that Abydus had been retaken by Daurises a little before. In this connexion the Scythian embassy to King Cleomenes at Sparta (Herod., vi. 84) to arrange a combined attack on Asia becomes credible; for, barbarians though they were, the Scythians had a political organization and many connexions with the Ionians of the Pontic colonies, so that their envoys may well have reached Sparta at the same time with Aristagoras (499) and served as decoys for his fantastic schemes.[1]

Our accounts of the Scythians begin to fail after the time of King Scyles, who affected Grecian habits and was deposed and finally slain for sharing in Bacchic orgies (Herod., iv. 78-80); his death fell a little before Herodotus's visit to Olbia (*c.* 456). We read in an unclear context (Diod., ii. 43) of a division of the Scythians into two great tribes, the Pali and the Napæ, the former of whom crossed the Don from the east and destroyed the latter and also the Tanaites.[2] These events seem to point to a change of dynasty in the royal horde.

The *Periplus* ascribed to Scylax (346 B.C.) knows the Scythians as still occupying almost exactly the same limits as in Herodotus's time; only in the east there is a small but significant change: the Sarmatians have already crossed the Don (§ 68). King Ateas still ruled Scythia in its old extent (Strabo, vii. 307), but all that we know of the events of his reign took place south of the Danube,—wars with the Triballi in Servia, with Byzantium, with the king of the Greek city of Istrus, and finally with his old ally Philip of Macedon. Philip defeated and slew Ateas near the Danube in 339 B.C. He was then over ninety years old.[3]

The Scythians appear once more in the region of the Dobrudja in 313, when they helped the citizens of Callatis against Lysimachus and were defeated by him (Diod., xix. 73). All this points to a considerable advance of their frontier southwards, and in fact Pseudo-Scymnus (Ephorus) gives Dionysopolis (a little to the west of the modern Baltchik) as the place where the Crobyzian and the Scythian territories met in his time (334 B.C.).[4] This apparent advance of the realm contrasts singularly with the distress to which Ateas was reduced by the king of the insignificant town of Istrus, an evidence that the Scythian power was really much decayed. Ateas indeed is sometimes painted as a rude barbarian lord of a poor but valiant and hardy race, and Ephorus, who mainly follows Herodotus about Scythia, yet speaks of the Scythians in contrast with the fierce Sarmatians as corresponding to Homer's description of a just and poor people feeding on milk (Strabo, vii. 302). But Aristotle, on the contrary (*Eth. Nic.*, vii. 8), speaks of the effeminacy of the Scythian monarchs as notorious; and indeed there can be little doubt that the Scythians crossed the Danube and settled in the Dobrudja under pressure of the Sarmatians behind them, and that the idyllic picture drawn by Ephorus presupposes the fall of their political system. Diodorus (ii. 43) tells us that the Sarmatians exterminated the inhabitants of most part of Scythia, and this must have taken place in the later years of Ateas, between 346 and 339.

At a later but uncertain date the great inferiority of the Scythians to the Sarmatians is illustrated by the story of Amage, the warlike consort of a debauched Sarmatian king, who with only 120 chosen horsemen delivered Chersonesus in Tauris from the neighbouring Scythian king, slew him with all his followers, and gave the kingdom to his son (Polyæn., viii. 56). It is, however, not quite certain whether these were a remnant of the old Scythians; and it is still more doubtful whether the powerful Scythian kingdom of Scilurus, who brought the Greek cities of the Crimea to the verge of ruin, but was destroyed by Mithradates Eupator (105), was really a kingdom of Scolots. The last certain trace of true Scythians occurs about 100 B.C. in the Olbian *psephisma* in honour of Protogenes.[5] Here they appear as a small nation west of Olbia between the Thisamatæ and Saudaratæ, who are anxious to take refuge in Olbia from the (Scordiscian) Galatians.

Sources.—Herodotus (iv. 1-82, 97-142) and Hippocrates (*De Aere*, &c., c. 17-22, in Littré's ed., ii. 66-82) are alone trustworthy, because they carefully distinguish the Scythians from the other northern nations. Ephorus (in Strabo, vii. p. 302 *sq.*, and Scymn., *Perieg.*, 773-878), Diodorus (ii. 43 *sq.*), and Trogus (in Justin, ii. 1-3, 5, 1-11, and Jordan., *Get.*, v.-vi., x.) do not do so, and must be used with great caution.

Helps.—Ukert, *Geog. d. Gr. und Römer*, iii. 2 (complete collection of materials from original sources); Niebuhr, *Kleine Schriften*, vol. i. (1828); Zeuss, *Die Deutschen und die Nachbarstämme* (1837)—an admirable discussion, which established the Aryan origin of the Scythians; Boeckh, in *C. Inscr. Gr.*, ii. 81 *sq.*; K. Neumann, *Hellenen im Skythenlande* (1855)—the best book, in spite of certain fundamental errors, such as the ideas that great part of the steppe was once wooded and that the Scythians were Mongols; Müllenhoff, "Origin and Speech of the Pontic Scythians and Sarmatians," in *Monatsb. d. Berl. Ak.* (1866). The best account of the trade route which in the 5th century B.C. passed through a great part of what is now Russian territory is by K. E. v. Baer, *Historische Fragen*, &c. (1873); comp. also Grote, *Hist. of Greece*, iii. 314 *sq.* (1850), and Duncker, ii. 430 *sq.* (5th ed.). There is a class of mere amateurs, especially in east Germany, who absurdly take the Scythians to have been Slavs. (A. v. G.)

SEA. Any part of the ocean marked off from the general mass of water may be called a sea. In geography the name is loosely applied: for instance, the Arabian Sea is an open bay, Hudson's Bay is an enclosed sea. Seas proper lie within the transitional area which divides the permanent continental masses from the permanent ocean basins, and their boundaries are consequently subject to geological change, and to alteration by subsidence and elevation occurring in historic times.

Inland Seas are seas entirely surrounded by land (see Caspian Sea, Dead Sea, and, for general discussion, Lake).

