly used for bass fishing was the " bob " mentioned in a previous chapter — if you call that a fly. The flies used by the early Kentucky bass fishermen were either large trout flies or bass flies of their own tying. It is a curious fact that of all the favorite bass flies now in use, none of them trace their lineage back to these first bass fly fishers — especially remarkable as they were men of unusual mechanical and artistic abilities and most expert and studious anglers. It is equally true that none of the bass flies recommended by the early American angling writers are now in favor. We have already described Dr. Bethune's pattern, and Frank Forrester in his " Fish and Fishing " gives the formulae for several patterns none of which are now used. Many of our most successful bass patterns are merely trout flies somewhat enlarged.

HOOKS

The principal part of any fly is the hook. I do not intend to go into a lengthy discussion on angles of draft

or other technicalities of fish hooks as *good* flies nowadays are always tied on suitable hooks and fly fishers should use nothing but good flies as their quarry is a hard fighter and his mouth is exceedingly tough, requiring a sharp point to hook him and an honestly made hook to hold him. My preference is for the round bend hooks like the O'Shaughnessey or Sproat in the larger sizes and the Model Perfect, Limerick or Sproat in the smaller ones although if the hook is of good quality I will not reject a well-tied fly if on a hook with a side bend like the Sneck — and I don't believe a fish would either.

SIZES

Bass flies vary somewhat as to size regardless of the size hook used, some being tied bulkier than others. However, a good bass fly should be neatly proportioned and should correspond, to some extent at least, to the hook on which it is tied.

For small, clear streams where the bass average small or moderate in weight, the choice of the average bass fisher would be a number 6 or even as small as a number 8. When the same stream is roiled a number 4 or number 2 would be required to get the fish's attention. For average bass streams numbers 4 and 2 are most often used while numbers 1, 1-0 and up to 3-0 are appropriate for clouded waters, wind swept lakes and streams and for the big bass of our southern states. These sizes (all based on Redditch scale) are only general and many anglers prefer larger or

smaller hooks. The tendency among bass fishermen, however, is toward smaller and better hooks.

There is a wonderful variety in the sizes of trout flies. For wet fly fishing sizes 4 and 6 are considered large; 8 and 10 medium; 12 and 14 small and "tinies," or very small, run all the way to 22 which are no larger than an anaemic mosquito. Local conditions should govern the selection of sizes of flies. In some waters the trout show a marked preference for certain sizes and many expert anglers claim that a variety of sizes is more important than a multitude of patterns. My own experience inclines me toward the same belief and in late years I have carried with me more size 6 than ever as I have found that the trout favor a large fly more often than the general run of anglers seem to believe. Unless local anglers advise otherwise the novice would not be far out of the right track if he would proportion his sizes on the following basis, taking a dozen flies as a standard: size 6, 2; size 8, 4; size 10, 4; size 12, 1; size 14 or 16, 1. Smaller flies are used for dry fly fishing, number 12 being the standard in most American waters.

A time-honored rule in bass or trout fishing is to use small or dark colored flies in very clear water and during bright weather and the larger ones and the gaudiest colored on dark days, at night or when the water is discolored. This is a safe rule to follow, generally, except that certain sky conditions make a dark colored fly more prominent than a light one when fishing at night.

STYLE

Good winged bass flies are tied with the wings "reversed." That is, the wing is first tied under the body and then reversed and tied over the body making them much more durable.

Wings are usually placed where wings ought to be, but for fishing in weedy places bass fishermen often have the wings "inverted"—tied on the under side to cover the hook point and act as a weed guard. Another method much used on the Illinois River, is to tie a few horse hairs on the hook shank, immediately under the eye, of sufficient length to extend over the hook point. Either method, I believe, is superior to a wire weed guard.

Hackle flies, which are almost as good for bass as for trout, are tied without wings and the hackles (hair-like "legs") are on the upper part of the body only. Palmer flies are similar but have the hackles the entire length of the body and are often finished off with a short red tail, which I believe adds to their attractiveness.

Trout flies tied on long shank hooks are often very effective when there is a hatch on but the hooks must be of good quality.

SNELLED, LOOPED AND EYED FLIES

I do not like snelled flies and intend to never use another one. My experience is that the snells give out before the fly, leaving an otherwise good, but useless,

fly on your hands. Besides, they occupy too much space and are bothersome. The eyed fly was revived when dry fly fishing became popular abroad and most fly fishers now use flies tied only on eyed or looped hooks, which they fasten directly to the leader. A large number of them can be carried in a comparatively small space and they can be used with a modern spinner— often desirable in bass fishing.

Some large bass flies and most salmon flies (the smaller sizes of which are excellent for bass) are tied on hooks with a twisted gut loop instead of an eye and they possess the advantages of eyed flies except possibly they are not quite as durable.

If the angler has flies tied on hooks with turned down eyes he may find that they do not "ride" well with a spinner. If such is the case he can straighten the eye by heating it over a flame, straightening carefully with pliers, dipping in oil and permitting to cool rapidly on a window sill with the window slightly raised. This may not be a scientific way but it works.

HOW MANY FLIES?

Some fly fishers use as many as three flies and not a few prefer two. Most of the time I use only one fly but do not question the sportsmanship of those who do not agree with me. In fact, my preference is based on efficiency. In other words, I believe that a single fly, properly and carefully fished, will produce more rises and catch more fish, and certainly is easier and simpler to handle, than a cast made up of two or

more flies. Sometimes it is a good plan to start with two or three flies to see what they are taking.

BEST PATTERNS FOR BASS

A variety of flies is the spice of fly fishing and few of us care to limit ourselves to four patterns (Lake George, Grizzly King, Seth Green and Coachman) as did Seth Green.

About three years ago I sent a questionnaire to some of the most expert bass fly fishers in the Middle West asking for the names of their twelve favorite patterns (exclusive of floating flies) for bass fishing. These were published in my column, Woods and Waters, in the *Chicago Tribune*, but I believe they are worth reprinting, representing as they do, the opinions of some of our most successful anglers.

Willard A. Schaeffer, of Rock Island, Ill., limits his favorites to six patterns as follows: Phil Mitchell, Onondaga, Reade, Lake George, Lord Baltimore, Royal Coachman.

Fred O'Reilly of Wabasha, Minn., is an "old timer" on the upper Mississippi River and being the local tackle man, he has opportunity to study the results produced by the different patterns. His favorites are: Lake George, Royal Coachman, Grizzly King, Professor, Lord Baltimore, White Miller, Yellow Coachman, March Brown, Silver Doctor, Parma-chenee Belle, Onondaga.

H. A. Newkirk, Chicago, does not believe that 12 patterns are necessary. He offers the following as

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being ample: Westwood Bug, Oliver, Knight, Colonel Fuller, Emmett.

Fred Peet, Chicago, believes in the following: Queen of Waters, Colonel Fuller, Professor, Bucktail, White Miller, Brown Hackle, Grey Hackle, Yellow May, Montreal, Seth Green, Rube Wood, Ferguson.

Call J. McCarthy, famous tournament caster, who posed for the casting pictures in this work, selects these twelve: Grey Palmer, Brown Palmer, Professor, Refmac, Black Palmer, Cahill, Coachman, Red Ibis, Parmachenee Belle, Grizzly King, Green Drake, Jungle Cock.

Will H. Dilg, writer of fishing stories of the upper Mississippi River, prefers: Colonel Fuller, Oliver, Yellow May, Reade, Royal Coachman, Knight, White Miller, Parmachenee Belle, Scarlet Ibis, Raven, Jock Scott, Durham Ranger.

Wm. J. Jamison, Chicago, selects the following: McGinty, Royal Coachman, Brown Hackle, Professor, Silver Doctor, Reuben Wood, Stone, March Brown, Lord Baltimore, Yellow May, White Miller, Coaxer.

Hon. Carter H. Harrison, former mayor of Chicago, is "satisfied to cast the following in the order named: Silver Doctor, A. S. Trude, White Miller, Yellow Sally, Parmachenee Belle, Lord Baltimore, Seth Green, Grizzly King, Professor, Jock Scott, Scarlet Ibis, Black Gnat."

My own favorites are: Brown Palmer — red tail, Jungle Cock, Silver Doctor, Grey Hackle, Yellow May, Colonel Fuller, Montreal, White Miller — red

tail, Parmachenee Belle, Lord Baltimore, McGinty, Westwood Bug.

RECAPITULATION

When we recapitulate we find that the above patterns rank, in point of times mentioned, as follows: White Miller, Parmachenee Belle, 7; Colonel Fuller, Professor, 6; Lord Baltimore, 5; Yellow May, Reade, Royal Coachman, Silver Doctor, Brown Palmer, 4; Grey Palmer, Montreal, Grizzly King, Bucktail, Brown Hackle, Oliver, Scarlet Ibis, 3; Raven, Jock Scott, McGinty, Reuben Wood, Seth Green, Black Gnat, Bug, Coachman, Jungle Cock, Phil Mitchell, Onondaga, Lake George, March Brown, 2.

MISSISSIPPI PATTERNS

Flies mentioned particularly for the Upper Mississippi River, probably the best piece of fly fishing bass water in the world, rank as follows: Reade, Parmachenee Belle, 4; Colonel Fuller, Oliver, Royal Coachman, White Miller, 3; Bug, Professor, Knight, Scarlet Ibis, Raven, Jock Scott, Silver Doctor, Lord Baltimore, Lake George, Onondaga, Grizzly King, 2.

WHITE MILLER

The young angler might conclude from the above that the White Miller is a " killing " bass fly for general fishing. Those who included it in their lists did so because it is a special fly — for night fishing and for very roily water.

FLOATING BUG AND ITS HISTORY

The idea of a cork-bodied fly is very old. Gervaise Markham in "The Art of Angling," 1614, gives directions for tying a trout fly "fixed upon a fine piece of cork."

The first floating fly made commercially for bass fishing probably was the "Coaxer" fly, a loaf-shaped piece of cork with wings of red felt and a single hook concealed by a feather.

I have been unable to learn definitely when the present form of cork-bodied bass fly, or "bug," first came into use. In 1911 Mr. B. F. Wilder, of New York, found Mr. Louis B. Adams using such flies of his own tying on the Belgrade lakes, in Maine. Mr. Wilder passed the idea along to a number of mid-west anglers, notably Will H. Dilg and Fred Peet of Chicago. These ardent brothers of the angle tried them, in 1916, on the small mouthed bass of the Upper Mississippi River with wonderful success. Mr. Dilg — Will o' the Houseboat — wrote several articles on this fishing which appeared in *Field and Stream* and the bass bugs instantly became immensely popular throughout the United States and Canada.

Realizing the danger and confusion of a multitude of patterns I suggested that a few patterns should be standardized, and as a result a meeting was called by some Chicago fishermen and professional fly tyers and the following patterns were named and described as being adequate for all conditions of weather and water:

NAME	BODY	STRIPES
Peet's Favorite	.....White	.....Brown
Dilg's Gem	.....Orange	Brown ...Black
Clarke's Fancy	....White	.....None
Wilder's Discovery	..Yellow	...Red
St. John's Pal	.....Red	.....Black
Hadley's Choice	..Yellow	.....Black
Chadwick's Sunbeam	..Yellow	...Black
Alex Friend	.....Gold	.....None
Bob Davis	.....Yellow	.....None
Zane Grey	.....Gray	.....Gray
Carter Harrison	...Brown	.....Yellow
Dr. Henshall	.....Brown	.....Red

NAME	TAIL	WINGS
Peet's Favorite	.....White	.....White Turkey
Dilg's Gem	.....Brown and Gray	..Brown Turkey
Clarke's Fancy	..Red	.....White Turkey
Wilder's Discovery	..None	.....Yellow and Red
St. John's Pal	....Yellow	.....Mallard Wing
Hadley's Choice	White	.....Yellow and White
Chadwick's Sunbeam	..Red	.....Peacock Eyed
Alex Friend	.....Black	.....Yellow and Red
Bob Davis	.....Yellow	.....Yellow
Zane Grey	.....Gray	.....Gray
Carter Harrison	..Fox Squirrel	...Fox Squirrel
Dr. Henshall	.....Brown	.....White and Red

These " bugs " are also made in trout size which have been found very effective. They are tied in imitation of the standard patterns. The regular bass sizes have also been used successfully on very large trout.

PRACTICAL FLY FISHING

BEST PATTERNS FOR TROUT

" Don't bother with a lot of flies," said Thad. Norris, one of America's early fishing writers, " for here are four that will serve all purposes: one is the Red Spinner; the second a Black Gnat; the third is the Coachman; the fourth and the best of them all is the Red Palmer or Red Hackle, as it is indifferently called." Pennell, a famous English trouterman, confined himself to what he called three " typical" flies; green, brown and yellow hackles. Both of these men became famous as anglers but neither succeeded in " selling " his idea of few flies to the general run of trout fishermen.

In her charming " Favorite Flies and Their Histories," Mary Orvis Marbury gives the result of a symposium on the best trout flies with the following results:

PATTERN	NUMBER OF TIMES MENTIONED	PATTERN	NUMBER OF TIMES MENTIONED
<u>Coachman ..</u>	<u>58</u>	Grizzly King ..	23
Brown Hackle	44	Royal Coachman	19
Professor	38	Queen of Waters	19
<u>Montreal</u>	<u>28</u>	Silver Doctor ...	18
Black Gnat	25	Cowdung	18
White Miller	24	<u>Scarlet Ibis</u>	15

Many years later (1916) I conducted a similar symposium among middle western anglers of repute and the result was as follows:

PATTERN	NUMBER OF TIMES MENTIONED	PATTERN	NUMBER OF TIMES MENTIONED
Coachman	9	McGinty.....	4
Professor	6	Brown Palmer ..	4
Cahill	5	Silver Doctor ...	3
Queen of Waters.	5	Hares Ear	3
Royal Coachman.	5	Grizzly King	3
Wickhams Fancy.	5	Grey Hackle -----	3
Stone	5	Phil Mitchell ____	3
Cowdung	5	March Brown ...	2
Brown Hackle ...	4	Montreal	2

Still more recent is the symposium conducted by the *American Angler*, more than two hundred prominent anglers contributing. Each man was requested to name his three favorites and three points was awarded the ones chosen first; two points to the second and one to the third. The score follows:

Royal Coachman	93	Black Gnat	31
Coachman	56	Grey Hackle	27
Parmachenee Belle	54	Montreal	26
Cahill	45	Cowdung	21
Professor	43	Silver Doctor	20
Brown Hackle.....	43	Queen of Waters	18

Favorite dry fly patterns are also a matter of opinion. Many of the favorite patterns of British dry fly men are not of exceptional value for our waters. This applies especially to streams stocked only with brook and rainbow trout and to our western rivers where the brown trout is unknown.

