

On Certain Peculiarities in the Life-History of the Cuckoo, more especially with reference to the Colouring of its Eggs.

By the Rev. A. C. SMITH.*

“And listen to the vagrant cuckoo’s tale.”

I HAVE long had the intention to write some account of the cuckoo, as I intimated in one of my former papers on the “Ornithology of Wilts,” † because there is so much misconception abroad about the habits of that bird, ‡ and because it is one of such extraordinary interest. It is even now a common popular belief, handed down from the time of Aristotle, that the cuckoo changes in the course of the summer into a hawk; while Pliny, § who wrote on Natural History, gravely asserted (and that assertion is still upheld by many in these days), that the young cuckoo devours its foster brethren, and finally its most attentive foster parents: hence the Swedish proverb, “*en otacksam gök*,” || implying “an ungrateful fellow.” Even Linnæus gave credence to this absurd slander; and in our own country Shakspeare utters the same calumny. In the play of Henry IV. he makes that monarch exclaim:

“And being fed by us, you used us so
As that ungentle gull, the cuckoo’s bird
Useth the sparrow: did oppress our nest:
Grew by our feeding to so great a bulk
That even our love durst not come near your sight
For fear of swallowing: but with nimble wing,
We were constrained for safety’s sake to fly.”

And again, in ‘King Lear,’ the fool is made to say

“The hedge sparrow fed the cuckoo so long
That it had its head bit off by its young.”

* [Read before the Wilts Archæological and Natural History Society, during the Annual Meeting at Salisbury, September 14th, 1865, and printed here as an introduction to a translation by the Rev. A. C. Smith of a paper by Dr. Baldamus, which will follow in course.]

† ‘Wiltshire Magazine,’ vol. ix. page 57.

‡ Among other errors abroad with regard to this ill-used bird, the English translators of the Bible included it in the list of unclean birds, which the children of Israel were forbidden to eat. (Levit. xi. 16, Deut. xiv. 15.) But Bochart, Gesenius and others have long since proved that not the cuckoo, but the sea-gull was the species intended. (Smith’s ‘Dictionary of the Bible.’)

§ Pliny Hist. Nat. lib. 10, cap. 9.

|| “Gök,” is no other than the old Saxon “geac,” and the cuckoo is still often called “gowk” in some parts of England. (Bosworth’s ‘Anglo-Saxon Dictionary.’)

Then again we are told that the fate of an individual for the current year depends on the direction in which he first hears the cry of the cuckoo in the spring: if it proceeds from the north, for instance, it is a lucky omen; but if from the south, it portends death.* And again it is universally considered unlucky to be without money in your pocket, on first hearing the welcome notes of this bird.†

These are but samples of the many superstitions current in our day, and in our own county, with regard to the cuckoo;‡ and it is with the hope of substituting, in their stead, the very interesting and peculiar economy of its real life-history, that I venture to introduce so simple a subject.

And then again it so happens that I have for the last year or two given more attention than usual to the cuckoo, by reason of a very interesting paper on the subject written in German, which has been put into my hands for translation. The article to which I allude "On the strange Variation in the Eggs of the Cuckoo," § was written, so long as twelve years ago, by the celebrated ornithologist, Dr. Baldamus, of Stuttgart. The opinion which he then expressed, and the theory which he built upon the facts he had accumulated with reference to this subject, were published in the principal ornithological periodical of Germany, the 'Naumannia' for 1823, of which the same Dr. Baldamus is the talented editor. This opinion, however, has never been presented to the British public in an English dress, and consequently has never met with the attention in England which it deserves: moreover, the rarity of meeting with the book which contains it, as well as the lengthy article, and scientific German, in which the author has developed his facts and his opinion, have helped

* Lloyd's 'Scandinavian Adventures,' vol. ii. p. 347.

† 'Naturalist' for 1852, p. 841.

