a list of the species of whales according to the countries in which they have been observed.

XIII.—*Notes on the Whales and Dolphins of the New-Zealand Seas.* By Dr. James Hector, F.R.S. *With Remarks by* Dr. J. E. Gray, F.R.S. &c.

1. *Neobalæna marginata*, Gray.

The tympanic bone of the type of this species in the Colonial Museum agrees exactly with the ear-bone on which is founded *Caperea novæ-zealandiæ*, Gray (Cat. Seals & Whales, p. 101).

Practical whalers, after examining the baleen of this whale, affirm that it is the Fin-fish or Sulphur-bottom, and that it grows to an immense size. It is not the Finner, which has the dorsal fin further back. They judge by the colour of the baleen.

2. *Eubalæna australis*, Gray. (The Black Whale.)

Balæna antipodarum, Gray.

Whalers do not distinguish two species; and if the tympanic bone of the second species cited belongs to *Neobalæna marginata*, there is no evidence that the Black Whale of New Zealand is different from that of the Cape.

3. *Megaptera novæ-zealandiæ*, Gray.

This species is also founded on a tympanic bone. A whale, 34 feet long, with a *falcate* dorsal fin, stranded in Wellington Harbour, has a similar ear-bone, and may be this species. The bones were unfortunately lost.

4. *Physalus australis*, Gray.
(The Southern Finner or Razor-back.)

Physalus antarcticus, Gray.

The only reason given for distinguishing the above is the colour of the baleen. Whalers state the baleen of the Finner to be very variable in colour, even from the same individual.

5. *Catodon macrocephalus*, Lacép. (The Sperm-Whale.)

Several varieties of teeth are in the museum, and must belong to different species.

6. *Delphinus novæ-zealandiæ*, Quoy & Gaim.

A skull of this species in the museum has the intermaxillary

plates united, so as to form the nasal groove into a tube throughout two thirds of its length.

7. *Delphinus Forsteri*, Gray.

A skull in the museum agrees in its dentition with this species. It differs from the preceding species in the greater proportional width of the beak and more perpendicular forehead, the width of the middle part of the beak being contained four times in the length from the notch, while in *D. novæzealandiæ* it is six times.

8. *Electra clancula*, Gray.

The generic character requires to be amended by leaving out the second dorsal lobe, which is not present in this species.

9. *Pseudorca meridionalis*, Flower. (Tasmanian Blackfish.)

An imperfect skull found in Lyall Bay appears to belong to this species.

10. *Grampus Richardsoni*, Gray.

A lower jaw found on the Munawutu beach agrees with this, except that it has only three instead of four teeth on each side.

11. *Beluga Kingii*, Gray.

A very imperfect skull, in the collection of the late Mr. Swainson, appears to resemble this species. A large white Porpoise is frequently seen at certain seasons in Blind Bay, and may be this species.

12. *Globiocephalus macrorhynchus*, Gray.
(New-Zealand Blackfish.)

Several skulls, more or less perfect, are in the museum, one from the Chatham Islands.

The same trivial name (Blackfish) is also applied to a small species of Sperm-Whale.

13. *Epiodon chathamiensis*, sp. nov.

Beak of skull tapering, callous, with a slight upward curve. Vomer forming a posteriorly truncate callous ridge, depressed between the intermaxillaries. Upper jaw toothless. Lower jaw elongate, bent up, truncate, with two terminal, short, subcylindrical teeth in shallow sockets, and in front of a long dental groove.

Skull: Chatham Islands (coll. G. H. Travers).
Weight of teeth 817 and 836 grains.

	inches.
Total length	36
Width at orbits	20
„ notch	12
Length of beak	18
„ brain-cavity	6
„ sperm-cavity	12
„ lower jaw	30
Height of ramus	7

The beak is trigonal, three times as long as the brain-cavity measured internally. The vomer is not observed in the profile as in *Petrorhynchus capensis*; otherwise the general structure of the skull agrees with that species. The teeth are ground down, each with two lateral facets and a central ridge; as these teeth, when the mouth is closed, are beyond the lower jaw, there is probably a callosity on the upper lip against which they are applied.

Two teeth of another individual are in the museum, with triple facets.

This species may be the same as *Epiodon australis*, Burm., of which I have no description.

14. *Mesoplodon Layardii.*

Lower jaw with teeth: Chatham Islands (coll. G. H. Travers).

Total length 33 inches; symphysis one third of total length. Hinder edge of the teeth is 18 inches from the condyle; and their length along the jaw is 5 inches, the anterior margin being in advance of the commencement of the symphysis; no notch on the edge of the jaw posterior to the teeth. The teeth are 6 inches long, 3 inches wide, and $\frac{3}{4}$ inch thick. The acute point in the upper and forward angle is very marked; there is a deep rough notch worn on the anterior margin; and the compressed root of the tooth shows seven distinct fangs. The teeth are directed obliquely backwards and inwards, but do not approach so as to close over the beak, as described in the type of the species (Cat. Seals & Whales, p. 353).

