ing up an old wall at Paddington; and another was taken last year at Kensington: the former I had the pleasure of examining whilst alive. It is possible they may have emerged from some old fir-stump, but I should think it more probable they were introduced in timber from Scotland or Norway.—*Samuel Stevens; King St., Covent Garden, July* 25, 1843.

*Note on the capture of Rhinomacer attelaboides near Edinburgh.* I captured a pair of this rare insect in Dalmeny Park on the 20th of June, while sweeping the grass under fir-trees. A few specimens of Sphæriestes immaculatus have also occurred in the same locality.—*R. Northmore Greville; Queensferry, near Edinburgh, June* 28, 1843.

*Note on the blighted appearance of the Oak and Ash Trees in Yorkshire.* In this part of the country, the North Riding of Yorkshire, the oak and ash trees have a singular blighted appearance, to an extent which I never before observed. The younger trees, particularly the ashes, have escaped, generally speaking, and look well, but the majority of the larger grown ones have the blasted appearance I have alluded to above. A great many dead branches appear in most, which seem as though they had been struck by lightning, and comparatively few of these trees have the appearance of being in full leaf. For a long time I thought them only backward, and attributed it to the continued heavy rains and want of sun; but whether this was the cause of their present state, I am at a loss to know.—*F. O. Morris; Crambe Vicarage, near York, July* 7, 1843.

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## *Notes on Ephemeræ.* By The Rev. J. C. Atkinson, B.A.

"While enjoying the hospitalities of Culhorn, they visited the Loch of Soul-seat (*Sedes animarum*), remarkable for the myriads of an ephemeral fly, the *Eph. albipennis*, which forms clouds and pillars, rising to the height of above fifty feet, and darkening the air like a mass of vapor or smoke. Previous to their transformation into their strictly ephemeral state of winged insects, they are said to live in their subaqueous abodes for two or three years in the condition of *larvæ;* but the most singular peculiarity of the species is, that they 'throw off a slender envelope or skin, including even that of the limbs, eyes, *setæ* and *antennæ;*' and the angler, after remaining only a short time in this entomological mob, is completely covered with the filmy skins of these gay Ephemeræ."—*Article on Wilson's 'Voyage round Scotland and the Isles,' in 'Edinburgh Review,' for Feb.* 1843, p. 174.

On reading this paragraph I was immediately reminded of a scene I witnessed a few weeks since, on the banks of the river Whitadder. I was so much interested by what I had seen, that I noted down the chief particulars while the remembrance was still quite fresh; and I now give the substance of my notes, in the belief that they will not be devoid of interest to the readers of 'The Zoologist.' I will only add that I have had no opportunity of identifying the insect whose changes I noticed, nor yet of examining Mr. Wilson's book for a description of Eph. albipennis.

*June* 15th, 1843. By the Whitadder. Immense clouds of small,

very light blue—almost milk-coloured—Ephemeræ rose into the air. There were several flights or *clouds* at intervals through the evening, and they seemed to grow continually more and more dense. I am conscious that description must fail to convey an idea of the prodigious numbers of individual insects, of which the several 'clouds' were composed. I may perhaps succeed in giving some notion of the dimensions of the later flights, by stating that they extended *upwards* as far as the eye could reach, in *breadth* from side to side of the river — not less that twenty yards; and were from one and a half to two or more minutes in passing me, as they moved slowly along in the direction of the stream. And so dense were these flights, that vision was interfered with; you could not clearly distinguish an object on the further bank of the river.

I first noticed them between 7 and 8 o'clock. They were numerous, but not more so than some other species which are often seen in the evening. At this time they were dispersed in all directions: the large clouds had not begun to appear; and when they did, it made no diminution in the number of stragglers, which, in fact, continued to increase as long as I remained by the river,—until nearly 10.

My attention was first particularly drawn to them by their settling on various parts of my dress; and about 8 o'clock there must have been hundreds on my hat, coat and waistcoat. In the course of a short time, on casting another glance at my spotted sleeve, I observed, in addition to the insects themselves, which were quite as numerous as before, a quantity of exuviæ or skins adhering to the cloth. This led me to watch them closely: and it was quickly apparent that their object in settling was to find a resting-place during the time about to be occupied in divesting themselves of an external skin or envelope.

Soon after an insect had alighted, the tail was somewhat elevated, the whisks or setæ made to diverge to their full extent, and the end of the body energetically moved from side to side for the space of a minute or two. Simultaneously with this motion the fly continued to move backwards, apparently endeavouring to fasten its feet firmly to the cloth, so as to remain fixed during the approaching change. When the motion of the tail ceased, the whisks lost their divergency, and the insect remained motionless for a few seconds.