‡ As the story of hedging in the cuckoo, and so securing the permanence of spring, has been attempted to be affiliated on the moonrakers of Wilts, I must, in common honesty, quote from the voracious chronicle entitled, 'The Merry Tales of the Wise Men of Gotham,' in which the following anecdote occurs:—"On a time the men of Gotham would have pinned in the cuckoo, whereby she should sing all the year; and in the midst of the town they had a hedge made, round in compass, and they had got a cuckoo, and put her into it, and said, 'Sing here, and you shall lack neither meat nor drink all the year.' The cuckoo, when she perceived herself encompassed within the hedge, flew away. 'A vengeance on her,' said the wise men; 'we made not our hedge high enough.'" ('Sharpe's Magazine,' vol. x. p. 6.)

§ "Neue Beiträge zur Fortpflanzungsgeschichte des Europäischen Kukkuks (*Cuculus canorus*)," von E. Baldamus. ('Naumannia,' 1823, pp. 307—326).

to deter the general inquirer from entering upon a question which to the ordinary observer will be found to be of considerable interest, and to the out-door naturalist is worthy of most patient attention, as well as diligent investigation; and yet which, notwithstanding its deep interest, and curious and extraordinary as it is, has probably never yet come before the notice (I may almost venture to say) of any one in this Society.

Having thus introduced Dr. Baldamus and his paper, so that I need not hereafter break the thread of my story, I will begin by saying a few words upon other peculiarities of the cuckoo, before I come to the chief subject of this article, the extraordinary colouring of its eggs.

I have already, in my last paper on the "Ornithology of Wilts," given some general account of the bird, so that I need now only briefly recapitulate some of its chief characteristics. Thus I will remind my readers that it belongs to the large order of perching birds, and to the tribe of climbers; that it is migratory, arriving in this country in April, and leaving in July; that its general appearance at a short distance often leads the casual observer to mistake it for a hawk, though a single glance at the small weak legs and feet, and the straight powerless slender beak, would at once undeceive on a nearer examination; that, with the exception of the honey buzzard (*Buteo apivorus*), it is the largest of British insectivorous birds;* for its food consists of insects of many sorts, but more particularly of the several species of hairy caterpillars which abound in the early summer, and which long-haired caterpillars are rejected by almost all birds, with the exception of the cuckoo; so that it has been thought by some, that the reason why that bird leaves the country so early is the failure, by the middle of July, of its favourite food.† I may observe, too, that it is the male bird alone which gives utterance to the peculiar note which we hail so gladly as an announcement of spring, though, among other popular errors, the following old couplet attributes the song to the female: ‡—

"The cuckoo is a pretty bird, and sings as *she* flies,
She brings us good tidings, and tells us no lies."

Possibly, however, this may be only the indiscriminate use of the masculine and feminine pronoun so common in Wiltshire: I am

* Jesse's 'Gleanings of Natural History,' p. 125.

† Wood's 'Illustrated Natural History,' vol. ii. p. 574.

‡ 'Naturalist' for 1852, p. 84.

bound, too, in honesty to add, that the well-known cry of the cuckoo has been declared by some naturalists (though I think erroneously) to be common to both sexes.* Lastly, I will repeat that the female has that strange peculiarity of depositing her eggs singly in the nests of other species, which she selects as suitable foster-parents to her own young,—a peculiarity not shared in by any others of our British birds, though by no means unknown among the feathered tribes of other countries, the cowbird, for example, of America,† which belongs to the starling tribe, several species of the African cuckoos and others. It is from this last eccentricity of conduct that so many strange and unlooked for habits of the cuckoo take their rise: let us examine them one by one; but first let me earnestly protest against the unmeaning outcry and charge of unnatural, unfeeling conduct often preferred against the cuckoo,‡ as if she did not follow out the instincts of her nature as truly as every other bird, and as if there was not *some* good and sufficient reason (though we may be unable to fathom it) why some species delegate the care of their young to other birds: rather, I think, should we admire the wonderful instinct which leads them to select, as foster-parents, those species only whose feeding is similar to their own, and so would provide their young with suitable nourishment; and that dexterity which enables them to insert their eggs amongst others, just at the right moment when the foster-parent is preparing to sit. §

