brought to me at Wamba, Plateau Province, on 2 April, 1938. One of these was kept for four days; it refused ants, but ate locusts with relish. The note was a loud, insistent "piu-piu-piu-piu-piu."

Dendropicos lafresnayi zechi.

The ovaries of a female shot at Kutura, 10° 30′ N., 7° 30′ E., on 19 February were beginning to enlarge. The only other bird secured was at Fadan Karshi, 9° 30′ N., 8° 40′ E.

Yungipicus obsoletus obsoletus.

A male with small gonads was shot at Kafanchan on 20 November.

[To be continued.]

XL.—*Antarctic Ornithological Observations made during Bellingshausen's Voyage of Circumnavigation in* 1819–1821. By Brian Roberts, M.A.

(Plate XV.)

In the year 1819 His Imperial Majesty Alexander Pavlovich, Emperor of Russia, despatched an expedition to explore high southern latitudes, with the special object of proceeding as far as possible towards the South Pole. This expedition was led by Captain Thaddeus von Bellingshausen, who had under his command the corvette 'Vostok' and the sloop 'Mirnyi.'

His official narrative was published in Russian ('Two Expeditions in the Southern Frozen Ocean, and Voyage round the World in the years 1819–21 in the Sloops "Vostok" and "Mirnyi," under the command of Captain Bellingshausen,' 2 vols., St. Petersburg, 1831). The only translations ever published were abstracts in German by Gravelius (1902) and in English by McNab (1909)*. A complete translation of the whole work is now being edited by Professor F. Debenham at the Scott Polar Research Institute, Cambridge. The details

* The main facts of the voyage were summarized in the 'Geographical Journal,' vol. xxi. 1903, pp. 150–159.

of this very important voyage have thus only now become available, and I am indebted to Professor Debenham for the opportunity to draw attention to some interesting ornithological observations which have hitherto been ignored.

In sending out this expedition, the Tzar himself gave instructions that Natural History observations should be made, and for this purpose two German naturalists were appointed—Mertens of Halle and Kuntze of Leipzig. These two gentlemen were to join the expedition at Copenhagen, but when the ships arrived at that port they wrote explaining that such a long voyage demanded much time for preparation ; they found the time insufficient, and so were sorry that they could not come.

Desperate efforts were made to obtain substitutes, first in Denmark and then in England. Bellingshausen obtained an introduction to Sir Joseph Banks, President of the Royal Society, but all his enquiries were unavailing, and he eventually had to sail without naturalists. Bellingshausen wrote : "We have lamented during the whole course of the voyage, and still lament, that two Russians were not selected to carry out the natural history work of the expedition, as we had wished at the beginning, instead of depending on unknown foreigners."

However, in spite of the absence of naturalists, Bellingshausen himself made some interesting notes on birds, and Paul Mikhaylov, artist to the expedition, made some beautiful drawings which were afterwards published in the 'Atlas' which accompanied the official report. A large number of specimens were collected : we read in the first chapter that "Staff-Surgeon Bergh on the 'Vostok' and Dr. Galkin on the 'Mirnyi' willingly undertook the work of skinning and preserving birds during the voyage." And down in the Antarctic, on 25 January, 1820, "Mr. Lazarev showed us the Pestrushky [*Daption capensis*]* and Polar Petrels [*Thalassoica antarctica*], quite excellently stuffed by Dr. Galkin." Some of these specimens were eventually presented to the Museum of the Académié Impériale des Sciences in St. Petersburg. I am much indebted to Madame E. V. Koslov, of the

* All names in square brackets have been added to the quotations by the present writer.

reconstituted Institut Zoologique de l'Académie des Sciences de l'URSS, Leningrad, who made a search for these specimens, and has succeeded in tracing three of them.

In Bellingshausen's narrative there are very frequent remarks about Petrels and Penguins which were seen or shot at sea, but these are mostly indeterminable. Little reliance can be placed on the few Latin names given, as in some cases the accompanying description cannot be made to fit the bird named. It is clear that he experienced some difficulty in assigning the few names which he knew to the large number of different species which he must have seen.

