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FLY-FISHERS'
EPHEMERIDÆ.

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FLY-FISHERS' EPHEMERIDÆ.

BEING AN ANALYSIS OF THE BRITISH EPHEMERIDÆ AS AT PRESENT KNOWN TO SCIENCE, EXTRACTED, MOSTLY FROM THE WORKS OF OTHER PEOPLE, FOR THE BENEFIT OF SUCH MEMBERS OF THE FLY-FISHERS' CLUB AS MAY CARE TO USE IT.

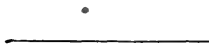
BY

CHARLES A. N. WAUTON, M.A.



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FLY-FISHERS' EPHEMERIDÆ.



I.

EPHEMERIDÆ OF THE CHALK STREAMS.

OF the few works which have been produced on this subject, none are couched in terms so elementary that they make an appeal to the angler in his arm chair. In them is much counting of invisible teeth and numbering of infinitely small hairs, so that the simple fisher quickly feels that the matter is too hard for him, and must be left to the attention of scientists with very large microscopes and much leisure.

It is, indeed, a difficult business to name with precision the genera and species to which individual members of this family belong, the more so as it is not improbable that several—perhaps one should even say many—*have* no names, yet there are lines comparatively simple along which the fisherman may travel that will lead him in due course to the end of a journey both pleasant and profitable, inasmuch as that he will have acquired a sound working knowledge, sufficient for all practical purposes, of those insects which provide the cream of sport with the rod. Nor would it be rash to say that such as get a grip of this subject will find it gets a grip of them, and

this much at least will it profit them, that days which are bad fishing days will yet be full of interest, by reason of the many small creatures which before were unseen and now are revealed.

The total number of species of the Ephemeridæ family *known* to inhabit this country is forty, varying in size from that of the Mayfly down to a minute insect known as *Cænis*, which is about the size of any ordinary mosquito. (*Cænis* is a generic name comprising four separate species.)

It might perhaps be well at this point to get a clear idea of classification as applied to insects by the scientist.

As far as the fisher is concerned there are only three items that matter—(i) Family, of which there are many, but we are only here concerned with one—The Ephemeridæ. (ii) Genus. Fourteen distinct genera appear in this country. (iii) Species, of which, as we have already stated, forty are to be found in the British Isles.

Taking the ordinary green Mayfly as an illustration, we find that it is labelled as follows:—

Family—Ephemeridæ.

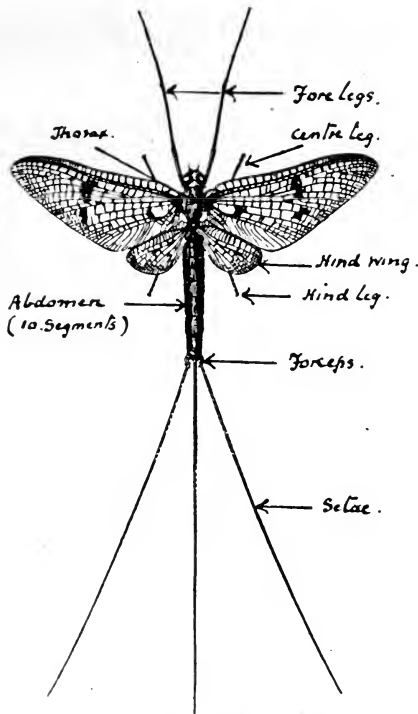
Genus—Ephemera.

Species—danica.

There are three sorts of Mayfly: the other two, of course, belong to the same family and genus, but differ in species.

Flies of the same genus and different species sometimes differ completely in appearance and colouring; in other cases they are so closely alike that it becomes possible to group them together under one familiar name such as "Olive," which covers no less than five species of the genus *Baëtis*. The popular name, Pale Watery, covers four separate species all so much alike as to be practically indistinguishable to the ordinary observer.

Next as to conformation: To the casual observer the general outline of every member of this family is exactly that



Mayfly. Male Imago (x 1.5.)

Note. Length of fore legs.

Length of setae.

Eyes.

Abdominal forceps.

of the Mayfly, differing only in size, and as the appearance of the Mayfly should be well known to all keen fishers, the subject may be dismissed with very few words. What might be described as the "meaty" bit of a Mayfly, from the trout's point of view, consists of three separate parts—(i) head, (ii) thorax, and (iii) abdomen.