Emlyn Gill and Samuel Camp have made a con-

siderable study of dry fly fishing in American waters and their favorite fly patterns are:

CAMP ¹	GILL ²
Coachman	Whirling Dun
Cahill	Wickharas Fancy
Gold Ribbed Hares Ear	Pale Evening Dun
Wickhams Fancy	Jenny Spinner
Brown Sedge	Willow
Silver Sedge	Orange Fish Hawk
Iron Blue Dun	Olive Dun
Whirling Dun	Soldier Palmer
Olive Dun	Silver Sedge
Green May-female	Red Spinner
Brown May-female	White Miller
Spent Gnat-female	Coachman
	Black Gnat

SPINNERS

There are times when it is necessary to fish a little deeper than a fly ordinarily sinks or when a plain fly fails to attract the attention of our whimsical quarry. When these conditions prevail the glitter of a tiny spinner often induces the fish to strike.

You will occasionally find an angler who objects to the spinner on the grounds that it is unsportsmanlike but some of the finest sportsmen I know will use a spinner when the bass or trout will take nothing else and under the circumstances I believe its use is justified.

I give the fish ample opportunity to take a plain fly; if they register no appreciation of my lofty ethics I add a tiny spinner and do it shamelessly.

¹ From "Fishing with Floating Flies."

² From "Practical Dry Fly Fishing."

The spinner for fly fishing should be small (sizes 0, 1 and never larger than 2) and preferably of the kind with a patent snap that permits instant changing of flies. Ordinarily the single blade type is as much as one can handle easily on a fly rod.

The dark finishes, copper and black, are for very clear waters; the nickel, brass, gold and silver for waters that are normal or roiled.

OTHER HELPS FOR DESPERATE ANGLERS

An innovation in bass fishing is a small wooden imitation minnow light enough to be used on a sturdy fly rod. It is equipped with a double hook on the belly and is a miniature of the "wobbler" type of lure used so successfully by the bait caster. It darts back and forth in the water, when being retrieved, in imitation of a frightened or crippled minnow.

Another attraction that may be added to one's fly is the rubber strip sold by the tackle dealers. It is white, very thin, light and "wiggly" in the water. It is designed to imitate the bait caster's pork strip but is much lighter in weight.

The ethical question of using lures of such nature on a fly rod is something for each angler to decide for himself.

FLY BOOK AND BOX

Snelled flies are best carried in the books provided with some arrangement to hold the snells straight.

Eyed flies may be carried in the boxes, made for the purpose, with a metal clip to hold each fly. These

boxes vary as to size, form and finish — see any tackle catalog.

The angler who uses " bugs," wigglers and other bulky lures will have to find some receptacle, other than an eyed fly box, to hold them. A new fly book is ideal for the purpose. It consists of several leaves of a peculiar felt which holds the hook but permits it to be withdrawn instantly, without catching. In a book of this kind one can carry a number of the bugs and several dozens of the ordinary flies.

CARE OF FLIES

Flies wear out from use but this can be postponed if they are given a little care. Flies that have been recently used should not be put in the box or book with other flies. Dry them either on your hat band, or by letting them lie in the sun or have a separate place for them in the box or book. Keep the hook points sharp and free from rust by filing them a little if necessary.

Store your flies where the moths cannot get at them if you put your flies away for the winter. If you arrange and rearrange them from time to time, during the winter of our discontent, as most of us do, keep them in the box or book. Moths know better than to attack the flies of an angler who " fusses " with his tackle 'tween seasons!

SOME NEW FLIES

Most of the favorite flies are well known to anglers in general but some of them have been origi-

nated since the publication of Mrs. Marbury's "Favorite Flies and their Histories" and other standard works. For that reason I deem it advisable to give a brief mention of some of these flies which include some of the most effective patterns known to present-day fishermen.

A. S. Trude. This fly was originated in 1900 by Hon. Carter H. Harrison and named for his friend, A. S. Trude, an attorney-angler of Chicago. Scarlet body with one winding of gold tinsel; brown hackles; wings from tail of fox squirrel, showing the dark bar.

Bucktail Minnows. A series of flies with bodies, hackles and wings of bucktail hair. Bodies wound with gold or silver tinsel. Tied variously by a number of fly tiers. Designed to imitate a live minnow.

Col. Fuller. Originated by 1899 by John Shields, Sr., of Brookline, Mass. Named for the late Col. Fuller, a noted Boston sportsman, who used it with great success on the Belgrade Lakes in Maine. There is considerable variation in the tying of this fly. The original pattern had a gold tinsel body with a gold rib; peacock herl head; wing bright yellow; outer wing or shoulder, scarlet; tail black.

Dazzler. Originated in 1918 by Bert Crawford, St. Joseph, Mo. Striking bass flies of hair and feathers highly decorated with tinsel.

Devil Buff. Originated in 1917 by O. C. Tuttle, Old Forge, N. Y. A series of odd-looking trout and bass flies of bucktail, made in various sizes and shapes

and decorated with colored " eyes " and other markings.

Drag on Fly. I first saw this fly in 1916. It was tied by Ben Winchell, a Chicago amateur. It is an imitation of the dragon fly or " darning needle " and is said to be especially killing in quarry fishing. Tied in various sizes and color combinations.

Emerson Hough and Wm. Wood Bucktail Trout Flies. Originated about 1910 by Emerson Hough and his woodsman friend, Wm. Wood. Made entirely of bucktail tied very irregularly or untrimmed.

Emmett. Originated in 1900 by Richard S. Emmett on the upper Mississippi River. Shiny black body; black hackle; turkey wings and tail.

Fischer. Originated in 1916 by Charles Stapf of Prescott, Wis. Large scarlet body; hackles long and scarlet; wings, mallard; tail white.

Knight. Originated in 1902 by John B. Knight of Chicago. White body; white hackles; wings, mallard or turkey with a few strands of scarlet; over wing or shoulder, white; tail, peacock herl and one strand of turkey.

Luminous Bug. Originated in 1914 by E. H. Peckinpaugh, Chattanooga, Tenn. A cork-bodied " bug " with luminous head. Tied in patterns to correspond with standard wet flies.

Larry St. John. Originated by Call J. McCarthy, Chicago, in 1915. Lavender body with gold rib; gray hackles; mallard wing; over wing or shoulder, English pheasant neck hackle; tail, gray.

Nature Flies. Originated in 1916 by Louis Rhead, Brooklyn, N. Y. A series of trout flies tied in exact imitation of American trout stream insects.

Oliver. Originated in 1904 by John Milton Oliver of Chicago. He was fishing the upper Mississippi with a Coachman fly when its peacock herl body became frayed. Having some bright yellow winding silk in his tackle box he fashioned a bulgy body with it and had unusual success. Body, bright yellow or orange, very bulky; ginger hackles; white wings; tail, barred wood duck.

Palmer Grasshopper. Originated in 1917 by M. Palmer, Pasadena, Calif. A combination wood and feather imitation of a grasshopper.

Palmer Blue Devil. Originated in 1918 by M. Palmer, Pasadena, Calif. Imitation of a small blue dragon fly or "darning needle."

Prismac Hair Flies. Originated in 1915 by Call J. McCarthy of Chicago. Bodies, hackles and wings of dyed bucktail hair in various color combinations.

Phil Mitchell. Originated in 1907 by Willard A. Schaeffer, of Rock Island, Ill. He was attempting to dye some feathers a certain shade of yellow but the result was a peculiar orange. He combined these orange feathers with others and the result was the Phil Mitchell. Olive green body; orange hackle; wings, barred wood duck; tail, red.

South Bend Bucktail Flies. A series of bucktail flies in various colors originated about 1912 by South Bend Bait Co., South Bend, Ind.

Squirrel Tail Trout Flies. Originated in 1917 by Fred N. Peet and Charles Antoine, Chicago. Variations of the A. S. Trude fly but without hackles.

Winged Helgramite. Originated in 1916 by Louis Rhead, Brooklyn, N. Y. Exact imitation of big stone fly or winged helgramite. Body tinted wood; legs of fiber, wing gray.

Westwood Bug. Originated in 1912 by I. T. Cook, of St. Louis, who had them tied by Miss Westwood of Wilmette, 111. Made entirely of natural (gray, black and white blended) bucktail hair, tied "flat" to imitate a craw fish. Sometimes called the "Mississippi Bug" because it was first used on that river.

Wyman. A series of flies tied by Edward Wyman, Chicago. One pattern has small bright yellow body with scarlet rib; large hackles of elk hair; long tail of red, white, blue and black.

APPAREL

WHAT TO WEAR TO BE COMFORTABLE IF NOT FASHIONABLE

UNDERWEAR

PERHAPS a writer is getting "altogether too personal," as the saying goes, in discussing the kind of underwear an angler should don when faring forth for fish. However, I feel duty bound to recommend underwear of wool, or of a goodly proportion of that material, for early or late fishing or when wading with or without waders. When wearing waders in fair weather woolen underwear absorbs perspiration and prevents the angler getting chilled when he takes them off or if the temperature suddenly drops — something that often happens when angling. Besides, even when wearing waders, the possibility of getting a "ducking" by making a misstep into a deep hole or with the fiendish and conspiring aid of slippery or rolling stones (which *do* gather moss in streams), is by no means remote. The discomfort occasioned by such a catastrophe is greatly lessened if the hapless angler is protected by wool. When wading without waders woolen underwear prevents chilling and guards against those "inflrmyties," mentioned

by Dame Berners, that come from getting cold and wet. For the same reasons all-wool sox and stockings are advisable.

BOOTS AND WADERS

The ideal way to wade a stream is to don woolen underwear, an old pair of trousers and shirt, put your smoking material and matches in your hat and go to it. Early and late in the season and in streams that are spring fed and cold, this is usually too rigorous for the average angler.

Next best is to fish a stream shallow enough to permit the angler to " pick " his way along in hip boots or wading stockings. Such streams, if of stony bottom, are likely to be dangerously slippery and the adjustable sandals, studded with hob nails, should be worn over the boots. These sandals come in two sizes, large and small, and are adjustable several sizes each way.

When considerable deep water is to be waded, the regular waders, or wading pants, should be worn, These garments are sweat boxes in warm weather and are hardly comfortable in cold but they offer the only protection known when wading streams of fair depth and must be looked upon as " necessary evils."

HEAVY WADERS

The heavier waders are made of mackintosh or of some other equally stiff and heavy waterproof ma*

terial. Their chief recommendation is that they wear longer than the lightweight. They come with both boot and stocking feet.

FEATHERWEIGHT WADERS

The English have produced a wader of very light and thin waterproof material known generally as "featherweight" waders. Although they are not as durable as the heavy weight style they wear fairly well and are more comfortable and easier to "navigate" in. They are made to come well above the waist, with a puckering string at the top and often with a pocket in front to hold a fly book or leader box. Being made only with stocking feet they may be rolled in a remarkably small package.

SHOES

Stocking foot waders must be worn with shoes of some kind as the feet are made light and thin. Regular wading shoes are made for the purpose. They are of canvas, or canvas and leather, equipped with heavy soles studded with blunt nails or hobs to prevent slipping. The best nails are of soft iron as they "grip" better than those of steel. A pair of heavy socks should be worn under the shoes to prevent wear on the feet of the waders. It is also advisable to wear a pair of overalls or light khaki trousers over the waders to prevent chafing and tearing while going through the brush.

For boat or canoe wear I recommend light unwater-proofed moccasins with or without soles; tennis slippers are also good.

CARE OF BOOTS AND WADERS

Waders and boots, to be of any use, obviously must be kept dry inside. In warm weather one often finds himself so damp that he may suspect his waders of leaking although usually it is only perspiration. Waders thus dampened should be opened and hung up so the air can get at them. Waders that are actually wet inside demand more thorough treatment.

I learned how to dry out rubber boots or waders under somewhat distressing circumstances. I was fishing a sheltered bay on Bass Lake, Ind., during a raw, northeast wind one day in the spring. I was casting from shore, wading out as far as the height of my boots would permit. I had a common grain sack tied to my belt to hold the fish which, despite the unpropitious circumstances, were striking well. As soon as the bag grew decently heavy I decided to go ashore and forgetting all about the bag tied to my waist, I turned, stepped on it, lost my balance and took what the youngsters call " a header " into the icy water.

By the time I drove four miles in an open motor car in the teeth of the cold wind a hot fire and dry clothing were welcome, to say the least. My host, Frank Hay, the dean of the northern Indiana anglers, then showed me how to quickly dry wet boots. First

he emptied out the water and rubbed the inside of the boots with a dry cloth to remove as much of the remaining moisture as possible. Then he took sheets of newspaper and placed them on the hot stove until they scorched (they turn brown and give forth a "burned" odor when sufficiently heated) and crammed my boots full of this warm material. In a remarkably short time they were dried perfectly. Heating oats, bran or sand and using in the same way is also recommended but the newspaper treatment is the best I have ever seen so I pass the idea along. Parenthetically, you will note that I do not recommend a grain sack for holding fish, in the chapter on tackle!

As soon as the angler reaches his fishing grounds he should remove his waders from the suit case or duffle bag and hang them up. Do not pack waders that are wet as they are liable to rot. As soon as the angler reaches home he should hang the waders in the open air until they are thoroughly dried. Do not roll them up when storing them between seasons.

Boots or waders with a leak are worse than useless. The best way to locate a puncture is to blow up each boot or wader leg with a tire pump and submerge in a tub of water when small bubbles will tell where the trouble is. The poorest way to find a leak is to have a trickle of icy water tell you about it.

A leak can be patched by either inserting a rubber plug, such as is used for patching tires, or by a round patch put on with tire cement. The quick repair discs,

that fit both over and under the hole and tighten, are also handy. A temporary patch can be made with adhesive tape or canoe glue. Best of all, if the material will permit, is to have the puncture vulcanized by the garage man.

OUTERWEAR

JACKET

The outerwear of the angler should be reasonably strong, weather-proof and inconspicuous. The latter points were quaintly brought out by Dennys in his oft-quoted verse:

" And let your garments russet be or grey,
Of colour darke and hardest to descry;
That with the Raine or weather will away,
And least offend the fearfull Fishes eye."

