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1914

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SOME OBSERVATIONS ON A TERN COLONY.*

By WILLIAM ROWAN.

THE work of which this is a brief description was carried out, in 1913, on Blakeney Point, Norfolk. The idea was to determine, by means of a census, some of the laws that control the choice of site, nesting materials, and pigmentation of eggs. The work of previous years provided the basis for the methods employed. Many improvements in method suggest themselves, and future work should prove of decided value. This is the first systematic attempt at a census, to our knowledge, and, though we know only too well the many weak points therein, we publish the results as much as a suggestion to ornithologists as for any other reason. The work involved is long and tedious, and results are few.

Blakeney Point is a shingle spit of some eight miles in length. Its extremity projects freely into the sea. On the seaward edge of the terminal mile and a half there is a large open shingle beach; further in are sand dunes, and on the landward side of these are salt marshes and mud flats. At high tide there are nearly two miles of water between these and the mainland.

It was on the seaward side of the dunes on the open shingle that the famous old colony of Terns took up its quarters this year, though there were a score or so of nests on one of the laterals on the lee side of the dunes. It was on the open shingle that the census was taken.

Before describing the results of the census a remark on the movements of a Tern colony may not be out of place. It must not be imagined that because Terns come to the Point year after year therefore they choose the same part of it every time for nesting—far from it. Their choice varies considerably. A few years ago their favourite nesting site was on the lee side of the dunes. Now, however, this part is deserted. Last year the colony was concentrated round those dunes known as the Tern Dunes; this year, however, it has spread right along the beach, and not a nest was found on the dunes proper, while last year a number were located there. Of course, we are only referring to the common Tern now. The erratic nesting habits of the Lesser Tern are well known. This bird, too, was found in considerable numbers.

Two people only were at work, and the month was July, so that we got only the late birds and two hundred and three clutches in all.† Our method of procedure was this. We marked out certain well-defined patches of shingle and together examined these in strips, passing and re-passing each other till the ground had been completely covered, when we moved on to another patch.

Four measurements were taken of each egg: long and short circumference, length and breadth. These were taken for biometrical purposes, also the type of mottling and ground colour. Then the egg was numbered with indelible ink, so that it should not be dealt with again. The number in each clutch was then recorded and the type of nest.

In all two hundred and three clutches were found: one hundred and nineteen of one each, sixty-six of two each, eighteen of three each. Of these thirty were abandoned, and the eggs addled and partially buried. Of the clutches containing one egg each we have no proof as to how many consisted of one originally, or in how many cases the one was merely a remnant of a larger clutch.

Three types of nests were taken: (1) No nesting materials and no hole (see Figure 46); (2) no nesting material, but hole scraped (see Figure 47); (3) materials used (see Figure 48). Of these the following number of nests occurred:

Type.	Number of Nests.		
1	48
2	38
3	120

Of these at least thirty were abandoned.

Of type 3 twenty-four were large, thirty-nine medium, and fifty-seven slight. The majority were made of dried *Psamma* and similar materials, but four were found in which shells and pebbles had been used, while one contained a large number of crab-legs. In the marshes the drift-line consists of thousands of dead crabs (*Carcinus maenas*), so that the supply was plentiful. One nest was made almost entirely of wood-chips (see Figure 49). Nine nests were found in growing plants of *Arenaria peploides*, and one in living *Triticum*. Some had nests built, others not.

The Common Tern is doubtless a lazy bird, for in the vast majority of cases nests of type 3 were on the drift-line, or some similar situation where material was plentiful. In two years only one nest was found on the drift-line without any material whatever. This was a clutch of three very dark eggs. Nests of a considerable size, far from the drift or other supply of material, were more plentiful but far from common.

The next thing studied in great detail was the mottling. From the work of previous years a table of types was drawn up (see Figure 50). These were respectively called A—I. It should be pointed out that the size and shape of the eggs on the figure have nothing whatever to do with the mottling, and will be referred to later. Type C was the

* *Blakeney Point Publication*, No. 10.

† The operations of measurement and recording were carried out in conjunction with Miss K. M. Parker, my colleague in the Blakeney Point Field Section for Faunistics.

commonest, by a long way, with one hundred and five eggs. They come in the following order :

Type.	Number of Eggs.	
C	...	105
E	...	60
B	...	49
A	...	27
F	...	24
H	...	13
D	...	8
I	...	7
G	...	4

Types with a distinct circle on the round end were A, E, F, and I. They total one hundred and eighteen. This represents nearly thirty-nine per cent. of the total, and the rings are therefore in the minority. One egg was found with the ring half-way down, while two more were found with heavy markings on the pointed end, while the round end was almost free.