(i) The head consists of only one segment, and carries the very small antennæ which are characteristic of this family, also the eyes, which are of great importance as they are always a clear indication of sex. Females have very small eyes placed well to the sides of the head, whereas males possess highly coloured large eyes covering the greater part of the head.

(ii) The thorax is divided into three segments, and to each segment is attached one pair of legs, making six in all. The

two hind-most segments carry the wings which are always held rigidly erect when their owner is at rest. The hind wings are always very small, and are sometimes altogether absent.

(iii) The abdomen consists of ten segments tapering to a graceful point, where we find an attachment known scientifically as the "setæ," but more generally referred to by flytyers as the "whisks." Some genera have *three* setæ, others only *two*, which should not be forgotten, as it affords much help in identification. Of the forty species classified by the Professors, fifteen are decorated with *three* setæ, while twenty-five possess only *two*, so that a casual glance at the tail-end of a victim must immediately reduce the possibilities to terms considerably more reasonable than the rather alarming proportions which they originally assumed.

The metamorphosis of the Ephemeridæ is incomplete, that is to say, the insect in its immature stages bears an appreciable likeness to the adult form. At no period of its career is it quiescent after it has once made its way out of the egg.

The life of every member of this family is divided up into four very distinct stages or conditions. (i) The egg. (ii) The nymph. (iii) The subimago—commonly called the Dun except in the case of the Mayfly. (iv) The imago—generally known as the Spinner, again with the exception of the Mayfly.

(i) and (ii) The egg lies on the bed of the river until in due course—possibly a month, sometimes much longer—the nymph emerges. This microscopic creature is invariably very active and very hungry; it eats anything it can get, and as much of it as it can hold. Decaying vegetation, or any other kind of offal, serves for food, some species are carnivorous. This large appetite produces rapid growth, with the result that before long the nymph feels a certain tightness of the skin. This troubles him not at all, for when he arrives at bursting point he simply bursts and crawls out of a slit in his own back, after which he carries on as before, forming for himself a new skin as he goes along. This swelling and bursting process recurs at short intervals in the early stages

of the nymph's career, becoming less and less frequent as he advances towards adult proportions. In due course what are known as the wing-cases gradually begin to make their appearance upon his back, and with the full development of these the nymph begins to prepare for his next change.

At this stage he becomes more restless and active than ever before, making short excursions from time to time in an upward direction, until finally, having made up his mind that the time is ripe, he thrusts his thorax well above the surface of the water. Immediately it splits down the centre, and from the shell of what was once the nymph, the dainty little dun or subimago quickly disengages itself, leaving the empty shuck either to go its own way down the stream or to serve as a raft for its late tenant.

(iii) The Subimago or Dun, whilst newly hatched and floating down the surface of the stream, has arrived at that period of its career at which it is most interesting to the majority of fishers, though it has not yet reached the final stage of its development. Soon it rises from the water and makes its way to the shelter of a friendly bush where it remains for some twenty-four hours or so, probably hidden on the under side of a leaf, until the time is ripe for the final change. For the last time the skin of the thorax splits and the perfect insect withdraws itself from the subimaginal covering, leaving the envelope still attached to the last resting place of its owner. This envelope, of course, bears the exact outline of the dun, with the exception of the wing cases, which gently subside as they are not sufficiently stiff to maintain their erect position.

(iv) The Imago or Spinner is endowed with much more energy and activity than the Dun. It is perfect in all the parts necessary to its existence and its development is complete.

The Spinner is equipped with no machinery for taking nourishment of any kind, so that its strength is spent in the course of a few days, though its life is by no means so ephemeral as is commonly supposed. The one duty remaining to the Spinners is the reproduction of the species. After the eggs have

been fertilised by coition the females of some species flutter above the surface of the stream, dipping at intervals to wash off batches of eggs which collect towards the lower extremity of the abdomen. In some cases the eggs are discharged *en bloc*. These eggs sink to the bottom, and in due course go through the various stages which have just been described. After the eggs have all been expelled the female quickly dies from exhaustion. Falling prone upon the surface of the stream, she floats down with wings outstretched to find her last resting place in the belly of a hungry trout—or who shall say where?

The males have no inducement to take them to the water to meet their end, and when a spent male is found on the surface he is only there because he happened to be flying over the water at the moment his strength gave out. This is the reason why males are met with so much less frequently than females, and it is well for an angler who has picked up a spent male to be sure that he has not chanced upon an odd one, while the fish are really feeding on the much more numerous females.

