

## 11. ROSEATE TERN.\*

*(Sterna Paradisea, Brünn.)**Sterna Dougalli*, Mont.

I insert this species on the authority of Mr. Thomas Egan, Taxidermist, of this city, who assures me that a specimen was obtained recently, and is now in the possession of Mr. John Roue, of Halifax. Baird gives New York as its northern limit.

## ART. IV. PROVIDENTIAL WARNING TO THE LOWER ANIMALS.

BY REV. J. AMBROSE.

*(Read February 14, 1870.)*

“I FEEL IT IN MY BONES,” is a phrase which, it seems to me, must have originated in some cold country in which rheumatism was not uncommon. For it is well known that rheumatic persons, as well as those whose bones have at any time been broken or severely sprained, are more or less affected in the diseased or injured part by marked changes in the atmosphere. A joint, as I know by experience, weakened by a severe sprain, gives warning of an approaching snow or rain-storm by a sort of warm, uneasy and even sore feeling,—though the sprain was apparently healed several years before. Corns and bunions on the feet also give their proprietors timely notice of approaching storms. Knowledge of this kind may be desirable if it be not too dearly purchased, and I have at various times been warned against what turned out to be inconvenient and dangerous journeys by my prophetic ankle, a barometer which is never forgotten and left at home when its owner goes abroad:—

“O my prophetic soul! my *ankle*.” [*Hamlet*.]

Second-sight, among the Highlanders, is said to have been almost invariably accompanied by a peculiar, and indeed what might be called a diseased state of the nervous system. Weather-

\*Just as this paper is going to the press I am enabled to add this new species.  
J. M. J.

prescience, as I have shown, is oftentimes accompanied by pain and uneasiness. All men are not gifted with this peculiar kind of foreknowledge, but it is of a sort not likely to excite envy: "Where ignorance is bliss 'tis folly to be wise."

Man, with his large brain and his habits of observation and vast stores of recorded facts, from which he may construct almost infallible rules, may make shrewd guesses at a coming storm without "feeling it in his bones." But the lower animals not being gifted with the higher sort of reasoning power, and requiring food and shelter "for the rainy day," as we say, are seldom or never found unprovided. By a sure instinct they seem even to know beforehand the length and severity of the approaching winter, so that they may lay up their stores accordingly. It is evidently not by hap-hazard they live. ONE who works by means provides even for the meanest of His creatures, and as their reasoning powers are not equal to that of man, their physical susceptibility may be, and I think likely, is very far greater than his, so as to give them, not merely a few hours, but perhaps months of warning as to the variations of weather and duration of heat or cold. This I think is proved by the varying quantity of their winter stores, and the greater or less amount of care bestowed by the same animals at different seasons on the provision which they make for shelter for months to come. It has, for example, been remarked by Canadian hunters, as well as by our own Indians, that the beaver and muskrat show in this way a foreknowledge of the mildness or severity of approaching winter.

I had the opportunity in 1852 of observing the habits of a pet bear, which was owned by a gentleman in Liverpool, Nova Scotia. No barometer could more surely indicate an approaching storm than could this apparently stupid animal. Always before a storm he would betray a good deal of uneasiness, and this uneasiness, I always thought, was proportioned in length and intensity to the severity of the coming change of weather. Once in particular poor Bruin's trouble "in his bones" must have been very great. He ordinarily took the world very easy, looking carefully after his meals, but between times basking in the sun, or contriving plans, not unfrequently successful, of appropriating some nicety from the larder or preserve closet. But this day in particular, all ordinary

pursuits were laid aside, and his mind was full of coming trouble. All day long he was pacing up and down, making most lamentable noises and shaking his head from side to side. These, though in a far more mitigated degree, were his ordinary methods of showing that he "felt in his bones" a coming storm. And accordingly, some twenty-four hours after Bruin's troubles began, a terrible storm of wind was raging along the coast, and several vessels were wrecked in the harbour and roadstead of Liverpool.

An old hunter who lives at the head of this Bay informs me, that Moose are more apt to roar or "call" immediately before a storm than at other times, as from his house he can frequently hear them.