15. *Berardius Hectori*, Gray. (Scamperdown Whale.)

Berardius Hectori, Gray, Ann. & Mag. Nat. Hist. viii. p. 116 (August 1871).
Mesoplodon, sp., Flower, Nature, Dec. 7, 1871, p. 105.

Teeth $\frac{0}{2}$. Body fusiform; head rounded, beaked; upper lip long and flexible; eye halfway between angle of mouth and

pectorals, which are small; dorsal over the tail; tail-lobes large, falcate.—*Knox.*

Skull globular, with a slender conical beak. The intermaxillaries form thin linear callous plates, incurved over a deep groove that extends back from the snout to the blow-holes, as in Dolphins; they then expand to form a flat lunate area in front of the blow-holes, and rise behind to form moderate knob-like crests that are separated by a notch, owing to the feeble development of the nasals. The maxillaries commence as lateral plates some distance from the top of the beak, but expand behind into slightly concave areas. The blowers are straight, vertical, and almost equally developed.

Before I had seen *Berardius Arnouxii* I took this for the young of that species; but it differs in the presence of crests over the blow-holes, feeble nasals, narrower beak, and more compressed teeth.

The tympanic bones of the two species have a close resemblance.

A second, fragmentary skull, of exactly the same form and dimensions as that described above (see also Trans. N.-Z. Inst. vol. iii.), has been lately obtained in a sandy deposit near Wanganui.

16. *Berardius Arnouxii*, Duv.

Ziphioid whale with skull like a Porpoise.

The specimen in the museum has the first three cervicals united, and the fourth united by the neural arch.

The preceding species has the first two thoroughly united and the third by its spines; the rest are free, not united, as might be inferred from the description (Trans. N.-Z. Inst. iii. p. 129), where the term combined cervical vertebræ referred only to the manner in which they are sketched.

Remarks on some of the Species in the foregoing paper.

By Dr. J. E. Gray, F.R.S. &c.

This paper was received from Dr. Hector yesterday morning (December 26, 1872). As it is marked "abstract," probably it refers to a paper that he has sent to the New-Zealand Institute. He does not say, in his letter on other subjects which accompanies it, what I am to do with it; but I suppose it is sent for publication in the 'Annals,' as others received in the same way.

It contains many most valuable observations, and adds considerably to our knowledge of the Cetacea of the southern regions; it is very interesting as confirming the existence of the genera *Grampus* and *Beluga* in the southern or Antarctic

seas. It is accompanied by tracings of the skull of *Epiodon chathamiensis*, of the lower jaw of *Mesoplodon Layardii*, of the ear-bones (represented half the natural size) of *Neobalæna marginata*, *Megaptera*?, *Berardius Arnouxii*, and *Berardius Hectori*.

1. *Neobalæna marginata.*

The discovery that the baleen named *Balæna marginata*, and that the ear-bones on which I first established the genus *Caperea*, belong to this whale is entirely due to Dr. Hector; and I gladly accept the correction, although it has always appeared to me that the baleen is very narrow and long for a whale with such a broad upper jaw compared with that of the northern Right Whale; but that may be a peculiarity of the group. The combination of characters thus brought together indicates an entirely new group of whales, which I propose to call *Neobalænidæ*.

The form of the skull and ear-bones is peculiar and very different from that of any known group of Cetacea; and I have always found that the characters derived from these parts are connected with peculiar modifications of the external form. The removal of the ear-bone of *Neobalæna* from the family Balænidæ makes the character from that bone in that family as uniform as it is in the other families of Balænoidea. In form and structure the whalebone is finer, but very similar to that of the Greenland Right Whale, and shows an affinity of this family to the Balænidæ; but the structure of the head is more like that of the Physalidæ, as far as we can judge from the figure, never having had an opportunity of seeing the skull itself. The dilated character of the lower jaw is very peculiar, and no doubt characteristic. The face, or rather maxillæ and intermaxillæ, is broad for a whale having such long and slender baleen.

We await the discovery and the description of the complete *Neobalæna* with great anxiety. If it is the Sulphur-bottom or Fin-fish it will be even more interesting, as removing that often-mentioned and hitherto undetermined whale from our books.

The synonyms will therefore run thus:—

Balæna marginata, Gray, Zool. Erebus & Terror, p. 48, t. 1. f. 1 (baleen only).

