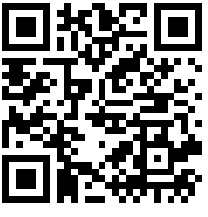

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VARIATIONS IN THE COLOUR, FORM, AND SIZE OF THE EGGS OF BIRDS.*

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THE variation in the appearance of birds' eggs being much greater than is general amongst other portions of animals of assumed species, it is often difficult on these grounds to give them a correct assignation. Much may be done, however, by ascertaining, as far as possible, the limits of variation; but here the student is met by a difficulty, that of the tendency of eggs of different species, or even widely separated genera, to approximate to one another, facts which, at any rate, prove how much is common to birds. The advocates for the origin of species by natural selection will find strong arguments for their theory in the resemblances which the eggs of different species sometimes bear to each other. The eggs and song of the blackbird (*Turdus merula*) usually so different from the song of the thrush (*T. musicus*), sometimes show a very strong resemblance. An egg of the blackbird which I now have, taken by myself, possesses none of the green tint and ochre spots characteristic of the blackbird, but the clear deep-blue green common to the eggs of the song thrush. On another occasion I remember hearing a male blackbird, in a cage, use notes so nearly resembling a song-thrush that I could hardly believe my ears. Could the force of imitation at once influence the song and the colouration of the egg?

The colouration theory advocated in Naumarium by M. Baldamus, supposes that an impression is made on the sensorium of the female cuckoo (*Cuculus canorus*) by the view of the tint of the eggs in the foster-parent's nest, which influences the colour of the eggs laid, and causes the expectant cuckoo's eggs to approximate in hue to the eggs of the foster bird. This is but an application of a popular belief, current in all ages, on which Jacob acted in his dealings with Laban's cattle, and which is even believed to affect the offspring of man. This resemblance, *if it exists*, between the eggs of the cuckoo and of the foster bird, is never such as to render any deception to man's eye at all easy, cuckoo's eggs being amongst the most singular. One object which I have heard brought forward in favour of this theory, is the desire on the part of the female cuckoo to avoid shocking the feelings of the little bird by a glaring intrusion. I have examined about eighty eggs of the cuckoo, which have been taken *in situ* with the eggs of the foster parents, and of these the larger portion, I must confess, do afford some ground for this theory. The influence of an examination of the eggs of a particular species on the female cuckoo

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might affect the colouring of several of her eggs, which, being dropped in the nests of more than one species, may occasion the apparent flaws in the evidence for the support of this theory. The influence of an empty nest, in which cuckoos sometimes lay, would be null. I will now state my own observations on the subject.

The greater portion of the eggs of the tree-pippit (*Anthus arboreus*), when fresh, have a reddish or grey-brown hue; these are very different colours. The eggs of the cuckoo accompanying them show more variation than is commonly seen with other birds. Four nests of the yellow-bunting (*Emberiza citronella*) containing eggs of this species and of the cuckoo, shewed the light-coloured ground without the tinge of green so common in cuckoo's eggs, and more than a dozen eggs of the cuckoo accompanying eggs of the red warbler shewed the green hue common to the eggs of the first-mentioned bird, and only two others displayed the red tint. The green hue I observed most common in eggs accompanying those of the hedge accentor, which are so eminently blue-green; but with them eggs of a red colour were occasionally found. The egg of the cuckoo in a goldfinch's nest had a light ground and light spots, another had dark spots. An egg of the cuckoo accompanying eggs of the house sparrow was very dark indeed, like the eggs found with it; and a good series of the eggs of the pied wagtail, with the accompanying cuckoo's egg, show, in a most striking manner, the approximation between the different species in colouring. Some of these eggs were fresh, others slightly incubated. My friend, Mr. G. D. Rowley, to whom I am indebted for many of the specimens in my collection, has contributed most interesting papers on this subject to the *Ibis* and *Zoologist*, in which he endeavours to controvert the theory of M. Baldamus. He supposes that the variation in colour, which the learned German attributes to female susceptibility, to be due to the period of incubation, which, however, will not account for one-third of the resemblances which I have observed.