In the southern ocean five groups of islands were visited: South Georgia, the South Sandwich Islands, Macquarie Island, Peter I. Island, and the South Shetlands. The more interesting observations will be noted under these headings, and the remainder grouped under "Observations at Sea." Finally, I append a few notes on the illustrations in the 'Atlas.'

South Georgia.

Bellingshausen spent two days (15 and 16 December, 1819*) coasting along the south side of the island. Although the ships anchored for the night, he apparently made no landing. From his descriptions of the birds which were shot off the island it is possible to identify *Eudyptes chrysolophus*, *Thalassoica antarctica*, *Pagodroma nivea*, and *Pachyptila* sp. He also saw some Petrels which he recognized as the same as the birds referred to by Capt. Cook as "Pintades," and which he renamed "Pestrushky" [*Daption capensis*]. Speaking of the birds seen by some British whalers whom he met, Bellingshausen writes: "They also saw very frequently albatrosses and other sea-birds, but of land-birds only larks [*Anthus antarcticus*] and a kind of pigeon, also called a sheathbill [*Chionis alba*]." The reference to the South Georgia Pipit is interesting. Although noticed by Capt. Cook in 1775, it was not formally described until 1884, when Cabanis named

* The dates given here are those of the original text, which were from the "old style" Julian Calendar. Eleven days must be added to make them correspond with our Gregorian Calendar, the "new style."

it from specimens brought to Europe by the German International Polar Year Expedition of 1882–1883. It is the only land-bird found in South Georgia, and is the most southerly in its range of all known land-birds.

South Sandwich Islands.

This group was first discovered by Bellingshausen, who sailed from north to south along the line of islands from 22 December, 1819, until 3 January, 1820. He landed only on Zavodovski Island, the northernmost of the group. Here the landing party found great numbers of Penguins, which are described as follows: "The penguins were of two kinds; one was a little smaller, and in order to distinguish it from the big variety we called it the 'Common Penguin' [*Pygoscelis antarctica*]. They had black pointed beaks, the upper mandible curving downwards, the neck white underneath with a narrow horizontal black stripe, the back brown, with blue-grey speckles; their flippers are the same colour on the upper surface as the back, while the belly is white and glossy; the flippers underneath are white, with dark pupils. The other kind is larger and more beautiful than the small kind; the beaks, which are a different shape, are red; the eyes are red, with small black pupils; long yellow feathers grow on the head, rather shorter ones on the tail. We called these 'Mandarin Penguins,' on account of the colouring of their plumage. They were the same that we saw before reaching South Georgia. The 'Common Penguins' on shore sat on two eggs; they pursued our officers as they returned to their boats, and were ready to attack them with their flippers, which can deal heavy blows. The 'Mandarins' each had only one egg under them; in appearance they are prouder, quieter, and more peaceful than the smaller penguins."

Bellingshausen's "Mandarins" were undoubtedly Macaroni Penguins (*Eudyptes chrysolophus*), and this is the earliest description of the species which was later named by Brandt from skins which Bellingshausen took home. Plates 10 and 11 of the 'Atlas' are excellent illustrations of *E. chrysolophus* and *P. antarctica* respectively.

Macquarie Island.

Macquarie was sighted at dawn on 17 November, 1820. A party landed at the north end of the island, where they saw "an immense stretch covered with penguins of three kinds." Bellingshausen notes that two of them were the same as he had seen previously off South Georgia. The third was larger, and a good description of the method of incubation shows that this was the King Penguin (*Aptenodytes patagonica*) :— "Mr. Zavodovski noticed that every bird had an egg which it held between its feet, by pressing one end of the egg to the lower part of the body, on which the pressure of the egg makes a small bare cavity, while the other end lies on the feet. In this way the bird holds it fast. In order not to drop the eggs the penguins do not run, but hop on both feet at once." The downy young of the King Penguin was described as "a penguin covered with rough fur similar to that of a racoon, only softer." Zavodovski brought one of these back to the ship together with some Egmont Hens [*Catharacta skua*], Sea-Gulls, and a Parrot which he had shot.