Most stream fishermen favor the regulation wading jacket which has many advantages. It is made short — my little daughter aptly calls it a " monkey jacket "— so as not to drag in the water and has a wealth of pockets. A knapsack or large pocket in the back carries tennis slippers, cook kit, camera or lunch. Altogether, it is a sensible garment.

RAIN CAPE OR COAT

To wear over the shoulders while fishing in the rain a cape of light rubber is made that is most convenient. It folds in slightly larger bulk than a handkerchief.

For fishing from a boat in bad weather I recommend the so-called folding motor rain coat. This garment is made on the style of a surgeon's over-all. It both puckers and snaps at the neck and the sleeves are closed at the wrists by sewed-in elastic which prevents water running up the arm. It covers the entire body and is absolutely waterproof. It packs in a rubber envelope making a package about a foot square and 3 inches thick — handy as a cushion in fair weather. It is the first thing that goes in my duffle bag when I pack for a fishing or duck hunting trip. It should not be put away wet nor stored folded.

HAT AND CAP

Most fly fishermen affect an old, battered felt hat with a wide, loose band on which they dry their flies before returning them to the book or box. Thus decorated they look, as my friend Herb Daniels once remarked, "like noble red men on the war path."

I prefer a light khaki cap with a large, green lined visor or peak and ear laps and neck cape, such as duck hunters wear. I find it very handy to foil mosquitoes and black flies who often attack with intentions I suspect of being bloodthirsty.

HEAD NETS

Head nets, like waders, are the lesser of two evils. A cheap one is made of light netting and is held away from the face by the hat brim and ties under the arms.

It folds very compactly. A more elaborate one is made of metal gauze.

If you smoke get a head net provided with an opening for the purpose.

GLOVES

A pair of light leather gloves is a comfort on " nippy " days and also protects one from mosquitoes. For the latter purpose tackle dealers sell a thin gauntlet that covers the entire forearm.

GOGGLES

Some anglers find the sunbeams dancing on the riffles very trying to the eyes, making a pair of green or amber-colored goggles very comfortable. They cost from fifty cents up.

BIOLOGICAL

SOMETHING ABOUT THE QUARRY

THE SMALL MOUTHED BLACK BASS

(Micropterus dolomieu)

KNOW FISH

I T is good luck to be on the good side of the man I that knows Fish," said Walton. My purpose

here is to tell something of the natural history of the fishes anglers woo so ardently. Later I will deal more specifically with the habits of the basses and trouts and their relation to that ever-interesting problem, " Fishermen's Luck."

HISTORICAL

The biological history of the black basses is covered so ably and scientifically by Dr. Henshall, in his " Book of the Black Bass," that I will touch the subject only in a general way.

Louden, in his " The Small Mouthed Black Bass," states that the early Jesuit missionaries used the word " achigan" as early as 1655 to designate the small mouthed black bass. The word corresponds with the French word " bas " meaning stocking and certainly these hardy fishers of men must have included " our " fish in their Friday menus. Robert Roosevelt found 101

the Chippewas of the Lake Superior Country still using the name " achigan " in the eighties.

The first small mouthed black bass recognized by science was a specimen described by Lacepede in 1801. It happened to be a mutilated specimen and as a result received the unfortunate generic name "microp-terus," meaning small fin.

The small mouthed black bass is often called " red eye " by many anglers.

RANGE

The original range of the small mouthed black bass was probably restricted to the Great Lakes region, the northern parts of the Mississippi and Ohio valleys and perhaps the headwaters of certain Allegheny streams. Frank Forester in his " Fish and Fishing " says that the black bass was found in the basin of the St. Lawrence and the Great Lakes and was distributed in New York via the Erie Canal which was opened in 1825. We know that the small mouthed black bass was introduced into the Potomac in the early fifties and in other Eastern rivers soon after. Since then his range has been greatly extended by transplanting in most of the cold water streams of northern U. S. and Canada and in several European countries.

DESCRIPTION

The small mouthed black bass is too well known to warrant much of a description here.

The coloration of the small mouthed black bass

varies considerably in different waters and even in individual specimens. Generally the back of this fish is dark, sometimes black; his sides of some shade of green and his belly cream colored or dull white. Young specimens are usually marked with dark patches or bars placed vertically, seldom horizontally, on the body. Three dark streaks cross the cheeks but as the fish grows older all marking may become faint or be lost entirely.

Habitat

The small mouthed black bass is essentially a fish of cold, moving, clear water and for this reason is most often found in swift streams or in large bodies of water where there are currents and sand and gravel bars or rocky ledges. For this reason waters like the Georgian Bay and many of our Northern lakes and streams are ideal for this fish. Sir Dolomieu does not thrive in warm, still, shallow, weedy waters.

Food

One look at the mouth of the black bass tells its own story. His small brush-like teeth proclaim to all observers that his favorite foods are craw-fish, insects, helgramites and other larvae. He will also feed on minnows but is not as piscivorous as is generally believed although he can, and in some waters must, live almost entirely on small fishes. He is an enterprising feeder, not always content to wait for something to "turn up."

BREEDING AND GROWTH

The black basses belong to the Centrarchidae or fresh water sunfish family and breed in the Spring. The small mouthed commences as early as April in some waters and as late as July in the far North. The spawning time depends mainly on the condition of the water, the fish showing little interest in raising a family until the temperature of the water reaches 50 degrees F. They spawn earliest in shallow waters.

The small mouthed black bass prefers to make his nest on sand, gravel or rocky ledges, the male fish doing all the nest building. Sometimes he will merely scoop out a depression in the sand and occasionally one will roll pebbles into a cluster and carefully polish each one although generally they are not as good housekeepers as their smaller cousins, the common sunfish.

When the nest is completed the fish sallies forth like a knight of old seeking ye laydie faire. When he finds her he exerts himself to make a favorable impression meanwhile driving the trying-to-appear-reluctant charmer into the nest. Here he ascertains whether or not she is ripe. If not he angrily drives her away and seeks a more suitable mate. If she is ready to expel the eggs he induces her to do so and fertilizes them as they are ejected. Upon completing this function the female's interest in the family ceases forthwith and the male proceeds to guard the precious eggs, hovering over them diligently, fanning with fins and tail to keep the water circulating over them and to

prevent sediment settling. During this time he shows remarkable bravery in defending his charges and will drive away any fish regardless of size.

The eggs hatch, on an average, in twelve days depending on the temperature of the water. The fry, which are almost invisible the first few days, hover over the nest for from forty-eight to sixty hours rising and falling as the surface water warms and cools. Later the proud father leads his numerous flock to the weed beds and leaves them to fend for themselves. Here begins an existence that cannot help but breed brave, strong, lusty fishes. They are not only pursued by enemies of all sorts but soon develop a fierce cannibalism and prey upon one another. Needless to say, those that survive are extremely fit and it is this cruel, fierce youth that produces the doughty warriors that we all love to engage in battle.

The young fishes feed upon the minute organisms found in all suitable bass waters, chief of which are daphnia, cyclops and other Crustacea and larvae. The little fellows that survive attain the fingerling stage, three to six inches, by Autumn and are almost a pound in weight the following year. Thereafter they are said to gain a pound a year but I believe this estimate to be excessive. They continue growing until they reach the average maximum which is between five and six pounds. Under very favorable conditions they will exceed this weight but not as often as anglers suppose. In one lake in New York a number of specimens have been caught weighing up to 10 pounds. In

the fishing contest conducted annually by *Field and Stream* an entry was made in 1918 that was claimed to have tipped the scales at the colossal weight of sixteen pounds but the entry was disqualified for lack of suitable evidence. The first prize went to a specimen weighing 9 $\frac{3}{4}$ pounds which is a large small mouthed bass. The average weight of the prize winners in this contest for the past eight years was approximately 7 $\frac{1}{4}$ pounds.

One of the reasons why the small mouthed bass does not attain greater size is due to its habit of spending the winters in a state of semi-hibernation, when it does little or no feeding.

EDIBILITY

As one would expect of a fish living in cold, clear water and feeding, by choice on Crustacea and similar foods, the small mouthed bass is an excellent table fish. His flesh is firm, white, netted with fine, dark veins, flaky and of a fine flavor and succulence. It is not as oily as that of the trout and can be eaten oftener without surfeit. In short, the small mouthed black bass ranks with the very best of all food fishes.

CULTURAL DIFFICULTIES

It is unfortunate that the female bass cannot be stripped and the eggs hatched artificially like those of the trout. The eggs of the bass are gelatinous and almost impossible to fertilize artificially and the best the fish culturist can do is to construct breeding ponds and

permit the fish to breed under favorable conditions and raise the fry with as much freedom from their natural enemies, including their cannibalistic tendencies, as possible.

It is not unusual for a female bass to spawn two or more times in a season and as many as seven thousand eggs to the pound of parent fish have been counted.

If a stream has suitable spawning beds, and they can be constructed if they do not exist naturally, the fish will maintain themselves providing the fishing is confined to legitimate hook and line. It is netting, dynamiting, and other, illegal methods that have depopulated so many of our good bass streams of yesteryear.

Gameness

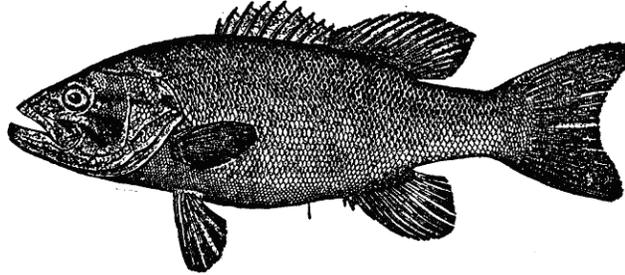
As to the gameness of the black bass there is little to add to Dr. Henshall's famous summary: " He is plucky, game, brave and unyielding to the last when hooked. He has the arrowy rush and vigor of the trout, the untiring strength and bold leap of the salmon, while he has a system of fighting tactics peculiarly his own. He will rise to the artificial fly as readily as the salmon or the brook trout under the same conditions and will take the live minnow, or other live bait, under any and all circumstances favorable to the taking of any fish. I consider him, inch for inch, and pound for pound, the gamest fish that

Trout fishermen have often disagreed with the above which they have a right to do.

Biologically, the black bass is a fish superior to any of the salmon tribe which are of a more primitive type as shown by their abdominal ventrals, their soft rayed fins and cycloid scales, the bass with his thoracic ventrals, ctenoid scales and spines in his fins, being more advanced. His breeding habits and the care he takes of his young add to his biological superiority. Without much exaggeration, one could say that the trouts and salmon are herrings with college educations while the bass is to the manner born. All this, however, is cold science and belittles a noble race of fishes — fishes all real anglers love if they know them.

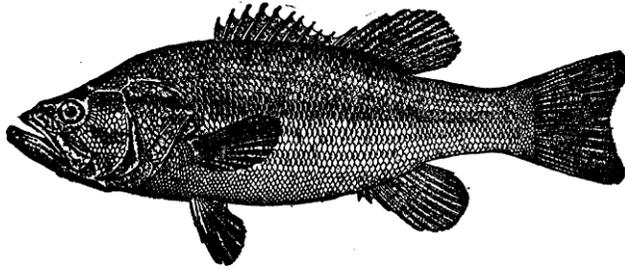
The fighting tactics of the small mouthed bass are characteristic. He seldom sulks but keeps on the move when hooked. Nearly always he leaps at least once and usually again and again. His leap is different from that of the brown trout (*fario*) or the rainbow trout (*irideus*), the brook trout never leaping on a slack line except on the covers of magazines. These two trouts merely break water and turn over but the bass "stands on his tail" and, having no neck with which to shake his head, he shakes his whole body — a strategic move that often, very often, ends in disaster to the angler's tackle. Failing to shake out the hook by leaping and shaking, he is quick to take advantage of any near-by snag, around which he will quickly wrap the line or leader or saw it off on any jagged rock or debris he can find. Another of his

tricks is to rush straight at the boat or angler thus getting slack for another leap or for tangling the terminal tackle. As- an old river man expressed it:



Small-mouthed Black Bass

" Other fish are smart but a river bass is plumb intellectual ! " Everything considered, the fight of the bass is the " thrillingest" of any fish I have ever hooked.



Large-mouthed Black Bass

If Walton had known the black bass I venture the guess that he would have pronounced him a brave and noble fish.

LARGE AND SMALL MOUTHED BASSES COMPARED

Inexperienced anglers often have trouble distinguishing between the large and small mouthed basses although the differences are distinct. The small mouthed species is generally darker colored and, of course, has a smaller mouth, and by comparing the two in the illustration (which is from the " Manual of Fish Culture " of the U. S. Department of Fisheries and correct) one can see that the small mouthed is trimmer in build and the maxillary — the thin, tough, mustache-like plate on the upper lip — extends only to the eye in the small mouthed and to behind the eye in the large mouthed. The U. S. Fisheries Department gives the following comparison:

Large-mouthed Black Bass

" Body comparatively long, the depth about one-third the length; back little elevated; head large, 3 to 3 1/2 in body; eye 5 to 6 in head; mouth very large, the maxillary in adults extending beyond eye, smaller in young. Ten rows of scales on the cheeks; body scales large, about 68 in the lateral line, and 7 above and 16 below the line. Dorsal fin low, deeply notched, larger than anal, with 10 spines and 12 or 13 soft rays; anal with 3 spines and 10 or 11 rays. Color above dark-green, sides greenish-silvery, belly white; young with a blackish band along sides from opercle to tail, the band breaking up and growing paler with age; caudal fin pale at base, white on edge and black

between; older specimens almost uniformly dull greenish; three dark oblique stripes across opercle and cheek; dark blotch on opercle.

Small-mouthed Black Bass

Similar in form to large-mouth bass. Mouth smaller, the maxillary terminating in front of posterior edge of eye, except in very old specimens. About 17 rows of small scales on the cheeks; body scales small, 11-74-17. Dorsal fin less deeply notched than in other species, with 10 spines and 13 to 15 rays; anal with 3 spines and 12 or 13 rays. General color dull golden-green, belly white; young with dark spots along sides tending to form irregular vertical bars, but never a lateral band; caudal fin yellowish at base, white at tip, with dark intervening area; dorsal with bronze spots and dusky edge; three radiating bronze stripes extending backward from eye; dusky spot on point of opercle”

If the angler will keep in mind the extent of the maxillary and the number of scales on the cheeks he will experience little difficulty in identifying his catch.