Enclosed Seas have communication with the ocean restricted to one opening, which may take the form of one, two, or more straits close to each other. The best known are the White Sea of the Arctic Ocean; the Baltic, Zuyder Zee, Hudson's Bay, Gulf of Mexico, and Mediterranean, with the Adriatic and Black Sea, of the Atlantic; the Red Sea and Persian Gulf of the Indian Ocean; and the Yellow Sea and Sea of Okhotsk of the Pacific.[6] They are all cut off from general oceanic circulation and very largely from tides, but the result is not stagnation. The Baltic and Black Sea are but slightly saline on account of the number of large rivers falling into them, and the fresh surface-water flows out as a regular current, liable indeed to be checked, and even reversed for a time, but in the main persistent; while the salt water flows in uniformly as an undercurrent. A state of equilibrium is arrived at, so that periodical fluctuations of salinity do not affect the average of a number of years. The water of the Mediterranean and Red Sea is much salter than that of the ocean, which therefore flows in as a surface-current, while the dense very salt water escapes below. In the case of the Baltic and Black Sea dilution by rivers, in that of the Mediterranean and Red Sea concentration by evaporation maintains a circulation. Winds and differences of barometric pressure are, as in inland seas, great factors in producing variable currents. (See Baltic Sea, Black Sea, Mediterranean Sea, Red Sea, &c.)

Partially Enclosed Seas may be (*a*) comparatively shallow irregular channels through which strong tides sweep, or (*b*) ocean basins cut off by barriers barely rising to the surface, or remaining permanently submerged, in which case there may be no break of continuity in the ocean surface to indicate the sea. Seas of the first description are related to shallow enclosed seas, but are much affected by tides and ocean currents; the principal are the Kara Sea of the Arctic Ocean, Baffin Bay and North Sea of the Atlantic, Behring Sea and Japan Sea of the Pacific. They are subject to considerable temperature changes owing to their proximity to land. Seas coming under the second category combine the peculiarities of the open ocean and of deep inland seas. The Caribbean Sea of the Atlantic, the China Sea, Java Sea, and numerous small seas of the eastern archipelago of the Pacific are the best examples. Their chief peculiarity is that the temperature of the water instead of falling uniformly to the bottom becomes stationary at some intermediate position corresponding to the top of the barrier. They are usually very deep. (See North Sea, Norwegian Sea, and Pacific Ocean.)

Other Seas.—Coral Sea, Arabian Sea, Sea of Bengal, are names, now dropping out of use, to designate parts of the ocean. "Sargasso Sea" is an expression devoid of geographical meaning (see Atlantic Ocean, vol. iii. p. 20).

Firths and Estuaries.—A river entering the sea by a short estuary flows over the surface, freshening it to a considerable extent, and, if the force of its current is not too great, the rising tide slowly forces a wedge of sea water up between river and river bed, withdrawing it rapidly when ebb sets in. In a firth that is large compared with the river falling into it, judging from results recently obtained in the Firth of Forth,[1] a state of equilibrium is arrived at, the water increasing in salinity more and more gradually as it proceeds seawards, the disturbing influence of the tide becoming less and less, and the vertical distribution of salinity more and more uniform until the river water meets the sea, diffused through a nearly homogeneous mass with a density little inferior to that of the ocean. Between the extreme cases there are numerous gradations of estuary depending on the ratio of river to sea inlet.

Deposits.—All seas within about 300 miles of continental land, whatever may be their depth, are paved with terrigenous débris, and all at a greater distance from shore are carpeted with true pelagic deposits (see Pacific Ocean).

Marine Fauna and Flora.—The mixing of river with sea water produces a marked difference in the fauna and flora of seas. Where low salinity prevails diatoms abound, probably on account of the greater amount of silica dissolved in river water, and they form food for minute pelagic animals and larvæ, which are in turn preyed upon by larger creatures. In some seas, such as the North Sea, there are many celebrated fishing beds on the shallow banks of which innumerable invertebrate animals live and form an inexhaustible food-supply for edible fishes. Naturalists have remarked that in temperate seas enormous shoals of relatively few species are met with, while in tropical seas species are very numerous and individuals comparatively few. Organisms, such as the corals, which secrete carbonate of lime appear to flourish more luxuriantly in warmer and salter seas than in those which are colder and fresher.

The geological and dynamic aspects of seas are treated of in Geology (vol. x. p. 284 *sq.*) and Geography (Physical); and in Atlantic Ocean, Baltic Sea, Black Sea, Indian Ocean, Mediterranean Sea, North Sea, Norwegian Sea, Pacific Ocean, Polar Regions, and Red Sea the general geographical and physical characters of oceans and seas are described. In Meteorology some account is given of the influence of the sea on climate, and chemical problems connected with the ocean are discussed in Sea Water.

SEA-CAT. See Sea-Wolf, *infra*.

SEA-DEVIL. See Fishing-Frog, vol. ix. p. 269.

SEA-HORSE. Sea-horses (*Hippocampina*) are small marine fishes which, together with pipe-fishes (*Syngnathina*), form the order of Lophobranchiate fishes, as already noticed in Ichthyology, vol. xii. p. 694. The gills of the members of this order are not arranged in leaf-like series as in other fishes, but form a convex mass composed of small rounded lobes attached to the branchial arches, as shown in the accompanying figure (fig. 1) of the head of a sea-horse, in which the gill-cover has been pushed aside to show the interior of the gill-cavity. Sea-

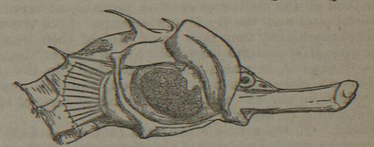

Fig. 1.—Gills of *Hippocampus abdominalis*.

horses differ from pipe-fishes by having a prehensile and invariably finless tail; it is long, slender, tapering, quadrangular in a transverse section, and, like the rest of the body, encased in a dermal skeleton, which consists of horny segments, allowing of ventral, and in a less degree of lateral, but not of dorsal, flexion. The typical sea-horse (*Hippocampus*) can coil up a great portion of its tail, and firmly attach itself by it to the stems of sea-weeds or other similar objects. The body is compressed and more or less elevated, and the head terminates in a long tubiform snout, at the end of which the small mouth is situated. The whole configuration of the fore part of the body, as well as the peculiar manner in which the head is joined to the neck-like part of the trunk, bears a striking resemblance to a horse's head; hence the name by which these fishes are generally known. Sea-horses are bad swimmers and are unable to resist currents. With the aid of their

Fig. 2.—*Phyllopteryx eques*.

single dorsal fin, which is placed about the middle of the fish's body and can be put into a rapid undulatory motion, they shift from time to time to some other object near them, remaining stationary among vegetation or coral where they find the requisite amount of food and sufficient

[1] King Ariantas, whose primitive census is mentioned in Herodotus (iv. 81), seems to have flourished at this time.

