

again at Valparaiso. The trend of the glacial scratches in San Vicente reminds me of a fact I have often observed in New England near the sea shore, where the glacial furrows dip to a considerable extent eastward toward the deep ocean, while farther inland their trend is more regular and due north and south.

While in Talcahuano we have made very extensive collections of littoral marine animals, so that we now have an excellent basis for comparison with the results of the deep-sea dredgings, which Pourtales is going to make between this and Juan Fernandez. I shall make similar collections in Valparaiso, and in order to do so in the short time allowed me I take Dr. Steindachner with me.

I had almost forgotten to say that I have obtained unquestionable evidence of the cretaceous age of the coal deposits of Lota and the adjoining localities north and south, which are generally supposed to be tertiary lignites. They are overlain by sandstone containing baculites. I need not adduce other evidence to satisfy geologists of the correctness of my assertion. I have collected myself a great many specimens of these fossils in beds resting upon coal seams.

L. AGASSIZ

To Prof. Benj. Peirce, Superintendent U.S. Coast Survey

ANATOMY

The Placenta of the "Tamandua" Ant-eater

To the last number of the *Annales des Sciences Naturelles* M. Alphonse Milne-Edwards contributes an important paper upon the structure of the placenta of the "Tamandua" ant-eater (*Tamandua tetradactyla*)—important, at all events, to those who, with us, reckon the *Brula* as one of the most interesting, but, at the same time, spite of Dr. Gray's most elaborate but somewhat intricate arrangement,* least satisfactorily classified groups of the mammalian class.

M. Milne-Edwards, after mentioning his countryman Lenou's division of the ant-eaters proper into three genera—viz., the terrestrial *Myrmecophaga*, and the *Tamandua* and *Cyclothurus* with arboreal habit and correlated prehensile tail, draws attention to the fact that as yet no opportunity has been had of examining the fetal envelopes of the great ant-eater (*M. jubata*), that the placenta of the two-toed genus *Cyclothurus* is described in the *Léçons* as a kind of concave disc, but it has not been determined to what extent the walls of the ovum are occupied by the specialised vascular tuft.

The fetal specimen of the Tamandua examined by M. Milne-Edwards was derived from a female which had come from New Grenada. The placenta is described as situated at the end of a pretty long and cylindrical umbilical cord, in which the vessels did not take any special course. It occupies a considerable extent of the ovum, and though circular and made up of but a single lobe, is of a form too convex (*trop bombée*) to come under the category of the so-called "discoidal" placenta. It would be, in fact, more correct to term it a "placenta discoidale envahissante." It is not made up of single villosities, such as the placenta of Pachyderms, of Camels, and of Tragulines, for the vascular tufts are much crowded together, especially at the central portion, so as to give the organ at this point a spongy appearance. The edges are sharply defined, leaving that portion of the chorion smooth which corresponds to the neck of the uterus. The vascular vegetations do not, in their disposition, remind one in any degree of the reticulated fold and the honey-combed aspect described by Sharpey as occurring in the placenta of the Pangolin. Towards the centre there appeared to be debris of the uterine tissue, suggesting the existence of a "decidua," but on this point there is, unfortunately, no certainty. No trace of an allantois was discovered, from which it is concluded that this fetal appendage must be at least greatly reduced in size. Owing to the long immersion of the animal in alcohol, it was impossible to dissect out the laminae of the envelopes of the ovum, or the factors of the umbilical cord. The internal surface of the chorion is stated to have been perfectly smooth, and not to have presented any of the protuberances which have been observed on that of the Unau.

If the placenta of the Tamandua, remarks M. Milne-Edwards in conclusion, be compared with that of some other members of the groups into which the *Edentata* have been subdivided, we shall not fail to be struck with the considerable differences which seem to exist in the structure of this organ in

the different members of a group considered by zoologists as constituting but a single order.

The figures given by Carus (*Tabula Anatomiam comparativam illustrantes*, Pars. iii., Pl. ix., fig. 15), of the placenta of the Unau, do not, in the eyes of M. Milne-Edwards, resemble that of an ant-eater, of any other kind of *Edentata*, or even of any Mammal.* According to Prof. Owen's description of the placenta of the "Tatou,"—a general term for the Armadilloes—this organ resembles, at least in general form, the discoid placenta of an Insectivore, while that of the Pangolin, described by Huxley "Introduction to the Classification of Animals," p. 98), after Sharpey, presents a third mode of organisation not less distinct from the preceding. The Tamandua, in fine, thinks M. Milne-Edwards, offers an arrangement which, though differing in some particulars from that existing in *Cyclothurus*, seems to be only an exaggeration.

M. Milne-Edwards concludes by putting the pertinent question—"are we to regard this diversity in the order *Edentata* as of less importance than that accorded by naturalists to like variations in the fetal envelopes in other groups of the class Mammalia? or are we to conclude that the different zoological types included by zoologists under the name *Edentata* have less affinity between them than is generally believed, and might be represented in our system of classification by division of a higher character." M. Milne-Edwards inclines—and in this we feel also disposed to follow him—to the latter proposition, and proposes at some future time to discuss and enlarge upon the same.

J. C. G.

METEOROLOGY

On a Meteoric Iron lately found in El Dorado County, California †

FOR my knowledge of the meteoric iron of El Dorado Co., I am indebted to Mr. Alfred Stebbins, librarian of the Mercantile Library Association of San Francisco. A letter from him, dated April 26, inclosed a few grams of turnings obtained during the separation of a slice of the mass destined for the collection of the geological survey now in progress under the direction of Prof. Whitney.

The mass is described by Mr. Stebbins as having the size and shape of a man's head. It was found in a field, and, as usual, was first taken to a blacksmith's shop, where it was soon found to be an unmanageable subject for working, and hence, fortunately, found its way into scientific hands. Its surface possesses the indentations common to these bodies—the crust or coating being partially oxidised. It weighs eighty-five pounds.

I find the turnings to have a specific gravity of 7.80, which may perhaps be a trifle above what the mass possesses, as it is presumable that the turnings have suffered a slight condensation in the process of separation.

The fragments sent are free from all traces of sulphur. A single analysis upon one gram has afforded me,

Iron	88.02 per cent.
Nickel	8.88 "
Insoluble, consisting of a mixture of Fe ₂ O ₃ and FeO, with minute silvery particles of supposed phosphor-metals (Schreibersite) }	3.50 "

The amount of material at command was too small to search for the other metals commonly found in meteoric irons.

SCIENTIFIC SERIALS

Le Moniteur Scientifique, April, 1872. This number commences with a translation of a paper by M. Mayer, on alcoholic fermentation, and on the nutrition of the yeast plant, and is followed by a long dissertation on scents, according to recent discoveries in chemistry and physiology, by M. Papillon. The next is a translation of a lecture by Dr. Hofmann on organic chemistry and therapeutics. The author points out the numerous discoveries which have advanced the science of

* Rapp seems to have made more out of Carus's plates than did M. Milne-Edwards, for he states (*Anatomische Untersuchungen über die Edentaten*, 2^{te} Aufl., p. 103. Tübingen, 1852), that according to the said anatomist, the placenta in this animal is made up of several *coyledons*, which are from half-an-inch to an inch in transverse measurement.

† By Charles Upham Shepard, Sen., Massachusetts, Professor of Natural History in Amherst College. Reprinted from the Amer. Jour. Science and Art.

* "Revision of the Genera and Species of Entomophagous Edentata." Proc. Zool. Soc., April 11, 1865.