The large Barbet of the Himalayas in want of a Name!

By ROBERT SWINHOE, F.Z.S.

It has been usual to refer the large Himalayan Barbet to *Bucco virens*, Scop., and *B. grandis*, Gmel., both of which names were given to a similar bird from China, for which it has been mistaken. On comparing three adult specimens from South China with three from the Himalayas, I find certain constant differences between them. I am of opinion, therefore, that the two races ought to be separated; and as both the names in use were originally applied to the Chinese bird, I would propose to dub the Himalayan species in honour of the Marshalls (Capts. C. H. T. and G. F. L.), who are now engaged in producing an excellent monograph of this family.

MEGALÆMA MARSHALLORUM, sp. nov.

Form and size of *Bucco virens*, Scop. (*grandis*, Gmel.), with longer bill. Feathers of head and neck marked with deep violet-blue instead of greenish azure. Lower hind neck patched with yellow, becoming smaller and confined to centre of feathers as the bird matures; in *B. virens* a few pale streaks only occur. Lesser and greater wing-coverts same colour as the back; in *B. virens* green, as on the outer webs of the secondaries, the former having a large maroon spot on each feather.

In colouring similar in other respects to *B. virens*.

Preliminary Notice of a Ziphioid Whale, probably Berardius Arnuxii, stranded on the 16th of December, 1868, on the sea-beach, near New Brighton, Canterbury, New Zealand. By JULIUS HAAST, Ph.D., F.R.S.

Towards the latter part of December, last year, it was stated that a whale had been stranded on the sea-beach, near the mouth of the Avon. Unfortunately the notice reached me too late to enable me to see the body in its fresh state, and when I went to the sea-beach the blubber had been cut off nearly a week, and the animal was already in such an advanced state of putrefaction that the external appearance was greatly destroyed. Before entering into a description of its affinities and peculiarities, I may be allowed to offer a few observations on its capture.

Mr. William Walker, a fisherman, living near the mouth of the Avon, one mile and a half below New Brighton, observed, on the 16th of December, early in the morning, that a huge animal was in the surf, making the most strenuous efforts to return to deeper water. The fisherman had only a large sheath-knife with him, with which he stabbed it several times, making it bleed very freely. Each time when the surf reached it, it threw out a large quantity of water and sand from its blowers, like a fountain; at the same time it moved its tail with such vehemence that it threw its captor several times when he came too near it. Seeing that he could not manage the large animal by himself, he returned home to fetch a rope, a larger knife, and assistance. After having, with some trouble, placed the rope round the tail, and fastened it securely to the stump of a tree on the

beach, he inflicted with the large knife some deep wounds, from which the blood ran copiously; but the animal, notwithstanding this great loss of blood, still lived for fourteen hours. The fisherman also put a large stick several times into its mouth, which, to use his own words, made the whale "bellow like a bull."

A very interesting fact may be deduced from the observations of Mrs. Walker, who accompanied her husband on the second trip. She told her husband that each time he put the stick into the whale's mouth, she could see several large teeth in front of its lower jaw, which, however, were not observed by any body else, and the existence of which was only revealed when the skull was cleaned, when, in front of the lower jaw, two large triangular and moveable teeth on each side became exposed. It thus seems that the Ziphioid Whales, when defending themselves from their enemies, or attacking their prey, have the power to protrude these four teeth at will. Such an hypothesis gains still more in probability when we consider the nature of the principal food of the animal, which, judging from the contents of its stomach, seems to consist almost exclusively of the common sea-spider, or *Octopus*—a cephalopod which, as in the northern hemisphere, does not seem to be very numerous along the coast. In the stomach of the whale in question there was about half a bushel of the horny beaks of this cephalopod, which were nearly all of the same size. It would be rather difficult for any whale to obtain possession of such an agile animal as the *Octopus*, had not nature furnished the former with the means of taking good hold of it. It is interesting that the allied genera *Ziphius* and *Hyperoodon*, of the northern hemisphere, feed also on similar species of cuttlefish, as I learn from a paper of Dr. J. E. Gray, of the British Museum (Proc. Zool. Soc. 1868, p. 422). Also, the Sperm Whales are said to feed almost exclusively upon the same voracious animal, which, by its agility and organization, is so well adapted to make great havoc amongst the smaller inhabitants of the sea. And, as Dr. Gray justly observes, it proves, at the same time, that these cephalopods, although apparently of rare occurrence, must in many localities be very numerous, as it would otherwise be impossible to understand how they could furnish those huge whales with sufficient food.

When I proceeded to the beach the animal was still lying in the surf, partly covered with sand, but still intact. I measured its length exactly, and found it to be 30 feet 6 inches from the tip of the nose to the end of the lobes of the tail. The colour of the whole animal was of a deep velvety black, with the exception of the lower portion of the belly, which had a greyish colour. The tail was 6 feet 6 inches broad, and had the usual two falcate lobes. The pectoral fins were situated near the neck, a little above the middle of the body, and were 17 inches broad, and 19 inches long. They had a triangular form; and one of them was buried in the sand when I saw the animal first. The dorsal fin was unfortunately destroyed when I first inspected the whale, so that I cannot describe its form and position from my own observations; but Mr. Walker told me that it was small, had the usual falcate form, and was situated not far from the tail.

