

know the two words when printed on cards, YES or NO, and after a few weeks' teaching he never mistook them. I have no time now for much teaching; if I had, I am sure it could be done with the dog I now have. The intelligence of cats is greatly underrated. My wife's favourite cat follows her everywhere, and comes when called wherever she may be. Cats, too, are very grateful for kindness. When I went into the Malakhoff I found a cat on whose paw a bayonet had fallen and pinned it to the ground. I released it and took it home, and it always followed me all over the camp till the end of the war. And this cat did as follows. I took her to a doctor of the nearest regiment for two mornings to have her foot dressed. The third morning I was away on duty before daylight, and the cat went herself to the doctor's tent, scratched the canvas to be let in, and then held up her paw to be doctored. The intelligence that can be developed in almost any animal depends in most cases on our treatment of it.

H. STUART WORTLEY

South Kensington Museum, S.W., January 14

Circling to the Left in a Mist

ONE generally reads that persons walking without landmarks perform a large circle and cut their old tracks again. This circling, as far as my present knowledge goes, is to the left.

My present theory is that in most persons the right leg is the stronger and the more forward to step over any obstacles, and hence that it slightly outwalks the left; this theory involving as further consequences that those in whom the left leg is the stronger would circle to the right, while those whose legs are of equal strength would either keep straight on or would wander either way indifferently. I imagine this "outwalking" of one leg by the other to be similar to the manner in which a body of troops wheels to one side or the other.

In the following I use the expression "*right-legged*." By this I mean that the right leg is that chosen to kick with, jump from, &c.

My negative evidence is as follows:—

1. I myself am right-legged, and in a mist I always circle to the left. I have only come across cases similar to my own in these respects. On the other hand, my left arm has been trained (by always rowing on the bow-side) to be stronger than my right for rowing purposes; and in sculling I always circle to my right side.

2. Those savages of whom I have read that they could keep a straight course without any landmark were also represented as using both arms (and legs?) impartially.

I have given the above evidence chiefly to show how weak it is, in the hope that some of your readers will try to collect data of the following nature from any of their acquaintance who have had experience in the matter:—

(a) To which side, if any, do they circle?

(b) Are they right- or left-armed, right- or left-legged? or are the two sides equally strong?

It might also be interesting to learn from boating friends if they have observed any connection between the side on which they have been accustomed to row and the side to which they circle in sculling; such connection as that indicated above.

Finally, I may suggest that more might be known on the question of the heredity of right- or left-sidedness; and as to whether persons are often right-armed but left-legged, &c. But it must be remembered that tendencies of this nature are often "educated out" in childhood.

W. LARDEN

Cheltenham College

THE PORPITIDÆ AND VELELLIDÆ

PROFESSOR ALEXANDER AGASSIZ has quite recently (July) published an important contribution to our knowledge of the morphology and embryology of these families of marine Hydrozoa. This appears as one of the quarto memoirs of the Museum of Comparative Zoology at Harvard College, and is illustrated with twelve plates. While at the Tortugas, during March and April, 1881, examining the structure of the coral reefs, Prof. A. Agassiz took advantage of every possible opportunity of exploring the surface fauna of the Gulf Stream, and when not otherwise occupied he devoted his time to completing the notes and drawings which he accumulated regarding

Porpita and Velella under less favourable circumstances at other points of Florida, at Newport, and on board the *Blake*. These notes are now published as forming the principal points in the natural history of a small and limited group of oceanic hydroids, interesting from their affinities on the one hand to the Tubularians, with which Vogt, Kölliker, and Agassiz were inclined to associate them, and on the other hand with the Siphonophoræ proper, with which they have, however, but little in common. Mr. C. O. Whitman was sent this spring to Key West to complete this memoir, and especially to investigate anew the whole subject of the structure and functions of the so-called yellow cells; but although he spent six weeks at Key West, he was unable to accomplish the object of his trip, as not a single Velella appeared at Key West during the whole of his visit. Under these circumstances Prof. A. Agassiz thought it advisable to at once publish his drawings and notes, completing the descriptive part when the necessary preparations can be finished. The Florida species of Velella (*V. nutica*, Bosc) is much larger than the Mediterranean form (*V. spirans*); specimens measuring nearly four inches in length are not uncommon. On plate 1 is figured in profile and from above and below a huge Velella nearly five inches in length, and in all the glories of its metallic colouring. Thousands of this species are brought by favourable winds and tides into Key West Harbour; they are usually seen in large schools, and although capable of considerable independent movement by means of their tentacles in a smooth sea, yet are they practically at the mercies of the winds and currents. Even moderate waves destroy them in vast numbers. When kept in confinement they soon die, and are rapidly decomposed. The dead floats are thrown ashore in enormous numbers. The large central polypite of the system is the main feeding mouth, but the smaller lateral polypites feed also to a limited extent. All these are connected at their base with the general vascular system, through which as in the polypites the fluids are rapidly propelled by the action of ciliæ lining the inner walls. At the base of the polypite there are, according to its size, from five to eight clusters of Medusæ buds: the small ones already contain the peculiar yellow cells so characteristic of the free Medusæ. The young Medusæ have a very striking resemblance to such Tubularian Medusa as *Esuphysa* and *Ectopleura*. It has like them a row of lasso cells extending from the base of the tentacles to the abactinal pole. The yellow cells are arranged in clusters along the sides of the four broad chymiferous tubes, as well as on the surface of the short, rounded, conical, rudimentary proboscis. The young Medusæ move with considerable activity by sudden jerks. The air-tubes branch much less frequently than is the case in the Mediterranean species. All the Velellæ floats examined were left-handed.

The Florida species of Porpita (*P. linneana*, Less.) is nearly related to but is larger than *P. mediterranea*. It is capable of a considerable control over its movements, and is not stranded at all in the same numbers as is Velella. If upset by wind or waves it can, by the great size and power of its numerous long marginal tentacles force itself back again into its normal position. It does this by bringing its tentacles together over the disk and throwing up the free edge of the mantle slowly in a given direction, then expanding the tentacles of one side far over in the opposite direction beyond the central part of the disk, it readily changes the centre of gravity, and so tilts the overturned disk back again. Round the base of a large central polypite are five to six rows of small, stout, flesh-coloured, feeding and reproductive polyps; these have a slightly rectangular head capable of considerable expansion, with four clusters of lasso cells. At their base are to be found Medusæ buds in all stages of development. When the clusters of these are well developed they completely fill the space between the small