LARGE MOUTHED BLACK BASS

(*Micropterus salraoides*)

Historical

Although the large mouthed black bass was probably known to the early Spanish explorers of the southeastern United States, they made no mention of it that I can find. The French ichthyologist Lacepede

was also the first to recognize this fish scientifically, his specimen being sent from South Carolina in 1802. He gave it the specific name *salmoides* or "salmon-like."

RANGE

The range of the large mouthed black bass is much greater than that of the small mouthed. His natural distribution extended from Canada to Florida and Mexico and he has been successfully transplanted into every state of the Union as well as abroad. Because of his extended range, the large mouthed black bass has many absurd vernacular names. In the South the term "trout" is applied to this fish and is in general use, and in Wisconsin he is called "green bass"; "Oswego bass" is also a common name throughout the North. Other names are: straw bass, slough bass, moss bass, marsh bass, chubb, green trout, bronze backer. Equally unscientific is it to refer to the small mouthed bass as the black bass, thus suggesting that the large mouthed species is something else — *salmoides* is as much a black bass as is *dolomieu*.

DESCRIPTION

In color the large mouthed black bass shows a greater variation being inclined to have a yellow or brassy tint. Color however does not signify much in fishes especially as regards the black basses. Character of water, bottom or cover, food and other local peculiarities govern the color of fishes as well as the

moods of the individual fish. Discomfort, pain, fear, anger or other emotions can quickly change a fish's color. Keepers of aquariums soon learn to recognize a fish's condition by its color. I once caught a large mouthed black bass weighing a little over five pounds that was the color of polished brass. He is still living in the breeding ponds at Bass Lake, Ind., but has lost most of his glorious tint.

HABITAT

The large mouthed black bass is not as aristocratic as the small mouthed and will do well in still, weedy waters or in slow, sedge-bordered rivers although he is often found in the same lake or stream as the small mouthed. Under such conditions you will usually find him in the weedier portion, which he prefers.

FOOD

The teeth of the large mouthed bass are the same as those of the small mouthed and his feeding habits are similar but not quite as dainty. He adds to his diet such food as is naturally found in his habitat, such as snakes, warm water minnows and young fishes, not even passing by young muskrats, or half-grown water birds. Frogs are also included in his diet by most anglers, probably because they make excellent bass bait, and he will eat them when he gets the chance, which is not often. His habitat does not generally compel him to be as active as the small mouthed which inclines him toward sluggishness.

BREEDING AND GROWTH

The breeding habits of the large mouthed bass do not differ materially from those of the small mouthed except that he will take advantage of his habitat and build his nest on the roots of a water plant. Being larger, as a rule, the females lay more eggs, have larger broods, and nesting in warm water, the eggs hatch sooner and the fry grow faster. Another advantage is that the fry do not develop cannibalism until they reach the fingerling stage.

Large mouthed bass average more in weight than the small mouthed of equal age but in Northern waters their maximum weight is but little more. In the South, where the winters are mild and food abundant, the fish do not hibernate and feed the year around and attain great weights. Dr. Henshall has taken these Southern bass up to fourteen pounds on a fly and up to twenty pounds on bait. I have seen a mounted specimen that is said to have weighed twenty-two pounds and he looked it. These extra large fish, however, are nowhere abundant but many are caught in Southern waters up to ten pounds.

The average weights of the prize winners since 1912 of the different classes in the Field and Stream annual contests are as follows: Southern, $13\frac{3}{4}$ pounds; northern, $9\frac{1}{4}$ pounds.

GAMENESS

A great many anglers are of the opinion that the

small mouthed bass is the gamer fish. Authorities say not but in the light of my own experience I agree with the lay majority and cast my vote in favor of dolomieu. Dr. Henshall and others tell us that when taken from the same waters there is little difference in their fighting abilities, the natural speed of the small mouthed being off-set by the greater weight and strength of salmoides. My experience is that these fish are seldom taken in the same waters. They are often found in the same lake or river but it is usually possible for the fish to gratify their individual preferences and the large mouthed bass is usually found in the weeds; the small mouthed on the bars or ledges or where there are currents. When the two fishes actually are taken from the same water there is little difference in their fighting and no one can tell which fish he has hooked.

I have taken large mouthed bass in weedy, shallow waters when the fight was decidedly disappointing but under favorable circumstances the large mouthed bass is a game fish of the first class. He also has the reputation of rising more willingly to the fly, which is much in his favor.

I would rather catch small mouthed bass but I consider the large mouthed the more valuable fish because of his greater adaptability.

Edibility

When taken from cold clear water the large mouthed black bass is a fine food fish. When from weedy

waters, especially in mid-summer, he is apt to have a slighty " muddy " flavor which can best be remedied by skinning the fish.

ROCK BASS

(*Ambloplites rupestris*)

I include this little cousin of the black basses merely because he is so often found in good bass streams, being something of a nuisance when the bass are rising well but welcome enough when the larger, better fish register indifference to our masterful casting!

In appearance the rock bass is a sort of connecting link between the common sunfishes and the black bass. His color tends towards mottled, olive green and he has a large mouth and a large red eye. He is often called " goggle-eye." In size he seldom exceeds a pound, more often half that weight, but is a willing riser to the fly, strikes viciously and, for a short time at least, puts up a good fight for his ounces.

The rock bass frequents the same places as his larger cousin, lives on the same food and his breeding habits are similar. They often travel in small schools and are very fond of underwater rock piles, stone abutments and such places where they find food and cover. When taken from cold water they are good pan fishes and for this reason are great favorites with young anglers.

The other sunfishes — crappies, blue gills, pumpkin seeds, etc.,— all rise to the fly under favorable condi-

tions, ranking as game fishes about the same as the rock bass. One also hooks pike, pickerel and pike-perch when fly fishing for bass.

THE BROOK TROUT

(*Salvelinus fontinalis*)

HISTORICAL

To every angler living east of the Rockies the word "trout" signifies the eastern brook trout — the little charr of the fountains. This is the trout of song and story so far as America is concerned and he deserves all the praise and admiration he has received.

The first settlers of New England were quick to discover the "troute" in the brooks but the scientific history of the fish is disappointing. Dr. Bethune, writing in 1847, said: "The history of the trout and salmon is as yet very obscure, especially in this country. Dr. De Kay describes but three species of salmon and two of trout." Even to this day there is disagreement as to the exact scientific status of certain species and subspecies. This confusion is not surprising to any one acquainted with the variations met with in the salmon family.

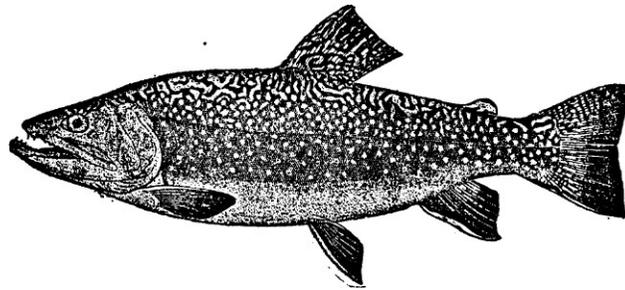
RANGE

"The Manual of Fish Culture" of the United States Department of Fisheries says: "The natural range of the brook trout in the United States is from Maine to Georgia and westward through the Great

Lakes region to Minnesota, and in Canada from Labrador to the Saskatchewan. Owing to its hardy nature and ability to adapt itself to new surroundings it may be successfully transplanted into streams and has been extensively introduced into waters in which it is not native; in Michigan, Wisconsin and Minnesota, many of the waters of the Rocky Mountains and the Pacific coast, the eastern states and the creeks and rivers of the Alleghany range of mountains."

DESCRIPTION

No artist can paint nor writer describe adequately the beauties of a freshly caught brook trout. As the old fashioned advertisements say, he " must be seen to be appreciated."



Brook Trout

In form the brook trout up to two or three pounds is the ideal fish — trim and neat. Larger specimens become aldermanic, with cruel looking, undershot jaws.

The eye is placed high in the head as one would expect of a fish that might be called "insectivorous."

In coloration the brook trout is truly a thing of beauty. A recently caught male fish of fifteen ounces lies before me as I write. Looking down on the back it appears to be purplish in color, the lighter vermiculations or worm marks mottling the back almost like the so-called mackerel sky; the dorsal fin is similarly marked. The sides, in the middle, are covered with spots much lighter than the green-gray ground color. Many of these spots — seemingly haphazardly — are themselves decorated with tiny dots of brilliant red, most of these red spots being below the distinct median line and none of them behind the anterior end of the anal fin. The tail fin is mottled red, bordered with black. The belly is light colored with just a suggestion of pink and azure, the tiny scales giving it a silken sheen, most beautiful to behold. The lower fins are red, slightly flecked with dark spots and with a black and white edging.

Male fishes always carry more red than females and are most gorgeously colored during the breeding season. The environment has much to do with coloration. I have taken fish above a dam in dead water with muck bottom that were velvety black on the back and much darker throughout; below the same dam, where the bottom is sand and gravel, I have taken fish so much lighter and brilliant that a novice would be tempted to believe them of a different species; from

a deep lake I have taken brook trout that were almost azure, dusted with bronze flecks, and sea run trout are silvery white.

HABITAT

The beauties of the brook trout and its habitat have much to do with the enthusiasm of anglers who go a-trouting. As Camp points out we always associate the brook trout with white tailed deer, the partridge and the gray squirrel. Cone bearing trees, cold purling water, some distance removed from civilization, are the true settings of trout and trouting, for the brook trout is essentially a fish of the silent places.

FOOD

As any observer would surmise by looking at a trout's teeth he is carnivorous. Crustacea, snails and other molluscs, insects and their larvae and small fishes make up the main diet of the trout although when they reach the " whopper" stage they become gross feeders and will not hesitate to snap up a small snake, water bird or even their own kind.

BREEDING AND GROWTH

The brook trout is a fall spawner, for which reason the legal season in most states closes in September or October. Contrary to general belief the brook trout does not require cold water. Providing the water is sufficiently aerated, trout will breed and thrive if it goes as high as 70 or even 80 degrees F. Ideal

conditions, however, call for cold water, well aerated, with shallow spots with gravel bottom, or feeder creeks containing such places, where the fish can run up to spawn.

Spawning commences as early as August in the Lake Superior region and from the middle of October to November in mid west and New England waters. The spawning period lasts seven or eight weeks, the fish slowly working up stream, or up into the small tributaries, where the female scoops out a nest and deposits her eggs. The male — now a gaily garbed Romeo — does his "showing off" for the lady's edification and fertilizes the eggs when they are ejected; then the female covers them with gravel and leaves them. A yearling fish yields only about 200 eggs — something to be remembered by the man who is tempted to keep the little ones.

The hatching period depends on the temperature of the water. The fish culturist prefers water of from 45 to 50 degrees F. in which the fish hatch in from 45 to 60 days, but in a natural state the hatching usually takes closer to 100 days; sometimes as long as 220 days.

Growth of the fry is governed somewhat by the amount of available food and the water conditions. Ordinarily a trout weighs an ounce or less during the first year after which the growth is more rapid; a two year old fish weighs eight to ten ounces and a pound trout is usually three years old.

In waters that are much fished, especially small

streams, a pound trout is considered a large one. In Maine, brook trout have been taken up to ten pounds and Frank Forrester (1848) tells of one brought into the Soo by an Indian that weighed 11 pounds. In his "Sportsmen's Gazetteer" (1877) Hallock mentions a brook trout of 17 pounds but unfortunately he gives no particulars. The present record for the Nipigon waters, and perhaps of any waters, is a specimen of 14½ pounds caught in 1916 by Dr. Cook of Fort William, Ont.

EDIBILITY

One who has never tasted a brook trout fresh from the water and cooked over a fire on the streamside is not competent to pass on the edible qualities of this fish. Take small trout, cook with bacon in the open so that the flavor of the wood fire can be tasted — as the paper from our home town puts it: " nuf ced! "

GAMENESS

Beyond any possibility of doubt the brook trout deserves a place in the front ranks as a game fish. No angler ever sees one flash from an overhanging bank and seize the fraudulent feather without being thrilled, for the brook trout is the very embodiment of speed and natural grace. Once he is hooked he fights with unequalled determination and strength but he has one fault: he does not leap on a slack line. For this reason I am tempted to place him just a shade below the rainbow trout and small mouthed bass as a game fish,

knowing that a great many anglers of more experience than I have had, will not agree with me. Anyway he is a grand fish worthy of all the enthusiasm he arouses in the hearts of his admirers.

HISTORICAL

(Salmo irideus)

THE RAINBOW TROUT

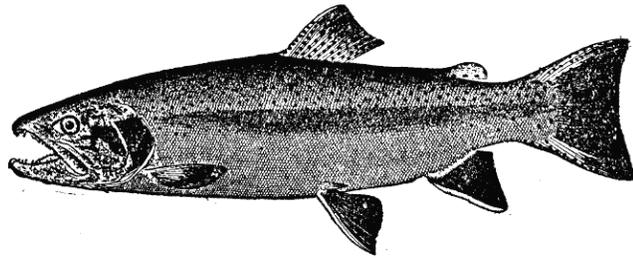
When the first Americans went to California they found there an abundance of speckled fishes which they instantly classified as trout as they did all speckled fishes. The rainbow family of salmon trout is divided into one species and five sub-species, and as you shall see later, it is one of these sub-species that we are mostly interested in.

The typical species is a common fish in the mountain streams of California. The five sub-species embrace the following: the brook trout of western Oregon (*masoni*) ; the Kern River trout (*gilberti*); the noshee trout (*stonei*) ; the golden trout of Mt. Whitney (*aqua-bonita*) ; and, finally, the McCloud River trout (*shasta*) which is the variety that has been transplanted so successfully in the waters throughout the United States. This is the fish that most anglers have in mind when they refer to the rainbow trout.

The Shasta rainbow trout has been transplanted into several western states; Michigan, Wisconsin, Minnesota ; throughout the east and the Alleghanies; in the Ozarks and in several Rocky Mountain states and in

almost every instance the new habitat has improved the fish, piscatorially at least. Anglers who have taken this fish in Michigan and the Ozarks, as well as in its native waters, say that the transplanted fish are far superior to the westerners, while strange to say, the eastern brook trout, when transplanted into western waters are said to be disappointing.

The great value of the rainbow trout is his ability to thrive in streams which lumbering operations have made unsuitable for the wilderness loving brook trout. The rainbow does well in warmer, less highly aerated waters than will fontinalis.



Rainbow Trout

DESCRIPTION

The rainbow trout is heavier and stockier than fontinalis; his mouth is noticeably smaller and his tail slightly forked. The rainbow's back is bluish; sides are silvery and belly white. The spots are black and cover the back, fins and tail, the spots varying with the different sub-species. A red or rosy band extends

along the sides. While not as beautiful as the brook trout the rainbow is a handsome fish.