I may here observe that, from the form of the skull and some other

characteristics, it appears evident that this whale is the *Berardius Arnuxii* of Duvernoy, of which a specimen was caught in 1846, in Akaroa harbour, the skull of which, of the length of four feet, is at present in the Imperial Museum, in Paris. The animal to which it belonged is described as having been 32 feet long, and possessing a large dorsal fin, with a large boss or hump in front of it. As putrefaction and the cutting off of the blubber had greatly changed the outlines of the animal, I could not observe whether it possessed the larger boss in front. Mr. Walker did not speak of it when he gave me a description of the animal as it appeared when captured. However, as the figure of the skull, as given by Duvernoy in the 'Annales des Sciences Naturelles,' and copied into Dr. Gray's British-Museum 'Catalogue of Seals and Whales,' is identical with that of our own specimen, I do not hesitate to state that both belong to the same species. It also seems to me that this whale is very local, probably inhabiting only the coast of New Zealand, and perhaps the regions south of it, because, as far as I can find, it has never been observed elsewhere. It has without doubt not been met with on the coasts of Australia, or it would not have passed unnoticed, as, amongst others, the energetic director of the Australian Museum, Gerrard Krefft, F.L.S., has not observed it. I may here state that the form of the skull is very peculiar, reminding one strongly of that of a dolphin.

There seems to be nothing known of this peculiar whale, except its external appearance and its skull; and it is therefore a matter of congratulation to us that we shall be able to supply all the details of its osteological characteristics, which are peculiar in many respects.

The specimen in our possession was evidently a young animal, because all the disk-like epiphyses of the vertebræ are still detached. The same is the case with the epiphyses of the limb-bones, which are not yet united with them; also the sutures of the cranium are not yet obliterated. The beginning of coalescence is, however, to be observed in the seven cervical vertebræ, of which the first three are already ankylosed, the first two completely, and the second and third only partially, as the neural arches and transverse processes are not yet united in one bone. In the allied *Hyperoodon* all the cervical vertebræ coalesce; and it is therefore possible that when *Berardius* is in an adult state the same will take place. The *Ziphius* has six cervical vertebræ separate; and it will therefore be necessary to examine very carefully into the character of the uncoalesced vertebræ of our skeleton before giving a decided opinion upon the subject. It possesses ten dorsal vertebræ, in common with *Ziphius sowerbiensis*; the *Hyperoodon* whales have nine, and the dolphins thirteen to fifteen. I have not yet been able to count and examine the lumbar and caudal vertebræ, as the animal was in such a state of putrefaction that, after cleaning the bones as well as possible and leaving often a great portion of the vertebral column together, we put them at once to macerate. We obtained only one of the small pelvic bones, the other having probably been washed away by the surf; it might, however, owing to its diminutive size and sticking loosely in the flesh, easily have been overlooked. As soon as the

bones are clean, so that I can examine them, I shall offer a few more observations upon the osteology of this remarkable animal, for the complete skeleton of which the Canterbury Museum is indebted to the members of the Philosophical Institute, without whose pecuniary assistance I should have been unable to secure it for the Provincial collections.—*Proc. Phil. Institute of Canterbury, New Zealand*, May 5, 1869.

On the Heat evolved by Invertebrate Animals, especially Insects.

By MAURICE GIRARD.

M. Girard's memoir commences with a very interesting historical account of the numerous investigations that have been made upon this subject, in which he dwells especially upon the researches of Newport, the most remarkable that we at present possess. On the other hand, he is severe upon Dutrochet, to whom he thinks M. Gavaret has ascribed too much importance; and he brings to light the investigations of Dubost (1800), which have been unnoticed notwithstanding the scientific precision with which they were conducted.

M. Girard's own researches have been made by means of very various processes. He has employed the mercurial thermometer, the little bulb of which he has succeeded in introducing into the rectum of caterpillars and other insects without injury to the animal. He has also made use of the differential thermometer of Leslie, in which he made a modification necessary for his experiments. One of the bulbs presents a deep interior cavity, so that the volume of air contained in the concentric zone is equal to that of the volume of air in the other bulb. The contracted orifice is closed by a cork furnished with a tube, through which air enters and escapes freely. The insect to be experimented on is introduced into this cavity with the precautions necessary to avoid the falsification of the result. M. Girard has also employed thermo-electric needles formed of iron and copper, or, still better, of iron and platinum, such as have already, in the hands of M. Becquerel, done good service in the study of animal heat. Lastly, M. Girard has used the thermo-electric piles of bismuth and antimony, which, since their invention by Melloni and Nobili, have undoubtedly excelled all other calorimetric methods by their exquisite sensibility.

Without going into the details of M. Girard's experiments or indicating the minute precautions taken by him to render their results certain, we may indicate some of his most novel conclusions.

Adult insects, even when sleeping or very weak, never present a diminution of the temperature of the surface of their body below the surrounding temperature. The larvæ and pupæ of insects with an imperfect metamorphosis behave, in this respect, like the adults. Like them, they always present an elevation of temperature above that of the surrounding air, or at least a temperature equal to that of the latter. This is not always the case in insects with a complete metamorphosis. The author has frequently ascertained in caterpillars with smooth bodies that the surface descends below the temperature of the surrounding air, which shows that the evolution of heat by the respiratory combustion may be insufficient to com-

Haast, Julius von. 1870. "Preliminary notice of a Ziphioid Whale, probably Berardius Arnuxii, stranded on the 16th of December, 1868, on the sea-beach, near New Brighton, Canterbury, New Zealand." *The Annals and magazine of natural history; zoology, botany, and geology* 6, 348–351.

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