[2] Pliny, *H.N.*, vi. 50; comp. vi. 22, where we must read "Asampatas, Palos, ab his Tanaitas et Napæos" and, below, "Sataracheos, Palæos."

[3] For Ateas, see Frontin., *Strateg.*, ii. 4, 20; Polyæn., vii. 44, 1; Aristocritus, in Clem. Al., *Strom.*, v. p. 239; Justin, ix. 2; Lucian, *Macrob.*, 10; Æschines, *C. Ctesiph.*, 128, p. 71.

[4] Comp. Pliny, *H.N.*, iv. 44, who calls the Scythians Aroteres.

[5] *C. I. Gr.*, ii. No. 2058; comp. Zippel, *Röm. Herrschaft in Illyrien*, p. 155.

[6] The prevalence of colour names for these seas is noteworthy.

[1] Mill, *Proc. Roy. Soc. Ed.*, xiii. 29 137. and 347.

cover. Their coloration and the tubercles or spines on the head and body, sometimes with the addition of skinny flaps and filaments, closely resemble their surroundings, and constitute the means by which these defenceless creatures escape detection by their enemies. These protective structures are most developed in the Australian genus *Phyllopteryx*, one of the most singular types of littoral fishes.

Sea-horses belong to the tropics and do not extend so far north as pipe-fishes. They are abundant at suitable localities, chiefly on the coral-banks of the Indo-Pacific Ocean. Some thirty species are known, of which the majority belong to the genus *Hippocampus* proper. Their size varies from 2 to 12 inches in length; but in China and Australia a genus (*Solenognathus*) occurs the species of which attain to a length of nearly 2 feet; they, however, in form resemble pipe-fishes rather than sea-horses. The species which may be sometimes seen in aquaria in Great Britain is *Hippocampus antiquorum*, from the Mediterranean and the coasts of Portugal and France. The food of the sea-horses consists probably of very small invertebrates and the fry of other fishes. Like the other Lophobranchiates, they take great care of their progeny. The male *Hippocampus* carries the ova in a sac on the lower side of the tail, in which they are hatched; in the other genera no closed pouch is developed, and the ova are embedded in the soft and thickened integument of either the abdomen or the tail.

SEAL. In the article MAMMALIA (vol. xv. p. 442) will be found a general account of the distinguishing characteristics of the animals constituting the sub-order *Pinnipedia* of the order *Carnivora*, and their divisions into families and genera. It only remains to give some further details respecting those members of the group to which the term "seal" is properly restricted (the sub-family *Phocinæ*), especially those which inhabit the British coasts.

Although seals swim and dive with the greatest ease, often remaining as much as a quarter of an hour or more below the surface, and are dependent for their sustenance entirely on living prey captured in the water, all the species frequently resort to sandy beaches, rocks, or ice-floes, either to sleep or to bask in the sun, and especially for the purpose of bringing forth their young. The latter appears to be the universal habit, and, strange as it may seem, the young seals—of some species at least—take to the water at first very reluctantly, and have actually to be taught to swim by their parents. The number of young produced is usually one annually, though occasionally two. They are at first covered with a coat of very thick, soft, nearly white fur, and until it falls off they do not usually enter the water. This occurs in the Greenland and grey seal when from two to three weeks old, but in the common seal apparently much earlier. One of this species born in the London Zoological Gardens had shed its infantile woolly coat and was swimming and diving about in its pond within three hours after its birth. The movements of the true seals upon the ground or ice are very different from those of the *Otariæ* or eared seals, which walk and run upon all four feet, the body being raised as in the case of ordinary quadrupeds. The hinder limbs (by which mainly they propel themselves though the water) are on land always perfectly passive, stretched backwards, with the soles of the feet applied to each other, and often raised to avoid contact with the ground. Sometimes the fore limbs are equally passive, being placed close to the sides of the body, and motion is then effected by a shuffling or wriggling action produced by the muscles of the trunk. When, however, there is any necessity for a more rapid mode of progression, the animals use the fore paws, either alternately or simultaneously, pressing the palmar surface on the ground and lifting and dragging the body forwards in a succession of short jumps. In this way they manage to move so fast that a man has to step out beyond a walk to keep up with them; but such rapid action costs considerable effort, and they very soon become heated and exhausted. These various modes of progression appear to be common to all species as far as has been observed.

Most kinds of seals are gregarious and congregate, especially at the breeding season, in immense herds. Such is the habit of the Greenland seal (*Phoca grœnlandica*), which resorts in the spring to the ice-floes of the North Sea, around Jan Mayen Island, where about 200,000 are killed annually by the crews of the Scotch, Dutch, and Norwegian sealing vessels. Others, like the common seal of the British islands (*Phoca vitulina*), though having a

FIG. 1.—Common seal (*Phoca vitulina*).

wide geographical range, are never met with in such large numbers or far away from land. This species is stationary all the year round, but some have a regular season of migration, moving south in winter and north in summer. They are usually harmless, timid, inoffensive animals, though, being polygamous, the old males often fight desperately with each other, their skins being frequently found covered with wounds and scars. They are greatly attached to their young, and remarkably docile and easily trained when in captivity; indeed, although there would seem little in the structure or habits of the seal to fit it by nature to be a companion of man, there is perhaps no wild animal which attaches itself so readily to the person who takes care of and feeds it. They appear to have much curiosity, and it is a very old and apparently well-attested observation that they are strongly attracted by musical sounds. Their sense of smell is very acute, and their voice varies from a harsh bark or grunt to a plaintive bleat. Seals feed chiefly on fish, of which they consume enormous quantities; some, however, subsist largely on crustaceans, especially species of *Gammarus*, which swarm in the northern seas, also on molluscs, echinoderms, and even occasionally sea-birds, which they seize when swimming or floating on the water.