Now, first I beg to state without hesitation that *never*, by any possibility, does our British cuckoo either build a nest of her own, or incubate her eggs on the ground. We hear constant tales of such occurrences: every year our periodicals and newspapers contain statements of such marvellous incidents, which would be marvellous indeed if true; but I venture to assert most positively, without fear of contradiction, that all such stories have originated from some error; and either the common nightjar,|| of nearly the same size, fluttering away from her marbled eggs at the root of an old oak, or some other bird, has been mistaken for the cuckoo, which never, in any single instance, has been known to sit on her own eggs.

* 'Magazine Nat. Hist.' vol. viii. pp. 329—382. 'Naturalist' for 1851, pp. 11, 172.

† Wilson's 'American Ornithology,' vol. ii. p. 162.

‡ Bishop Stanley's 'Familiar History of Birds,' vol. ii. p. 80.

§ Gilbert White's 'Natural History of Selborne,' letter iv.

|| Montagu's 'Supplement to Ornithological Dictionary,' vol. ii. Rennie's 'Architecture of Birds,' p. 380. Gilbert White's 'Selborne,' letter vii.

The cuckoo then, houseless and vagabond though she is, and the veritable "gipsy of the feathered tribes," as she has been styled, soon after her arrival here in the spring, begins to busy herself no less than other birds, in making preparations for her future progeny; but instead of preparing a nest as other birds do, her occupation is to scour the hedgerows and plantations, and watch the busy nest-makers with more eager eye than any schoolboy;* observing day by day the progress made, and anxiously selecting those which may be most convenient for her purpose. Into these nests it is not her habit to intrude herself for the purpose of laying her egg, as all other birds do; indeed, from her superior size in proportion to the nest, such a course would be generally impossible; but she lays her egg on the ground, and then she takes it in her beak,† and gently deposits it in the nest she has chosen. And that the cuckoo does thus avail itself of her beak to place her eggs in nests which otherwise would have been inaccessible to her, is not only *a priori* established from those cases where no other means were possible, as in certain domed nests with entrance-holes at the side only, or those which are laid in the holes of trees, as for instance those of the wren, the redstart and others; but we have a very interesting account, from a charcoal burner in the Forest of Thüringer, who happened to be in his rude woodman's hut in the forest when a cuckoo (which he had long observed flying about in the neighbourhood) flew into the hut, not perceiving the owner, perched upon a bench near the entrance, laid an egg, then seized it in her beak and placed it in a wren's nest, which was built against the inner side of the hut, while the man looked on in amazement, and soon after related the "wonder" to the German naturalist who recorded the event. But I believe this to be her invariable method, whether the small nest of the foster-parent be accessible to her or no: and then, again, this habit of taking the egg in her beak, and so depositing it in the chosen nest, considered in conjunction with the similarity of her egg to that of several species of small birds as detailed farther on, will readily account for the frequent assertion on the part of eye-witnesses of the cuckoo eating the eggs of small birds, which they triumphantly declare they have themselves seen between the mandibles of that bird's beak. ‡

* Rennie's 'Architecture of Birds,' p. 374.

† 'Zoologist,' 3145, 7757, 7935, 8165. Hewitson's 'Eggs of British Birds,' vol. i. p. 205. Temminck's 'Manual d'Ornithologie,' vol. i. p. 384. Rennie's 'Architecture of Birds,' p. 378.

‡ 'Naturalist' for 1851, p. 162; for 1852, pp. 33, 233.