To anyone who has followed what has gone before it will at once become abundantly clear that the difficulty has now been further complicated by the introduction of two sexes and two conditions, making each separate species equal to four as far as identification is concerned. The average fisherman is apt to refer casually to an artificial fly as, say, an Olive, but this somewhat sloppy process fails to work when applied to the natural insect. In the case of a living Olive the fly will come under one of the following heads:—

- (1) A male Olive Dun.
- (2) A female Olive Dun.
- (3) A male Olive Spinner.
- (4) A female Olive Spinner.

And it cannot be adequately described at any less length.

It now becomes necessary to get rid of these complications which have newly arisen, and it is fortunate that neither

problem presents any serious difficulty. Turning first to the question of condition, we find that the wings of duns are dull and covered with short hairs, especially at the lower edges: whilst the wings of spinners are transparent, shiny and hairless. No very close scrutiny is necessary to distinguish between them, especially if assistance is obtained from a small magnifying glass, while the matter will be settled at a glance as soon as a little experience has been gained. On the wing the dun is slow and clumsy, but the spinner is active and alert and sometimes takes a lot of catching.

The difference between the sexes is well and clearly marked. Males, whether duns or spinners, bear a token at each extremity. At the head their large and highly coloured eyes give an immediate clue to their sex, and if this is not enough an inspection of the lower end of the abdomen, beneath the roots of the setæ, will reveal what are known as the "abdominal forceps." These are not so well marked in duns as in spinners, but they are nearly always discernible with the naked eye, and glaringly obvious when sought with a glass.

In the case of a *male spinner* the setæ are as a rule half as long again as the rest of the fly, sometimes twice as long, whilst the front legs are at least twice as long as any of the remaining four. The front legs of female spinners and duns of both sexes are not elongated, their setæ are roughly the same length as the rest of the fly. The eyes of females of both conditions are small and dark, placed well to the sides of the head.

Apart from the eyes, duns as a rule are very much alike in both sexes, but spinners often show great variety. Sometimes, however, they also bear a fairly close resemblance, as in the case of the well known Blue-winged Olive; here the sexes are inclined to be nearly matched as far as colouring is concerned, but of course the males show the usual differences in eyes, forelegs and setæ. The spinners of the Blue-winged Olive

are both familiarly known as the Sherry Spinner. Doubtless the name was first suggested by the amber coloured thorax and abdomen of the female, to whom it applies much more aptly than to the male. The Blue-winged Olive Dun, of both sexes, has wings of a bluish-grey shade, the thorax and abdomen are of a strong greenish-olive colour. This fly in both conditions bears *three* setæ, which at once give the clue to its identity.

II.

IDENTIFICATION OF INDIVIDUAL SPECIMENS.

There are only five flies commonly to be found on the *chalk* streams of the southern counties, which are of surpassing interest to the Dry-fly man :—

- (1) The Mayfly.
- (2) The Blue-winged Olive.
- (3) The Olive.
- (4) The Pale Watery.
- (5) The Iron Blue.

Having secured a victim with the help of hat or net, the first question to decide is *whether it is a dun or spinner*. An inspection of the wings as previously described will soon put this matter beyond a doubt.

Next to be settled is the sex. Large eyes and forceps—or the lack of them—will quickly dispose of this point.

Now count the setæ: Mayflies and Blue-winged Olives have *three* setæ, the others only *two*. In the case of a three-pronger, if you are unable to decide between a Mayfly and a Blue-winged Olive you had perhaps better give up fishing and take to golf.

The two-prongers are not so easy, but the following tables may help to clear things up :—

SUBIMAGO. Both Sexes.

Name.	Olive Dun.	Pale Watery Dun.	Iron Blue Dun.
Wings.	Dull, hairy. Dark brownish grey.	Dull, hairy. Pale grey.	Dull, hairy. Slate blue-grey.
Neuration of wings.	Green-grey. Very few cross nervures.	Indistinct.	Indistinct.
Thorax.	Brownish olive.	Light brownish-olive.	Males, greenish-grey. Females, purple-grey.
Abdomen.	An indefinite olive tint. Yellow brown-grey.	Pale lemon-grey.	Males, greenish-grey. Females, purple-grey.
Setæ.	<i>Two.</i> Greenish-grey with reddish joints.	<i>Two.</i> Pale greenish-olive.	<i>Two.</i> Greenish-grey.

