common seal *(Phoca vitulina)* is a constant resident in all suitable localities round the Scottish, Irish, and English coasts, from which it has not been driven away by the molestations of man. Although, naturally, the most se­cluded and out-of-the-way spots are selected as their habitual dwelling-places, there are few localities where they

may not be occasionally met with. Within the writer’s knowledge, one was seen not many years ago lying on the shingly beach at so populous a place as Brighton, and another was lately caught in the river Welland, near Stam­ford, 30 miles from the sea. They frequent bays, inlets, and estuaries, and are often seen on sandbanks or mud­flats left dry at low tide, and, unlike some of their con­geners, are not found on the ice-floes of the open sea, nor, though gregarious, are very large numbers ever seen in one spot. The young are produced at the end of May or beginning of June. They feed chiefly on fish, and the destruction they occasion among salmon is well known to Scottish fishermen. The common seal is widely distri­buted, being found not only on the European and American coasts bordering the Atlantic Ocean but also in the North Pacific. It is from 4 to 5 feet in length, and variable in colour, though usually yellowish grey, with irregular spots of dark brown or black above and yellowish white beneath. The grey seal *(Halichœrus grypus)* is of considerably larger size, the males attaining when fully adult a length of 8 feet from nose to end of hind feet. The form of the skull and the simple characters of the molar teeth distinguish it generically from the common seal. It is of a yellowish grey colour, lighter beneath, and with dark grey spots or blotches, but, like most other seals, is liable to great varia­tions of colour according to age. The grey seal appears to be restricted to the North Atlantic, having been rarely seen on the American coasts, but not farther south than Nova Scotia ; it is chiefly met with on the coasts of Ire­land, England, Scotland, Norway and Sweden, including the Baltic and Gulf of Bothnia, and Iceland, though it does not appear to range farther north. It is apparently not migratory, and its favourite breeding places are rocky islands, the young being born in the end of September or beginning of October.

Other species of seals inhabiting the northern seas, of which stragglers have occasionally visited the British coasts, are the small ringed seal or “ floe-rat ” of the sealers *(Phoca hispida),* the Greenland or harp seal *(Phoca grœnlandica),* the hooded or bladder-nosed seal *(Cystophora cristata),* and possibly the Bearded seal *(Phoca bar­bata),* though of the last there is no certain evidence. The general characters and geographical distribution of the remaining species of the group are indicated in the article Mammalia, vol. xv. p. 442. (w. h. f.)

Seal Fisheries.

From a commercial point of view seals may be divided into two groups, —hair seals and fur seals. The former are valued for the oil they yield and for their skins, which are converted into leather, and the latter for their skins alone. The fur seals are provided

with a dense soft under-fur like velvet and a quantity of long loose exterior hair, which has to be removed in dressing the hides. Hair seals are either entirely without under-fur or possess it in too small a quantity to render the skins of much commercial value as furs. The two groups correspond to the two divisions of eared seals and earless seals described above (see also vol. xv. pp. 442-443). @@1

*Hair Seals.—*The principal hair seal fisheries are those of New­foundland and Labrador (area about 200 miles), the Gulf of St Lawrence, Jan Mayen and the adjacent seas, Nova Zembla, the White Sea and Arctic Ocean, the Caspian, and the North and South Pacific. The first-named is by far the most important. To the immense icefields borne past these shores during the spring months great herds of seals resort for the purpose of bringing forth and suckling their young. These are usually produced in the last week of February and increase rapidly in size. When born they weigh about 5 ft ; in four weeks the fat beneath the skin has increased to a depth of 3 to 4 inches, and with the adhering skin weighs from 40 to 50 lb. At this age the animals are in the best condition for being taken, as the oil then yielded is of the best quality. They remain on the ice attended by their dams for about six weeks, when they begin to take to the water, and it becomes much more difficult to capture them. When a floe containing young seals is reached, the hunters take to the ice armed with a pole or “gaff,” having a hook at one end and shod with iron at the other. A blow on the nose from this quickly despatches the animal ; by means of the “ scalping-knife ” the skin with the fat adhering is then rapidly detached. The fat and skins are rolled into bundles and dragged to the ship. When the ship reaches port the skins are separated from the fat and salted for export to Great Britain, where they are converted into leather. Of late years furriers have succeeded in converting a few of the finer skins into ladies’ tippets. The fat was formerly thrown into huge vats, where its own weight and the heat of the sun extracted the oil, but in the improved modern process the fat is ground into minute pieces by machinery and then steamed ; the oil, after being exposed for a time in glass- covered tanks to the action of the sun’s rays, is barrelled for ex­portation. The greater part of it goes tβ England, where it is largely employed both as an illuminant and as a lubricant. It is also used for tanning purposes and in the manufacture of the finer kinds of soap.

From 8000 to 10,000 men embark annually from Newfoundland on this pursuit. The steamers, which are rapidly superseding sailing vessels, are stoutly timbered, sheathed with iron and wood, and provided with iron-plated stems ; they carry from 150 to 300 men each, and make two, and sometimes when very successful even three, trips in the season. From 20 to 25 steamships in all are engaged in this industry, 6 of these being from Dundee, Scotland. The Dundee vessels arrive in Newfoundland in February and there ship their crews ; at the close of the sealing season they proceed to the northern whale fishery and return home in October. A “ close time ” for seals is now established by law. Sailing vessels cannot clear for this fishery before 1st March, nor can steamers before 10th March. After the young seals have taken to the water, the steamers in their second trips engage in the pursuit of the old breeding seals till the middle or end of May. These are taken either by shooting them or clubbing them when congregated in herds on the ice. This practice, which is most injurious to the fishery, has of late been partially abandoned, by an agreement among the owners of vessels not to continue operations beyond 30th April. The failures and disappointments of the voyage are numerous, many vessels re­turning to port with few seals or even with none. The prizes, however, are so enormous that there is no hesitation in embarking capital in the enterprise. It is no uncommon event for a steamer to return two or three weeks after leaving port laden to the gunwale with seals. As many as 42,000 have been brought in by a single steamer, the value at two and a half dollars per seal being $105,000 (£21,875). The men on board the steamers share one-third of the proceeds of the voyage among them ; the remainder goes to the owners who equip and provision the vessels. In sailing vessels the men get one-half the proceeds. The number of seals taken annually ranges from 350,000 to 500,000. In the three years 1877, 1878, and 1881 the average take was 436,413, valued at £213,937. Between 1881 and 1886 the returns fell below this average owing to the heavy ice, which comparatively few vessels succeeded in penetrating. The large number of young seals which escaped during these years will improve the fishery in the future.

In the seas around Newfoundland and Labrador there are four species of seals,—the bay seal, the harp, the hood, and the square flipper. The first of these frequents the mouths of rivers and harbours and is never found on the ice. The harp, so called from a curved line of dark spots on its back making a figure somewhat resembling an ancient harp, is by far the most numerous, and is *par excellence* the seal of commerce. The hoods, which owe their

@@@1 Some naturalists have proposed the name *Trichophocinæ* for the hair seals and *Oulophocinæ* for the fur seals, in allusion to the different character of the skin in the two groups.