It is not until after an interval of several days that the cuckoo lays another egg in the same manner, and then deposits it in another nest which she has previously selected; and so on till her whole complement of four or five or six eggs is laid;* but never on any occasion does she lay two eggs in the same nest; so that, although it is true two cuckoo's eggs have been sometimes found in the same nest, these were without doubt from different parent birds, and by no means the eggs of the same individual.†

But now if the egg of the cuckoo was at all proportioned to the size of the bird, it would not only at once attract the attention and alarm of the foster-parent, but it would be impossible for so diminutive a nurse to brood over and hatch it; and therefore Nature, who never does anything by halves, but provides for every emergency, has given a strange disproportion in the egg of the bird to the size of the parent cuckoo (the egg of the cuckoo being no larger than that of the lark, ‡ though the relative size of the two birds is as four to one)—a disproportion, however, the necessity for which is most apparent, if the little foster-parent is to be duped into believing the egg of the intruder to be her own.

The cuckoo, then, having laid her eggs of comparatively diminutive size, and entrusted each to the charge of carefully selected foster-parents, is by many supposed to leave them to their fate, and to take no farther interest in the matter.§ But this does not seem to be the case.|| On the contrary (and for this I have the high authority of Dr. Gray of the British Museum), the cuckoo has been observed to frequent the neighbourhood, and watch near the nest during the whole period of incubation; and then, when the eggs are hatched, it is the parent cuckoo,¶ and not the young one (as Dr. Jenner supposed,** and so led many into error) which generally removes from the nest the young

* Colonel Montagu dissected a cuckoo which had in her four or five eggs. (Ornith. Dict.). Mr. Rennie thinks it lays a second time. Blumenbach says she lays six eggs in the spring *from time to time*. Jessie's 'Gleanings in Natural History,' p. 125. 'Naturalist' for 1851, p. 162.

† 'Zoologist,' 8823, 9325. Yarrell's 'British Birds,' vol. ii. p. 192. Montagu's 'Ornithological Dictionary,' Introduction, p. ix.

‡ Yarrell *in loco*, vol. ii. p. 191. Bewick, vol. i. p. 108.

§ 'Zoologist,' 1638.

|| 'Ibis,' vol. iv. p. 384. Wood's 'Illustrated Natural History,' vol. ii. p. 572.

¶ 'Zoologist,' 2589, 2603, 4895, 6676, 8166, 8195, 8235, 8681. Jesse's 'Gleanings in Natural History,' p. 123.

** 'Philosophical Transactions,' vol. lxxviii.

cuckoo's foster brethren, and any unhatched eggs there may be,—a fact which my friend, the late lamented naturalist, Mr. Waterton, proved* to be quite impossible for any newly-hatched bird, however precocious that bird might be.

Whether or no this is the last office which the parent cuckoo undertakes for its young, I will not venture to affirm: though it is the opinion of some experienced naturalists that she really feels an anxiety for her young not less than that shown by other birds;† while others maintain that she has occasionally, though very exceptionally, been known to feed her own young, of which several most convincing proofs have been adduced;‡ and others again declare that she sometimes even takes the young under her protection, when they are sufficiently fledged to leave the nest.§ But be that as it may, towards the end of July the old birds are preparing to migrate, and the male has already changed his note to that stammering repetition of the first syllable which (as all observers know) heralds the cessation of his so-called song, and which an old writer, John Hayward, who flourished about A. D. 1580, has described in the following quaint but very graphic rhymes.

“ In April the cuckoo can sing her song by rote.
 In June oft'times she cannot sing a note.
 At first, koo ; koo ; koo ; sings till can she do
 At last, kooke, kooke, kooke ; six kookes to one koo.”

By the beginning of August, then, the parent cuckoos are gone southwards, but the young cuckoo is notoriously a tedious nursling, and indeed, having to grow from the inmate of a very small eggshell to a bird of considerable dimensions, requires time for such development, and taxes, to a very large extent, the powers as well as the assiduity of its foster-parents: by degrees this overgrown infant not only fills the little nest which was never meant for such a monster, but is forced to vacate it, and sits perched on the edge, while the foster-parents, unable to reach up to it from below, alight on its back in order to feed it.||

* 'Essays in Natural History,' first series, p. 228.

† Wood's 'Illustrated Natural History,' vol. ii. p. 572. 'Naturalist' for 1851, p. 67, 162.

‡ 'Naturalist' for 1851, p. 11.