Signs of a coming storm exhibited by ordinary domestic animals, are almost too well known to require enumeration. Geese leaving their ordinary "goose-step" and betaking themselves to vociferous flight. Cats gambolling in an unwonted manner. Pigs carrying straw in their mouths. These and many other such indications among our more humble dependents, have not only been noticed by the vulgar, but recorded by poets in immortal verse.

Spiders and other insects also give warning by some marked change in their ordinary occupations, or mode of concealment, that a change of weather is at hand. The Rev. Gilbert White mentions the susceptibility of the house-cricket, (*Gryllus domesticus*), in this particular, though observing at the same time that the housewife superstitiously credits it with prescience in other more recondite matters.

Why should we not expect to find a susceptibility to atmospheric changes among land animals, when it is well known that fishes, more out of the ordinary power of the atmosphere as one would think, give sure indications of its influence upon them. A change of wind will be indicated by mackerel, herring, dog-fish or cod, particularly by the three first-named. A wind blowing from the S. E., S. or S. W. will, as our fishermen say, bring them into this Bay, whilst a N. wind will, almost invariably, drive dog-fish off. Porpoises rise to the surface in an unwonted manner before a storm, and our people remark that they roll towards the direction from which the storm is to come. It is but fair to say, however, that these general movements among fishes may be occasioned by

the "ground-swell," which, as is always remarked, is felt some time before the storm which occasions it, as the displacement of the water travels faster than the wind which causes the displacement.

It may be that by some such indications in their physical susceptibilities, birds of passage are warned and impelled to undertake their semi-annual migrations. An uncontrollable uneasiness may thus take possession of whole flocks at once, not to be satisfied or mitigated but by a long flight in one particular direction. This uneasiness may perhaps be felt by some individuals in a very slight degree, owing to some natural defect or other cause,—hence the presence of the very few such birds which remain with us over winter.

These curious facts however, prove that to a certain extent, the lower animals can deduce effect from cause, and *vice versa*, and therefore that many, not only of the larger animals, but some far lower in the scale of creation than is generally supposed, can in a humble way, reason and provide against ordinary dangers.

"Go to the ant, thou sluggard, consider her ways and be wise."  
 "The locusts have no king, yet they go forth all of them by bands."

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A well authenticated story of what I may call the reasoning power of a dog, and which moreover has never appeared in print, may bring these remarks to a conclusion. A member of a family residing in Liverpool, Nova Scotia, some years ago, was one night taken suddenly and severely ill. A Mrs. Nickerson, skilful in such cases, resided at some considerable distance from their house. "Ah!" said the father of the family, "how much I wish we had somebody able to go for Mrs. Nickerson, I cannot leave the house." At this the dog went to the door, whined and scratched until let out. Shortly afterwards Mrs. Nickerson hearing a whining and scratching at her own door, found on opening it that this dog was there, acting in an importunate and beseeching manner, making short runs backwards and forwards between her and the direction towards his master's house. Feeling sure that something must be the matter there, the good woman went to the house and was joyfully received by the family, who informed her how anxiously they had been wishing for her presence, but had no

messenger to send for her. "There was a messenger," said she, "and one that would not be put off. Your dog came for me."

The means by which the lower animals are warned of far-distant events, and the extent to which their reasoning powers may be carried are subjects yet open to much investigation, and which, moreover, may do much to lead the inquirer from Nature up to Nature's God.

Lord Milton, in his book on the "Nor' West Passage," mentions that one of his party having killed a skunk, (*Mephitis Americana*,) some time after they built the hut in which they passed their first winter in the Red River Territory, threw the carcass of the animal out on the snow, not far from the hut. During the remainder of their stay at that camping ground the carcass of the skunk always gave notice of an impending storm, being at such times highly odoriferous, whilst during the settled weather its disagreeable effluvium was not perceptible.

A fact precisely similar came under my own observation during the winter of 1867. One of my parishioners killed a skunk in the autumn of that year, and threw the carcass (without skinning it) into the bushes skirting the road between French Village and Hosier's River. During that winter and the greater part of the following summer—indeed so long as any part of the skin or muscular system of the animal remained—I invariably noticed in passing that my olfactories were faithfully warned of every approaching storm by the sensitive carcass in the bushes. I have now in my possession part of a skunk's skin which has been dressed by a furrier, but still retains, in a remarkable degree, this forecasting peculiarity.

