

Harengus in the 17th and 18th Centuries.

The Herring described in Latin by three famous Ichthyologists, Sir Francis Willughby, John Ray, and Peter Artedi.

English Translation from the Latin by Hans Aili, 2019

Francis Willughby, *De historia piscium*, London 1686, p. 219ff.

§ I. *Harengus* Rondelet, Gesner p. 486, Aldrovandi book 3, cap. 10. *Chalcediæ species* according to Belon. **A Herring.**

The Herring, a very well-known fish, is nine inches and sometimes one foot in length, in width¹ two or three inches. The head is compressed; the mouth is turned upwards; the back is darkish blue; the belly and sides are white; when scaled it is silvery. No lateral spots. The scales are large and rounded. The belly is pointed, full of spines, with denticulated scales in a continuous row from the head all the way to the tail. Lateral lines with spots can barely be seen in this fish. The irises of the eyes are reddish. The lower jaw is longer or more prominent than the upper one, sharp with little teeth, as are the tongue and the middle of the palate: but the tongue is pointed. The gills are four as in most other fishes: their awns or comb-like rays are on their outer sides much longer than in other fishes, red in colour. The first, second, and third ones have only one row of rays, the final one two but the inner ones are small. Nay even on the small bone outside the gills there grows a single row of comb-like rays. The single dorsal fin has about half the length of the whole fish, that is, it is placed at equal distances from the point of the snout and the end of the tail, furnished with about seventeen cartilaginous rays, the fourth or fifth of which are the longest. The tail is forked. The gill fins have 17 rays each. The pelvic fins, at the lowest point of the belly in the same region as the dorsal fin, has nine. From the anus it is furnished with 17 tendons placed rather far from each other. At the roots of the fins scales can be seen, placed crosswise and drawn out to a point.

The swim bladder is extended along the back throughout the whole length of the abdomen, a passage or long channel is drawn to it from the stomach, where the bladder penetrates the recess: or, better, the stomach itself degenerates into the channel. The bladder is silvery in colour. The gall-bladder is large, full of green gall. The spleen is red. The intestine runs down straight from the stomach to the anus.

They die very quickly outside of the water owing to a large rent in their gills (Rondelet). It expires as soon as it reaches clear air, without any delay. Hence the famous English adage: *As dead as a Herring*.

It has fat, soft, and delicate flesh. When grilled fresh on a small grid-iron or fried in a frying-pan and seasoned with butter, it obtains the greatest favour with the palate, and thanks to its excellence of taste it hardly cedes place to the most elegant fishes, whence it is called by our countrymen, The King of Fishes.

¹ Willughby: *latitudine*, literally 'in width', probably refers to the vertical dimension of the fish (when swimming), that is, its height. Willughby probably observed his specimen when it was lying flat on a plate or a board, in which case its height became its width. Artedi employs the adjective *latus* 'wide' and the noun *latitudo* in the same way.

Whether the Herring lives only in water or not, is the question. Schönevelde says that the latter is not likely, as the stomach of the Herring is never so empty that it does not contain something, either of black slime or, when the time for mating has come, something like red eggs. The appendices certainly, which it has, rather long and seventeen in number, in a continuous callous row from the pylorus, from the beginning of its one intestine, are never empty of their proper juices.

The Herring (Schönevelde says) is used in various ways in the kitchen. It is boiled fresh and eaten with radishes and vinegar, or (as we said above) it is grilled on a small grid-iron or fried with butter in a frying-pan, a great solace o the poor. But when the fish is soft and like excrement it will easily send a fever on those who enjoy it carelessly.

Among our countrymen it is considered as healthy as it is tasty, particularly when grilled on a grid-iron, nor has it been vilified for causing attacks of fever or other maladies; but in the beginning of autumn, when it first swims to our shores, it is sought very eagerly by everybody, and is eaten to satiety.

When preserved in salt and brine it is packed tightly in a jar and is therefore called 'preserved', that is, 'pickled'. When this has reached its right age and has imbibed the brine enough, it is eaten, mainly first of all mainly raw, with great enjoyment, then during the whole season either alone or with onions, the skin having first been removed. After being soaked for a couple of days it is also eaten with vinegar and butter or only vinegar. Our countrymen fry them, pickled in salt and brine, on a grid-iron and eat them with butter and a little vinegar. But if it is too salt, which often happens, it must first be soaked in water. Pickled or preserved herring is not eaten raw by our countrymen: nor do they know the art of preserving that the Dutch use.