Although the true seals do not possess the beautiful under-fur ("seal-skin" of the furriers) which makes the skin of the sea-bears or *Otariæ* so precious, their hides are still sufficiently valuable as articles of commerce, together with the oil yielded by their fat, to subject them to a devastating persecution, by which their numbers are being continually diminished (see below, p. 581 *sq.*).

Two species of seals only are met with regularly on the British coasts, the common seal and the grey seal. The

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

FIG. 2.—Skull of common seal, showing form of teeth.

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 mud-flats 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 lb; 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 to 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 *Otophocinæ* for the fur seals, in allusion to the different character of the skin in the two groups.

name to a bag or hood on the nose of the males, which they can inflate at pleasure for protection, are much larger than the harps, but their oil is not of such good quality. But few square flippers are taken; they are large seals from 12 to 16 feet in length, and are believed to be identical with the great Greenland seals. The seals frequenting these seas are migratory. In May, attended by their young, they commence their northerly movements to the Greenland seas, where they spend two or three months, and in September begin their southerly migration, moving along the coast of Labrador, feeding in its fiords and bays. One division passes through the Straits of Belle Isle into the Gulf of St Lawrence, the other along the east coast of Newfoundland. By the close of the year they reach the Great Banks, their southern headquarters, and early in February commence their northerly movement to meet the ice on which their young are to be brought forth.

The Newfoundland fishery was of slight importance till the beginning of the 19th century. At first the seals were taken in nets; the next method was shooting them from large boats, which left shore about the middle of April. Afterwards small schooners were employed, and a rapid expansion of the fishery followed. Over 100 of these small vessels used to leave the port of St John's, and as many more the ports of Conception Bay. In 1795 the whole catch of seals was but 5000. In 1805 it reached 81,000; in 1815, 126,000; in 1822, 306,983. The largest catches on record were in 1830, when 558,942 seals were taken; in 1831, 686,836; 1843, 651,370; and in 1844, 685,530. The following table shows the number of seals taken in some recent years:—

Years.	No. of Seals.	Years.	No. of Seals.
1856	261,317	1881	447,903
1861	378,282	1882	260,500
1869	359,821	1883	309,350
1876	500,000	1884	228,537
1880	223,793		

Of late years an increasing number of steamers from St John's have resorted to the Gulf of St Lawrence as well as small sailing vessels from the southern ports of Newfoundland. A few residents of the Magdalen Islands also pursue the seals on the Gulf ice, and the Canadians carry on a seal fishery along the shore by means of nets both in spring and autumn. The nets are made of strong hempen cord, some of them very large and costing with the anchors and gear as much as £1500 each. This fishery is carried on from Blanc Juberlis Bay to Cape Whittle. The number taken averages about 70,000 to 80,000.

Next in importance is the seal fishery carried on between Greenland, Spitzbergen, and the island of Jan Mayen,—between 68° and 74° N. lat. and 3° E. and 17° W. long. In most years, however, the seals are taken mainly in the vicinity of Jan Mayen. The fishery is carried on by the British, Norwegians, Swedes, Danes, and Germans. The number taken by the British vessels about equals that taken by all the others together. The species taken are the same as on the Newfoundland coast, the harp or saddleback and the hood or bladder-nose. The breeding season is about three weeks later than in the case of the Newfoundland seals, the young being brought forth between the 16th and the 22d of March. The method of capture is almost the same as that of the Newfoundland hunters. Steamers are now almost exclusively employed. The only British ports now engaged in the enterprise are Dundee and Peterhead. During the twelve years 1873 to 1885 the number of British vessels taking part in it was from 14 to 21, the number of men varying from 900 to 1500, and the number of seals taken ranging from 35,000 to 75,000. The total number of seals taken by these vessels during the ten years ending 1884 was 452,013. Formerly, from 1500 to 2700 men were employed, and the number of seals taken ranged from 50,000 to 125,000. The decline has been largely caused by the reckless and barbarous way in which the fishery has been conducted, the practice of seal-hunters of all nations having been to reach the seals soon after the young were born, and then to watch for the mothers as they came to suckle them and shoot them without mercy, leaving the young to die in thousands of starvation on the ice. The consequence is that the herds are not now a twentieth part of their former size. Newfoundland hunters, on the other hand, do not disturb the seals till they are grown and about to leave their mothers, the old seals not being killed till a later date. By an international treaty between England and Norway—the two nations most interested—a "close season" has been established in the Jan Mayen fishery. The Dundee and Peterhead steamers are chiefly manned by Shetlanders, who are taken on board at Lerwick. The vessels make the ice from the 15th to the 20th March and commence the chase in the destructive way already described. They follow up the capture of the young seals in April, when they are better worth taking. Then they proceed to separate the skins from the fat. The former are salted on board, and the fat is stowed in tanks. In May the pursuit of the old seals on the ice commences and continues till the 16th, when it is time to proceed to the whale fishery. The oil is not manufactured till the vessels reach home late in the autumn. As the blubber undergoes decay in the tanks, the oil is not so good in quality as that made in Newfoundland from the fresh fat.

The Jan Mayen fishery commenced in 1840. In that year 13 British vessels and 650 men engaged in it, and 17,300 seals were taken. The Norwegians and other nationalities also took part in it. Steamers were introduced in 1858. The following table shows the growth and decline of the fishery:—

Year.	No. of British Vessels.	No. of Men.	Seals taken.	Year.	No. of British Vessels.	No. of Men.	Seals taken.
1840	13	650	17,300	1875	20	1200	71,640
1845	39	1950	94,830	1880	14	840	41,465
1850	32	1600	74,038	1881	14	840	23,684
1855	54	2000	81,500	1882	15	900	21,602
1861	46	2300	10,350	1883	17	1020	49,806
1865	26	1300	112,000	1884	20	1200	42,120
1870	22	1320	123,000				

The Norwegian vessels are all steamers, sheathed with wood and iron, the crews averaging forty-six men. They belong principally to Tönsberg, but Tromsö also sends out a number of small vessels to hunt adult seals. The total annual product has reached $300,000. Over twenty Norwegian and Swedish steamers are engaged in this fishery. Since about the year 1873 or 1874 the Norwegians and Swedes have discovered a new fishing-ground for adult seals off the coast of Greenland between Iceland and Cape Farewell. It is carried on in the months of June and July. The seals taken are all of the hood kind. At one time the Jan Mayen fishery averaged 200,000 seals annually among all the nationalities engaged. It does not now exceed 120,000 to 130,000.

