

ON THE EFFECTS OF WOUNDS ON THE HUMAN
SUBJECT INFLICTED BY THE SPURS OF THE
PLATYPUS—(*Ornithorhynchus anatinus*).

BY THE REV. W. W. SPICER, M.A., F.R.M.S.

[*Read 13th November, 1876*].

I wish to lay before the Royal Society, an account of an accident which recently occurred to a friend of mine while handling a Platypus, as there are circumstances connected with it, which are rather singular in their nature, and I think worthy of your attention. The friend I allude to is Mr. Augustus Simson, a member of this Society, who is now residing in Gould's Country.

About three weeks ago, he and Mr. Stephens, the School Inspector, were walking by the side of a lagoon, when their attention was attracted by a Platypus, which had swum across from the other side, and was on the point of making its way under the bank. Mr. Simson, an active, energetic man, at once rushed down the bank, and secured the animal. Now, I fancy, this fact alone is worthy of record; for of all the shy wary animals in existence, Platypus is among the shiest and most wary. Under ordinary circumstances, it is no easy matter to catch even a passing sight of one; but here the creature was caught in open daylight, without any preparation, as easily in fact as a rat or a mouse might be in a like case. It made no great struggling; was deposited in a sack, and was carried to the hotel at George's Bay. Here, by some mishap, he escaped, and it was in the effort to re-capture the animal that Mr. Simson met with his accident. I will here quote Mr. Stephens' words, who was present:—

"After an exciting chase, Platypus was re-captured; but this time he revenged himself by giving my friend a severe wound on the hand, one spur slightly tearing the palm, and the other the back of the hand, making a deep puncture between the knuckles of (I think) the first and second fingers. The pain from this was intense, and almost paralysing. But for the administration of small doses of brandy, he would have fainted on the spot. As it was, it was half-an-hour before he could stand without support. By that time the arm was swollen to the shoulder, and quite useless, and the pain in the hand very severe. No ammonia was to be had; no medical assistance was available; and the only treatment that could be adopted, was to keep the whole arm for a night and day in wet bandages, which seemed to alleviate the pain a little, and to reduce the inflammation.

"A week later, I was informed by letter, that the swelling had subsided, the hand being still very tender, with a sensa-

tion as of a severe bruise. From this time there was a slow but gradual improvement."

As regards the improvement, I have a letter from Mr. Simson, a portion of which I will read:—

"You have heard through Stephens of my Platypus adventure, no doubt; it is a pity he got away after the mischief he did. * * * I did not know before that they were capable of hurting one. Coombes says, that according to Kreff, their spurs are tubes, and that there is a poison-bag at their base; others also tell me they are hollow. Can you hunt it up and see if it is true? There must be some kind of poison in them, I fancy, as, though the wounds healed up quickly, I still have a queer feeling in the hand and fore-arm, and cannot bear any pressure on the hand; the flesh, especially in the morning when I wash, feels as if it were with the skin grazed off, quite sore, and the hand is still rather cramped, and incapable of grasping anything, though I can use the fingers now again. The foregoing sensations extended right up the arm at first, which was everywhere tender to the touch, and all the joints and bones of the fingers also. Some natives tell me they would rather lay hold of a snake than a Platypus."

I may mention, that on Mr. Stephens attempting to seize the animal, it attacked him in a similar manner; fortunately his hand was protected by a glove, and the spurs only left a deep indentation, without piercing the covering. He says:—"The mode of attack is not by scratching, but (as I know from experience) by a powerful lateral and inward movement of the hind legs, the spurs being thus brought together like the points of a pair of callipers."

It is worth noticing, that the animal was in a state of considerable irritation when re-captured; and also that the object of his attack was a strong man, in the prime of life, and in perfect health."

Now, in regard to the wound received by Mr. Simson, to what are we to attribute the painful consequences which ensued? Are they due to the action of poison, or to the laceration of the nerves, or to some other cause?

Having no practical acquaintance myself with Platypi and their habits, I have looked up whatever works were within my reach bearing on the subject; and the results I will lay before you.

There is no doubt, that the spur is not a solid, but a hollow body, or rather it is a sharp-pointed cone of considerable substance, traversed by a very fine tube, which communicates by a canal with a comparatively large spongy gland situated, not immediately behind it, but some distance up the thigh.

This is plain from the dissections made by Professor Owen.

Mr. Roblin, the Curator of our Museum, informs me that he has himself expressed a yellowish fluid from this gland through the opening in the spur. Seeing that this is so, and coupling with it the severity of the symptoms following on a wound, one is apt to jump to the conclusion that the gland is a veritable poison bag. Judging from analogy, we might say that the case is in every respect similar to that of the serpent tribe, only that with *Ornithorhynchus*, the mechanism for elaborating and injecting the poison, is situated in the heel instead of in the head.

Nevertheless, the opinion of those best able to form a correct judgment appears to be decidedly opposed to this view of the matter.

First, both in date and value, are the observations of the veteran naturalist, Dr. Bennett. (See "*Gatherings of a Naturalist*," p. 107, &c.)

Of two German authors, whose books I have, one (Professor Leunis), writes as follows:—"The male has on the hind leg, not far from the foot, a slightly curved movable hollow spur, which opens into a gland, and which may, perhaps, serve some purpose in the animal's connection with the female.

Formerly this gland was supposed to contain poison, which was injected through the spur. But later observations (especially those of M. Verreaux) seem to contradict this theory. Certainly no one has ever seen the animal attempt to use its spur in self-defence."