Size and Colouring of Eggs, *v.* the Age of Parents.—I shall now state a few facts which I have observed with reference to the size and colouring of birds' eggs as apparently influenced by the age of the parents. A correspondent of mine mentioned a pair of golden eagles (*Aquila fulva*) which built on the side of a cliff in Transylvania. The old birds were shot, contrary to his desire, soon after the young could fly, which, however, continued to roost on the parental rock. Absence from home prevented him from noticing their movements the next spring, but the year ensuing the birds, which turned out to be a male and female, had paired. They produced two eggs, which were of a very short oval for this species, and half-an-inch shorter than the same pair eventually produced, and wanted the symmetrical shape which the eggs of the same parents afterwards displayed. They were of a blueish-white colour, with a few spots or dots, but no washes of raw umber. The second year the eggs were three in number, and were the eighth of an inch longer. The third year the eggs were more richly marked and spotted with azure and ochre-brown, and were a quarter of an inch longer than the first. The fourth year the eggs were three in number, and, for the first time, richly marked, but did not exceed in size those of the third year. The fifth year the nest was harried by some person unknown, so that the appearance of the eggs could not be ascertained; but on the sixth and tenth years the eggs were two in number and richly marked with raw umber and burnt sienna. On the eleventh year the male was killed, and the female paired three weeks later in the season with one of her young ones of two years old. Her eggs were two in number, and very inferior to those of preceding years, they were somewhat richly marked, but in size did not exceed those of the first year. The eggs of these birds were mostly allowed to hatch, and the young taken from the nest before they were able to fly. The proportion of the sexes was pretty nearly equal, except in the brood last reared, which were females. This is another fact in confirmation of the theory of the effect of the predominance of age in either sex influencing that of offspring, which is so observable amongst domestic animals and man.*

Similar observations may be made with regard to domestic fowls. The little Bantam hen with the Dorking cock produces eggs which are almost too large for her to lay, and the Dorking hen with the Bantam cock produces eggs which are not very much larger than the normal eggs of the Bantam. An egg of the first-named cross was 2 in. 4-16ths long by 1 in. 9-16ths broad, while that of the normal Bantam is 1 in. 13-16ths by 1 in. 6-16ths broad, and the eggs of the Dorking hen and Bantam cock were the eighth of an inch more. The normal size of the eggs of the Dorking are 2 in. 7-16ths long by 1 in. 11-16ths wide.

I obtained a large series, nearly a hundred eggs, of the common buzzard from Ireland, principally from one county. Of these sittings those most richly marked were, with one exception, less in number of eggs than those which, in markings, did got exceed mediocrity. And the

* See the author's paper "On the Proportion of Male to Female Births" in the *Anthropological Journal*, Nos. 18 and 19, 1867.

same increase in size and richness in markings and decrease in number, as the birds advanced in years, were observed, as related of the golden eagle. The first sitting of four eggs laid by birds of a year old were very faintly marked; the second, the ensuing year, and from the same pair of birds, consisted of five eggs more richly marked and considerably larger; the third year six eggs more richly marked than the preceding, and with a darker shade of brown were laid. I have made similar observations on the eggs of the common kite (*Milrus regalis*) and of the black kite (*M. ater*). One sitting of spotless eggs of the buzzard were of a second nest laid at the end of the season, being from birds of the second year; but another found by a correspondent of mine, of the first year's breeding, were one-half spotless, and the other faintly spotted. Amongst domestic poultry the eggs of very young birds are generally much more slender in shape; this is also very commonly the case with the eggs of birds in a wild state.

Extreme Varieties in Eggs.—The eggs of the spotted flycatcher (*Muscicapa grisola*) are subject to great variation. A sitting of five eggs most strongly coloured and richly marked were taken May 24th, 1862, by Mr. Dawson Rowley, after which the bird sat two days on the empty nest. This strong manifestation of the brooding instinct is interesting when taken in connection with the extreme richness of the markings in the eggs. How do the blue varieties of the eggs of gulls originate? I received a large series of the eggs of the black-headed gull from Scoulton-Mere, and have compared some thousand others, the dates of which had been carefully marked; the blue eggs were usually laid later in the season, and were more common amongst birds whose eggs had been taken once or twice previously. The dark eggs were mostly produced by birds which had been little disturbed, and were decidedly more abundant in the first sittings of old birds. The extremely dark eggs were fewer in number, being one less than is usual. I have made similar observations, but to a much more limited extent, on the eggs of the greater black-backed gull (*L. marinus*), lesser black-backed gull (*L. fuscus*), the herring gull (*L. argentatus*), and the skuæ (*Lestris caryactactes*).

