

APPENDIX. Continued.

Species	Character	\bar{x}	SD	<i>n</i>
<i>S. torridus</i>	Wing	40.50	—	8
	Weight	1.90	—	1
	Culmen	11.89	—	8
<i>S. simoni</i>	Wing	38.68	—	11
	Weight	—	—	—
	Culmen	10.59	—	11

APPENDIX. Continued.

Species	Character	\bar{x}	SD	<i>n</i>
<i>S. ardens</i>	Wing	40.17	—	19
	Weight	—	—	—
	Culmen	12.54	—	19
<i>S. scintilla</i>	Wing	34.60	—	43
	Weight	2.15	0.16	39
	Culmen	11.93	—	43

100 Years Ago in The Auk



[From "Sexual selection and the nesting of birds," by J. A. Allen (1885 *Auk* 2: 129-139):

"Mr. Wallace, and after him Mr. Dixon and others, in discussing [sic] the question How do young birds learn to build their first nest? claim that 'instinct' has nothing to do with the matter,—that they learn by observation and are guided by memory! Says Mr. Wallace: 'It has, however, been objected that observation, imitation, or memory, can have nothing to do with a bird's architectural powers, because the young birds which in England are born in May or June, will proceed in the following April or May to build a nests [sic] as perfect and as beautiful as that in which it was hatched, although it could never have seen one built. But surely the young birds *before* they left the nest had ample opportunities of observing its *form*, its *size*, its *position*, the *materials* of which it was constructed, and the manner in which those materials were arranged. Memory would retain these observations till the following spring, when the materials would come in their way during daily search for food, and it seems highly probable that the older birds would begin building first, and that those born the preceding summer would follow their example, learning from them how the foundations of the nest were laid and the materials put together. Again we have no right to assume that young birds generally pair together,' etc. Mr. Dixon restates the case in much the same way. Alluding to 'blind instinct' as a factor in the case, he says: 'To credit the bird with such instinct, which because it seems so self-evident is taken to be matter of fact, is to admit that it possesses intellectual powers infinitely superior to those of man; whilst the evidence that can be gathered on the subject all goes to show that its intellectual powers are of precisely the same kind as man's, but some of them, of course, are infinitely inferior in degree, whilst others are unquestionably superior.' He assumes that

imitation, memory, and hereditary habit, 'play the minor parts.' 'To credit birds,' he says, 'with such marvellous power as blind and infallible instinct in building their nests would be to place them far beyond man himself in intelligence, and allot to them a faculty which is superhuman . . . A bird's intellectual powers advance towards maturity much more quickly than in the human species. A young bird three or four days old is capable of considerable powers of memory and observation, and during the time that elapses in which it is in the nest it has ample opportunity of gaining an insight into the architecture peculiar to its species. It sees the position of the nest, it notes the materials, and when it requires one for itself, is it so very extraordinary that, profiting by such experience, it builds one on the same plan? Again, birds often return to the place of their birth the following season, and possibly see the old home many times ere they want one for themselves. This, aided by the strong hereditary impulse to build a nest similar to the one in which they were born, inherited from their parents, aids them in their task.' This reasoning, I am free to confess, strikes me, to say the least, as extraordinary! A degree of mental power, at least of memory and of imitation, is ascribed to young birds which is not only 'superhuman,' but of which there is neither proof, nor even possibility of proof. Mr. Dixon has the 'three or four days old' nestling taking note of and memorizing its surroundings before, in the case of the higher Oscines, *it has the power to even open its eyes!* Yet with all this ascribed precosity and keenness of observation, and this wonderful power of memory and imitation in young birds, Mr. Dixon finds it necessary [sic] to call in the aid of 'a strong hereditary impulse to build a nest similar to the one in which they were born,' which is more

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than half-way admission of all that is implied in the modern interpretation of instinct, or the 'blind instinct' of the non-scientific writer. If we interpret [sic] instinct as 'inherited habit,' what better explanation do we need of the ability of young birds to build a nest like that of their parents or of their species? In view of the slight evidence available as to how much a nestling bird can take cognizance of its surroundings, and make mental note of them for purposes of imitation at a remote future, does not the assumption of such extraordinary powers of imitation and memory border upon absurdity? To extend the theory, which it is perfectly legitimate to do, to other classes of animals, does the tadpole, or the embryo fish (in the case of the nest-building species) also remember the exact position, structure and materials of its maternal nest? Does the young turtle remember throughout the long years of its adolescence the precise nature of the spot from which it emerged, so as to select a similar place for its own eggs? Or does the larva of an insect remember, through its various stages of metamorphosis, the exact arrangement of the egg from which it was hatched

in relation to the eggs of its brother larvae so distinctly as to be able to deposit its own eggs in a similar situation and similar order of arrangement? Why, indeed, the idea that birds are guided by 'instinct,' taking the term as interpreted by modern science, is so repugnant to a certain class of minds, or why they will persist in denying that *any evidence in its favor exists*, is to me at least incomprehensible. In short, I agree exactly with Mr. Seebohm in his footnote appended to Mr. Dixon's essay, in which he says: 'I regard the word Instinct as the popular term for the mysterious impulses which scientific men call Hereditary Habit; and I think that it plays a great part, an overwhelmingly great part, not only in Bird-nest building, but in every other action of every animal, man included If Hereditary Habit have the lion's share in the production of a birds' [sic] nest, we must allow that Memory, Imitation, and a rudimentary form of Reason also play their subordinate parts.' In these few words, it seems to me, we have the sum of the whole matter, and a rational answer to the question of how young birds build their first nest."