Up to this time the wings had been in a horizontal position,—expanded, as a butterfly's are sometimes seen, when it is resting on a flower, or on the ground: but now they began to be first elevated a little, and then depressed as much as possible. This was just the kind of action a man, who wished to burst his coat on his back, would use;

and it seemed to be done for that very purpose. At all events, it had that effect; for after it had been twice or thrice repeated, it produced a small longitudinal slit in the skin of the back of the fly.

The slit, once produced, was speedily enlarged by continuing the motion of the wings; and the glossy chesnut back, beneath the external coat of a dull light brown colour, began to appear. The head was now much depressed, and the back curved and elevated in an equal degree; the motion of the wings ceasing at the same instant. The next part of the process seemed to be effected without difficulty or exertion. The slit extended, and the body of the insect, beginning with the highest part of the back between the wings, steadily emerged. The wings themselves, still in their horizontal position, were gradually drawn back, so that their anterior edges formed a continually decreasing angle with the sides, and at last became parallel with them. At this instant the head was freed, and raised aloft. Convulsive motions of the body and tail ensued, and presently, wings and legs were all released at once.

But there yet remained to be performed what seemed to be the most fatiguing and troublesome part of the operation, namely, the extrication and *elongation* of the whisks. Not one of these little Ephemeræ, previously to throwing off its envelope, had whisks exceeding $\frac{1}{8}$ of an inch in length; $\frac{1}{12}$, I should think, was about the length of those of the majority. But after they had cast their skin, their whisks generally had been so much elongated as to measure $\frac{1}{2}$ an inch in length; and some even $\frac{5}{8}$: those of a very few retained their pristine dimensions. As I have said, this part of the process was apparently more difficult than that which had preceded it. It was certainly more tedious; for in most cases it took up three or four times as much time, and frequently, even more than that: and in not a few instances, it was not completed at all, for the insect took flight with the husk still attached to its setæ.

It was while the Ephemera was striving to extricate its whisks that the benefit of having firmly fixed its feet to the substance which supported it (as above noticed) became apparent. All the force which the little fly could use seemed brought into requisition. The whisks were as unwilling to leave their sheaths, as an eel, in the hands of an unpractised person, its skin. Their perfect extrication, therefore, depended upon the skin of the feet retaining its hold: when it yielded, the exuviæ still adhered, and the flight of the insect was necessarily much impeded; for they all, without exception, took flight almost as soon as the operation was over. From the first appearance of the slit

until the complete extrication was concluded, a space of from one and a half to two minutes elapsed.

There is literally but little exaggeration in the concluding sentence of the quotation from 'the Edinburgh.' If not "*covered*" with the "filmy skins of the gay Ephemeræ," I had at least several scores, if not hundreds, attached to me; many of them so firmly, that they still hung on when I reached home, having walked a mile, and part of the way through a plantation.

*June* 16.—I was by the Whitadder. There were clouds of the same insect, but not so dense as on the previous evening.

*June* 17.—By the Tweed. Not one to be seen.

*June* 18.—By the Whitadder; but not out so late. Two or three only. And on dates subsequent to this, a few seen occasionally.

J. C. ATKINSON.

Hulton, Berwick-on-Tweed,
July 1, 1843.

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*Note on the occurrence of Echinodermata in Northumberland.**

*Comatula rosacea.* I obtained one specimen in the summer of 1841, from deep water in Embleton bay: it is, as far as I know, the only specimen obtained on the east coast, and is now in my possession.

*Ophiura texturata.* Frequent.

——— *albida.* Not uncommon.

*Ophiocoma neglecta.* Rare.

——— *granulata.* Common.

——— *bellis.* Ditto.

——— *Goodsiri.* A specimen of this species I extracted from a mass of corallines and stones from deep water in Embleton bay, in 1842; it adhered to the lines employed in deep-sea fishing for ling, halibut &c.

——— *rosula.* Common.

*Uraster rubens.* Common.

——— *violacea.* Less common.

*Cribella oculata.* Common.

*Solaster endica.* Common.

——— *papposa.* Common.

*Goniaster equestris.* I obtained a beautiful specimen last summer, which is now in my possession; it was taken in the bay, about eight miles south of Embleton. It answers so completely, both as to size and markings, to the description in Mr. Forbes's beautiful work, that any one would believe it had been taken from my specimen.

*Asterias aurantiaca.* Common.

*Luidia fragillissima.* Rare.

*Echinus sphæra.* Very common.

*Echinocyamus pusillus.* Frequent.

*Spatangus purpureus.* Very rare on this coast, the only specimen I have seen being the one now in my possession, and obtained last year.

*Amphidotus cordatus.* Very plentiful.

—*Robert Embleton; Embleton, February* 27, 1843.

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* Communicated by Professor Edward Forbes.