Four species of Penguins are now known to breed on Macquarie Island—*Aptenodytes patagonica*, *Pygoscelis papua*, *Eudyptes cristatus*, and *Eudyptes schlegeli*. The first two also breed at South Georgia, but Bellingshausen evidently thought that the last two and *Eudyptes chrysolophus*, of South Georgia, were all of the same species. It may be noted that plate 58 of the 'Atlas' is of a group of King Penguins on Macquarie Island, and that it gives a much better representation of the bird than most of the illustrations of that period.

This observation of King Penguins breeding at the *north* end of Macquarie Island at the beginning of the nineteenth century is interesting, as the colony was shortly afterwards exterminated by sealers and never re-established itself (Falla, 1937). The only other contemporary account of this colony is by an Englishman, George Bennett* (1834). His remarks are worth including here, since the number which he gave have been misquoted in later transcriptions :—"The number of Penguins collected together in this spot is immense, but it would be almost impossible to guess at it with any near

* Curator of the Australian Museum.

approach to the truth, as, during the whole of the day and night, 30,000 or 40,000 of them are continually landing, and an equal number going to sea. They are arranged, when on shore, in as compact a manner, and in as regular ranks, as a regiment of soldiers; and are classed with the greatest order, the young birds being in one situation, the moulting birds in another, the sitting hens in a third, the clean birds in a fourth, etc.; and so strictly do birds in similar condition congregate, that should a bird that is moulting intrude itself among those which are clean, it is immediately ejected from among them. The females hatch the eggs by keeping them close between their thighs; and, if approached during the time of incubation, move away, carrying the eggs with them . . ."

Bellingshausen made a second landing on 18 November in order to collect water. This time he also saw Albatrosses, Egmont Hens, Gulls, and "Columbine storm birds" [*Pachyptila* sp. ?]—all with eggs. He adds:—"To our surprise we saw a quantity of small parrots, all belonging to one species . . . At five o'clock we returned to the ships with our booty, consisting of two albatrosses, twenty dead and one live parrot, which was sold to me by one of the sealers for three bottles of rum . . . The weather was fine and we brought up to the quarter-deck the numerous birds which we had purchased in Port Jackson. There was another small parrot which had been brought from Macquarie Island to Port Jackson, where I purchased it. This last bird was prized more than all the rest put together . . . Altogether we had eighty-four birds on board the 'Vostok,' and they all made a great deal of noise."

These brief notes on the Macquarie Island Parrakeet, *Cyanoramphus novæzelandiæ erythrotis* (Wagler)*, are of considerable interest, since this bird was confined to the island, and is now believed to be extinct. "Parrots" are mentioned in the accounts of several of the early sealers at Macquarie. They were regarded as good cage-birds and talkers, and were frequently brought back alive to Sydney. In fact, it seems certain that it was this practice which was

* *Psittacus erythrotis* Wagler: Abhandl. Akad. Wissen. Munchen, 1832, p. 426. Type-locality *ex* Vigors, Zool. Journ. i. 1825, p. 529.

ultimately responsible for their extermination. Dr. J. H. Scott (1882) visited the island in 1880 and described the Parrakeets as still occurring "in great numbers round the shore," nesting under tussocks; but since that date there is no reliable record. In view of the prolonged stay of members of the Australasian Antarctic Expedition, 1911–14, who saw no sign of this bird, we can only conclude that it is now extinct. There are two specimens in the British Museum, but the labels record only "Macquarie Island," and that they were purchased from M. Emile Parzudaki in 1859. Madame Koslov informs me that there are now no specimens in Leningrad.

The only contemporary account of the birds of Macquarie which I can trace is in the 'Sydney Journal' of 4 February, 1822, where Thomas Raine gives the following list of the birds of the island known to the sealers at that time :—"Penguins, albatrosses, boobies, the sea or Port Egmont hen, shags, wild duck, teal, several kinds of petrels, parrots, widgeons or tussock-fowl, a kind of bird that cannot fly, and the mutton bird. All the small birds, even the parrot, make their nests underground, so that the declivity of the mountains appears like a rabbit warren."

This list includes the Shag [*Phalacrocorax albiventer purpurascens*], which Bellingshausen does not mention, although he sent to the Museum of the Académie des Sciences in St. Petersburg a specimen which was described seventeen years later by Brandt (1837 *a*)*.