MALE IMAGO.

Name.	Olive Spinner.	Pale Watery Spinner.	Iron Blue Spinner or Jenny Spinner.
Wings.	Transparent, shiny, hairless. Tinged with yellow.	Transparent, shiny, hairless.	Transparent, shiny, hairless.
Neuration of wings.	Faint yellow-grey.	Pale yellowish.	Transparent white.
Eyes.	Brown-red.	Yellow, orange, brown or light red.	Intense sepia or burnt umber brown.
Thorax.	Nearly black.	Reddish orange, often much darker.	Deep brown to black.
Abdomen.	Pale transparent greenish-grey. Last four segments rich brown.	Semi-transparent white. Last three segments orange or red, sometimes much darker.	Transparent white. Last three segments deep red-brown.
Setæ.	<i>Two.</i> Very long. Pale grey, nearly white.	<i>Two.</i> Very long. Delicate lemon-grey.	<i>Two.</i> Very long. White.

FEMALE IMAGO.

Name.	Olive Spinner.	Pale Watery Spinner.	Iron Blue Spinner or Claret Spinner.
Wings.	Transparent, shiny, hairless. Tinged with yellow.	Transparent, shiny, hairless.	Transparent, shiny, hairless.
Neuration of wings.	Faint yellow-grey.	Pale yellowish.	Colourless, clear.
Thorax.	Brown, becoming darker with age.	Dull brownish yellow to brown-grey, sometimes darker.	Claret.
Abdomen.	Dead gold, becoming reddish-brown with age.	Gold, becoming darker with age.	Claret.
Setæ.	<i>Two.</i> Very pale grey.	<i>Two.</i> Golden.	<i>Two.</i> Very pale grey, nearly white.

If you fail to distinguish between the male spinners of the Olive and the Pale Watery, be of good cheer—the fish can't do it either. The male spinner of the Iron Blue is very distinct. He is commonly known as the Jenny Spinner, and once seen is not easily forgotten. The female spinners can all be run together under the collective name of Red Spinner if you are unwilling to make any determined effort to sort them out.

A rough and ready rule for dealing with duns only amounts to this. Inspect the wings. If there is a decided tinge of brown in them and they are inclined to be darkish, the fly is an Olive. Light grey signifies a Pale Watery. The Iron Blue Dun cannot be mistaken; the wings are a dark slaty-blue colour, which is very distinctive. Even the fish can spot him, and have often been known deliberately and persistently to reject other more numerous and convenient duns in favour of the sprinkling of Iron Blue amongst them.

The five popular names with which we are now concerned cover no less than fifteen species of natural fly, leaving twenty-five still to be reviewed before we may be said to have made anything like a comprehensive survey of the whole Ephemeriðæ family as at present known, but as we are now dealing with the flies most commonly found on chalk streams there remain only two which are worthy of passing mention.

The Little Yellow May Dun, which appears at the same time as the Mayfly, is easily recognisable by its bright yellow colouring. The spinners are also coloured a very decided yellow. This fly is seldom taken by the fish.

Lastly, the Turkey Brown, which is fairly common on parts of the Test, is a rather large fly with *three* setæ, and a general all-over-brown appearance. It cannot possibly be confused with the Blue-winged Olive in the Dun stages, but its male spinner is so like the male Sherry Spinner that no very serious harm can be done by mixing them up. The female spinner is larger—more plump and less shapely.

Before leaving those flies which have been labelled "Ephemeriðæ of the Chalk Streams" it is necessary that

there should be a perfectly clear understanding that the appearance of these insects is by no means *confined* to the chalk streams. They are liable to be found almost anywhere. Conversely, the remainder of the Ephemeridæ which are reviewed later under the heading of "Ephemeridæ of Other Rivers" are all more or less likely to be met with on a chalk stream. Hence it is clear that the nature of a river will only be a guide as to what manner of insect life may be expected in profusion, and the probability of coming across any of the other species must never be overlooked.

III.

EPHEMERIDÆ OF OTHER RIVERS.

In a previous chapter we have dealt, as fully as is necessary for all practical purposes, with those members of the Ephemeridæ family which are of particular interest to the dry-fly man. Their names, which, by the grace of Providence, happened to be English names, were already well known to every fisher, and though he may often have been a little doubtful as to exactly where they should be applied in the case of the natural insect, he was rarely at fault where the artificial fly was concerned.