Lightly sprinkled with salt and afterwards hung in smoke and hardened, the Herring is called 'dried and smoked', in English *a Red Herring*, in French *Harenc Saure*. Mr. Philippus Skippon has carefully written this to us concerning the capture of the Herring, and on the ways of salting it and hardening it in smoke.

In the sea that laps the shores of Suffolk and Norfolk, around the towns of Yarmouth, Lestoffe² and Southwold, it is thought that the most suitable season for catching Herring is from the middle of September to the middle of October. The nets used by the fishermen are about two and a half lasts wide, that is deep, twenty ells long, without any sack hung from their rear ends. They join together this kind of nets, as many as necessary, to each other, so that they extend to the length of an entire mile. A thick and strong cable (they call it a *Wallop*) is firmly tied with short ropes called *Seafins* to the middle and extreme ends of the ropes that are stretched to the separate nets and hold small balls of cork. This is done to strengthen the ropes just mentioned, in case a stormy wind happens to rise or the nets are weighed down by a great load of caught fish, so that it takes a great effort to pull them up. The fishermen form an idea of the places where the schools of Herrings are from the marine birds flying above: for these birds always follow the fish in order to catch them and observe every move they make. The fishermen sink their nets into the sea, while gently rowing forwards, and steer a course, as much as they can, across the swelling of the waves, but in a following wind they often drag their nets. The Herrings sometimes swim along with the current, sometimes against it, sometimes they travel on a course across its direction. As soon as any small boat is sufficiently loaded with captured fish, they hurry to the shore, and show the

² Lowestoft, that is.

fishes there; the fishes are then received by him to whom the task of washing, salting and drying them was entrusted (*the Tower*).

They separate these Herrings into six species or rather qualities. The first is called *Harengus pinguis* [Fat Herring], which is large and fatty and hardens for two or three months. 2. *Harengus carnosus* [The Meat Herring] which is equally large and rich in meat, but less fat than the foregoing. 3. *Harengus nocturnus* [The Herring of the Night]. This is of middle size, but less fat or rich in meat than the two preceding kinds. 4. *Harengus ruptus* [called *Pluck*], which was partly damaged or torn when being hauled up, entangled in the nets or stuck in them. 5. *Harengus vacuus* [a Shotten Herring], which has recently mated and is empty of roe or milk, that is spawn. 6. Finally, *Harengus acephalus* [a Cophen], which has had its head removed by one accident or other while being pulled out of the net.

All these species they salt in the following manner. Into a barrel of one last or at least half that capacity they first put a sufficient amount of salt, then about 500 *Herrings* in one lot [they call this measure a *Swill*], those that have been put in they turn over once and again with a pole, while all the time sprinkling salt while turning; in this manner they repeat the same job of salting and turning the Herrings just put in, until the barrel should be full. The *Herrings* that were put into the bottom of the barrel and salted become rigid at once, and they do not mix with those higher up, that are agitated during the salting. After 16 or at the most 24 hours they remove the Herrings and put them into wicker-work baskets with a structure so loose that they easily let pass the salt, the scales and other waste, when the fishes are drenched in water and washed.

They take out the fishes and put them on thin and long wooden javelins and hang them indoors to be smoked, on wooden implements made for this purpose and affixed to the top part of their houses, and the fishes hang so far down from the ceilings that a man of middle size will easily touch them with his arm stretched out. These javelins, laden with Herrings, are attached in rows on long wooden staffs, called *Loves*, which are affixed in either end to a kind of trunks [they call them *Bawks*], a distance of five twelfths (of a foot) being left between each. The trunks [*the Bawks*] are inserted into poles affixed to the ceiling and the stories, as it were, of javelins are very many, an interval of ten or more fingers being left between each. On the floor lying beneath they build pyres of wood chipped into thin twigs, which they put on fire every fourth hour. With closed doors, the fire, suppressed by some method, will smoke out as no air-hole is left, while the smoke escapes through cracks and spaces between the tiles. About five hundred chips [*billets*] suffice completely to smoke one last.

After a space of one single month they are ready for domestic sale; those, however, that are exported into transmarine regions inside the Straits of Cadiz, require six weeks. If the weather should be rainy or windy, the Herrings will dry more slowly in the windward side of the house. Therefore, as far as possible, they build their houses in places safe from the wind thanks to shelter from other buildings, or trees, walls, mountains, or hedges.