HABITAT

In his native waters the rainbow lives in swift, cold water but transplanting has shown that he will thrive in fairly warm, deep and " dead " water although in most rivers he will show a marked preference for the rapids.

FOOD

Like all trout the rainbow feeds on insects, larvae, molluscs and small fishes although he has the reputation of liking fish less than other trout, with which theory we do not agree.

BREEDING AND GROWTH

The spawning season varies a great deal with locality and conditions. In California the breeding season is said to be from February to May; in Colorado from May to July; in the middle west and the east, usually in February and March. Salmon-like they lay their eggs in the gravel and leave them to shift for themselves.

Growth is naturally quicker where food is plentiful. In certain parts of the west where feed is scarce they do not exceed a fraction of a pound in weight. In the Ozarks and parts of the west they have been known to attain to twenty-six pounds; in mid western waters they sometimes reach ten pounds which is about their

limit in California. A three year old fish will weigh between one and two pounds.

EDIBILITY

The rainbow trout is a good table fish but not equal to the brook trout in this respect. They have a tendency to get " soft " quickly so they should be the first put on the table when mixed varieties are taken.

GAMENESS

Irideus is a most brilliant fighter. He rises obligingly to flies; he is lightning fast; makes long runs and leaps like an acrobat. He is quite the equal of the small mouthed bass: he jumps better and takes flies more willingly but does not fight as doggedly.

THE BROWN TROUT

(*Salmo fario*)

HISTORICAL

This is a fish of ancient lineage — the " troute " that Dame Berners, Izaak Walton and other British writers laud so highly. This fish is found in the British Isles and throughout continental Europe and was transplanted to American waters in 1882-3. The eggs were presented to Fred Mather by Baron Von Behr, a German fish culturist, and for that reason *fario* was once known as Von Behr or German brown trout in this country. This fish has now been extensively transplanted in American waters east of the Rockies.

DESCRIPTION

I consider fario a handsome fish, especially when taken from deep, shaded places. His velvety, dark skin then offers a pleasing contrast to his rich, red spots. In form the brown trout is slimmer than fontinalis and his tail is squarer. In color his back is dark, spotted with black; the dorsal fin has both black and red spots, the adipose fin being decorated with three bright red spots, while the lower fins are orange, The sides are yellow and the belly dull white.

Since the rainbow and brown trout are so extensively planted it might be well to point out the distinguishing features of each fish so that the young angler may know what he has caught:

Brook Trout — vermiculations or worm-like markings on back; scales almost invisible; mouth large, jaw extending back of eye; single patch of teeth on vomer or roof bone of mouth.

Brown Trout — no vermiculations on back; scales visible; mouth slightly smaller than brook trout; one or two rows of teeth on front and rear parts of vomer; more yellow in coloration; spots red but larger than those of fontinalis and seldom found below median line; tail square.

Rainbow Trout — no vermiculations; mouth very small; scales large; red patch or band on sides; same tooth formation on vomer as in brown trout; spots black and irregular, distributed over body and fins.

HABITAT

Like the rainbow trout, *fario* has shown himself suited to waters of higher temperature and less aeration than *fontinalis* likes. Highly carnivorous and not recommended as a stocking fish for waters where the brook trout is holding his own.

FOOD

The brown trout feeds on practically the same food as our native trouts but is more piscivorous.

BREEDING AND GROWTH

Fario is a spring spawner and his greatest value is his ability to grow fast. In England they grow but four ounces or so a year; in this country they will gain nearly a pound a year under favorable conditions. Dr. Henshall tells of two fish that weighed six pounds each at four years of age. They have been taken in this country up to sixteen pounds. In five years of the Field and Stream fishing contest the largest brown trout entry was nine pounds, one ounce or just one ounce larger than the largest brook trout. Brown trout, however, average larger in size than our native charr.

EDIBILITY

The brown trout is an excellent table fish, being the equal of the rainbow trout in this respect but not as

good as fontinalis. Large specimens are inclined to be "beefy."

Gameness

There is a diversity of opinion as to the qualities of the brown trout in American waters. "The brown trout is without doubt the least attractive of all the trouts in America," says Charles Southard, and Wm. C. Harris said: "It has no angling qualities that render its presence desirable in our trout streams." On the other hand O. Warren Smith says: "There is no question in my mind that the introduced fish [meaning both rainbows and browns] are in all game points the peer of the native brook trout." Samuel Camp states: "Purely as a sporting proposition the brown trout is a decided success; in other words he puts up a good fight."

I consider the brown trout a fine fish. He is a good fighter; a high leaper and he rises more willingly to flies than any other trout; he thrives in waters not suitable for other trouts; he is handsome and good to eat. What more can we ask of a fish?

OTHER TROUT

Our western states have a confusing variety of trout. Local names bewilder the "tenderfoot from the effete east" but for the sake of convenience most of these fishes have been placed in three distinct series.

Besides the rainbow and its five sub-species there

is the cut throat trout (*Salmo clarkii*) and 12 sub-species and the steel head trout (*Salmo gairdneri*) and three sub-species. These fishes are all salmon trout, the only charr native to the Rocky Mountain waters being the bull trout.

The Colorado trout known generally as the cut throat, mountain trout or black spotted trout is the fish most sought by tourists and natives in the western mountains. Concerning this fish Shields said: " The habits as well as color and shape of the Rocky Mountain trout vary in different waters but in all cases are different from those of the eastern brook trout. The latter loves to hide under a log, a drift or a rock while the former seeks an open riffle or rapid for his feeding or lounging ground and when alarmed takes refuge in some deep or open pool, but rarely or never under a rock or log. Fontinalis is a lover of dark, shady nooks while *clarkii* always prefers the sunniest parts of lake or stream. The eastern trout feeds well into the night while his mountain cousin suspends operations promptly at sunset.

" As to game qualities the western trout is every inch the peer of his eastern congener."

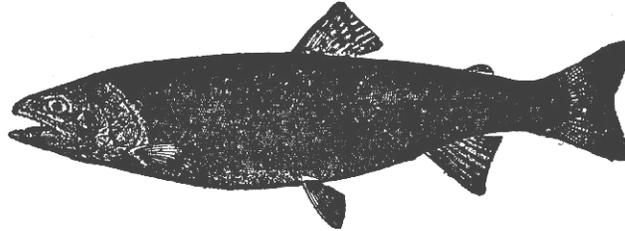
Other writers disagree as to the relative gameness of the mountain trout as compared with fontinalis but they all accord the mountain fish unstinted praise.

The cut throat trout gets his name from a blood-red, gash-like marking on the throat and he is always heavily spotted with round, black spots. These spots

are heavier on the upper part of sides and on the tail and dorsal fins.

This trout spawns in the spring and in some of the sub-species reaches a weight of nine pounds in fresh water and up to twenty-five pounds when sea run, at which time the market fishermen call them "salmon trout."

The steel head was once considered the same fish



Mountain Trout

as the cut throat and many western anglers still maintain that the rainbow and the steel-head are identical except for local variations, showing that all of these western fishes greatly resemble each other in a general way at least.

The steel head trout is looked upon as a good game fish in the west, rising well to flies in the streams and putting up a good fight, mostly in the air like the rainbow. At the mouths of rivers very large specimens are taken with live bait.

The Dolly Varden or bull trout (*Salvelinus malma*) is the only charr native to the west. It is a stockier

fish than the brook trout and can be told by its larger red spots on the sides, those on the back being very small and faint and vermiculations are not present. This trout rises most freely to flies, in both lakes and rivers, and is considered a good fighter.

In addition to the foregoing there are a number of other species or trout found in American waters. We have, all told, twenty-seven forms of salmon trout and fifteen charrs, only five of them being imported. Some are only of local interest or do not respond to the fly fishers' efforts but all together they represent a collection of fishes that no other continent can equal.

PREPARATORY

GETTING READY FOR THE FIRST CAST

GOING TO THE WATER

IF the " getting-in place " is not far from the water so much the better. If the angler must travel some distance to the stream or lake it is best not to wear the waders. Carry them and wear a pair of moccasins or tennis slippers on the feet which, when the waders are donned, can either be cached or carried inside of the waders, by tying the strings together and suspending on the belt, or in the knapsack pocket of the "monkey jacket."

Be sure that some leaders are soaking when you leave for the fishing grounds.

The rod should not be jointed up until the waters are reached. The rod that is carried jointed in a wagon or motor car is subjected to injurious vibrations to say nothing of the increased danger of smashing it and the bother of carrying it through the brush.

Jointing the Rod

Take the tip joint and rub the male ferrule along the side of your nose, or in your hair, to lubricate it — boys who have grown bald obviously must use their noses. Join the tip to the middle joint, putting on

the butt, or independent handle, last. Have all the guides in line. In taking the rod down this order is reversed and you start from the butt end and work up.

Be sure that the reel is fastened securely in the reel seat and that it is on the underside of the rod with the handle to the right. Reeve the line through the guides and pull enough line through the tip so you can work with it without putting a strain on the rod.

Tying Line To Leader

There are a number of good knots for tying line



Jam Knots
Figure 8

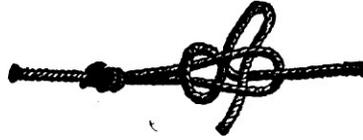
to leader. Perhaps the most popular is the simple jam knot — figures 8 and 9. A small knot is first tied on the end of the line. Now, assuming that you



Jam Knots
Figure 9

are right handed, hold the leader loop in the left hand so that the end is pointing toward you. Insert the knotted end of the line up through and then around

the loop, under the line, and pull tight. Figure 9 shows another way. A modification of this knot, and one I prefer, is the tiller hitch — figure 10. No knot is made in the line. A regular jam knot is tied but



Tiller Hitch
Figure 10

before tightening the end is returned so that a slight pull will release it — handy for changing leaders. The ordinary bow line and other knots are sometimes used.

TYING FLY TO LEADER

The jam knot may be used but the best knot I have seen for tying fly to leader is the turtle knot, fig-

ATTACHING DRY-FLY TO LEADER



Turtle
Knot
Figure 11

ure II. It is made by running the end of the leader through the eye, tying a noose or slip knot, inserting fly through the loop so made and tightening so the knot jams under the eye. An ordinary half hitch will

do as well for the straight eyed or ringed hook or the loop of twisted gut. For the latter the jam and tiller hitch are sometimes used. Dropper flies may be attached to tied-on strands or tippetts mentioned in the section on leader tying. Finally look over the rod, line, leader and fly to see if everything is in order. If so, you are ready for the first cast.

CASTING

THE MECHANICAL PROCESS OF " THROWING THE FEATHERS "

LEARNING TO CAST

THE best way to learn how to cast a fly is to go a-fishing with some experienced fly fisherman and follow his instructions and example. Next best is to join a casting club and learn how from the " old hands " always found in such organizations and who are always glad to help a beginner. The least desirable way to learn is from printed instructions although they will help if the novice is so situated that he cannot secure the services of an instructor.

A stretch of clear water with ample room for a good back cast is the place to learn fly casting but a lawn without obstructions will do. Do not cast on a road or other bare ground or you will ruin your line.

THE THEORY

The theory of casting a fly is simple. One has a long, more or less pliant rod to act as an instrument of propulsion to throw out a line, leader, and fly or cast of flies. The motive power is furnished by the caster's forearm and wrist, aided by the spring of the rod and supplemented by the weight of the line pass-

ing backward and forward through the air. Reduced to mechanical terms the rod is the lever, the fulcrum being the hand and the counterweight the reel and reel seat.

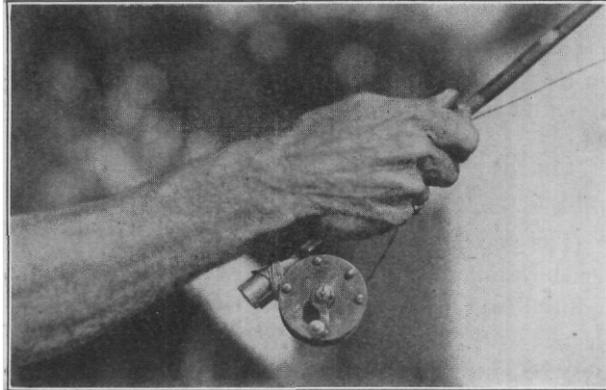
GRASPING THE ROD

The way one grasps his rod has more to do with good casting than the beginner would believe. The natural way would be to wrap the fingers around the handle with the thumb over the fingers; the correct way is to have the thumb pointing along the rod. This is more important than it seems because it gives the muscles of the wrist free play and the thumb serves to give both force and direction to the cast. The first or index finger is sometimes used the same way to give the thumb relief after much casting.

THE OVERHEAD CAST

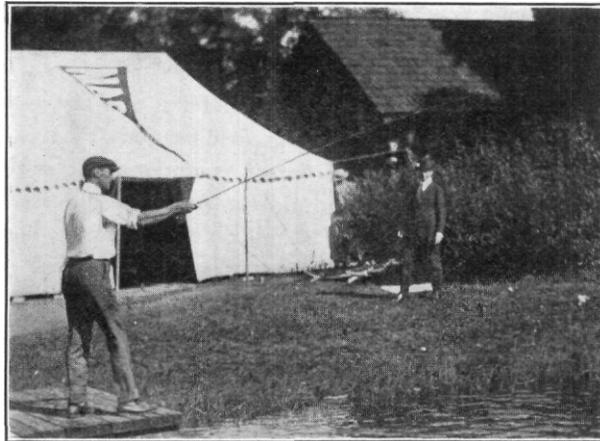
The overhead or over-the-shoulder is the cast most often used, the others being modifications of it improvised to meet extraordinary conditions. It is the cast for everyday fishing and for accuracy. In learning this cast the novice should anchor a barrel hoop or other target in the water, or if he is learning on the lawn, spread out a newspaper, about twenty feet away. The target should be kept at this distance until he can hit it regularly. Then it may be moved forward five feet at a time. Distance in casting comes naturally; accuracy can be learned only by practice.

The overhead cast consists of three distinct parts:



PROPER WAY TO GRASP ROD

Note thumb extended along rod; line may be " pinched " to rod as shown when sufficient line is out; otherwise it is held in the left hand.



Beginning of Back Cast
End of Forward Cast

the back cast, the pause and the forward cast. Let us consider them one at a time.