The eggs of the raven most darkly and richly spotted, appear to be produced by old birds. One I have very green, with few spots, was laid as late as June. Eggs inferior in intensity of markings and thickness of shell are often the produce of unimpregnated birds. Some eggs of the kestrel I now have were laid by a virgin female in the possession of my friend Mr. G. D. Rowley; they vary in size and richness. The brightness of the colouring is to be attributed to two reasons:—Firstly, its want of thickness, intense colours being more opaque and dark than those thinly distributed; and, secondly, to their not having been incubated, for incubation greatly tends to render dingy bright red, or other vivid colouring in eggs. I have here some specimens of the eggs of the kestrel which have been incubated, and which greatly contrast with the intensely bright red of those I have just mentioned. The eggs of the kestrel (*Falco tinnunculus*) are supposed to be very different from those of the sparrow-hawk (*F. nisus*), for the ground is not blueish-white, or the blotches large, and the egg is free from dark or nearly black points or spots. I have, however, an undoubted egg of the kestrel which has all the marks of that of the sparrow-hawk I have just described. The bright red observed on the eggs of the bearded vulture (*Gypætos barbatus*) by incubation is changed to a yellow hue, and that of the kestrel from a burnt sienna to a sort of olive red. I shall make a few remarks on spotless eggs of birds usually spotted. I have some fragments of the eggs of the kestrel, laid by the same female which I have previously mentioned, which are entirely white, without spots. I have seen eggs of the sparrow-hawk, usually so richly marked, entirely without spots. In these cases the eggs show an approximation to those of their allies—the little red-billed hawk (*Falco gaber*) and the harriers (*Circus*). The sparrow-hawk's eggs, usually so richly marked, contrast most strongly with those of the last-named species, which I have just said are usually spotless. But I lately saw a sitting of eggs of the red-billed hawk, one of which was faintly marked with pale yellow ochre, and was very much like the remarkable variety of the eggs of the sparrow-hawk which I have just described. It is as deficient as they are conspicuous in markings for the species. This is but another proof of generic affinities cropping out which often appear not to be maintained in a small series of eggs, but are so in a larger. The eggs of the missel-thrush (*Turdus viscivorous*) are usually extremely unlike those of the song-thrush, seldom having the clear deep blue-green ground, and being marked with light purple-brown spots; but here I have a variety taken in the neighbourhood of Bristol, in which the colour is bright blue-green, and the spots olive, which is sometimes approached in the eggs of the song-thrush. The eggs of the white-throat and garden-warbler approach each other in markings and colour in the varieties I have before me, although they usually differ so much. The eggs of the robin (*Sylvia rubecula*) and blackcap (*S. atricapilla*), although the types are so unlike, yet they approach in some varie-