Peter I. Island.

This island was discovered on 11 January, 1821. No landing was made, and the only birds noted in the vicinity were Terns [*Sterna vittata*] and "Pestrushky" [*Daption capensis*].

* *Carbo purpurascens* Brandt (1837) replaces *Phalacrocorax traversi* Rothschild, Bull. B. O. C. viii. 1898, p. 21 (see Ibis, 1935, p. 886.)

The type is now in the Institut Zoologique de l'Académie des Sciences de l'URSS. Madame Koslov writes (December 23, 1938): "There is one specimen of *Carbo purpurascens* provided with a very ancient label. On one side of it we can make out, in Brandt's handwriting, 'Carbo purpurascens. Bullet-Scientif.' On the other side, in another handwriting, 'Phacr. dimidiatus? Nov. Holl? Admiralty.'"

South Shetland Islands.

Bellingshausen coasted along the south side of these islands from 24 to 29 January, 1821. Here Shags [*Phalacrocorax atriceps*] were seen, and on 27 January there is another long note about Penguins: "The penguins which were brought back by the boat were of three species, and among them were some young birds. Throughout our two years' voyage in the ice of the southern seas, where penguins are very numerous, we saw only three species of them, and probably there are no other kinds, for otherwise we should have found them in the neighbourhood of South Georgia, the South Sandwich Islands, Macquarie Island or among the ice-floes, where they are always to be seen in great numbers. Naturalists call the largest species *Aptenodytes magellani**. The heaviest specimen which we came across weighed 59 lb. It had a sharp beak and black feet. Yellow patches extend from the ears on each side to the front part of the neck and merge into the white breast; the back, the back part of the neck, and the head are dark grey-blue. The young ones during their first year are covered with down-like raccoon fur, but softer; at the end of the year this is replaced by the proper sleek feathers of the penguins, first at the tail and then over the rest of the body. We took a stuffed penguin of this kind to the Admiralty Museum in St. Petersburg.

"The square pupils of penguins' eyes are worthy of special note. As the sun's light increases the pupils contract, the edges of the pupil presenting a regular figure formed of four concave curves, with the angles between them becoming more and more acute. In ordinary daylight the pupils are square, and when the light decreases the edges of the pupils become convex, so that finally, as the darkness increases, the pupils become round.

"The second species of penguin [*Eudyptes chrysolophus*] has long, curved, yellow feathers over the eyes. The beak is orange-coloured, and blunter than in the first species; the feathers on the head and on all the upper parts are dark grey blue, and under the flippers white. This penguin also lays

* This name is in Russian type. Bellingshausen did not distinguish between *Aptenodytes forsteri* and *Aptenodytes patagonica*.

only one egg. We called them 'Mandarin,' and naturalists call them 'Jumpers.'

"The third species [*Pygoscelis antarctica*] is much smaller and more frequently seen; they lay two eggs on the soft soil; their beaks are black, a little longer than a crow's; there is a narrow black line on the neck; on the front part and under the flippers the feathers are white, and on the upper parts dark grey blue.

"Young penguins of the last two species are usually covered with thick grey down in the first year . . . The last-named species of penguin has a rather longer tail. All these species of penguin occur in the Straits of Magellan, Tierra del Fuego, South Georgia, Kerguelen Island, Macquarie Island, and in the South Shetland Islands—in short, throughout the whole of the southern part of the temperate zone of the southern hemisphere and the Antarctic circle, but we rarely observed them at a great distance from land or flat icebergs. Considering the structure of the body of the penguin, they would seem little capable of exertion, and choose, therefore, a place where they are likely to be undisturbed, and where they collect in hundreds of thousands. On Zavodovski Island we noted only two species of penguin, the second and the third. They remain in flocks on the land or edge of the ice, each species apart from the other, waving their flippers continuously and making an incessant motion with their tails."