In dealing with what might be called Wet-fly Ephemeridæ, that is to say, flies which do not as a rule *flourish* on chalk streams, a new difficulty arises, a difficulty which robs the study of much of its interest, namely, that most of the flies have no pet-names, therefore they can only be referred to by their high-sounding classical titles, which have little meaning and few associations for the ordinary fisher who, if his jaw *must* be strained, prefers to have the job done by a heavy pipe or a tough sandwich by the waterside; rather than by an excruciating effort to pronounce the unpronounceable.

As in the case of the chalk-stream flies, a great dividing line can be drawn between the genera with three setæ and those carrying only two.

The first of the remaining *three-prongers* is *Ephemerella notata*, first cousin to the Blue-winged Olive, from which it

can easily be distinguished, in the dun stage, by its whitish-grey wings with faint greenish yellow neuration. The abdomen is greenish olive.

The male imago has clear wings with a suggestion of yellow about them and dull greenish grey neuration. The eyes are light yellowish red. Thorax: brown. Abdomen: translucent brown-grey, last three segments darker, ashy grey on the underside. The female spinner is similar but lighter and more yellowy in the abdomen.

Next we come to the genus *Leptophlebia*. It contains four species, one of which—*L.submarginata*, The Turkey Brown—has already been mentioned.

L.marginata inhabits rivers and streams, and is common on some lochs. The duns have brownish wings with yellowish neuration. The spinners are much alike in both sexes. Wings: whitish with pale brown neuration. Thorax: pitch brown between the wings changing with age to jet black. The abdomen is pitch brown and the fore-legs pitch black.

L.cincta. The dun of this species has wings of a black grey colour with nervures indistinctly yellowish. The thorax is pitch brown or pitch black all over and the abdomen dingy brown.

The spinners, which are much alike in both sexes, have clear wings with neuration faintly amber. The abdomen is pitch brown; sometimes the abdomen of the male is translucent in the middle segments. The thorax is jet black.

L.vespertina is known to anglers as the Claret dun. This fly is rather large. The dun has smoky blue-black wings and, even in the very early stages of its career, the rich red abdomen of the spinner—particularly in the case of the female—shows through the envelope, thus producing the claret tint which gives the fly its name.

The spinners are very like the Sherry spinners, but richer and more brilliant in colouring. Specimens have been taken from the Test and Itchen, and it is a common fly in Ireland, especially on Lough Arrow.

The genus *Potomanthus* is represented in Great Britain by the single species *P. luteus*. This fly is not often seen in the day-time, as it prefers to be on the move after dark. The dun is large and of a distinct yellowish tint all over. The spinners of both sexes have a narrow yellow margin to the wings, otherwise they are not unlike the Sherry spinners.

Habrophlebia fusca is a small fly. The wings of the dun are light grey—the sort of grey which is made by mixing pure white and black without any blue in it. Neuration: whitish. The thorax is pitch brown all over with a few pale markings between the wings.

The male imago has intense burnt-umber-brown eyes and jet black thorax. The abdomen is dark reddish brown throughout. The hind wing has a very marked angle towards the centre of the upper margin, unlike any other British genus. The female spinner is very like the male.

The genus *Canis* is the last of the three-prongers, and is represented by four species. Some of them are very minute forms, and all are further distinguished by the fact that the hind-wings *are absent*. This is the only genus with *two* wings and *three* setæ.

Mr. Halford tells us that he has never discovered *Canis* in an autopsy, and that it is not acceptable to the fish. At the same time it must be admitted that this opinion is not universally held. It is certain that *Canis* sometimes appears in vast swarms, and that this appearance often coincides with a violent rising of the fish, particularly on certain lakes, for example Ravensthorpe in Northants. At such times the fish are unusually difficult to hook, and it will generally be found that those fishers, who insist that trout go mad on *Canis*, are free to admit that they had never been able to put the matter beyond dispute by killing a fish with the goods on him. So we must leave it at that for the present.

We may begin the list of *two-prongers* with a fly well known to dry and wet-fly man alike—The March Brown. Strictly speaking this name should only be applied to *Ecdyurus venosus*,

a fly which is usually found on fast rocky rivers. The subimago is large—nearly as large as a May-fly; it is of a general brown colour and is easily recognised by the heavy brown blotches upon its wings.

The imago of either sex is known as the Great Red Spinner; the female is perhaps the brighter of the two, though there is not much to choose between them. The wings are clear with a suggestion of green about them and black neuration. The thorax is pitch brown, changing to black with age. The abdomen is a rich red brown.