ties in my collection. The eggs of the wheatear (*Saxicolæ œnanthe*), being usually spotless, appear out of place amongst the chats, which are generally so markedly spotted; but I have two eggs which are distinctly marked like varieties of *S. leucomela*. The eggs of the willow-wren (*S. trochilus*) and those of the chiff-chaff (*S. rufa*) are usually very different; but in the varieties before me the line of demarcation is not strongly drawn, for the eggs are of the same ground colour, and the spots are similarly distributed, the principal difference being that those of the chiff-chaff are of a more violet tinge of colour, but in some other eggs of the chiff-chaff the spots are quite as red as in these eggs of the willow wren. The eggs of the starling (*Sturnus vulgaris*) are of a pale, clear, blue-green, unlike those of their ally, the rose-coloured pastor (*Pastor roseus*), which are nearly white. Mr. G. D. Rowley, however, took two eggs of the starling which could not be told from undoubted specimens of the rose-coloured pastor (*Pastor roseus*). The eggs of the pheasant (*Phasiænus colchicus*) are usually of a pale olive green, but are sometimes white, in which they show a resemblance to the eggs of the francolin (*Perdix francolinus*), Hey's sand-partridge (*P. Heyii*), and the silver pheasant (*P. nycthemerus*). The eggs of the red grouse (*Tetrao Scoticus*) are almost always thickly spotted with strong colour; but I have one egg in which the ground is dirty white, without any distinct marking, thus showing an affinity with the unspotted eggs of the partridges and pheasants. The eggs of the stock-dove (*Columba œnas*) and wood-pigeon (*C. palumbus*) are often distinguishable by a cream colour which pervades the interior of the egg of the former when held up to the light; this is much less generally the case with the latter. I have, however, one egg of the wood-pigeon which has a strong yellow tinge in the interior, and one or two eggs of the stock-dove which have it in a less degree. The eggs of the lapwing (*Vanellus cristatus*) are usually pyriform, and very different in size from those of the black tern (*Sterna nigra*). I have, however, one which shews a strong resemblance to some varieties of the former species. It is a singularly marked egg, being of the size and shape of that of the common pratincole. It is greatly covered with large blotches of umber black, having contracted, as it were, within a small surface the colouring of a large egg.

VARIATIONS IN SIZE.—The aberrations in size between the eggs of birds, even of the same species are very great. This is more markedly seen in the case of birds in a domestic state, but is hardly less seen in those laid in a wild state. The eggs of the honey-buzzard (*Pernis apivorus*) vary much in size; a sitting in my collection strikingly so, one egg being unusually small. The sitting contained three eggs, which is one more than is usually laid. They were taken at Markash, in the New Forest, from a crow's nest. The first large egg is 2 in. long by 1 in. 12-16ths wide, with a white ground, and was found on the 7th of June. It was taken, but the birds did not forsake, and three days after the second egg was laid, which is somewhat smaller, being 1-16ths of an inch less each way, and has a red ground. The third is 1 in. 12-16ths long by 1 in. 7-16ths wide. It was laid on June 13, and was taken, together with the others, by Mr. J. K. Wise. The smaller egg is not much more than half the size of the largest, and its proportion is doubtless due to the exhaustion of albumen induced by laying an extra number of eggs. I have an egg of the barn-owl (*Strix flammea*) which measures 1 in. 3-16ths in length by 1 in. 2-16ths in breadth, the full size being 1 in. 9-16ths by 1 in. 4-16ths 1-2. The eggs of the red-backed shrike (*Lanius collario*) are sometimes very small. I have one 13-16ths in. long by 9-16ths 1-2 broad; the full size is 15-16ths in. long by 11-16ths 1-2 in. wide. The eggs of the blackbird (*Turdus merula*) are sometimes very small. I have one 1 in. 1-16th long by 11-16ths 1-2 in. wide. They are often 1 in. 5-16ths long by 15-16ths in. wide. The eggs of the hedge-accentor (*Accentor modularis*) are sometimes not more than 9-16ths 1-2 in. long by 7-16ths in. wide, which is about quarter the normal size. The eggs of the wheatear are sometimes very diminutive, being not more than 11-16ths 1-2 in. long by 8-16ths in. wide. The eggs of the nightingale (*Sylvia luscinia*) are sometimes nearly double the size of what they are at others, varying from 12-16ths to 15-16ths 1-2 in. long. Eggs of the common sparrow (*Fringilla domestica*) are sometimes very variable in size, from 10-16ths to 15-16ths in. long by 8-16ths to 12-16ths in. wide, or a range of two-thirds. The eggs of the greenfinch (*F. chloris*) also vary much, from 8-16ths long by 6-16ths 1-2 in. wide, to 14-16ths 1-2 long by 9-16ths 1-2 in. wide. Both these eggs were taken from one nest. A double-yolked egg of the yellow-hammer (*Emberiza citronella*) measures 1 in. 1-16th 1-2 long by 10-16ths in. wide. They are usually about 13-16ths in. long. The eggs of the bullfinch (*Fringilla pyrrhula*) are sometimes not more than 10-16ths in. long by 7-16ths in. wide. The full size is 14-16ths 1-2 long by 9-16ths 1-2 in. wide. The green woodpecker (*Picus viridis*) sometimes lays eggs of half the usual size, one egg I have being 1 in. long by 12-16ths in. wide, the full size being 1 in. 4-16ths long by 15-16ths in. wide. The