The Danes, the Eskimo, and the half-breeds carry on a seal-fishery off the western coast of Greenland between Cape Farewell and 79° N. lat. The seals taken are chiefly the floe or spotted seal and the square flipper. Rink, in his *Greenland*, estimates the annual number taken at 89,000, but at present it does not exceed 50,000, as the seals are becoming scarcer. The oil is made at the Danish settlements on the coast, and the skins are dried, not salted, and both are shipped to Denmark.

The fisheries of Nova Zembla, once productive, have declined in value, and are now carried on by only five vessels, which reach the island about the end of June. The fishermen commence with hunting the seal and the walrus and afterwards fish for the common trout. Five kinds of seals are found here, the chief being the *Phoca vitulina* and the *Phoca grœnlandica*. The number taken is small.

The Russians carry on a seal-fishery on the eastern and western coasts of the White Sea, in the bays of the Dwina and the Mezen and on the coast of Kanin. The species is the *Phoca grœnlandica*. These seals live in the high regions of the polar seas from May till September, and appear later in the gulfs and bays of the Arctic Ocean, where the young are born on the floating ice early in February. Soon after the hunt commences and lasts till the end of March. On the eastern coast of the White Sea the chase is pursued over a space of 230 miles. Two thousand hunters assemble at Kedy, near Cape Voronoff. High wooden towers are erected along the shore, whence observers watch the movements of the seals. Hunting sheds for the men are also erected. When a herd of seals is observed, the men go out on the ice, drawing small boats after them, and kill the young and old with clubs and guns. To approach the seals without being discovered, the hunters muffle themselves in long white shirts and advance slowly and noiselessly over the snow. They are often exposed to the greatest dangers, owing to the sudden movements of the ice. In following up the chase in April they use sailing boats 22 feet long, with an iron-plated bottom, which they draw up on the ice, where a vast encampment is formed, and shooting-parties search for the seals. On the western shore of the White Sea the seal-hunt is less productive than on the eastern. The hunters meet at Devyatoe, a few miles north of the river Ponoi. About 500 men engage in the chase. The Russians take each year in the Arctic Ocean and the White Sea from 2,500,000 to 3,000,000 lb of seal blubber. Allowing an average of 40 lb per seal, this would imply the capture of 65,000 to 75,000 seals. The skins are made into leather.

The most extensive and valuable seal-fishery of the Russians is in the Caspian Sea, where the seals (*Phoca caspica*) are plentiful. They pass the summer in deep water, and in the autumn resort to the eastern basin, where the ice forms earliest and breaks up latest. Here the pairing takes place on the ice in December and January. The seals are also hunted at the mouths of the Volga and the Ural, and in the southern part of the sea, on the islands of the Gulf of Apsheron. There are three methods of hunting the seals,—killing them with clubs (the commonest and most successful way), shooting them on the ice, and taking them in nets. From 130,000 to 140,000 are taken annually.

A few seals are taken off the coast of California and Washington Territory. In the South Pacific, off the coast of Chili, only a few are now taken where formerly they were captured by the thousand.

The elephant seal or sea elephant (*Macrorhinus leonina*) was formerly taken in great numbers at various places for the sake of its oil. This fishery is now almost a thing of the past; since about 1875 it has been carried on solely from New London in Connecticut, the fleet numbering only four or five vessels. The yield in 1880 was 42,000 gallons of oil, worth $21,420.

The average number of hair seals taken annually may be estimated as follows:—

	Seals.
Newfoundland, including Labrador and the Gulf of St Lawrence	400,000
Canadian net fishery, Gulf of St Lawrence	75,000
Jan Mayen and the adjacent seas	130,000
Western Greenland	50,000
Nova Zembla, White Sea, and Arctic Ocean	75,000
Caspian Sea	140,000
North and South Pacific	5,000
Total number of hair seals	875,000
Value at $2·50 per seal	$2,187,500

Fur Seals.—The fur seals occupy two distinct areas. None exist on the shores of the North Atlantic. South of the equator they extend from near the tropics to the region of antarctic ice. By far the most important and valuable fur seal fisheries are those carried on at St Paul's and St George's Islands, belonging to the Pribyloff group,[1] off the coast of Alaska, at the Commander Islands in the Behring Sea, and that in the same sea 700 miles west of the Alaskan seal islets. The species found here is the northern fur seal (*Callorhinus ursinus*). The males attain mature size about the eighth year, when their length is from 7 to 8 feet, their girth from 7 to 8 feet, and their weight, when in full flesh, from 500 to 600 lb. The females are full grown at four years old, when they measure 4 feet in length, 2½ in girth, and weigh from 80 to 100 lb. The yearlings weigh from 30 to 40 lb. The seals resort to these islands late in spring chiefly for reproductive purposes, making their appearance from the southward. The number annually visiting St Paul's and St George's is estimated at five millions. About the middle of April the males begin to arrive and take their places along the shore in "the rookeries," as the breeding-grounds are called. The younger males are prevented from landing by the older, and are compelled either to stay in the water or to go to the uplands. By the middle of June all the males have assembled, and then the females begin to appear. Each old male seal collects from ten to fifteen or more females, whom he guards most jealously. The males fight furiously, "so that night and day the aggregated sound is like that of an approaching railway train." By the middle of July the family circle is complete. Soon after landing the female gives birth to one pup, weighing about 6 lb, which she nurses at wide intervals without any affection. Pairing takes place soon afterwards. No food is taken by the breeding males while on the rocks,—a period of three to four months. When the males leave after this long fast, they are reduced to half their former weight. In the end of October and middle of November all leave the island, the young males going last and by themselves.

