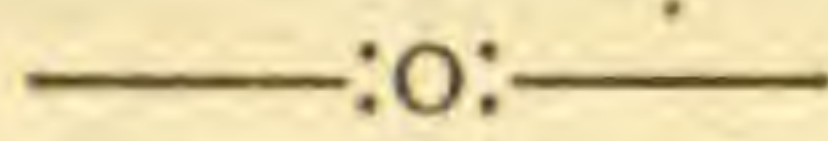


every part. If each one takes this care and is also careful to keep the orchard up to the standard cultivation, this malady, which is troubling our orchardists to such an extent at present, will surely fall and soon become a thing of the past.<sup>1</sup>



## INTELLIGENCE IN A SNAIL.

BY W. H. DALL.

SOME time since a relative told me a remarkable story about a child who had pet snails which recognized her voice and distinguished it from that of others. As such a development of intelligence has not hitherto been reported among mollusks, I was much interested. By the kindness of the lady from whom the story was first heard, and the intervention of Mrs. Lay, wife of Bishop Lay, formerly of Arkansas and now of Maryland, one of the family, who was cognizant of the facts, was reached, and an extract from her letter is appended. I may add that Mrs. Lay speaks in the highest terms of the accuracy and clearheadedness of her correspondent (then and now a resident of Arkansas), and remarks that both she and her sister were remarkable for the ease with which they established friendly and confidential relations with the birds and animals about them. The father of these ladies, whose name I suppress merely because I have not their authority to print it, was chief clerk in the State Department under the secretaryship of Daniel Webster.

The malacologist, familiar with pulmonates, will recognize in the following quotation many facts which indicate the accuracy and unusual powers of observation of the writer. It is probable that the snail was one of the group to which *H. albolabris* belongs, at all events it was a native of Arkansas and one of the larger species. It would be highly interesting if some of our lady friends would repeat the experiment with different kinds of snails, and determine by additional evidence whether they are capable—1st. Of recognizing a call or sound; and 2d. Of distinguishing it from other similar calls or sounds; which the snail in question appears to have done.

<sup>1</sup> Mr. David De Tarr, of the Zoological Department of the State of New York at Albany, and Mr. A. B. Covert, of Ann Arbor, Mich., were, during a part of the time of the above investigation, associated with me. To Mr. De Tarr may be credited the finding and drawing of the fungoid form figured on Fig. 4.

The lady, after stating that her sister Georgie was, from the age of three years, quite an invalid and remarkable for her power of putting herself *en rapport* with all living things, continues: "Before she could say more than a few words, she had formed an acquaintance with a toad, which used to come from behind the log where it lived, and sit winking before her in answer to her call, and waddle back when she grew tired and told it to go away. When she was between five and six years of age, I found a snail shell, as I thought, which I gave her to amuse her, on my return from a picnic. The snail soon crawled out, to her delight, and after night disappeared, causing great lamentation. A large, old-fashioned sofa in the front hall was moved in a day or two, and on it we found the snail glued fast; it had crawled down stairs. I took a plant jar of violets and placing the snail in it carried it to her, and sunk a small toy cup even with the soil, filling it with meal. This was because I had read that French people feed snails on meal. The creature soon found it, and we observed it with interest for awhile, as we found it had a mouth which looked pink inside and appeared to us to have tiny teeth also. We grew tired of it, but Georgie's interest never flagged, and she surprised me one day by telling us that her snail knew her and would come to her when she talked to it, but would withdraw into its shell if any one else spoke. This was really so, as I saw her prove to one and another, time after time. At one time she found a number of eggs. To the best of my recollection they resembled mistletoe berries, though much whiter. They hatched, and she had fifteen or twenty little snails which used to assemble round the cup of meal which had to be frequently replenished. The old snail once fell down on to a brick pavement and its shell was fractured and a small piece lost, but Georgie pasted a piece of calico over the hole and it seemed to do very well. What became of the happy family I do not remember, nor can I tell how long my sister had them. I do not know of any more easily kept pet. If there is anything else which I have forgotten, I shall be happy to write further particulars if I can recollect them."

"Georgie," my correspondent adds, "died about fourteen years ago."

An observer, who noticed and remembered the pink buccal mass, the lingual teeth and the translucent mistletoe-berry-like

eggs, and after such an interval of time could so accurately describe them, is entitled to the fullest credence in other details of the story, and I have no doubt of its substantial accuracy, in spite of its surprising nature.

—:0:—

## BOTANICAL NOTES FROM TUCSON.

BY JOS. F. JAMES.<sup>1</sup>

IT is not very many years since the Territories of Arizona and New Mexico were regarded as the most forbidding countries in the world. Every one who went there carried his life in his hand, and if he escaped the fierce Apaches and returned home with his scalp and a whole skin, he was among the favored of mortals. Within the past five years much of this has changed, and the civilization brought about by the advent of railroads and the influx of determined miners, has been remarkable. A sojourn of some weeks in Arizona, gave me an opportunity to see some of the life of that quarter, and in this paper I purpose speaking of some things to be seen and found there.

The city of Tucson is the largest and most important settlement in Arizona. It is essentially Mexican; settled as long ago as the end of the seventeenth century, it is one of the oldest towns in our country, and from its foundation to the present time, it has continued to be the center of the trade of the Territory. Situated in the midst of the mining regions, it furnishes supplies to mines on the north, east and south, and for the State of Sonora especially, is a depot of supplies. It is estimated that at certain seasons of the year the trade between Tucson and Sonora amounts to as much as a million dollars per month, the imports to the United States consisting of fruits, tobacco and whisky, and the exports of calicoes and other dry goods. These are carried for a distance of 300 or 400 miles on the backs of mules through passes in the mountains, and on account of the extreme duties into Mexico, much smuggling is constantly going on.

The streets of Tucson are narrow and unpaved; many of them are a foot deep in finely powdered dust, and a sudden gust of wind, such as frequently arises, sweeping along the ground, raises a whirling cloud so thick that it is impossible to see across the street. All of the houses are built of "adobe," the Mexican

<sup>1</sup> Custodian Cincinnati Soc. Nat. Hist.