Clutches of two eggs each, in which both eggs belonged to the same type of mottling, were in the minority. Out of sixty-six clutches with two eggs each twenty-eight had both eggs belonging to the same type. In the remaining thirty-eight it is remarkable how frequently the types E and C and A and C occur together. The only difference between A and E is that the one has more markings on the lower part of the egg than the other ; and, if they be considered as one type only, the frequency of occurrence is even more marked. In clutches of three the percentage of this combination is even higher. Out of thirteen of these clutches only one had all three eggs belonging to the same type of mottling. In type B (see Figure 50) the twist on the markings should be brought to notice. Where it existed this twist was always in the same direction, downwards from the right to the left. The same thing occurs in the eggs of the Lesser Tern, and is undoubtedly connected with the laying apparatus of the parent bird.

In recording the ground colour a graduated scale was used, *a-k*. The eggs were marked according to their shade. On the photograph of the scale (reproduced in Figure 50) the true colour values have unfortunately not come out, and the scale is

consequently misleading. On the original the gradation is quite regular.

In clutches of two eggs each the minority had both eggs of the same ground colour. In some cases the difference was enormous. One clutch contained eggs of types *a* and *h* respectively. Others varied to the extent of *c* and *g*, *e* and *i*, *c* and *f*, *b* and *f*. Only a single egg was found to match type *k*.

There were three eggs that could not be accommodated to this scale. One was of a dull slate colour, with mottling also outside the scale. It was with a normal egg. The other two made one clutch. Both were as blue as a thrush's egg. Mottling was also abnormal on both. It is a curious coincidence that both ground colour and mottling should be abnormal on all three eggs.

In clutches of three eggs three clutches had all the eggs of a different ground colour. One clutch had all three eggs alike. Of the other nine, all had two eggs alike ; with two exceptions only, these were lighter than the third.

In length the eggs varied from 3.6 centimetres to 4.7 centimetres ; in breadth, from 2.6 centimetres to 3.7 centimetres. The smallest egg was the same length, but a little broader than a normal egg of the Lesser Tern (see Figure 50). F on the same figure shows the broadest egg found. It was as broad as the above was long, and not much longer than its own breadth.

No direct connection could be found between types of eggs and types of nest. There may be none. But a point suggested by our work is that a bird laying one type of egg may lay another, type also, but not *any* type. There may be a law controlling range of variation possible to one bird. It remains to be proved that, where extreme differences were found, these were produced by the same bird. We found that, where a dark and light egg existed together, the lighter was usually the more heavily marked.

The use of material for nesting, alike in quality and quantity, is probably more according to law than is usually believed.

Other laws suggest themselves, but they cannot be proved till more work has been done on these tedious and somewhat novel lines. Many interesting results should be attainable.



FIGURE 45. The Bird on the Nest.

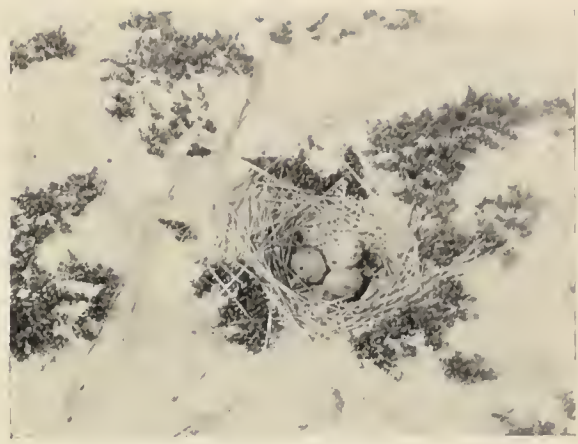


FIGURE 48. Nest, Type 3.



FIGURE 46. Nest, Type 1.



FIGURE 49. Nest of Wood Chips and Shells.

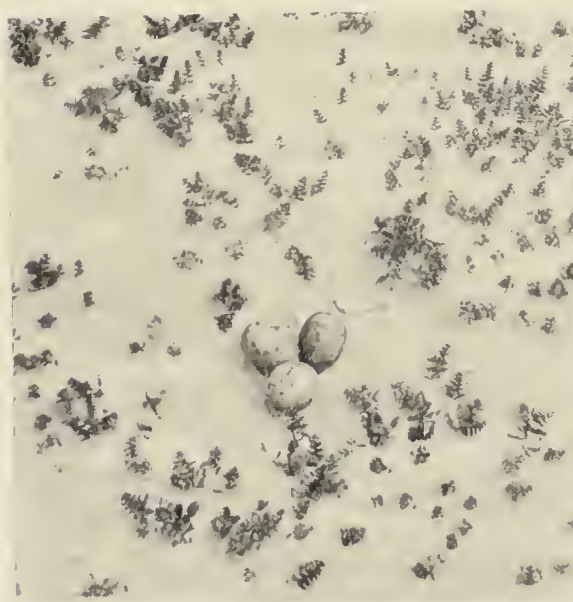


FIGURE 47. Nest, Type 2.



FIGURE 50. Eggs—A-I, types of mottling; a-k, ground colour.