The killing of the seals is carefully regulated. No females are killed, and only a certain number of young "bachelor" seals whose skins are of superior quality. These younger male seals are spread out on the slopes above the rookeries to rest. A party of men armed with clubs of hard wood quietly creep between them and the shore, and at a given signal start up with a shout and drive the seals inland. When they reach the killing-grounds near the villages, they select those that are two or three years old and seem likely to yield the most valuable fur. These they despatch with a club. The skins are carefully salted for exportation. Besides the skin each seal yields about a gallon and a half of oil. But it is not used, as its rank odour renders refining very costly. The value of the skins in the raw state varies from five to twenty-five dollars each; at times, when furs are specially fashionable, a higher price is obtained. The quality of the Alaska furs is superior, but those obtained in the South Shetland and antarctic regions are rated best. A cloak of the richest fur seal, a yard deep or more, will cost from £25 to £40. The roots of the loose exterior hairs penetrate deeper into the skin than those of the fur or short hair, and can readily be cut by paring on the fleshy side, without touching the roots of the fur; the long hairs then drop off, leaving the valuable fur below in a sheet like pure velvet. The number of seals killed on the Pribyloff Islands is limited to 100,000 annually, and, with the precautions taken, they increase as fast as if left to themselves, "for when the number of males is in excess, the continual fighting on the rookeries destroys many of both females and young, which get trampled to death."

Alaska was purchased from Russia by the United States in 1867. The Pribyloff Islands were leased to the Alaska Commercial Company of San Francisco for twenty years, from 1st May 1870, under Act of Congress approved 1st July 1870. The annual rental is $55,000 with a tax of $2·62 on each skin taken,—making the total rental $317,000 per annum. The Alaska Commercial Company have leased the Commander Islands from the Russian Government. About 30,000 fur seals are annually taken there.

The fishery at the mouth of the Straits of Juan de Fuca and its vicinity is carried on by Americans and Canadians. The seals are captured in the waters, the largest number being secured at and about Cape Flattery, to the extent of 15,000 annually. Two Lobos Islands, at the mouth of the Rio de la Plata, are under the protection of the Government of Uruguay, the number of seals annually taken being limited to about 12,000. Some of the numerous islands about Cape Horn are the breeding-places of fur seals, as are also the South Shetland Islands farther south. This Cape Horn region is visited by a fleet of seven to ten vessels belonging to New London and Stonington, Connecticut, and also by a few Chilian and other South American vessels. Only occasionally does a vessel visit the South Shetlands, though the quality of skins to be secured there is very superior. The headquarters for the fleet between seasons is at Punta Arenas, or Sandy Point, in the Straits of Magellan. The American fleet in 1880 numbered nine vessels of 1192 tons. The result of the fishery was 9275 skins, worth $90,431. Early in the 19th century the Falkland Islands abounded in fur seals, but they have been exterminated. The number now (1886) annually secured there does not average more than 500; in some years only 50 skins are taken.

There are annually received at London from the Cape of Good Hope about 10,000 sealskins taken at various islands in the Southern Indian Ocean and along the south-west coast of Africa. A few fur seals are taken in the Okhotsk Sea.

Nearly all the fur-seal skins find their way to London, where they are plucked, dressed, and dyed. A few, however, are prepared in New York. At the seal islands they are salted and baled with the fur inside, and in this manner shipped to London. The annual yield of the fur-seal fisheries of the world is about 185,000.

	Seals.
Pribyloff Islands, Alaska	100,000
Commander Islands	30,000
Straits of Juan de Fuca and vicinity	15,000
Lobos Islands, mouth of Rio de la Plata	12,000
Patagonia, including South Shetland Islands and Straits of Magellan	15,000
Falkland Islands	500
Cape of Good Hope, including south-west coast of Africa and islands in Southern Indian Ocean	10,000
Islands belonging to Japan	2,500
Total	185,000
At an average of $7 per skin the annual value would be	$1,295,000
Value of hair seals annually	2,187,500
Total value of hair and fur seals	$3,482,500

[1] The sea-lion (*Eumetopias stelleri*) is a characteristic pinniped of the Pribyloff Islands and other parts of Alaska. It has very little commercial value; but by the natives along the Behring Sea coast of Alaska, Kamchatka, and the Kuriles it is highly prized. From the hide they make coverings for their boats; the intestines are made into garments; the stomach walls are used as pouches for oil; the flesh is dried and eaten; and the whiskers are sold to the Chinese, who use them as pickers to their opium pipes, and in several ceremonies in their joss houses.

See Hatton and Harvey, *Newfoundland*, 1883; *Returns of the Jan Mayen Seal Fisheries*, by Captain Adams, 1885; *United States Fish Commission Reports* for 1873-74 and 1874-75; J. A. Allen, *Eared Seals*; Charles Bryant, *Habits of the Northern Fur Seal*; H. W. Elliott, *Seal Islands of Alaska*. (J. H.)

SEA LAWS, a title which came into use amongst writers on maritime law in the 16th century, and was applied by them to certain mediæval collections of usages of the sea which had been recognized as having the force of customary law, either by the judgments of a maritime court or by the resolutions of a congress of merchants and shipmasters. To the former class belong the sea laws of Oléron, which embody the usages of the mariners of the Atlantic; under the latter come the sea laws of Wisby, which reflect the customs of the mariners of the North Sea and of the Baltic.

The earliest collection of such usages which was received in England is described in the *Black Book of the Admiralty* as the "Laws of Oléron," whilst the earliest known text is contained in the *Liber Memorandorum* of the corporation of the City of London, preserved in the archives of their Guildhall. These laws are in an early handwriting of the 14th century, and the title prefixed to them is *La Charte d'Oleroun des Juggements de la Mier*. How and in what manner these "Judgments of the Sea" came to be collected is not altogether certain. Cleirac, a learned advocate in the parliament of Bordeaux, in the introduction to his work on *Les Us et Coustumes de la Mer*, first printed at Bordeaux in 1647, states that Eleanor, duchess of Guienne (the consort of Louis VII. of France, but subsequently divorced from him and married to Henry II. of England), having observed during her visit to the

Holy Land, in company with Louis, that the collection of customs of the sea contained in *The Book of the Consulate of the Sea* (see vol. vi. p. 317) was held in high repute in the Levant, directed on her return that a record should be made of the judgments of the maritime court of the island of Oléron (at that time a peculiar court of the duchy of Guienne), in order that they might serve as law amongst the mariners of the Western Sea. He states further that Richard I. of England, on his return from the Holy Land, brought back with him a roll of those judgments, which he published in England and ordained to be observed as law. It is probable that the general outline of Cleirac's account is correct, as it accords with a memorandum on the famous roll of 12 Edw. III., "De Superioritate Maris Angliæ," which, having been for many years carefully preserved in the archives of the Tower of London, is now deposited in the Public Record Office. According to this memorandum, the king's justiciaries were instructed to declare and uphold the laws and statutes made by the kings of England, in order to maintain peace and justice amongst the people of every nation passing through the sea of England: "Quæ quidem leges et statuta per dominum Ricardum, quondam regem Angliæ, in reditu suo a Terra Sancta correcta fuerunt, interpretata, declarata, et in Insula Oleron publicata, et nominata in Gallica lingua La Leye Olyroun."

