



II. An account of a new method of supplying diving-bells with fresh air

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We are not yet prepared, it is obvious, to give an exact genealogical history of the Indian dog. We are compelled to mix conjecture with fact. The anatomical structure of the animal should be examined. But, whatever may have been the origin of this breed of dogs, I am disposed to think, with Josselyn, that the savages found it in the woods, and that it has existed as a distinct species, or breed, for a very long period of time. Several of the earlier visitors of different parts of North America speak of the existence of wild dogs in the country. Renatus Laudonerius invaded Florida in the year 1564, only a few years after the death of Soto. In his enumeration of the native productions of the country he mentions wild dogs. There is no reason to suppose that he has confounded them with the wolves: for he expressly says that the country produced, beside these dogs, some species of wolves*.

The discoverers of the island of Cape Breton, in the Gulf of St. Lawrence, found in that island black dogs, which, we are informed, the Indians were very careful to bring up to hunting†. I think it probable that both these and the dogs mentioned by Laudonerius were the same as the half-wolf breed which I have described.

[To be continued.]

II. *An Account of a new Method of supplying Diving-bells with fresh Air.* By ROBERT HEALY, A. B.

SIR,

To Mr. Tilloch.

Dublin, Jan. 8, 1803,
43, James's-street.

I TAKE the liberty of communicating an experiment on diving, which was made last August by my father, Mr. Samuel Healy. Should it appear worthy of holding a place in your very useful and instructive Magazine, you are at full liberty to insert it.

ROBERT HEALY.

THE method of supplying a diving-bell with air, which has hitherto been generally adopted, renders it almost impracticable either to descend in water to any considerable depth, or to remain there a length of time sufficient to perform any thing useful. Much inconvenience results from the attention which it is necessary to pay in admitting the supply from the barrels, which are used as reservoirs of air; much also from

* See De Laet's *Novus Orbis*, lib. iv. p. 215.

† See the same, lib. ii. p. 37.

the labour and time which are expended in causing them to reach the bell. The mode of supply which Mr. Healy contrived appears much calculated to remedy these inconveniences. A recital of the circumstances that attended Mr. Healy's experiment, it is hoped, will not prove uninteresting.

Captain Lonsdale, of the *Experiment*, was employed to raise a brig which had foundered, in the year 1799, in the Bay of Dublin, between Dunleary and Howth. This he endeavoured to accomplish by fastening chains round the bow and stern of the sunken vessel, and by connecting to these a ring on each side, through which cables passed, and were lashed at low water across the deck of his ship, that acted as a buoy. Consequently, on the tide rising, if the fastenings had not given way, the floating vessel must either have sunk itself, or drawn the other upwards.

Mr. Healy accompanied captain Lonsdale in this attempt, in order to put in practice his mode of supplying a diving-bell with air. The bell, which resembled a truncated cone, was made of wood, consisting of staves united by cooperage: the mouth was two feet and a half in diameter; the top one foot and a half: the height was four feet. Windows were placed at proper distances round the sides, and one at the top: there was also an aperture in the top for letting out foul air. In the inside was suspended a stage for the purpose of resting on. On the top was fixed an iron eye, through which a cable passed for raising or lowering the bell. This eye was secured to the bell by four iron bars, of an inch square, that went down the sides and lapped under its edges. Within six inches of the bottom was fixed a broad iron hoop, of an inch thickness, from which weights were suspended to sink the bell.

On the ship's deck was lashed a forcing or condensing syringe, capable of containing about two quarts, to which were connected five fathom of iron tube, and to the end of this an equal length of leathern tube that turned into the bell. When the piston was depressed, the contained air passed through the tubes, and was forced into the bell. Thus a constant stream of air was forced down.

Four hundred weight and a half being suspended in the manner described, Mr. Healy was first let down rapidly, when, on signifying his desire of ascending, his wish was immediately complied with. He stated, that great uneasiness was felt, particularly in his ears, from such a sudden descent; that there was sufficient light in the bell to enable him to read by light reflected through the mouth of the bell without removing the shutters of any of the windows; and also that he

he could see a good way down in the water. Having rested a few minutes, and matters being arranged more satisfactorily, he was lowered gradually, and remained stationary about a minute at each fathom's depth; the syringe supplying such a constant stream of air, that the bell was supercharged, and the signal of sufficiency was often repeated. Having been more than half an hour down, and for some time on the deck of the sunken vessel, he gave the signal for ascending, and was drawn up in the same gradual manner in which he had been let down.

He said, that the very instant the mouth of the bell was immersed a noise struck his ears, which went off upon his resting at the distance of a fathom from the surface: the next descent caused the same deafening sensation, the removal of which was effected, to a considerable degree, by repeated yawnings. No inconvenience was felt by his respiring air condensed by the pressure of six or seven fathoms water. A slight giddiness remained a few minutes after his emerging, and the blood-vessels about his face were a little swollen.

In the night, the lashings having given way at high water, one of the rings through which the cables passed fell to the bottom. On the following day he descended, in a gradual manner as before, to the depth of seven fathoms, in order to raise the ring, and remained below for an hour and some minutes. Not the smallest inconvenience was felt in his breathing. After coming up he coughed, and a slight tinge of blood appeared in his spittle. The fullness in his face, as also the giddiness, occurred as in the last experiment. In this the bell did not appear to admit so much light as in the former experiment, although the papers explanatory of the communication of signals by pulling the ropes (which, for precaution, were fixed to the inside of the bell) were still legible. With the syringe one man supplied seven gallons of air in a minute, and, if necessary, could have supplied double that quantity.

The following morning the wind rose to such a degree as to break both the cables and chains that were attached to the sunken ship, and of course interrupted the prosecution of further experiments; which, however, at a future period, Mr. Healy hopes to resume. It is to be wished that other adventurers will make similar attempts, and improve on the hint which this trial affords; for, to use the words of Seneca,

*Patet omnibus ars, nondum est occupata, multum ex illâ etiam futuris
relictum est.*