Bellingshausen did not identify either the Adélie Penguin (*Pygoscelis adeliæ*) or the Gentoo (*P. papua*). It is surprising that he did not notice the striking appearance of the former, which he must have seen in the pack-ice; but if he failed to land near a nesting place of the latter it is not so likely that he could have identified one at sea. The main interest of his account lies in the reference to three species of Penguin being captured by the landing party. The largest of these must surely have been the King Penguin, which is no longer to be found in the South Shetlands. There can now be no doubt that they once nested there, for we have confirmatory evidence in the account of James Eights (1833). Eights, who was there with N. B. Palmer in 1830, describes how they could be "seen in great numbers, covering the shores for some

considerable extent." His account of their appearance and habits leaves no possible doubt as to the species, but on the grounds that the South Shetlands are so far from the present range of the King Penguin, this statement has been open to some doubt. Calman (1937) points out that Eights may have watched their habits on Staten Island, and, trusting only to memory when writing up his notes, have mixed the localities which he visited. But it is known that Eights was a careful and accurate observer, so that it is difficult to believe he could have made such an error. The environmental conditions in the South Shetlands seem well suited to King Penguins, and it is easy to understand how they could have been exterminated by sealers, who used to boil down the Penguins for oil.

Observations at Sea.

The only bird identified with a scientific name is *Procellaria pelagica*, which is also called the Storm or Weather Bird. This species is figured in plate 14 of the 'Atlas,' and is clearly *Oceanites oceanicus*. However, there are other birds described which can easily be recognized from excellent detailed descriptions. *Pagodroma nivea* is called the White Petrel, *Catharacta skua* is the Port Egmont Hen, and *Thalassoica antarctica* the Polar Bird or Polar Petrel—in each case following Capt. Cook's terminology.

Three extracts will illustrate typical bird notes :—

30 November, 1820 : Lat. 64° 54′ S., long. 160° 10′ E :—" We saw several dozen Polar Birds on a snow-covered iceberg. Judging by the time of the year they were probably nesting. We saw these birds only in the polar regions, but since the ' Royal ' Penguins hatch their eggs by pressing them against their bodies with their feet, it is probable that these birds hatch their eggs in the same way in their thick down. But our ship was going at a great speed ; the icebergs were inaccessible on account of their vertical sides, and we could not then investigate the matter closely *.

* Bellingshausen comments on the incubation patches on some of these birds, which were shot a few days later. A nesting place of this species was not discovered until 1912, when eggs were found on Haswell Island by members of the Australasian Antarctic Expedition.

An Emperor Penguin (*Aptenodytes forsteri*), weighing 59 lb., was captured on 15 December, 1820, in about lat. 65° S., long. 165° W. Bellingshausen called this a "Royal Penguin," and wrote :—"Strangely enough, we found in its stomach some penguins' claws * and small stones from one to 10 millimetres across, which probably served to promote the digestion. Otherwise the stomach was empty . . . We had already observed that penguins are to be found in the vicinity of seals resting on the ice. Probably they feed on the dung of these animals or are otherwise dependent on them in the same way that pilot-fish are inseparable from sharks."

29 December, 1820 :—"Polar Birds [*Thalassoica antarctica*] began to make their appearance in spite of the fact that we had not yet crossed the Antarctic circle. Where there is plenty of ice these birds appear farther north, but if there is not much ice they are not to be found outside the Antarctic circle."

Notes on the 'Atlas.'

The 'Atlas' of drawings and maps contains twelve uncoloured plates of birds, nine of which are from the Antarctic. They were lithographed by "M. Fritritz," and are described as "drawn from nature by P. Mikhaylov." The artist must have been an extremely keen observer, for the birds are represented in life-like attitudes, and are also notable for the accurate details of plumage and other characters.

The following are brief notes on these drawings. Each has a title in Russian, which has been transcribed according to the rules of the British Academy Transliteration of Slavonic (Proc. Brit. Acad. vol. viii.). I am indebted to Dr. E. J. Lindgren for these transcriptions. The Latin names, in heavy type, are those at present in use for the species, which are nearly all easily identifiable from the illustrations.

Plate 10.—**Eudyptes chrysolophus** (Brandt), 1837. (Pl. XV., *d*.)

Russian : "Khokhlaty Pengvin" (=Crested Penguin).

Six years after the publication of this illustration, Brandt (1837 *a*) described *Catarhactes chrysolophus* from a specimen in the Museum of the Académie Impériale des Sciences.