The earliest version of these Oleron sea laws, which, according to the memorandum above mentioned, were received in England in the latter part of the 12th century, comprised certain customs of the sea which were observed in the wine and the oil trade, as carried on between the ports of Guienne and those of Brittany, Normandy, England, and Flanders. No English translation seems to have been made before the *Rutter of the Sea*, printed in London by Thomas Petyt in 1536, in which they are styled "the Lawes of ye Yle of Auleron and ye Judgementes of ye See." French was, in fact, a tongue familiar to the English High Court of Admiralty down to the reign of Henry VI. A Flemish text, however, appears to have been made in the latter part of the 14th century, the *Purple Book of Bruges*, preserved in the archives of Bruges, in a handwriting somewhat later than that of the *Liber Memorandorum*. Prefixed to this Flemish version is the title, "Dit es de Coppie van den Rollen van Oleron van den Vonnesse van der Zee." Certain changes, however, have been made in the *Purple Book of Bruges* in the names of the ports mentioned in the original Gascon text. For instance, Sluys is in several places substituted for Bordeaux, just as in the *Rutter of the Sea* London replaces Bordeaux. That these sea laws were administered in the Flemish maritime courts may be inferred from two facts. First, a Flemish translation of them was made for the use of the maritime tribunal of Damme, which was the chief Flemish entrepôt of the wine trade in the 13th century. The text of this translation has been published by Adriaen Verwer under the title of the *Judgments of Damme*. In the second place, there is preserved in the archives of the senate of Dantzic, where there was a maritime court of old, famous for the equity of its judgments, an early manuscript of the 15th century, which contains a Flemish reproduction of the Judgments of Oléron headed "Dit is Twater Recht in Vlaenderen." So far there can be no doubt that the Judgments of Oléron were received as sea laws in Flanders as well as in England in the 14th century. Further inquiry enables us to trace them as they followed the course of the wine trade in the North Sea and the Baltic Sea. Boxhorn, in his *Chronyk van Zeelande*, has published a Dutch version of them, which Van Leeuwen has reproduced in his *Batavia Illustrata*, under the title of the *Laws of West-Capell* in Zealand. Verwer has also published a Dutch text of them in his *Nederlant's See-Rechten*, accompanied by certain customs of Amsterdam, of which other MSS. exist, in which those customs are described as usages of Stavoren, or as usages of Enkhuizen, both ports of active commerce in the 15th century. Of these customs of Amsterdam, or, as they were more generally styled, "Ordinances of Amsterdam," further mention is made below.

A new and enlarged collection of sea laws, purporting to be an extract of the ancient laws of Oléron, made its appearance in the latter part of the 15th century in *Le Grant Routier de la Mer*, printed at Poitiers in France by Jan de Marnef, at the sign of the Pelican. The title-page is without a date, but the dedication, which purports to be addressed by its author Pierre Garcie *alias* Ferrande to his godson, is dated from St Gilles on the last day of May 1483. It contains forty-seven articles, of which the first twenty-two are identical with articles of the "Judgments of the Sea," in the *Liber Memorandorum*, the remaining articles being evidently of more recent origin. A black-letter edition of this work in French, without a date, is preserved in the Bodleian Library at Oxford, and to the last article this colophon is appended: "Ces choses précédentes sont extraictes du très utille et profittable Roolle Doloyron par le dict Pierre Garcie alias Ferrande." An English translation is printed in the appendix to *A View of the Admiral Jurisdiction*, published in 1661 by Dr John Godolphin, in which the laws are described as "an Extract of the Ancient Laws of Oléron rendered into English out of Garsias alias Ferrand." Although this new text had the recommendation of an advocate who had filled the office of judge of the Admiralty Court during the Commonwealth and been appointed king's advocate-general by Charles II., it seems to have been superseded in a short time by Cleirac's *Us et Coustumes de la Mer*, to which was appended the following clause of authentication: "Tesmoin le Seel de l'Isle d'Oléron, estably aux contracts de la dite Isle, le jour du Mardy apres la Feste Sainct André l'an mille deux cens soixant-six." Cleirac does not inform us from what source or under what circumstances he procured his text, nor on what authority he has adopted in certain articles readings at variance with those of Garcie, whilst he retains the same number of articles, to wit, forty-seven. The clause of authentication cannot be accepted as a warranty above suspicion, as the identical clause of authentication with the same date is appended to the early Norman and Breton versions of the rolls, which contain only twenty-six articles. Cleirac's version, however, owing probably to the superior style in which it was edited, and to the importance of the other treatises on maritime matters which Cleirac had brought together for the first time in a single volume, seems to have obtained a preference in England over Garcie's text, as it was received in the High Court of Admiralty during the judgeship of Sir Leoline Jenkyns, and an English translation of it was introduced into the English translation of the *Black Book of the Admiralty* made by John Bedford, the deputy registrar of the High Court, and dedicated to Sir Leoline Jenkyns. It seems to have been Bedford's intention to print this translation under the title of "Sea Laws"; but the manuscript passed into the hands of Sir Leoline Jenkyns, who gave it to the College of Advocates in 1685. The *Black Book* itself, which was missing for a long time from the Admiralty registry, has recently been discovered and has been replaced in the archives of the Admiralty Court. Of these two versions of the sea laws of Oléron the earlier obtained a wide-world reception, for it was translated into Castilian (*Fuero de Layron*) by order of King Alphonso X., and a Gascon text of it is still preserved in the archives of Leghorn, apparently in a handwriting of the 15th century, entitled "Asso es la copia deus Rolles de Leron de jugemens de mar."