§ Yarrell, vol. ii. p. p. 572. 'Naturalist' for 1851, p. 233.

|| 'Gardener's Chronicle,' 1851, p. 469. 'Mag. Nat. Hist.' vol. ix. p. 638, 'Naturalist,' 1851, p. 132, 1852, p. 33.

It is at this period of its existence that the young cuckoo is said to possess, or to acquire for a time, the note of its foster-parents,* whatever it may happen to be; but this point in its history requires corroboration, as, though asserted by many, it has never yet been satisfactorily settled. And then again, when they have at length attained their full size, the young cuckoos, though left to their own devices, and without their elders for their guides, as all other migratory birds have, follow towards the end of September, in the track of their parents who have gone long before, and migrate to a warmer climate: though what instinct teaches them when to go, or whither to bend their course, who shall say? Indeed, to my mind, this is one of the most astonishing points in their life-history which we have now touched upon.

And now I come to the most remarkable peculiarity of all: and indeed amongst these so many anomalies which we have seen to belong to this extraordinary bird (and the more one studies its habits the more numerous, and the more apparent do they become), there is nothing so strange, or indeed so startling, as the opinion put forth, as I said just now, in Germany by Dr. Baldamus, and afterwards followed up and demonstrated by proofs of apparently the most satisfactory character, on the part of himself and his friends,—that the cuckoo, while she lays her eggs singly in the nests of other birds, *is able to assimilate them in colour to the eggs of those birds whose nests she selects*: † and thus it is by no means an uncommon occurrence to see the egg of the cuckoo taken from a hedgesparrow's nest, partaking of a greenish blue tinge; another from the nest of a robin of a reddish hue; another from a pipit's nest of a brownish colour; and so on through the twenty or thirty species, in whose nests the egg of the cuckoo has been found. Feeling keenly, as I do, the startling nature of this bold statement, and the scepticism it is likely to call forth, I will not linger over it with any comments of my own, but proceed at once to give a short *resumé* of the article in question.

Dr. Baldamus begins his paper by calling attention to the great variety in colouring as well as in marking in a collection of cuckoo's eggs, and the astonishing resemblance these eggs severally bear to the eggs of a variety of small birds usually chosen as the foster-parents of cuckoos,—a fact which he says was well known to the great ornithologists and oologists of Germany, including Naumann, Thiënemann,

* Thompson's 'Natural History of Ireland,' vol. 1, p. 361.

† 'Zoologist,' 3988.

Brehm, Gloger, von Homeyer and others, and I may add that this point was equally well known to our British ornithologists as well.* But Dr. Baldamus seems to have been the first to suspect that at the root of this striking phenomenon there was a fixed law, perhaps a law which might be discoverable; and his suspicions in this direction having been aroused, he proceeded to pay diligent attention to the subject. To this end he not only made most careful personal observations, but, by means of oological correspondents in various parts of Germany, collected a large series of facts bearing upon the matter, which were convincing to his own mind,—convictions which seem to have been shared in by many of the leading ornithologists of Germany. I will not weary the patience of members of this Society by taking them through the several instances which Dr. Baldamus details; but pass on at once to the results he arrived at, merely remarking, by the way, that he followed up his investigations with such earnest zeal, that when he wrote his paper he had before him no less than one hundred cuckoo's eggs, special care being taken to ascertain accurately from the nest of what particular species every one of these eggs was taken.

Now the first thing which Dr. Baldamus established to his own satisfaction, by means of these repeated observations, was, that the cuckoo lays its eggs in the nests of no less than thirty-seven species, including not only every species of chat, warbler, wagtail, pipit and lark, but even exceptionally certain of the grain-eating finches and buntings; these exceptions being doubtless in cases only where the cuckoo was deprived, by some accident, of the nest she had selected for her egg, and which when ready to be laid she was obliged to consign to the care of the best nurse she could find at short notice. To this seeming inconsistency on the part of the parent bird, I may, however, add that the grain eating species have been known to bring up young cuckoos; and the explanation is, that even the hard-billed birds are accustomed to feed their young, at any rate at first, with insects.