If the bodies of animals, even—as in some cases after death—show so remarkable a sensitiveness to atmospheric changes, we may well suppose that this sensitiveness may be one means by which a kind Providence warns the lower animals to provide in their native land, against the rigours of winter, or secure by periodical and timely migrations their necessary food and comfort.

Another means by which the habits of animals are regulated and varied is the change of outward circumstances. In Europe, for example, beavers generally live alone and burrow in the ground, but in America they are found in communities and regularly con-

structed dwellings. Some have consequently supposed that this difference of habits is a proof of difference in species. But communities of beavers are found in Europe, and solitary beavers in America. The truth is, the species is the same, but their habits are changed by change of circumstances, for amid the busy haunts of men where communities of fur-bearing animals would be broken up, the solitary burrowing system prevails among beavers, whilst in the vast solitudes of America communities are the rule, though, in the neighbourhood of man, solitary and burrowing beavers are more frequently found.

From the foregoing and multitudes of similar facts which may be gathered from persons of ordinary powers of observation, it is obvious that the lower animals can reason to a certain extent. May I venture to hint at the probable boundary which divides their reasoning power from that of man?

Man's nature consists of body, soul and spirit,—or, in other words,—body, mind and soul; whilst the soul is absent from the nature of the lower animals, though the faculty of mind they possess to a less extent than man. It is but a truism to say that the natural desire of man and beast is to satisfy the *whole* nature. The soul, man's immortal part, cannot be satisfied in this mortal state,—hence happiness in the soul can only be obtained by a course looking to a future and immortal state, and therefore, in many respects, at variance with his present mortal nature. This accounts for man's naturally restless and consequently inventive disposition, especially in a civilized state. “God hath made man upright, but they have sought out many inventions.” It is the soul—the stronger reasoning power, which stimulates and assists the operations of the mind.

So also the object of the lower animals is to gratify the desires and supply the wants of their *whole* nature, and to provide for their safety. Hence we find them able to provide for future wants, and to change their habits of life according to circumstances. But not being stimulated by the wants and aspirations of the immortal part, their inventive power is exceedingly limited. Man in the savage state, in which the aspirations of the soul are repressed, blunted and never educated, thus approaches nearly to the condition of the brute. The higher nature within him, however, being

misdirected employs its half-dormant energies in the gratification of the bodily instincts. Hence the wickedness of man as contrasted with the innocence of the brute creation.

According to this view, the reasoning power in the lower animals may be cultivated to a far greater extent than is generally supposed, thus opening a wide field of instruction and pleasure to the true naturalist, who knows that God's works are great—"sought out of all them that have pleasure therein."

#### ART. V. ON AGATES. BY A. S. FOORD.

(Read February 14, 1870.)

ENCOURAGED by the very flattering reception accorded to my paper on "Gems," which I had the honour of reading before the Institute in February last, I have been induced once more to take up my pen and pencil, trusting that my endeavours on this occasion also, may not be unsuccessful.

Agates are among the most attractive objects that grace the cabinet of the collector. The variety of colours which they present, and the brilliant polish of which they are susceptible, enhance their value, while they display to advantage the exquisite markings so characteristic of the agate.

In some groups the colours are distributed in clouds, spots, or concentric lines: in others in bands of various hues, as in *Ribbon Agate*; while in not a few the markings are produced by parallel deposits of chalcedony—represented in that variety called "*Fortification*" *Agate*, in which some of the layers are zig-zag, like the lines of a fortification. Agate is a variety of *chalcedony*, and often occurs lining or filling cavities in amygdaloidal and other rocks, or scattered over the surface of the soil, or in the beds of torrents and rivers.

The agate derives its name from that of the river Achates in Sicily, whence, according to Theophrastus, it was first brought. The most common kinds are of a light greyish-blue or dove colour, passing into deeper shades of blue.