largest specimen I ever saw of the egg of this bird, selected from 400 obtained in the forests of various parts of France, was 1 in. 6-16ths long by 15-16ths in. wide. But this was much larger than any others in the same sitting. I mention this, particularly, because it bears upon the question of the breeding of large species of woodpeckers in England. Mr. J. K. Wise, in his book, "The New Forest," p. 272, mentions the discovery of the breeding of the great black woodpecker (*P. martius*) in Pignel Wood, near Brokenhurst, Hants, by Mr. Farren. "He observed the hen bird," according to Mr. Wise, "in front of a hole, placed about six feet high, in a small oak, from which he had, earlier in the season, taken a green woodpecker's nest. Hiding himself in the brushwood, he, after waiting about half-an-hour, saw the hen return, and has no doubt as to her identity. An endeavour, however, to secure her with a butterfly net proved unsuccessful. He was afraid to leave the eggs." One egg was addled. These eggs are all the full size of those of the great black woodpecker taken from various localities in Lapland and the Alps, being 1 in. 7-16ths long by 1 in. broad, or one full 16th larger than the largest of 400 eggs of the green woodpecker, and is even 1-16th longer than a sitting of authenticated eggs of the great black woodpecker from Norway. The eggs of the rook (*Corvus frugilegus*) are sometimes very small, one I have being 15-16ths in. long by 12-16ths in. broad. This is the smallest I ever saw. The next in size is 1 in. 4-16ths by 14-16ths 1-2 in. wide. A large-sized egg is 1 in. 13-16ths long by 1 in. 3-16ths 1-2 wide. The eggs of the wood-pigeon, usually smooth, have sometimes a rough shell covered with hard lumps. It is very uncommon to find them as small as 1 in. 1-16th long by 11-16ths 1-2 in. wide. The full size is 1 in. 11-16ths by 1 in. 4-16ths wide. The eggs of the house-martin (*Hirundo urbica*) are rarely very small; one, the smallest of a hundred, is 10-16ths 1-4 in. long by 6-16ths 1-2 in. wide. The normal size is 13-16ths by 9-16ths in. wide. The eggs of the swift (*Cypselus apus*), usually of a slender oval, are sometimes nearly round. I have one 14-16ths in. long by 12-16ths in. wide. The eggs of the green woodpecker are sometimes also nearly round. I have one 1 in. 1-16th 3-4 by 15-16ths in. wide; and I have one of the kestrel 1 in. 7-16ths 1-2 by the same. This is the most perfectly round egg I ever saw of any British bird. The eggs of the pheasant (*Phasianus colchicus*) are sometimes a fifth of the normal size, one being 15-16ths 1-2 long by 12-16ths 1-4 in. wide, another being 1 in. 1-16th by 14-16ths in. wide. The normal egg of the pheasant is 1 in. 14-16ths long by 1 in. 7-16ths 1-2 wide. The eggs of the partridge (*Perdix cinereus*) are much less frequently found of a small size than those of the pheasant. I have one of a white colour 1 in. 1-16th 1-2 long by 15-16ths 1-2 in. wide. The full size of the partridge's egg is 1 in. 8-16ths by 1 in. 2-16ths. The eggs of the moorhen (*Gallinula chloropus*) are seldom found very small, the least I could find out of several thousands was 1 in. 9-16ths long by 1 in. 2-16ths 1-4 wide. The largest moorhen was 1 in. 14-16ths 1-4 long by 1 in. 5-16ths 1-2 in. wide. I have eggs of the moorhen which differ only in size from those of the water-rail, landrail, and coot, which thus harmonises with the arrangement of these birds in one family. The eggs of the Sclavonian grebe are sometimes of a very small size. I have three from Iceland strikingly so, the largest is 1 in. long by 14-16ths 1-2 in. wide. The second is 1 in. long by 12-16ths in. wide. The third is 11-16ths 1-2 in. long by 9-16ths 1-2 in. wide, or about the size of the egg of the sparrow. The full size of this bird's egg is 1 in. 15-16ths long by 1 in. 5-16ths 1-2 wide. The eggs of the common heron (*Ardea cinerœ*) are very rarely round. I have one 1 in. 14-16ths by 1 in. 10-16ths, which is much less oval than usual; it is, moreover, of a pale blue colour, which is abnormal in this bird's eggs. The eggs of the black-headed gull (*Larus rudibundus*) are sometimes very small in size, the least out of many thousands is 1 in. 2-16ths long by 13-16ths in. wide. The next largest was 1 in. 1-16th 1-4. The first-mentioned egg was accompanied by one of a somewhat irregular shape and extraordinarily elongated form, being 1 in. 10-16ths 1-2 long by 12-16ths in. wide. The full-sized egg of this species is 2 in. 2-16ths long by 1 in. 9-16ths 1-2 in. wide. The longest I obtained out of some thousands was 2 in. 6-16ths 1-4 long. The eggs of some ducks are found of a diminutive size. I have one of the Iceland golden eye (*Anas Barrovii*) which measures 1 in. 12-16ths by 1 in. 6-16ths 1-4. The smallest of several eggs of the eider (*A. mollissimus*), from Iceland, measures 1 in. 4-16ths long by 1 in. wide. The smallest of several eggs of the scaup (*A. marila*) measures 1 in. 8-16ths long by 1 in. 3-16ths in. wide. These measurements are but fractions of those of the normal eggs of these ducks. The eggs of the terns are more rarely found of small size than those of some wild birds. The smallest of the common tern I ever saw is 1 in. 2-16ths long by 15-16ths in. wide. The full size is 1 in. 13-16ths long by 1 in. 3-16ths wide. I shall now treat of the even greater variations in the eggs of birds in a domestic state, commencing with the common fowl (*Gallus domesticus*). I have been at some pains to gather the largest eggs of the common fowl. My friend Mr. Rowley, also, has