From the thirty-seven species alluded to above, which have been ascertained to act as foster-parents of the young cuckoo, Dr. Baldamus enumerates no less than twenty-eight, to whose several eggs he affirms the cuckoo will assimilate her egg in colouring; and this he then proceeds to prove from the specimens lying before him, and which

* Wood's 'Illustrated Natural History,' vol. ii. p. 572.

(as I before remarked) are all carefully authenticated, in regard to the nests from which they were taken: all these specimens he examines singly, and describes their colouring as nearly all partaking, in a greater or less degree, of the character, ground colour, and markings of the eggs of the species in whose nests they were severally laid; while some are so extremely similar that but for the *grain** or texture of the shell and certain characteristic specks, it would be difficult to distinguish them apart. The exceptions to this general rule are those laid in the nests of corn-eating species, and our author adds that it would be extraordinary indeed if the cuckoo's eggs should resemble the eggs of these exceptional and never-intended foster-parents.

"The fact then," says Dr. Baldamus, "is quite established and beyond all doubt, that there are cuckoo's eggs which, both in colour and in marking, are very like the eggs of those species in whose nests they are generally laid;" and then he proceeds to argue that Nature, who never trifles nor acts without purpose, has plainly given the parent cuckoo this faculty, in order to facilitate the continuance of the species under peculiar conditions; for (he well remarks) had this not been so, we are driven to the alternative that the warblers and others, which generally recognize so easily all strange eggs, casting them out of the nest,† or else deserting it, in regard to the cuckoo's eggs are quite blind, and cannot recognize the red eggs among their green clutches,‡ and *vice versa*. "Therefore," continues our author, "I do not hesitate to set forth, as a law of Nature, that the eggs of the cuckoo are in a very considerable degree coloured and marked, like the eggs of those birds in whose nests they are about to be laid, in order that they might the less easily be recognized by the foster-parents, as substituted." §

* "Das Korn:" the German word exactly answering to our English idiom "grain." The grain or texture of the shell is too often overlooked by oologists, but amongst the very similar eggs of some species, as more particularly among the duck tribe, this is one very important means of identification, more especially when the egg is placed under a low magnifying power.

† Montagu's 'Ornithological Dictionary,' Introduction, p. iv.

‡ Or "loiters" as our Wiltshire rustics say: "gelege" in German.

§ It is worthy of remark that, whereas it has been often asserted that the egg of the cuckoo is by no means found in any proportion to the number of old birds (for it is not a rare species), and every female would seem to lay annually from four to six eggs, the difficulty is at once disposed of, if Dr. Baldamus' theory is correct, inasmuch as the great similarity of the egg of the cuckoo to those of the nest in which it is placed, may deceive human eyes no less than those of the foster-parents.

The next question examined is, “whether the same hen cuckoo lays eggs of the same colour and markings only, and so is she limited to the nests of but one species? or else, does the same individual lay eggs of different colour and markings, according to the character of the eggs amongst which her own will be intruded?” Both these theories have their advocates; those in favour of the last view advancing the hypothesis that the sight of the eggs lying in the nest has such an influence on the hen which is just about to lay, that the egg which is ready to be laid assumes the colour and markings of those before her, and for this physiological reasons are adduced, and analogies, not forgetting the well-known and successful experiments of the patriarch Jacob.* But Dr. Baldamus rejects this opinion, and contends for the other view (*viz.* that the same cuckoo lays eggs of one colour and markings only, and so is limited to the nests of but one species): and this he proves by personal experience and observation; by the fact that he has found two differently marked cuckoo’s eggs in one nest; that he has also found similarly marked eggs laid by one and the same cuckoo, in the nests of different species; and that he has found cuckoo’s eggs (though rarely) in such nests as have not yet received any eggs of the owner,† in which case the cuckoo is without any pattern of a fixed form of colour for its egg. All these points in the argument are very carefully worked out at considerable length, and a large array of proofs and instances brought forward to support his views; and then our author deduces the conclusion that all experience hitherto known declares in favour of his assertion “that every cuckoo lays eggs of one colouring only, and consequently (as a general rule) lays only in the nest of one species;” and he sums up his argument as follows:—“Every pair or rather each individual cuckoo is endowed with the instinct to lay its eggs in the nests of some one species of birds, which are fit to act the part of foster-parents; so in order that these latter may the less readily observe the strange egg, it is found to be of similar colouring to their own; and for the same reasons it is also so disproportionably small. Then every pair of cuckoos seeks its old district, or that spot where it breeds, just as all other birds do.‡ Here it generally finds those species of insectivorous birds which it requires for its peculiar circumstances: but assuredly they are not always in the necessary numbers, or perhaps they may for some cause