Caperea antipodarum, Gray, P. Z. S. 1864, p. 202, fig.; Cat. Seals & Whales, p. 101, f. 9 (ear-bone only); part only of Suppl. Cat.

Neobalæna marginata, Gray, Ann. & Mag. Nat. Hist. 1870, v. p. 221, vi. p. 155, figs. 1 & 2; Suppl. Cat. p. 40, figs. 1 & 2 (skull only).

I applied the name of *C. antipodarum* to this species, believing it to be the Black Whale of New Zealand, of which Dr. Dief-

fenbach had brought such an accurate figure ; and I was confirmed in thinking that it was the same as the skeleton from New Zealand which was in the Paris Museum, by the observations of Milne-Edwards, Professor Lilljeborg, and Van Beneden, who, though the skeleton had lost its ear-bones, seemed to feel no doubt that it was the skeleton of the whale the ear-bones of which I figured. I have never seen the skeleton myself; for when I was in Paris they considered the skeleton a duplicate of the one they had set up, and not worth my seeing.

I think it better to retain the name of *Neobalæna* for this genus. The genus *Caperea*, though first established on the ear-bone of this genus, has had its character enlarged by the study of the Paris skeleton ; and it would produce less change of name to retain *Caperea* for the whale the skeleton of which is at Paris ; otherwise we should have to form a new name for that genus ; but doubtless there will be some one who, wishing to append his name to a new-named old genus, will give it another appellation.

As the specimen in the Paris Museum has lost its ear-bones, M. van Beneden has added to the figure of that skeleton the figure of some ear-bones, said to have come from New Zealand, in the Belgian Museum. Now, as there are at least two Black or Right Whales with very different shoulder-blades that inhabit the seas of New Zealand, it is not possible to say to which of these species the specimens figured by M. van Beneden belong.

2. *Eubalæna australis.*

There are at least two Black Whales in New Zealand ; and as yet I have no evidence that the *Eubalæna australis* has been taken in New-Zealand seas. It is doubtful to which of the two Right Whales the animal figured by Dr. Dieffenbach really belongs. I applied to this figure the names of *Balæna antipodarum* (Dieffenb. New Zeal. t. 1) and *Balæna antarctica* (Voy. Erebus and Terror, t. 1); but as this has been applied to the skeleton of the New-Zealand whale in the Paris Museum by M. Milne-Edwards, Prof. Lilljeborg, myself, and M. van Beneden in his 'Ostéographie des Cétacés,' I believe it will be better to retain it for that species. The form of the bladebone, which is different from that of all the other Right Whales known, is not likely to be connected with a change in the external form of the animal.

The synonyms will run thus :—

Balæna antipodarum, Gray, Dieffenb. New Zeal. tab. 1 (animal).
Balæna antarctica, Gray, Zool. Erebus & Terror, Cet. p. 16, tab. 1 (animal, not Lesson nor Owen).

Caperea antipodarum, Lilljeborg; Gray, Cat. Seals & Whales, p. 371, Suppl. p. 45 (not ear-bones).
Balæna antipodarum, Van Beneden, Ostéog. Cét. tab. 3 (skeleton; ear-bones doubtful).

The second Black Whale is *Macleayius australiensis*, a skeleton of which is in the British Museum (noticed in the Ann. & Mag. Nat. Hist. 1873, vol. xi. p. 75), and which is described and will be published in the 'Proceedings of the Zoological Society' for 1873. It was sent from the coast of Canterbury, New Zealand, as *Balæna antipodarum*, by Dr. Haast. I at first thought, from the similarity of the ear-bones, that it was the *Eubalæna australis*; but it is extremely different from this.

3. *Megaptera novæ-zealandiæ.*

The whale stranded at Wellington Harbour with "a falcate dorsal" is most probably a *Physalus*; for the peculiar character of *Megaptera* is to have merely a hunch instead of a dorsal fin, and elongate pectoral fins. The ear-bones of *Megaptera* and *Physalus* are nearly similar; and therefore it is most probably *Physalus antarcticus*. The colour of the baleen may vary, as the whalers say the character and texture are very different—so distinct that a dealer in these articles can distinguish the baleen of the Finners of the different countries, and they fetch different prices.

8. *Electra clancula*, Gray.

I do not know what Dr. Hector's remark refers to; perhaps it does not refer to my description. I published a description and figure which Dr. Hector sent to me in the 'Ann. & Mag. Nat. Hist.' 1872, ix. p. 436, fig.

10. *Grampus Richardsoni.*

The number of teeth varies in the different specimens of the European species.