* Cephalopod beaks ?

Madame Koslov tells me that two specimens still exist in Leningrad, and that although both are without labels, she believes that they must have been collected by Bellingshausen. The Falkland Islands have always been quoted as the type-locality of *chrysolophus*, but Bellingshausen never visited these islands, and Brandt published no locality with his description. The specimens must have been taken either at South Georgia, the South Shetlands, or the South Sandwich Islands. I would therefore suggest the substitution of South Georgia as the type-locality of *Eudyptes chrysolophus*.

Plate 11. **Pygoscelis antarctica** (Forster), 1891. (Pl. XV., *c*.)

Russian : " Pengviny " (=Penguins).

Two birds standing on a block of ice.

Plate 14.—**Oceanites oceanicus** (Kuhl), 1820.

Russian : " Pogodovestnik." (In a Russian–German dictionary this is given as the name of *Procellaria pelagicus*.)

Plate 15.—**Daption capensis** (Linné), 1758. (Pl. XV., *a*.)

Russian : " Pestrushka " (" Pestry "=spotted).

Plate 16.—**Diomedea melanophris** Temminck, 1828.

Russian : " Diomedea Albatros."

Plate 17.—**Phœbetria** sp.

Russian : " Bury Albatros " (=Brown Albatross).

Plate 18.—**Pachyptila** sp.

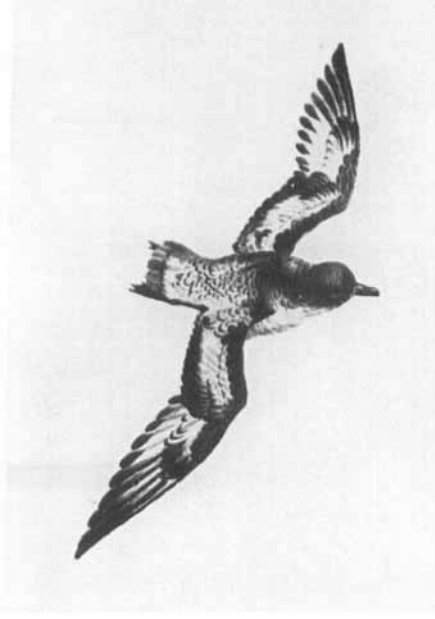
Russian : " Golubaya Burnaya Ptitsa " (=Columbine Storm Bird).

Plate 19.—**Thalassoica antarctica** (Gmelin), 1789. (Pl. XV., *b*.)

Russian : " Yuzhnaya Polyarnaya Burnaya Ptitsa " (=South Polar Storm Bird).

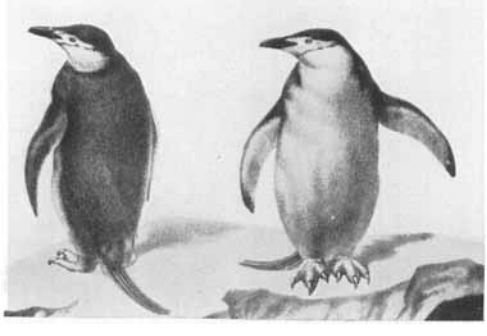
Plate 24.—**Sericulus chrysocephalus** (Lewin), 1808.

Russian : " Ptitsa Prints Regent " (a phonetic transcription of " Prince Regent Bird." The figure is of an adult male).



a. *Daption capensis.*

b. *Thalassoica antarctica.*



c. *Pygoscelis antarctica.*

d. *Eudyptes chrysolophus.*

Plate 25.—**Tropidorhynchus corniculatus** (Latham), 1790.

Russian: "Ptitsa Abat" (a phonetic transcription of "Abbot Bird"=Friar Bird. The figure is of an adult female).

Plate 26.—**Malurus cyaneus** (Latham), 1783.

Russian: "Prekrasny Pevets" (literally "Wonderful Singers"=Superb Warbler. The male and female are shown).

Plate 58.—**Aptendodytes patagonica** J. F. Miller, 1778.

A group of King Penguins and Elephant Seals (both unnamed) on the isthmus at the north end of Macquarie Island.

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