* Genesis, chap. xxx. 37, *et seq.*

† This is corroborated in the ‘Naturalist’ for 1852, p. 33.

‡ Blyth’s edition of White’s ‘Selborne,’ p. 78.

be breeding earlier or later than its six to eight weeks' time for laying* lasts: it will therefore be unable to find for each of its eggs a fitting nest of that species to which it was prepared to entrust it, and to which it was accustomed; and so it finds itself obliged to introduce one and another egg into the nests of some other species, if haply by good chance it can do so.† Thus, then, it comes to pass that there are, and from the nature of the circumstances there must be, proportionably *many* exceptions to the rule. Thus, too, it comes to pass that by far the greater number of cuckoo's eggs bear the type of the eggs of the whitethroat (*Sylvia cinerea*) and of the pied wagtail (*Motacilla Yarrellii*), the most common foster-parents of the young cuckoo;‡ and perhaps in some localities of the meadow pipit (*Anthus pratensis*), the hedge accentor (*Accentor modularis*), and of the reed wren (*Sylvia arundinacea*); and that, on that account, eggs of such colouring form the most frequent exceptions,—that is to say, are most frequently found in the nests of other species. Thus, too, lastly, it comes to pass that these two above-named prevailing colours of the cuckoo's eggs are spread over *most localities*, whilst at the same time they also appear, *almost everywhere*, as exceptions in other nests. For the diffusion of these two species (the common whitethroat and the pied wagtail) is very extensive, and their haunts usually offer to the cuckoo also the requirements of its existence: it is therefore not without signification that one seldom finds in their nests cuckoo's eggs of other colours, but one does very frequently find, in the nests of other birds, cuckoo's eggs of their type.

I will just quote, before I take leave of Dr. Baldamus, the three following deductions, which he draws from his observations, and with which he concludes his paper.

* "Legezeit" is the concise German word, for which we have no English equivalent.

† The cuckoo, however, alone of British birds, is generally supposed to have the faculty of retaining her egg in the ovarium, after it is arrived at maturity, for a limited period of time. (Montagu's 'Ornith. Diet.' Introduction to vol. i. p. 8. Jesse's 'Gleanings in Nat. Hist.' vol. ii. p. 125.) If this be correct, it will account for the egg laid by the cuckoo as it fell to the ground after it was shot, recorded by Mr. S. S. Allen, ('Ibis,' vol. v. p. 358), and by my friend Mr. Chambers ('Ibis,' vol. v. p. 475). See also M. Vaillant's account of the African cuckoo shot by himself, and his faithful attendant, the Hottentot Klaas, and the frequent occurrence of the egg laid by the cuckoo as she fell wounded from the tree. (Rennie's 'Architecture of Birds,' p. 378.)

‡ The pied wagtail, the meadow pipit, and the hedge warbler, are perhaps most frequently chosen as the foster-parents in this country.

I. "Nature must have some special motive in the circumstances above detailed, so many, so connected together, but so peculiar.

II. That motive is plainly to be seen; *viz.* that by means of certain laws originally made she may ensure and facilitate the preservation of a species otherwise much exposed to danger.