13. *Epiodon chathamiensis*, and
14. *Mesoplodon Layardii.*

I have not seen the skull of *Epiodon australis*; but as yet I have never seen a species of whale or seal common to the coast of South America and New Zealand. It may be different with the Cape of Good Hope and Australia and New Zealand; but I have seen no decided instance of the same species occurring in two countries; therefore I can give no decided opinion respecting the jaw of *Mesoplodon Layardii.*

At the same time I may observe that the *Mesoplodon Layardii*, or, as I should call it, *Dolichodon Layardi*, has a much

longer and more attenuated lower jaw, and much slenderer teeth, than the Chatham-Island specimen, figured and described by Dr. Hector under that name; and I have very little doubt in my own mind that the Chatham-Island specimen will be found, when more perfect specimens are obtained, to be the representative of a very distinct species of *Dolichodon*, which I would propose provisionally to designate as *Dolichodon Traversii*—a curious comment on the comparative anatomists, who think that *Dolichodon Layardi* of the Cape, *Callidon Güntheri* of New South Wales, *Petrorhynchus capensis* of the Cape, &c. "all differ in so trifling a degree as not to exceed the range of individual variations one often meets with in comparing a series of skulls of the same species." Surely the author means of the same domestic animals, and entirely leaves out of the question the experience gained by the study of wild ones and the evidence afforded by the study of their geographical distribution.

I must think that when these authors become more experienced they will wish their observations to have a "tacit burial and oblivion," and perhaps themselves learn how to define genera and species.

15. *Berardius Hectori.*

I know nothing of this skull except from Dr. Hector's figures and description: and the skull has never been in England; so that I do not think that any comparative anatomist has had the opportunity of seeing it. Dr. Hector considered it the young of *B. Arnouxi*. I at once saw that it was different; but as it has the teeth in the front of the jaw like *Berardius*, I considered it best (and am still of the same opinion) to retain it in that genus, with which it agrees in the position of its teeth as developed in the adult animal, and in geographical distribution; and Dr. Hector's tracings of the ear-bones of the two species show that there is a great affinity between them in the very peculiar manner in which those bones are dotted. I consider the position of the teeth a more important zoological character than a slight difference in the "conformation of the naso-premaxillary region," a part that, as every zoologist who has examined several skulls of different ages in the same species of Cetacea knows, is very apt to vary; but when a comparative anatomist draws his conclusions from figures, or the examination of a single specimen of a group, he is often liable to be misled as to the value of the characters to which he attaches much importance. Nothing showed this better than the published results of the labours of a comparative anatomist who has named, but not defined, a multitude of species and genera from

fragments of fossil bones, but who when he attempted to name recent skulls, as of crocodiles (of which he has perfect specimens under his eyes), named, described, and published what are now regarded as three distinct species in one case, and two distinct species in another, under the same name, and, on the other hand, a series of skulls of the same species under three different names (see Trans. Zool. Soc. vi. 1869, p. 127), and who mixes up together under one name the skulls of two such large and distinct animals as a one-horned and a two-horned rhinoceros as a double-horned one (see Proc. Zool. Soc. 1867, p. 1015). I need not (but could) refer to many more instances of the same kind. I am in the habit of estimating, from what is written about what I know, the reliance I may place upon what is written of what I do not know, and have thus lost my confidence in this author's writings on zoological questions.

It is an old complaint that persons will write about what they have a limited knowledge of. Thus the comparative anatomists are always giving their opinions on the limits and definitions of genera and the names that ought to be used—subjects not much in their way, and on which they have very crude ideas. What would they say if a zoologist interfered with their anatomical details, their confused nomenclature of bones, and their much controverted homologies? But it is the more remarkable, when we consider how very few animals have been dissected, and how imperfectly those that have been dissected have been described, as is proved by their own papers (see for instance Mr. Clark's paper on the hippopotamus, 'Proc. Zool. Soc.' 1872, p. 185), that an anatomist should leave his subject and diverge to write upon the synonyma of species and the priority of names, all of which is mere compilation on his part.

XIV.—*A Monographic List of the Species of the Genus* Gonyleptes, *with Descriptions of three remarkable new Species.*

By Arthur Gardiner Butler, F.L.S., F.Z.S., &c.

[Plate III.]

Family **Gonyleptidæ**, Wood.

Genus Gonyleptes *, Kirby.

1. *Gonyleptes horridus.*

Gonyleptes horridus, Kirby, Trans. Linn. Soc. xii. p. 452, pl. 22. fig. 16 (1818).

Gonyleptes curvipes?, Koch (nec Guérin), Arachn. vii. pl. 224. fig. 555 (1839).

Hab. "Brazil" (*Kirby*); Surinam. One example. B.M.

* I take this genus in its restricted sense, as used by Gervais ('Aptères,' iii. pp. 102–105). Wood, in his recent papers on Gonyleptidæ and Phalangidæ, applies it equally to *Goniosoma* and *Cosmetus*!