Counting the March Brown, there are altogether five species of the genus *Ecdyurus*, and the next on the list is *E. insignis*, which differs from *E. venosus* in that it is appreciably smaller and the light sepia grey wings are without the characteristic brown blotches mentioned above, whilst the neuration is green-grey with black cross veinlets. The setæ are black.

The male spinner has a whitish green abdomen, the last three segments being brown ochre. The wings are clear with dull green neuration, cross veinlets black. The female spinner is like the male except that the abdomen is light greenish olive throughout.

E. volitans is recorded by Eaton as having been found on the Riven Thames. The imagines of this species are sufficiently like the Great Red Spinners to be covered by this name.

E. lateralis in the dun stage has wings of a blackish grey much like the Blue-winged Olive, both in colour and size, but sometimes there is more of a brown tinge about them. The spinners both have a jet black thorax with a yellow streak in it. The wings are clear with pitch brown neuration. The abdomen is brown. This fly is, of course, smaller than the March Brown.

Next we come to the one instance in which the angler appears to have got ahead of the scientist. The August Dun, sometimes known as the Autumn Dun, has no scientific name. It undoubtedly belongs to the same genus as the March Brown,

as is abundantly proved by the fact that the male spinners are only to be distinguished from the Great Red Spinners by their slightly smaller size. The dun is inclined to be rather like the dun of the Yellow Upright, *Rhithrogena semicolorata*, which is itself described as resembling a large pale Olive.

The Yellow Upright—the duns of this fly are like a large Pale Olive, but the spinners are identical with those of the Little Yellow May Dun. The name Yellow Upright is derived from the general colouring of the male spinner combined with his habit during flight of ascending vertically with body rigidly erect. It must not be associated in any way with the appearance of the Dun, which is *not* yellow, nor does it assume an upright position when on the wing. Of course the *spinners* of the Little Yellow May Dun are also called Yellow Uprights. They have the same habits in flight.

Beware of the genus *Cloëon*. It contains three species which inhabit still or very quiet water. You are apt to wonder whether they are Olives or Pale Wateries, but you can very easily prove that they are neither by observing that *the small hind-wings are absent*. This is the only genus with *two* wings and *two* setæ.

The genus *Siphylurus* is represented by two species. *S. armatus* is about the same size as a May-fly. The dun has wings of a light brownish grey colour.

The spinners are much alike in both sexes. Wings: clear, tinted with greenish grey. Neuration: light brown. Thorax: pitch brown. Abdomen: reddish brown above, yellower on the underside.

S. lacustris. About the same size as *S. armatus*, sometimes a little smaller. The dun wings are light brownish grey.

The imago is much alike in both sexes. Wings: clear with brown neuration. Thorax: jet black between the wings. Abdomen: dingy brown above and dark greenish grey below.

Ameletus inopinatus labours under grave suspicion of being an alien. The Rev. A. E. Eaton confesses that he has never seen a home-bred specimen, but the fly is included in Dale's list

of British Neuroptera, and for that reason only it is worthy of passing mention. It is about the size of an ordinary Blue-winged Olive. The female spinner is described as follows by Eaton:—Wings: very shiny and clear, tinted with brown. Neuration: brown amber. Thorax and Abdomen: pitch brown, darker in the last three segments. The abdomen is the same colour on the lower side as above. The specimen here described was caught in the Schwartzwald. No records are available either of the duns or male spinner.

It must always be borne in mind that the colour of natural flies varies slightly in individuals, and is always affected by age. Duns, as their time approaches for the final change, sometimes show the colour of the spinner very clearly through the envelope. Spinners often become much darker as they grow older; for example, the male imago of the May-fly turns almost black in the course of three or four days, so much so that it is familiarly known as the Black Drake, while the female is commonly called the Grey Drake.

A complete list of British Ephemeridæ is appended, together with a short note upon each fly which should be of assistance to the beginner. At the very least he will have a complete record of the possibilities before him, and by a process of exclusion he should be able to reduce the probabilities to very small proportions. For instance, a medium-sized dun with *three* setæ *must* belong either to the genus *Ephemerella* or *Leptophlebia*, unless it is yellow, in which case it can *only* be *Potomanthus luteus*. Again, a small fly with *three* setæ can only be *Habrophlebia fusca* or one of the genus *Cænis*. Count the wings and the matter is settled. Similarly, a large fly with *three* setæ *must* be a May-fly.