The parent stock of the Wisby sea laws would appear to have been a code preserved in the chancery of Lübeck, drawn up in the Old Saxon tongue, and dated 1240. This code contains amongst many others certain articles on maritime law which are identical with articles in the Gothland sea laws, Gothland being the island of which Wisby was the chief port. This collection comprises sixty-six articles, and it is now placed beyond a doubt by recent researches, especially of Professor Schlyter of Lund, that these Gothland sea laws are a compilation derived from three distinct sources,—a Lübeck, an Oléron, and an Amsterdam source. A Saxon or Low German text of this collection was printed for the first time in 1505 at Copenhagen by Godfrey de Gemen, a native of Gouda in Holland, who is reputed to have set up the earliest printing-press in Copenhagen. This print has no title-page, and in this respect resembles the earliest known print of *The Consulate of the Sea*; but upon a blank leaf, which occupies the place of a frontispiece in one of two copies of Godfrey de Gemen's text, both preserved in the royal library at Copenhagen, there has been inserted with a pen in alternate lines of black and red ink the title "Dat hogheste Gotlansche Water-Recht gedrucket to Koppenhaven Anno Domini M.D.V.," and there has also been inserted on the first page of the text the introductory title "Her beghynt dat hogheste Water-Recht" (here begins the supreme sea law). Professor Schlyter has discovered a MS. (No. 3123) in the royal library at Copenhagen, which is written on parchment in a hand of the 15th century, and from which it seems probable that Godfrey de Gemen mainly derived his text, as it comprises the same number of articles, containing the same matter arranged in the same order, with this minor difference, that, whilst both the MS. and the print have the simple title "Water-Recht" prefixed to the first article, the MS. has also a similar title prefixed to the fifteenth. Further, as this article together with those that follow it in the MS., appears to be in a handwriting different from that of the articles that precede, the fifteenth article may justly be considered as the first of a distinct series, more particularly as they are numbered in Roman characters, beginning with § 1, and such characters are continued with a single interruption down to the end of the MS. Although, however, the numeration of the articles of this second series is continuous and the handwriting of the MS. from the fifteenth to the sixty-sixth article is unchanged, the text of the series is not continuous, as the fortieth article commences with an introductory clause—"This is the ordinance which the skippers and merchants have resolved amongst themselves as ship law." There is no difficulty in recognizing the first division of this second series of sea laws as a Low German version of the Judgments of Oléron, transmitted most probably through a Flemish text. This hypothesis would account for the substitution in several articles of Sluys for Bordeaux. On the other hand, the introductory clause which ushers in the fortieth article is identical with the title that is generally prefixed to MSS. of the maritime Ordinances of Amsterdam, and the text of this and of the following articles down to the sixty-fifth inclusive is evidently of Dutch origin and more or less identical with Verwer's text of the usages of Amsterdam. M. Pardessus, in his valuable *Collection de Lois Maritimes*, published in Paris before Professor Schlyter made known the result of his researches, has justly remarked that the provisions of several articles of this last division of the sea laws are inconsistent with the theory that they originated at Wisby. It may be observed that the sixty-sixth article of the MS. is a Lübeck law identical with the first article of the first series, which is of Lübeck origin. No colophon is appended to this final article in the MS. Nevertheless, Godfrey de Gemen's edition of 1505, which breaks off in the middle of the sixty-sixth article of the MS., has the following colophon:—"Here end the Gothland sea laws, which the community of merchants and skippers have ordained and made at Wisby, that all men may regulate themselves by them. Printed at Copenhagen, A.D. M.D.V." The question naturally suggests itself, To what MS. was Godfrey de Gemen indebted for this colophon, or is the alternative more probable that he devised it? There is no known MS. of this collection of an earlier date to which an appeal can be made as an authority for this colophon; on the contrary, the only known MSS. of which the date is earlier than Godfrey de Gemen's print, both of which are in the library of the university of Copenhagen, are without this colophon, and one of them, which purports to have been completed at Nyköping on the Eve of the Visitation of the Virgin in 1494, concludes with a colophon which precludes all idea that anything has been omitted by the scribe, viz., "Here ends this book, and may God send us his grace, Amen." We are disposed to think that Gemen himself devised this colophon. He was engaged in printing for the first time other collections of laws for the Danish Government, and, as Gothland was at that time a possession of Denmark, he may have thus distinguished the sea laws from another collection, namely, of land laws. Professor Schlyter, however, believes Gemen may have borrowed it from a MS. which is lost, or at all events is not known. There is some support to this view in the fact that in the archives of the guildhall of Lübeck there is preserved a MS. of 1533 which contains a Low German version of the same collection of sea laws, with a rubric prefixed to the first article announcing them to be "the water law or sea law, which is the oldest and highest law of Wisby," and there are good reasons for supposing that the scribe of this MS. copied his text from a MS. other than the Copenhagen MS. The same observation will apply to a second MS. of a similar character preserved in the library of the gymnasium of Lübeck, which purports to have been written in 1537. But as regards the Wisby sea laws little reliance can be placed on such rubrics or colophons as proofs of the facts recited in them, though they may be valuable as evidence of the reputed origin of the sea laws at the time when the scribe completed the MS. In illustration of this view it may be stated that in the same year in which the more recent of these two MSS. purports to have been completed—namely, 1537—there was printed at Lübeck an enlarged edition of the sea laws consisting of seventy-two articles, being a Low German translation of a Dutch text, in which six additional Dutch laws had been inserted which are not found in the Copenhagen MS., nor have a place in Gemen's text, yet to this edition is prefixed the title, "This is the highest and oldest sea law, which the community of merchants and shipmasters have ordained and made at Wisby, that all persons who would be secure may regulate themselves by it." Further, it has an introductory clause to its thirty-seventh article—"This is the ordinance which the community of skippers and merchants have resolved upon amongst themselves as ship law, which the men of Zealand, Holland, Flanders hold, and with the law of Wisby, which is the oldest ship law." At the end of the seventy-second article there follows this colophon: "Here ends the Gothland sea law, which the community of merchants and mariners have ordained and made at Wisby, that each may regulate himself by it. All honour be to God, MDXXXVII." Each article of this edition has prefixed to it after its particular number the word "belevinge" (judgment). It would thus appear that the Wisby sea laws