examined a vast number of hens' eggs, and I am indebted to him for several of the largest he has ever obtained. The largest measures 2 in. 15-16ths long by 2 in. 3-16ths wide, and weighed 4¼ oz., being more than double the normal weight. The largest single-yolked egg I ever obtained is 3 in. long by 2 in. 1-16th wide, and weighed 4 oz. The smallest double-yolked egg is 2 in. 15-16ths 1-2 by 1 in. 11-16ths, and is very abruptly pointed at each end. The largest double-yolked egg was 2 in. 14-16ths 1-2 long by 1 in. 13-16ths wide. It was decidedly shorter, but a little heavier than the last-named ; it was laid by a fowl having "a strain" of the Cochin China breed. The smallest egg of the common fowl measured 11-16ths in. long by 9-16ths 1-2 in. wide, and weighed 30 grains when unblown. This is but a fraction of two ounces, which is the normal weight. I have two eggs laid by a hen which has assumed the male plumage, one measures 15-16ths in. long, the other 1 in. 2-16ths in. long. These are the so-called "cock's eggs" which have been for ages talked of, and have, in modern times, been supposed impossibilities. They are produced by a bird whose reproductive organs are in a state of exhaustion, and had, in both the cases I have just mentioned, no yolk. Such a bird, on assuming the male plumage is called a cock : thus is the foundation for the vulgar error. The largest egg I have without a yolk measures 1 in. 1-2 long by 1 in. 2-16ths wide, being the size and shape of a small egg of the rock-dove. But all these very small eggs have a shell abnormal in texture. The smallest hen's egg, with a normal shell I have obtained is 1 in. 2-16ths long by 14-16ths in. wide. The eggs of the Cochin China breed are also liable to great variations in size. The full size is 2 in. 3-16ths 1-2 long by 1 in. 11-16ths wide. The smallest I have seen is 1 in. 5-16ths long by 1 in. wide. All have a smooth and normal texture. The eggs of the bantam, likewise, vary greatly, being, when of full size, 1 in. 13-16ths long by 1 in. 5-16ths 1-2 wide. The smallest I have been able to meet with is 1 in. 6-16ths long by 1 in. 1-16th wide. The eggs of the guinea fowl, when of full size, are 2 in. 2-16ths long by 1 in. 10-16ths 1-4 wide. The smallest is 1 in. 4-16ths 1-2 long by 1 in. 1-16ths 1-2 wide. The eggs of the turkey (*Meleagris gallopava*) are not so often diminutive as those of the common fowl. The smallest I have met with is 2 in. 1-16ths long by 1 in. 9-16ths wide, The most elliptical is 3 in. 1-16th long by 1 in. 11-16ths wide. The normal turkey egg is 2 in. 13-16ths long by 1 in. 15-16ths wide. The eggs of the ducks (*Anatidæ*) vary greatly in size, but are not quite so subject to aberration in texture as those of gallinaceous birds. The normal egg of the common duck (*Anæs boschas var domestica*) is 2 in. 6-16ths 1-2 long by 1 in. 13-16ths wide. The smallest I possess, and it is rare to find them less, is 1 in. 14-16ths long by 1 in. 7-16ths 1-2 wide. The largest double-yolked duck's egg I have found measures 3 in. 2-16ths long by 2 in. wide. It had a large folliculus or air bubble at the large end. A large duck's egg, which might have had two yolks, was laid by an Aylesbury bird, and weighed 4 oz. 3-4, or more than double the average weight; it measures 3 in. 3-16ths long by 2 in. 4-16ths wide. The average size of the common goose (*Anser cinereus var domestica*) is 3 in. 1-16th 1-2 long by 2 in. 5-16ths wide; but a double-yolked one measures 4 in. 4-16ths long by 2 in. 11-16ths wide. Eggs of domestic birds are subject to great aberration in form. I have one of a horn shape, laid by a common fowl. A second is of a pear shape. A third is of a natural oval, with a lump at the large end in repetition, apparently, of the "pope's nose" of the bird. A fifth is of a spindle shape, 2 in. 13-16ths long by 1 in. 5-16ths 1-2 wide. A sixth, laid by a Cochin China bird, is flattened on each side, it measures 2 in. 3-16ths 1-2 long by 1 in. 12-16ths broad one way, and 1 in. 8-16ths the other, which is a difference of ¼ in. Eggs of fowls, the shells of which resembles, in appearance, crumpled paper, are not uncommon. I have one, however, which is most singularly flattened on one side, and crumpled and puckered all round the edge of the shell, and is otherwise misshapen, it measures 1 in. 15-16ths 1-2 long by 1 in. 9-16ths 1-2 wide on the round, and 1 in. 7-16ths on the flat side. Eggs having a deep crease or bead mark encompassing them are sometimes found. I have in my collection two very remarkable ones.