THE BACK CAST

The novice caster should first assume a natural, easy position, and not a stiff pose. The rod, with thumb extended, should be pointed straight ahead, being held a little above parallel with the water and about fifteen feet of line should be lying stretched out straight in front. With the left hand pull a little line from the reel, between the reel and the first guide and this should be held in the left hand at all times so that the cast can be lengthened when desired and to give the angler instant control over a hooked fish. Now take in the slack of the extended line by pulling a little of it back through the guides and then start the back cast.

The back cast is made by lifting the rod smartly and forcefully. This movement is executed by the wrist and forearm only, the upper arm and elbow being held close to the body. This is important and some instructors place a book under the arm of the young caster to make him keep his elbow in, the object being to teach the novice to use his wrist and forearm only which makes the spring of the rod do most of the work and gives the line an upward, as well as a backward, direction thus helping to produce the much-desired high back cast.

In making the back cast the rod can be brought straight back toward the right shoulder or it can be directed toward the left shoulder to throw the line

over the left shoulder in the back cast and over the right in the forward cast. This is a very pretty and very smooth cast much used by fly fishermen of the old school. Tournament casters use the straight backward and forward cast.

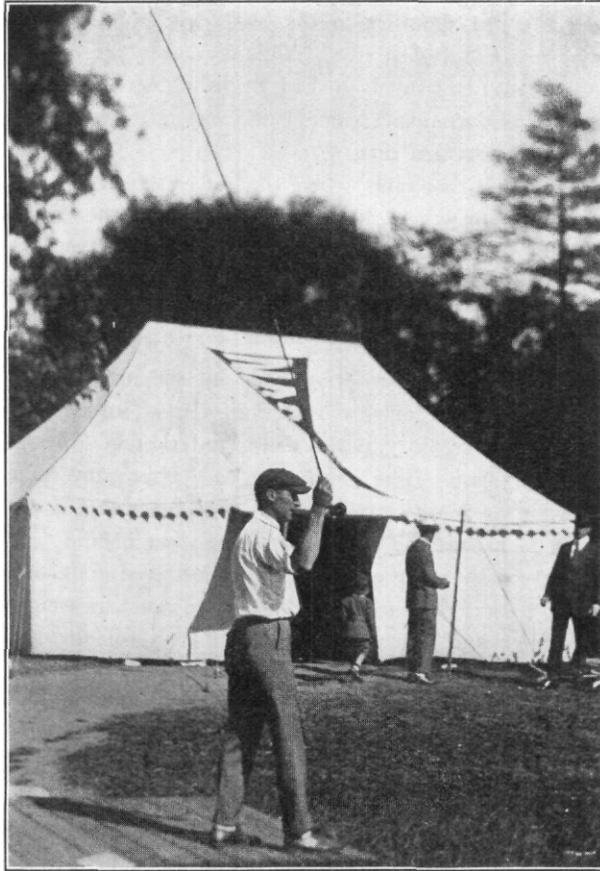
The back cast ends when the rod reaches the perpendicular or when the thumb lying along the rod is pointing straight up. This brings the active rod tip slightly behind the perpendicular, which is correct.

THE PAUSE

The mistake most often made by the novice is to assume that the forward cast immediately follows the back cast. He forgets the pause and thereby "bunggles" his cast. The pause is a very important stage in the process of casting a fly. Its object is not entirely to permit the line to straighten out behind, and thus avoid snapping off the flies, as most writers claim, but to permit the back-traveling line to exert its weight and force and put spring in the rod tip for the forward cast.

Some writers on fly casting tell us to start the forward cast when we "feel the line pull from behind" but in casting a short line, as the novice should, he is not likely to feel any "pull" so should not wait for it.

The relation of the pause to the back and forward casts can be kept in mind by counting "one" at the beginning of the back cast, "two" at its finish, "three" for the pause and "four" for the forward cast, slowing the count as each subsequent cast is ex-



End of Back Cast

tended. People with a sense of rhythm learn fly casting quicker than others.

The Forward Cast

If the pause between the back and forward casts is too long the rod tip straightens, (loses its spring), the line falls and the cast is "killed." If the pause is not long enough the rearward action of the rod tip is not completed and the reaction of the tip gives little assistance in the forward cast. The too-short pause does not permit the line to straighten enough behind which is proclaimed by the leader cracking like a whip lash and sometimes the fly is snapped off. If the pause is correctly timed the veriest novice knows it as the line seems to shoot forward, in the forward cast, as if propelled by some unseen force, which, indeed, is what happens — the complete reaction of the rod tip being the force.

The forward cast then must be timed to start immediately after the pause and is a strong, forward sweep of the rod, increasing in force as it goes forward, aided and directed by the pressure of the extended thumb. It ends with the rod in about the same position as at the beginning of the back cast or a little above parallel of the water. The rod is then in position to manipulate or retrieve the fly or hook a rising fish.

When casting ordinary lengths it is safest for the young caster to keep his elbow in and use only the forearm and wrist but when a long cast is attempted

the upper arm may be put into use. Thrashing, however, should be avoided — make the rod do the work. This point was well brought out by F. M. Halford, the famous English dry fly fisherman: ". . . In throwing a long line the upper arm will come into use in addition to the wrist and forearm, as the angler will have to feel the line of the backward cast through the arc of a larger circle. The force required to propel various lengths of line without over casting or under casting (the first of these terms meaning the use of too much, and the second of too little, power to extend) and only just extending the line, varies directly with every yard of line used. This adaptation of the power to cast, of cause to effect, constitutes the secret of how to cast well."

". . . It must always be remembered that hearing much sound proceed from a rod making a cast is an indication of too much force being used. The late Mr. Marryat said: * A silent rod and a whistling line mean good casting' but he added that when throwing against a wind a slight 'whoosh' of the rod is often heard. It may be laid down as an axiom that nine anglers out of ten put too much energy into their casting, and forget to allow the rod to do its fair share of the work."

In recapitulation, the important phases of casting are: extending the thumb in grasping the rod; keeping the elbow and upper arm close to the body; ending the back cast with the rod perpendicular; correctly timing the pause.

EXTENDING THE CAST

In learning to cast, the novice should, from the beginning, learn to use his left hand to hold and manipulate the line stripped from the reel. To extend the cast the caster merely lets go this stripped line near the end of the forward cast and it "shoots" through the guides or, if he learns a high back cast, he can pay out some of this line on the back cast like the dry fly fishermen do it. This is repeated until the desired length of line is out. From this it will be seen that the big difference, from the fishing standpoint, between bait casting and fly fishing is that the fly caster fishes the near water first.

PRACTICE

When first taking up casting the beginner uses muscles that are not accustomed to such work so his periods of practice must not be too long at first; as he progresses he finds it less tiring and he also notices that, as he gains in skill, less effort is needed to get out a reasonable length of line.

FOR ADVANCED PUPILS

When the young fly fisher learns the mere mechanical process of casting a fly he may believe he is a full-fledged fly caster. At this stage of his education accuracy and delicacy mean little to him and fly fishing strategy less.

As soon as the novice has learned how to make a cast

and how to extend his cast he should devote considerable practice to obtain good casting " form." That is, he should learn to cast easily with no suggestion of awkwardness or muscular effort; his back cast should be high and his forward cast ending with the line well straightened out in front, not full of kinks which not only looks bunglesome but frequently prevents one hooking a rising fish in anything but the swiftest water.

The young caster should learn also to drop his fly and only the smallest amount of line and leader on the water. By this I mean that he should not " slam " the fly, leader and line on the water. Raising the rod tip slightly at the end of the cast helps in this respect.

A good plan, while practicing or fishing, is to imagine that you are casting into a big glass jar full of clear water, the edges of which are about four feet above the surface of the stream. Try to picture in your mind a very large, wary fish lying in this jar looking out at you so you must keep your upper arm and elbow pressed close to your side and cast with the forearm only to make as little movement as possible, to avoid scaring the fish. Imagine you are casting into the jar over its high edge. This will make you stop the forward cast while the fly is some distance from the water, letting it fall mostly of its own weight.

More important as a fishing essential than good casting " form " is accuracy. I wish I could devote several pages to this subject in order to impress the beginner with its importance but little can be said — accuracy is something to be practiced and a day on the stream

usually drives its importance home. Accuracy is much more desirable than the more spectacular ability to handle a long line. In actual fishing the average cast is thirty or forty feet while fifty or sixty feet is considered a long cast.

OTHER CASTS

While the overhead cast is the most used there are modifications of it that are useful under certain conditions. One of these is the wind cast. It is made the same as the ordinary cast except in the forward cast which is made with a strong outward as well as downward motion of the casting hand. It is far from being a pretty cast and is tiring to the arm and wrist but is useful when working against a heavy wind.

The side cast is analogous to the " side swipe " of the bait caster. It is made with the rod held about level with the waist during the entire cast. The back cast is brought back a trifle behind the caster, the pause is necessarily short, as the line is only a few feet above the water, and the forward cast is made by a strong forward sweep. It is used mainly for casting under overhanging trees and brush and to avoid being " hung up " on the back cast.

The Spey cast is also used under the same circumstances. William C. Harris described it as follows: " With the line at full stretch down stream and the hand grasping nearly the extreme end of the butt, the rod is raised so that as much of the line is cleared from the water as possible, then a forward stroke is made

sufficiently strong to lift the entire line from the water and to cause the fly to alight a short distance in the rear of the caster; then placing the rod well back, as in the forward cast of the ordinary method a strong switch of the rod to the front will cause the line to roll out rapidly; the leader and flies, as the line goes out, making a leap as it were and alighting on the water."

A favorite cast where there is no room for a back cast is the roll or switch cast. With fly, leader and line on the water the rod is raised almost to the perpendicular. Then it is swung back over the shoulder, a slight pause is made and the rod is swung smartly forward, causing the line to roll out and carrying the fly forward. Line is stripped from the reel and permitted to "shoot" in extending the cast. This is a good cast when in "close quarters."

Other casts are known and an angler often will improvise one to meet some peculiar condition. It is a good plan to learn how to execute the overhead and side casts with either hand — useful to rest a tired casting hand and sometimes necessary to avoid a "hang up."

Tournament Casting

Tournament fly casting is a pretty game that has done much to improve casting and fly fishing tackle. Casting clubs are usually found in the larger cities, the casting pools being located in the city parks.

The events most often practiced are the light and

heavy tackle accuracy and distance fly casting; dry fly accuracy and casting the salmon fly for distance.

In the light tackle events the rod is limited to 11 1/2 feet in length and 5 3/4 ounces in weight, except in the dry fly accuracy, the limit in length being eleven feet. In the accuracy fly targets are 3 rings, 30 inches in diameter, set at forty-five, fifty and fifty-five feet respectively from the casting platform.

Five casts are made at each ring, successively. If the fly falls inside of or on the rim of the ring it is a perfect cast. " For each foot or fraction of a foot, the fly falls outside of ring a demerit of one shall be made. The total of such demerits divided by 15 and subtracted from 100 shall be the percentage score." Perfect scores have been made but the official record of the National Association of Scientific Angling Clubs is 99 14/15 held by George Chatt of the Anglers' Illinois Casting Clubs, Chicago.

In the distance fly events the contestant is allowed ten minutes to make his cast. The official N.A.S.A.C. record for the light tackle distance fly was made in 1915 by H. C. Golcher of San Francisco, the cast being 116 feet. The heavy tackle record of 134 feet is held by W. D. Mansfield of San Francisco.

STRATEGY

THE WAY OF A BASS FISHERMAN WITH A FLY ROD
AND THE WAY OF A BASS WITH A FLY

WADING A STREAM

IDEAL FISHING

THE ideal way to fish a bass stream, if its depth and bottom will permit, is to wade. Some one has said that Art is the beautiful way of doing things. Certainly then, wading the stream is the artist's way of fishing for Micropterus. It has all the charm of trout fishing and all of its thrills and seldom is so lonesome since many of our bass streams are in settled districts. One often fishes a stream and is never out of hearing of the cow bells and the barking of friendly farm dogs but is in the wilderness nevertheless. When the angler wades he becomes a part of the stream and its life and the more he fishes a fine stretch of water the friendlier it becomes.

Bass and Flies

One reason I believe bass fly fishermen are not as generally successful as their trout fishing brethren is because the bass fisher, as a class, has not put as much study into his fish, his waters and his methods. This is not to be wondered at when you consider that fly

fishing for bass is, compared with trouting, in its first tooth stage. In other words, if some anglers loudly proclaim that the east wind bloweth when they are bassing with flies it is due, not to the bass but to the angler.

True one seldom gets the big, old, granddaddy bass of 'em all on a fly, neither do the bigger trout come to the net by the same route, but the average of the stream or lake can be caught on flies and are on certain waters. Is it entirely because of certain local peculiarities of fish, water or conditions that fly fishing for bass is practiced so successfully on such widely separated waters as, to mention a few: the upper Mississippi and Illinois rivers in the Middle West; the Susquehanna, Potomac and Delaware in the East; the Current and St. Francis in the Ozarks; the Belgrade Lakes in Maine? I think not. Bass fly fishing has long been practiced and studied in these places, hence the success.

Aside from its beauty and charm wading a stream makes for success. In the first place a stream that is of wadable depth is ideal for fly fishing and the angler, moving slowly and quietly, with only a portion of his body above water is, as old Dennys put it, less likely to "offend the fearful Fish's eye."

Seasons, Weather, Etc.

As a general rule the trout fisher can go a-fishing earlier with his flies than the angler who fishes for bass in northern North America. A great many of our good bass streams are in civilized territory and

the Spring rains, plus the drainage of farm lands, usually roils the water. If one must have bass then most success will be had if he will dangle an angle, baited with worm, helgramite or craw, in the deep holes.

As the season advances fly fishing improves but June usually finds the bass busy with family affairs and they should not be bothered even if the law permits. July is usually a good month on all streams and on the larger ones this month and August often produce best of all — and just when the lakes are yielding least. Very low water, however, often drives the fish into the holes on small streams during the "dog days."

September, the month Eastern and Midwest trout fishermen close up shop, is usually excellent except the week of the equinoctial storm. October — brown October — also yields well, and the seasons we have "a late Fall" fishing continues good even well into November. Local conditions also must be considered.

The ideal fly fishing day is a dark, overcast one, just before a rain, or better still, when it merely suggests or threatens to rain and doesn't with enough breeze to ruffle the surface of the water. Next best is what the average person would call a "nice day" — when the sun shines, the sky is blue and friendly and streamside posies and tree tops nod to fitful breezelets that put a slight ripple on the stream.