Very similar to this are the remarks made by the Zoologists of the French Expedition in the "*Astrolabe*," as quoted by Owen. They have reference to the male *Echidna*.

"We have never heard of any accident occasioned by the spur. We ourselves touched and irritated the animal without its once attempting to defend itself by this instrument. No, not even when we made use of considerable pressure." Brehm, the other German author alluded to, contents himself with quoting Bennett. Owen and Waterhouse follow the same leader.

In fact, the question is surrounded with difficulties, and cannot be determined in our present state of knowledge.

If we admit the possibility of the venom theory, then we have in *Ornithorhynchus* a perfectly unique example, that of a mammal, or warm-blooded animal being endowed with poisonous properties. It is true, that in its "sternal" apparatus, this animal comes very near to the Lizard; and knowing, as we do, how closely allied are Saurians and Ophidians, we may, perhaps, see no difficulty in looking upon the Platypus as a distant relation of the latter, and therefore, as having a sort

of family claim to their dangerous mode of defence—the poison bag. But in every other respect the Platypus is a true mammal, though of a very low type; and it is very far from probable, that (out of all that huge and important class) the Monotremes alone should be entrusted with so terrible a weapon. Moreover, the faculty is still further restricted; for you must remember that this privilege is entirely confined to the male. In the young female indeed, a small rudimentary spur exists (as we learn from both Owen and Waterhouse); but this disappears as the animal advances in age; and in mature life its absence is marked by a slight depression.

Moreover, if we are to be in any degree guided by analogy, we should look for the poison bag in the weaker rather than in the more powerful sex. At least in the only class in which this means of defence is confined to one of the two sexes (I allude to the insects), it is invariably the female, not the male, which makes its presence felt by its sting. On the other hand I do not give much importance to Dr. Bennett's argument, that he could not *force* the animal to attack him, and that the scratch which he received from the spur, caused him no pain. Nothing is more certain than that the poison of snakes varies in potency at different seasons of the year, and that its virulence depends largely on the circumstances under which it is received.

Baden Powell (in his work called *New Homes for the Old Country*) observes—"That the Platypus does not attack men with his spurs when caught, may perhaps be attributed to the fact that he is then entirely out of his element. In the water possibly he may be able to make good use of an arm, which, if poisonous, would indeed be most formidable. In cases where scratches have been received from the spur without evil effect, the result may be due to the reservoir of the poison being at the time empty, owing to previous struggles."

Making allowance, however, for all theoretical difficulties, how are we to account for the serious swelling and extraordinary effects suffered by Mr. Simson, except on the supposition of poison having been introduced into his system?

I am well aware that wounds from claws are often very disagreeable and lasting in their effects—even in cases (as of the lion) where there is no suspicion of poison. But in the instance before us, the smallness of the wound—a clean puncture, not an irregular laceration—the intensity of the accompanying symptoms, the celerity with which the parts affected were attacked, seem to point to something more potent than the mere tearing of the flesh.

Still all this is circumstantial evidence, and not of a direct nature.

Nor is it perhaps much more to the purpose to ask: If the spur and its accompanying gland are not intended as weapons, what object are they intended to effect. They may be connected with a sexual object, an opinion which Owen is evidently inclined to adopt. The gland is situated very near the organs of generation, and Bennett suggests that the hollow which takes the place of the spur in the female may not improbably serve for the reception of the spur of the other sex.

It is further conceivable that the fluid in the gland may at this time of the year have some peculiarly acrid or irritant property, and when injected into the human body may produce symptoms similar to those of a true poison.

This is emphatically the season of love among the lower animals. Dr. Bennett notes in his dissections of male *Platypi*, that during September and October the testes resembled pigeons eggs in size, whereas later in January and February they were not larger than small peas.

May not the season also account for the ease with which the animal was originally captured, knowing as we do how utterly reckless and blind to danger the lower animals often become under this great excitement, and also for the ferocity which it displayed after it was taken, so different to the stupid demeanour which generally characterises it?

One more suggestion has been made in reference to the use of the spur, which I will give in Baden Powell's words:—"The blunt nature of the spur in older individuals, together with the fact that the *Platypus* is especially fond of cleaning itself with its hind legs, has led some to suppose that the juice ejected from the spur is of use for the toilet. But then why should the male have so great an advantage over the female in the province of hair dressing? Why should the husband have the use of pomade, and possibly insect powder combined, while the wife has to content herself with water and vigorous brushing?" I may add to this that that ornithorhynchian hair oil must be of a singularly acrid and unpleasant nature to produce such effects, when applied inwardly, as we have seen to occur in Mr. Simson's case.

This is all I have been able to bring together anent *Platypus* and his spur, and little enough it is. I dare say when Australia is more settled, and *Ornithorhynchus* has been improved off the face of the earth, biologists will have leisure and thought to bestir themselves to enquire into the matter. Just as now we are searching for Dodo's bones, and writing books about them, and doing work which ought to have been done two centuries ago.

I have recommended Mr. Simson if he captures a second

male Platypus to perform an operation, which I am afraid will not meet with the approval of the anti-vivisectionists of the old country, viz.: to force it to puncture with its spurs, not himself, but a rat or small bird, and to record the effects. This may do something to unlock what is now a decided and unsolvable mystery.



Spicer, W. W. 1876. "On the effects of wounds inflicted by the spurs of Platypus (*Ornithorhynchus anatinus*).*" Papers and proceedings of the Royal Society of Tasmania* 162–167.

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