Almost all eggs have naturally a white putamen. I have two eggs, however, of the common duck in which the putamen is thickly spotted with black ; the eggs are likewise singularly washed all over with sooty ash. Another pair of eggs is most curiously washed with sooty olive. The bird has been in the habit of laying similar eggs every spring.

I will state my own observations on the contents of the eggs of the common fowl. The yolk of moderate-sized eggs, of a given breed, are generally as large as those half or three quarters of an ounce heavier. This is not merely found to be the case on comparing the contents of the eggs of such breeds as the Spanish and Cochin China, which differ so much in size, but on contrasting the eggs of a given breed varying in size with each other. The chickens produced from comparatively small eggs are generally equal in size to those from large ones, as the size of the yolk determines their dimensions. It

is very large in proportion in the eggs of the Shanghai breed, hence they are popularly termed "rich." The eggs of wild have much larger yolks in proportion than those of tame birds, for the yolk determines the length of the species; and the excess of albumen in the eggs of tame birds is extraneous, like the excess of milk or flesh in domestic animals. The flavour of the contents of eggs, and the proportion of albumen to yolk, has much to do with the character of their food. Hens fed on barley lay eggs with larger yolks, while rye has a contrary effect, probably because barley contains a greater proportion of oil, which tends to increase the quantity of oil of yolk of eggs. The egg of an unimpregnated bird (*hypænuyn ovum*) is generally inferior in flavour to that of the impregnated, more easily decomposed, and is more apt to have a shell rough in texture or abnormal in form.

As I am still working at the subject of the causes of the variations in eggs, I shall be glad to receive any fresh facts or specimens of an abnormal or curious character—also when they are for sale or exchange.