The best time of the day is undoubtedly the early morning hours, from dawn until eight or nine o'clock and from four in the afternoon until sundown or even until after dark. During cloudy days the noon hours

often produce well. However, most of us fish the day through and perhaps it doesn't add much to the heft of our creels but it adds lightness to our hearts and uplift to our spirits and there is always the anticipation of the luck the evening fishing is going to bring us — unless, perchance, it is the last day and we must quit untimely to catch the 5:15 for home. Then we are out of luck as the fish invariably begin to rise well as the quitting hour approaches —'twas ever thus as the poets say! But never mind: other days are coming and for that matter if the fish become too challenging one can always "miss" a train and send a telegram of explanation later. Such things have happened! In fact, I know bald-headed men who have, choosing love before duty, thus played truant from home and business under these circumstances.

Thunder and lightning storms are unpropitious for good fishing but a gentle shower often turns the tide in our favor and sets the fish to rising.

The direction of the wind has little to do with the success of a day on a stream as the wind comes from all directions if the river is at all winding. The proverbial east wind may have local influences, in England or on our east coast, but otherwise is not objectionable and the phases of the moon have little to do with fishermen's luck or the whimsical mood of *Micropterus*, except that the bass may do their feeding on moonlight nights and be indifferent during the day. In this case the angler, well prepared for mosquitoes and with heavy tackle, can do his fishing after sundown.

WHERE TO CAST

The swift, gravelly, sandy or rocky stream is the home of the small mouthed bass and there is some similarity between fishing for him and for trout. Both fishes seek cover and food but the bass never hangs poised in fast broken water like the trout. He may dash into the rapids after food, if hungry, but he won't stay there. Of course during a freshet when the fish work up stream they go through the rapids but are seldom taken on flies — maybe because fly fishermen so seldom fish there at such times. When the water is rising the eddies at the edge of swift water often yield well as the fish lie there on the watch for surface food. The bars formed by eddies behind or below obstructions are often favorite hunting places for bass feeding on minnows.

At a normal stage of water a bass will often lie on the down stream side of a boulder in quick water where the current has scooped out a hole in the bed of a stream and here you will often " connect " with a big one. This hole usually shows as a big, dark patch on the stream bed and it is good strategy to first cast up to its edges before floating a fly directly through it.

In the average river most bass will be taken near the shore line. Overhanging banks, trees or bushes that lean over and admire themselves in the reflection of the surface; docks, piers, fallen trees, partially or totally submerged stumps (river men call 'em "dead heads") wing dams, boulders, brush heaps — anything

that obstructs the flow offers cover for a feeding fish and never should be passed by the fly fisher without a speculative cast or two.

Stretches where the water runs swift and smooth and almost wader-top high should be fished thoroughly by casting in all directions — the casts radiating from you like the spokes of a wheel from its hub, as suggested by Dr. Henshall. Don't neglect the water immediately above or below a rapid or at the foot of a "shoot" — where the stream narrows and speeds up. Beds of grass, isolated clumps of weeds, sharp turns or where another stream comes in are also likely places. Ordinarily it does not pay to spend much time casting over "deepish," still water. Where a sizable obstruction juts out into the stream look for a bass on the down stream side, just around the corner. Farther in, in the eddy, you will find our friend "Spots," the so-called "pickerel."

Where the stream runs swift along bare or rocky banks drop your fly on the shore and twitch it off into the water — sometimes very effective. Such stretches can also be whipped: making a number of casts and merely permitting the fly to "tick" the water, then finally allowing it to fall and retrieve in the regular way — often sets 'em crazy when they are otherwise indifferent. Where the river suddenly becomes shallow, frequently above or below an island, makes a nice play spot for minnows, a fact well known to hungry bass.

It must be borne in mind that local conditions, espe-

cially as regards food, often influence the lurking places of the fish. I know one stream where the most success is had by casting in very shallow swift water in mid-stream, but it is an exception. Where this condition prevails the rapid is in a stream which for the most part is slow and weedy. Small mouthed bass don't like rapids but they like dead, dirty water less. A village fool once found a lost horse for which a large reward was offered. When asked how he did it he replied: " Well I just thought where I would go if I were a horse and I went there and found him." Use the same " simp " sleuthing methods when seeking bass: go where there is food and cover and travel your flies where food would naturally drift.

Methods

Much depends on the angler. If he rushes along making a fitful cast here and there in what he believes to be likely spots and tries to fish the whole river in half a day he may catch fish; usually he doesn't. But look out for the " old hand " who casts with deliberation and takes his time — he always gets more fishing and nearly always more fish than the " hustler " type of angler.

In casting for bass the experienced angler regulates the length of his cast according to prevailing conditions. On a darkish day or when there is a good riffle on the water thirty feet or so is enough line but on bright, still days or in very clear water forty or fifty or even sixty feet will get the most rises. In any event

it is poor policy to tire oneself by attempting to cast the extreme lengths. Early or late in the day, in bright weather, it is a good plan to cast toward the sun whenever possible to avoid long shadows and when the sun is high and bright the canny angler saves the likeliest spots for the few, fleeting intervals that a friendly fleece of clouds hides the sun.

Whatever length of line one casts he should cultivate a high back cast, take care that he doesn't hang his flies in the brush and put his casts down straight and quietly. Whether to fish down or up stream is something for each angler to decide for himself. Bass fishermen, when wading, usually fish down stream casting diagonally across, permitting the fly to sink and retrieving it " steady by jerks " as an old river hand once put it. Some anglers " flutter " their flies on the surface for a moment before they sink by manipulating the rod but this is generally unnecessary when fishing a stream.

Well here at last, young Venator, is the getting in Mace. For a while you had better merely follow and observe me and thus you will sooner " get the hang " of this merry business of taking basses on fraudulent feathers. We will keep to the left bank going down stream, and thus avoid the necessity of casting left handed.

That gray gaunt tree lying there in the swift water near the other shore might shelter a bass. Note that black hole under it in the bed of the stream; surely a

likely spot. I won't take a chance on scaring him by casting toward his lair but will cast down stream on this side until I have enough line out to reach the tree. Then, at the end of my last back cast, I will turn and drop this Yellow May where he can get it — if he's there and in ye mood. What! No rise ? Very well, I'll just work along the log, letting the current carry the fly past it. Well! Maybe he doesn't like the Yellow May and we'll try this number 4 Brown Palmer. Come on, son, we'll be movin' along — that fish doesn't know good fishing when he sees it!

That old brush heap ought to be good for something. Sure enough, a rock bass! But we will put him back to propitiate the river gods and the spirits of departed anglers who brood over this beautiful stream when the wind is South.

Those overhanging willows ought to give us a real fish — a " keeper." We will get above 'em and float a fly down under the drooping branches. Very well, Mr. Bass; stay there; we will call again some other day when you are in a more hospitable frame of mind! There's a cluster of partly submerged tree stumps a bit farther down; come on, let's give 'em a trial.

Now we will lengthen our line as we did at the fallen tree as there is no likely water between us and the stumps. There! Did you see him take after it! Why didn't I stop the retrieve and let him take it? Because it's poor policy and would have aroused his suspicion and if I had continued to retrieve my rod tip would have been up so high that I probably would

not have hooked him — you are in no position to strike with your rod any higher than fifty degrees. The young angler's temptation is to hurriedly make another cast directly at the fish returning to his lair. Not us. We will make another cast down stream and give him a chance to get back to his hole. Now we'll try again. He is suspicious and merely chases the fly so we will offer him a change of diet by hooking on a new fly and a spinner. I'll put this little gold one on. Foolish fishes, like foolish folks, are attracted by the glitter of gold and for it give up their liberty and even their lives. But what can it give them that compares with freedom and the joys of going a-fishing! Now, Mr. Bass, try that! Ho! Ho! He merely chases it so we will follow my friend Peet's advice. He says if he rises a fish and fails to hook him on a wet fly he switches to a floater, or vice versa, and always gets another rise. Now, floater; do your duty. There! I have him hooked. He's a nice one, too. Now observe how I play him. Note that I keep the tip up just enough to keep a good bend in the rod. See, I strip in what slack he gives me and pay it out again slowly when he appears to be pulling too hard for the probable strength of my leader. Now he leaps but the spring of the rod keeps the line taut although I watch my knitting and see that he does not fall on the stretched leader. If he had I would have lowered the rod tip and given him some slack. He's getting tired and I slowly and firmly work him up stream of me. Still keeping a good curve in the rod I reel in the slack line. Then I pinch the

line against the rod, submerge the net, and let him float over it. There! Almost two pounds of fighting fish licked to a frazzle! I hug the rod to my bosom, remove the hook and kill the fish — we are at least sure of our dinners.

There are several points on hooking, playing and landing a fish that are worth explaining. Sometimes, especially in fast water, a fish will hook himself but ordinarily it must be done by the angler. This little trick, called "the strike," is something to which young anglers should give some study. With an ordinary bass rod the best method of striking is tightening the line by a twist of the wrist from the left to the right. With a whippy rod best results will be had by sweeping the rod tip downward smartly. When there is slack in the line or near the end of the retrieve it is best to strike both with the wrist movement and by a short tug on the slack held in the left hand. An expert can execute both movements simultaneously with just the correct amount of force and do it instinctively. Always strike when you see the flash of the fish or when you hear him swirl; don't wait to feel him "bite." If you fail to hook him don't be in a hurry to cast for him again — make a cast or two in another direction or change your fly.

When you hook your fish don't be too anxious to land him. Maintain a good curve in the rod partly from the side to avoid raising the tip too high so you are in a position to take in slack quickly if the fish "rushes" you. Handle him firmly, but not too

firmly, and keep him away from snags, sharp stones and other debris. Give him no slack but let him have his head a little if he appears to be pulling too hard for your leader. When he is tired by the constant bend of the rod then get the net ready but don't make the all too common mistake of jabbing at the fish with the net — why try to catch a fish you have already caught? Get the fish up stream of you and merely submerge the net and lead him over it.

Just a few more hints and I am done. When casting with a spinner or other heavy lure retrieve in the regular way but on the last pull do not bring it to the surface and make the back cast one continuous movement. Better for your rod and wrist if you will bring it to the top o' the water and then " pick it off " the surface on the back cast. Even giving a little jerk with the line in your left hand as you start the back cast will help.

To make a spinner effective it must be retrieved against or partially against the flow of the stream, hence it should be cast down stream or diagonally across and down. When casting with a cork bodied fly it is customary to cast it up and across and strip in the slack with the left hand as it floats down to you. Does the splash of one of these bulky flies scare the fish? Sometimes but not often. The bass is not a shy fish and has a big bump of curiosity. He is something like the fighting forbears of the Irishman who was asked whom his ancestors sprung from. " They sprung from nobody," he said; " they sprung at 'em." Any large

fly is hard to cast in a high wind but a windy day has one compensating feature: the wind ruffles the water, making long casts unnecessary.

Now, young Venator, I have imparted all I can to you and I regret that you haven't a more competent teacher. I am going to sit on yonder log and smoke while you go on down stream a ways. Be careful you don't hang up your flies, for fishes do not roost in trees — and good luck!

FLOATING A STREAM

Streams too deep to wade or with soft bottom or treacherous holes are fished from a boat which is a method having many attractions — a lazy man's and restful system.

While I have had many a pleasant day fishing from a canoe the ideal river boat, from the comfort standpoint at least, is a flat bottomed one of shallow draft and generous width and stability. Such a craft permits one to move about and allows what base ball fans call " the 7th inning stretch." • However, unless one owns a boat he takes what the boat man has to offer and makes the best of it.

The ideal way to float a bass stream is with a companion and a hired boatsman who guides the craft and who otherwise makes himself useful. He should " know the river " if you don't and engineers the trip so you reach your destination on time and so as to be near a spring when it is time to " bile the coffee pot " at noon. A good river man is a priceless jewel and

among them I number some of my best friends.

If a boatsman is not hired a third angler can join the party and each man handles the boat alternately, but three men fishing from a boat at one time should be avoided. In a pinch one or two men can fish down stream by dragging a light anchor but this should be avoided if possible.

A pal and I often combine wading and floating in one stream. We put the boat on a wagon and put it in the river where the road crosses it. Then we don waders and fish down stream, the boatsman fetching up in the rear with the boat. When we want some duffle or have a fish to put in the bag we simply walk back or wait for the boat. The end of the day finds us at the main river and a launch picks us up and tows us back to the camp.

One fishes the same places when casting from a boat as he does when wading. The boat is kept out in the stream and the angler casts toward shore, the boatsman driving a paddle, or better still a garden rake, into the bottom, or dropping anchor if in very deep water, until the likely spot is thoroughly fished. One usually casts a little longer line when floating although I do not believe that a boat tends to scare a fish if the anglers are quiet. You may talk and shout as much as you please as sounds above the water are unheard by the fish — something a friend with whom I go trout fishing apparently does not believe. Anyway he says my singing scares' the trout. I have never learned whether this was a comment on my singing or a compliment on

the hearing ability of the trout! But be careful about scuffing the feet on the bottom of the boat or knocking the oars against it as such sounds carry great distances under water.

A river can be fished by hauling the boat upstream a day's float; by going down one side of the stream and working up the other; by floating down to a trysting place and being hauled back at night or, on the last day, floating to the next town and shipping the boat back. On some large rivers best success is had by fishing up stream.

Casting from a boat sometimes is difficult for the man used to wading. Striking the water behind on the back cast perhaps does no more harm than to slow up the cast a trifle but it looks "bunglesome" and a high back cast avoids it. When the young angler finds himself "tipping" the water behind him he can keep his fly up by slightly raising the casting arm at the end of the back cast.

Sometimes on these deep rivers fly fishing is profitless as the bass congregate in the deep holes. A question arises: under these conditions is the true fly fisher justified in using a worm or other lowly bait. In my opinion it depends on how much he wants fish. If, for example, the "missus" has threatened to buy no meat for the next day and has hinted that an empty basket means no more trips for the season, then the canny angler will use anything short of dynamite and all of us, to a man, will voice him the time-honored anglers' bywords: good luck!

FISHING A LAKE

In no other branch of angling is a thorough working knowledge of fish habits, water and weather conditions so essential to success as fly fishing for bass on a lake. In other words, the successful lake fly fisher must know his business and be quick to take advantage of favorable conditions.