In the case of the *two-prongers*, a small fly is certain to be a Pale Watery, an Olive or an Iron Blue, unless it has only *two* wings, in which case it will certainly belong to the genus *Cloëon*. A medium-sized fly will probably be either *Rhithrogena* or a Little Yellow May dun; they are not

difficult to distinguish, except in the case of the spinners, when it is not necessary to make any distinction. A large fly on a fast rocky river is pretty certain to be a March Brown. *Ameletus inopinatus* may be ruled out. The genus *Siphylurus* does not appear to be very widely distributed, but if met with its size alone offers a useful hint towards identification.

The ways of flies account very largely for the habits of fish. A "tailer" is digging amongst the weeds in search of larvæ nymphs and shrimps. A "bulger" is gulping nymphs near the surface on their journey upward to turn themselves into duns. The fish beloved of anglers has taken up a solid position convenient for sucking in Duns as they float over his nose. A fish which appears to be rising consistently at nothing at all is very often taking spent spinners in the same way as he might be taking duns. It is not easy to observe these spent spinners on the water at any distance, as their wings are usually outstretched and waterlogged, so that the whole fly is nearly submerged. This last fish *may* be smutting, but not nearly so often as he is said to be.

There is, of course, very much more to be said on the subject of the Ephemeridæ from the point of view of the scientist, but the fisher who has the energy to make himself familiar with the few points here set out, should find himself well equipped to deal with the ordinary little problems likely to arise at the waterside. Nor do we hesitate to say that such time as is spent in mastering the preliminary difficulties surrounding this subject will be time well spent and never regretted so long as the love of fish and fishing shall endure.

EPHEMERIDAE WITH THREE SETAE.

<i>Ephemera danica</i>		May-fly	{	Green drakes (subimagines only)
<i>vulgata</i>				Black drake (male imago only).
<i>lineata</i>				Spent gnats (imagines only).
<i>Ephemerella ignita</i>				Blue-winged Olive and Sherry Spinners.
<i>notata</i>				Dun wings, whitish grey. Spinners like Sherry Spinners.
<i>Leptophlebia marginata</i>				Common on some lochs. Red Spinners.
<i>submarginata</i>				Turkey Brown. Spinners like Sherry Spinners.
<i>cincta</i>				Dun wings are nearly black.
<i>vespertina</i>				Claret dun. Dun wings bluish black. Red Spinners.
<i>Potomanthus luteus</i>				A night fly. Dun yellow. Spinners like Sherry Spinners.
<i>Habrophlebia fusca</i> .				The smallest three-pronger with four wings.
<i>Caenis dimidiata</i>		}	}	Very minute forms. } Only two wings.
<i>rivulorum</i>				
<i>halterata</i>				
<i>harrisella</i>				

EPHEMERIDAE WITH TWO SETAE.

<i>Centroptilum luteolum</i>		}	}	Pale watery. Red Spinner, sometimes golden (female only).
<i>pennulatum</i>				
<i>Baëtis binoculatus</i>		}	}	Olive. Red Spinner (female only).
<i>scambus</i>				
<i>vernus</i>				
<i>rhodani</i>				
<i>atrebatus</i>				
<i>tenax</i>				
<i>buceratus</i>		}	}	Jenny Spinner (male only). } Iron Blue and } Red Spinner (female only). }
<i>pumilus</i>				
<i>niger</i>				
<i>Ecdyurus venosus</i>				March Brown and Great Red Spinners.
<i>insignis</i>				Dun wings light brown-grey.
<i>volitans</i>				Spinners like Great Red Spinners, but smaller.
<i>lateralis</i>				Dun like a Blue-winged Olive, but with two setae.
unnamed				Autumn Dun and Great Red Spinners.
<i>Rhithrogena semicolorata</i>		}	}	Yellow Upright. Dun like a large pale Olive. Spinners like <i>H. sulphurea</i> and <i>H. flavipennis</i> .
<i>Heptagenia sulphurea flavipennis</i>				
<i>Ameletus inopinatus</i>				Rare.
<i>Siphylurus armatus</i>		}	}	Large.
<i>lacustris</i>				
<i>Cloëcn dipterum</i>		}	}	Only two wings. } Only found in quiet water or lakes
<i>simile</i>				
<i>rufulum</i>				