III. She attains this end by a very simple method: in that she invests every hen cuckoo with the faculty of laying eggs coloured like the eggs of the bird of whose nest she prefers to make use, according to the locality; or in other words, every hen cuckoo lays eggs only of a fixed colour, corresponding with the eggs of that warbler in whose nest she lays them (as a general rule); and she only lays in other nests when, at the time for her laying, one of the species, of her own peculiar type, as we may say, which is fitted for her in every particular, is not ready."

Such is the very interesting and well-sustained argument of Dr. Baldamus: and, however new and startling his hypothesis, however unprecedented his conclusions, yet he supports his argument with such a battery of facts that his position seems almost impregnable. Facts are proverbially stubborn things, and not to be overthrown by opinions held only from the force of habit and not from conviction of their truth. At the same time I am far from advocating any acceptance of conclusions until we have tried them and ascertained their value. And so I would urge upon every out-door observer (and everybody who lives in the country ought to be an out-door observer) to assist in investigating this curious question, and I would invite them to communicate to this Natural History Society any discoveries they may make, or any well-ascertained facts they may elicit. We have a new point before us in the history of the cuckoo suggested for our consideration: we all hear the cuckoo's cry every spring all around us; we know then that the bird is with us, laying its eggs in our neighbourhood: it requires only diligence and observation and patience to make us acquainted with its habits. But yet again I would repeat the caution against rushing too quickly to conclusions: it is not an isolated fact here or there that would warrant any inference; it is only by careful comparison of many well-authenticated particulars that we are able to arrive at any satisfactory decision; while, on the other hand, the question before us is not to be set on one side as the dream of an enthusiast, or the fancy of a superficial naturalist. It is deliberately proposed by a leading ornithologist, of mature judgment and deep scientific attainments: it is the result, moreover, of patient

research, and a long course of inquiry among men well calculated to form a right conclusion. Let me advise, then, that while we keep our eyes open in order to see for ourselves, and investigate the mystery, we do not turn scornfully away from propositions which amaze, but respectfully listen to the opinions of those who have acted as our pioneers on this unknown track, and who have been busy in searching for the truth upon a point which even now, at the end of twelve long years, comes to us as a startling novelty.

ALFRED CHARLES SMITH.

Yatesbury Rectory, Calne.

Notes on Aphides. By F. WALKER, Esq., F.L.S.

(Continued from S. S. 1059.)

Genus 3. RHOPALOSIPHUM, Koch.

Typical species, *Aphis Persicæ*, Sulzer.—Front flat between the antennæ, which are remote from each other at the base. Nectaries clavate. In other characters like *Siphonophora*.

- | | |
|---|------------------------|
| A. Nectaries twice the length of the tail. | 1. <i>Lactucæ</i> . |
| AA. Nectaries thrice the length of the tail. | |
| A. Viviparous winged female wholly luteous. | 2. <i>Berberidis</i> . |
| AA. Viviparous winged female with the head and thorax black. | |
| A. Viviparous apterous female green or luteous. Antennæ pale. | |
| a. Viviparous winged female with the frontal tubercle gibbous on the inner side. Abdomen green or reddish, excepting the black spots. | 3. <i>Persicæ</i> . |
| aa. Viviparous winged female with the frontal tubercle not gibbous on the inner side. Abdomen luteous, excepting the brown spots. | 4. <i>Ligustri</i> . |
| AA. Viviparous apterous female olive-green. Antennæ brownish black. | 5. <i>Nymphææ</i> . |

The genus *Rhopalosiphum* is restricted by Passerini to the preceding five species, which belong to not less than four genera.

1. *R. Lactucæ*, Kalténbach.—Kalténbach mentions that his *Aphis Lactucæ* is erroneously cited by Koch as identical with *Siphonophora Lactucæ*. Passerini has observed it on *Picris hieracioides* and on *Cichorium endiva*. Its oviparous form, so far as is known, appears only on species of *Ribes*, where its occurrence is very irregular. A wingless viviparous female, which I have described as a variety of