I believe that a fly fisher can catch bass on a lake almost any time the bait caster who uses surface baits can get fish — if he is a good fisherman. The bass are then feeding in the shallows or on or near the surface and that alone is a big advantage. Bass are most often found in low water early or late in the season and with a little cloudy weather and a good riffle on the water at these times the fly fisher has the most propitious circumstances. In mid-season in the full glare of the sun, with the lake's surface like a mill pond, the conditions are most unfavorable and the wise angler will then still fish, pitch horse shoes or go swimming until evening. Then, protected by head net and mosquito dope, he can carefully work along the shores and shallow places with some hope of success. After sundown is the best time of all for fly fishing a lake in mid-summer. At other times the best hours are very early or late in the day.

The habits and preferences of the basses should not be forgotten. One should look for small mouths on the rocky ledges, on the sand or gravel bars or where there are currents. If you do not know where these

are located, and the services of a guide are not available, an hour or two exploring with a sounding line is a good investment. Look for shallows especially off or near points, islands or other outcroppings and when you find them " mark down " each one by lining it up with dissimilar objects on two shores and enter the observation in a note book.

Keep your boat out in deep water and cast *in* to such places. If the fish show any inclination to come to the surface for your flies it is a good plan to fish there as it is more enjoyable to see the fish strike. Use either the cork bodied flies or the regular ones dried between casts by " false " casting — whipping it back and forth through the air. " Flutter " your fly on the surface and retrieve slowly. When the fish are feeding deep I have had the most success with either a large (about number I or I-o) Silver Doctor fly, with one or two split shot pinched on the leader a few inches above the fly, or by using a number 2 fly or the same pattern with a number 1 (Hildebrandt scale) silver spinner, letting it sink well before starting to retrieve. When fishing near an island or point, especially in the evening, casting a weedless fly (to avoid getting hung up) on the shore and then twitching it off into the water often gives excellent results; also useful where sizeable rocks jut out of the water.

The large mouthed bass, preferring shallow water, is usually more easily taken in lakes than dolomieu but it is often necessary to fish in the weeds.

The shallow, weedy " lakes " of the Illinois river

region offer some of the best of large mouthed bass fly fishing. These lakes are overflowed timber and pasture lands full of dead trees, stumps, lily pads and weeds, making ideal breeding and feeding places for these fish. Before the law prohibited the sale of black bass one often would see Illinois river market fishermen using fly rods.

For fishing such weedy waters a weedless fly (with inverted wings or with horse hair or wire weed guards) should be used. The boat is kept forty or fifty feet out from the edge of the weed bed and the angler casts his fly in the "pockets" among the weeds or directly on the weeds. A rather sturdy rod is needed for this work as the fish is literally dragged over the weeds into open water before he can "duck" under the surface and foul the leader. Fishing in fairly weedless waters especially if the water is roiled, as it is apt to be, the addition of a spinner to the fly is advisable.

Submerged weed beds, with the tops of the weeds a foot or so under the surface, often yield well early in the morning or 'long about dusk. Sometimes such waters must be whipped to arouse the ire of the green gentlemen. Other good places to look for rising fish are: the mouth of a stream entering the lake or at the outlet; where there are "spring holes" in shallow water; where drift wood has accumulated; under overhanging trees. As in fishing a stream, do not overlook any place that offers cover for a fish. Put your line on the water straight so you can strike quickly — a lake bass often strikes immediately the fly touches

the water and you have no swift water in a lake to help you hook him.

OTHER STILL WATERS

In many sections of the United States and Canada, where there is a limestone formation, there are hundreds of abandoned quarries that have become filled with water and have been stocked with bass. Some of these "quarry holes" are only a cast or two across while others are what boys would call "young lakes." Most of them are very deep and the cold spring water breeds fish of wonderful fighting and table qualities.

Because of the deep water the fish can retire to a depth beyond the influence of the weather and feed the year 'round, hence quarry bass are proverbially large. Also, as every one who has tried to catch them knows, they are extremely shy which is another reason why they get to be "big fellers."

In fishing waters of this kind the advantage is all with the fish. The water is almost as clear as the atmosphere and the edges are high so any one angling from the bank stands outlined against the sky in plain sight of the fish. When quarry fishing the angler ought to have a portable boat or canoe or fish only on dark days or better at night and then, if the moon is out, he should fish towards it. I know nothing that equals a quarry bass to take the conceit out of those individuals who admit they know "all about fishing."

Large flies and long casts are the rule when "quarrying for bass" and the party should consist of not more

than two persons and they should follow the advice: " Study to be quiet."

The same directions should be observed when fishing ponds known to contain bass.

WET FLY TROUTING

Beyond doubt the best way to learn the rudiments of trouting is to go out with an " old hand." In this way the novice will pick up many hints that will be of value when he attempts it alone.

Hundreds of volumes have been written covering all phases of trout fishing so we will merely review the subject here for the benefit of the beginner and inexpert who are not fortunate enough to be taken in hand personally by an experienced fly fisher.

To fish up stream or down is a much debated subject. Both systems have their advantages and disadvantages. Fishing down is less work; it assures a taut line and gives the wader a better view of the stream's bed in rough water. But it scares more fish as you come down to the trout that lie heading up stream and the sediment you stir up goes ahead of you and warns the fish.

Up stream fishing adds to one's chances of hooking a rising fish, providing the line is taut, and not as long casts are required as you approach the fish from behind. But this upstream fishing entails more work. Wading is more difficult against the current and the angler must always be casting or stripping in line. This can be avoided, somewhat, if the casts are made diagonally

up and across stream. The majority of anglers are agreed, I believe, that the best system is to fish fast water down and slow water up, making sure to fish the pools first from below.

There are ten good casters to one good wader. " Take your time and make haste slowly " is good advice to trout fishers. Cast in all the likely places, not just the choice spots. Work all the white water you can find. If brown trout are present look for them in the eddies above big boulders but brooks and rainbows will be scattered about in the fast water; the broken water immediately below dams is a good place for the beginner to start his trout fishing career. Move carefully so as not to make noise. Sing or whistle if you feel like it but avoid scraping your hob nails on stones or gravel — such sounds carry a great way under water. Throwing a long line is not necessary when fishing the rapids — thirty feet is ample under ordinary conditions.

The smooth stretches of swift, unbroken water requires careful and quiet fishing. Such places often shelter big fish, especially on bright days. Drop your flies gently close to the bank where there are dark pockets; around fallen trees and other debris for such a place is where lone lunkers love to lie in wait for food to come down to them.

It is good strategy, especially when fishing strange waters, to start out with three flies on the leader, then switch to one when you find a pattern and size they like. Sometimes permitting the fly to sink well pro-

duces; again the trout prefer it on or near the surface. When you come to a pool fish all you can reach of it from below. Then make a detour through the brush and fish the rest from above. Pool fishing requires longer casts and more delicate casting but larger fish are the rule.

Hooking a fish in rough water requires little action on the part of the angler — just a slight lifting of the rod. In other places the fly fisher must "strike" his fish. This is done by a slight twist of the wrist. In fact the failure to hook rising fish is the most discouraging part of trout fishing to the novice. It calls for alertness and a little knack — a canny wrist the Scotch say — that will come with experience. A young trout fisher never strikes too quickly and he should train himself to keep a taut line at all times and to strike immediately he sees the flash of a fish. If the fish rises and misses the fly, rest the water for a full minute before casting again. If the fish is pricked leave that spot for a few minutes; then come quietly back and try again. My experience is that a pricked trout will often strike again if left alone for a while.

It is when playing for a certain fish that mishaps always occur. If you should get hung up in a tree during such a critical period, don't get impatient and try to release it by main strength. Wait a minute for the leader to dry a little; then a slight tug will often free it.

When a trout is hooked *play* him. Don't be too anxious to get him into your basket. Keep a good bend

in your rod and make him fight for all the line he gets but if you attempt to " horse " him in he will pull out the hook or snap the leader nine times out of ten. Remember that an ordinary trout hook is a pretty small affair. When the fish shows signs of tiring play him some more; then swing him up stream of you, put your net down and let the fish back or float into it.

The time of day has less to do with successful trout fishing than in taking bass as trout are more often found in fast water where the visibility is poor. I have never had any particular success in early morning fishing and a hot breakfast should never be sacrificed for your eagerness to be up and at 'em. The evening fishing is worth looking forward to. It is then that the big hatches are on, in mid-season, and when large trout come out to feed in earnest. There is only one disadvantage in evening fishing and that is the pestiferous mosquito. Head net, gloves and smoking help but some dope is usually necessary. The famous one-two-three formula of Nessmuk is good: one part pennyroyal, two parts castor oil, three parts pine tar. Simmer together and bottle. A favorite in the middle west and one I can recommend from personal experience is: equal parts of oil of tar, oil of cedar, olive oil and citronella. Smear it on face, hands and neck. It is dirty, messy stuff but mosquitos and black flies stay away from it and it is healing to sunburn.

Early in the spring, when snow water is running into the stream, fly fishing is almost useless — with some notable exceptions. May, June and July are the

prime trout months in most waters south of Canada. In late summer small streams get very low and clear, requiring extra precaution on the part of the angler to keep himself and his equipment as much in the background as possible. Fine leaders and small flies are the rule for this clear water fishing. The anglers should cast toward the sun to avoid making shadows; he should drop his flies as gently as possible and fish the shady side of the stream. The expert under these conditions is quick to take advantage of every opportunity such as casting under the shade of overhanging trees, fishing when a cloud momentarily hides the sun or when a breeze ruffles the surface of the stream.

In summer fishing the angler should keep plenty of grass in his basket and keep his catch as cool as possible. When he stops to smoke or to gossip a while with some passing brother of the angle he should get out his knife and open his fish, but not wash them.

DRY FLY TROUTING

The theory of dry fly fishing is to float a fly, tied in exact imitation to a natural insect, over a spot where you have reasons to believe that a trout is feeding. In England, where the dry fly system originated, it is customary to "fish the rise" or for trout that are seen to be feeding, but in this country dry fly anglers fish all likely spots.

The dry fly idea is not entirely new in this country. Thad. Norris and other early American experts often fished on the surface but of course they were not ac-

quainted with the highly specialized tackle and methods in use to-day. For a long time it was considered that most American trout streams were unsuited to dry fly fishing because they are swifter and rougher than the chalk streams of England but many anglers have learned that even fast water can be "fished dry" and they maintain that in case the fly is sucked under it is just as effective as any wet fly can be. Dry fly fishing is now an accepted angling method with the majority of American trout fishers and even confirmed wet fly men often carry a few dry flies tied to tapered leaders for fishing certain parts of their favorite streams. Ideal dry fly water is that which flows smooth and swift, just such water as many wet fly fishers pass by as unprofitable. Such water should be "checker-boarded" with casts before the angler moves up to fish new water, special attention being given to the spots along the bank where big fish would find cover and to fish that are seen to be feeding. In addition to rod, reel and tapered line greased with deer fat, the dry fly fisher should be equipped with tapered leaders. These should be of high quality gut, tied with small knots. A good one is one of nine feet in length and tapering from extra stout to 3X fine. At least an extra leader should be soaking in the leader box as well as a number of 12-inch strands of the same size as the extreme end of the leader. These are to be used as "points" to tie to the end of the leader as the original end is clipped off from changing flies.

Only one fly is used in dry fly fishing and this is tied

directly to the end of the leader, using the turtle knot. Flies for dry fly fishing are usually number ten 01 twelve and are tied with hard bodies and with wings and hackles designed to increase their buoyancy. In addition the flies are usually treated with an oil to increase their floating qualities. Atomizers and bottle equipped with brushes are furnished by the tackle shops to carry and apply the oil but I prefer two pieces of saturated felt carried in a " vanity box " such as the ladies use to " powder their noses "; an ordinary tin salve box will do. I have my oil box equipped with a ring to which I fasten a key chain, the other end going on a button of my wading jacket. I carry scissors the same way. Only the body and hackles of dry flies need be oiled.

The dry fly fisher always fishes up stream. He wades carefully and slowly. When he extends his line for the first cast neither the line nor fly is permitted to touch the water until the fly is traveling through the air three or four feet beyond the point where he expects to get his fish. Then it is permitted to alight gently on the water and to float over the likely spot, care being taken to make it float as life-like as possible and to avoid drag of line or leader pulling it under or upsetting it. If no rise is forthcoming the fly is floated a few feet farther down when it is picked off the water and more false casts are made to extend the line for another attempt and to dry the fly. During this whipping the line back and forth the angler cautiously advances a few feet to cast over fresh water,

providing he believes that the spot he last floated his fly over is barren of possibilities.

The dry fly fisher must at all times keep in mind the fact that he is imitating nature as closely as possible. His flies are almost exact duplicates of the living insect and he must make his fly float as naturally as he knows how. When the fly is on the water the slack line is slowly taken in by the caster's left hand, or rather the fingers of the left hand, but at no time should the line pull on the fly which should be floated solely by the current. While I have taken trout on flies that were handled in an unnatural manner the true-to-nature-idea is a good one for the dry fly fisher.

The drag is the dry fly man's greatest enemy and there are several kinds. There is the drag caused by taking in slack too fast; there is drag imparted to the fly by the wind catching line or leader and worse than all is the drag caused by the fly being near the bank in rather slow water and the line being farther out in the stream where the full force of the current acts on it. The first can be avoided by a little care; the second is never serious except on the windiest day when dry fly fishing is both unpleasant and unprofitable. The drag of the current is minimized by casting so that there is an upstream belly in the line or by straight ahead casting to avoid getting the line in fast water.

Next to floating the fly naturally the greatest problem lies in hooking the fish. You do not keep a taut line in dry fly fishing to avoid the drag and when a fish does rise he has time to taste the fly, learn its true

nature and let go of it if the angler is not on the alert at all times. For this reason the dry fly fisher should follow the keep-your-eye-on-the-ball rule of the golfer and watch for the flash of a rising fish. If a fish rises and is not hooked let the fly float down a ways before lifting it for another series of false casts — three are enough in most instances — and then try him again. If he refuses to rise offer him another fly; it is not unusual to offer one fish three or four patterns of flies before you get one that strikes his fancy. Generally the dry fly man watches carefully to see what insects are hatching and which ones the trout are feeding on; then he puts one on that imitates it.

Besides being an effective method of adding heft to one's basket dry fly fishing has many charms. The dry fly man fishes alone and while he loses in sociability he more than gains in the intimate contact he establishes with nature at her best. As he goes slowly and quietly up stream plying his art he sees many wonderful sights and hears many sounds that are denied the folks who would rather catch dollars than fish; who prefer man-made towns to the peaceful quiet of the streamside.

THE END