For the preserving or curing (as they say) of the Herrings they use Spanish salt, believing this to be the most suitable quality compared to others. One and a half cadus (a large vessel) [*a barrell*] of salt suffices for salting one Last. One vessel, that is one barrel, takes about seven hundred fat *Herrings*; of the other qualities a thousand, more or less, will fill a vessel. Ten vessels [*barrelli*] make one said Last.

Fishermen very often, when they have caught few fishes, preserve or cure them on board their boats in the middle of the sea; but these fishes are considered less good than those that are preserved on shore, where they are cured more conveniently.

White *Herrings*, that is preserved ones, called Solstitials as they are caught around the Summer Solstice, are very large and fat indeed, and these are preserved, empty of gills, intestines and roe, in brine and therefore called *pickled Herrings*. The *Dutch* have learned to prepare these more neatly and elegantly than our countrymen. Three, more or less, cadi of Spanish salt suffice to salt one Last.

The French and others are clever at drying *Herrings* in the Sun, and exercise this art. The season of the year that is most suitable for the drying of *Herrings* is when they visit the shores of *Norfolk* and *Suffolk*.

The *Herrings* swim in schools and love the littoral regions; they mate once a year at the time of the autumnal equinox; while carrying [their eggs] in the uterus, they are better and more excellent. *Schwenckfeld*.

John Ray, *Synopsis methodica*, London 1713, p. 103-104.

A I. HARENGUS Rondelet, Gesner, Aldrovandi. Chalcidus species Bellonio. A Herring.

This species of fish is nowadays so well known and famous all over Europe that it would be superfluous to look for its characteristic marks. Its length is nine inches or a foot, its width two or three inches. The head is compressed, as is the whole body, dressed in large and somewhat rounded scales that fall off easily; with a back that is darkish blue, white belly, silvery when scaled. It has a pointed belly full of spines, denticulated scales, ordered in a continuous row from the head all the way to the tail. The lower jaw is longer than the upper one, sharp with little teeth, as are the tongue and palate. It expires extremely quickly when out of the water.

When cooked fresh on a small grid-iron or fried in a frying-pan and seasoned with butter, it is considered as healthy as it is tasty and agreeable to the palate. However, many write that it gives a fever to those who heedlessly enjoy it when it is soft. Salted or cured in smoke it is transported to distant regions, with a great profit to the sellers. Every year *Herrings* are captured in a number clearly defying belief. *Herrings* swim in schools.

Peter Artedi, *Ichthyologia* (1738), Vol. V *Descriptiones*, p. 31-33.

CLUPEA, GENUS OF FISHES No. 4.

1. *Clupea maxilla inferiore longiore, maculis nigris carens* "C. with longer mandible, lacking black spots.' Sweden: 'Strömming'.

1. The head is compressed, somewhat pointed distally.
2. Upper part of the head, between the snout, the eyes and the back is carved out, that is, somewhat concave.

3. The opening of the mouth is large compared to the body.
4. When the mouth is opened, the snout rises somewhat, and the maxillary bones, which cover the mandible on both sides, juts strongly forward.
5. The mandible projects very much in front of the maxillary, and when the mouth is closed it is hidden and covered on both sides by the bones of the maxillary.
6. The nostrils are conspicuous, provided with a double opening the anterior of which cannot be observed by sight alone; they are slightly closer to the back than the eyes.
7. The eyes are large, situated on both sides of the head. Iris silver in colour.
8. There are some extremely small teeth: (a) distally on the mandible, on the maxilla (also distally) they are so small that they can hardly be observed by those who are less experienced. (b) The lateral aspect of the maxillary, covering and closing the mandible, is also slightly serrated in its circumference. (c) In an oblong area sown with little teeth in the middle of the anterior part of the palate, that is, two rows of little teeth located in a longitudinally straight line in the posterior part of the palate. (d) The tongue, which is somewhat pointed and free below, is armed with very small, blackish, posteriorly directed teeth.
9. Spots, mostly pretty, red or violet on both sides of the gill rakers.
10. The gill covers are – except for the named spot (9) – silver in colour and consist of three or four bony laminae and eight rays that are a little bent and on both sides joined below by a membrane.
11. The lateral line is straight, closer to the back but not very conspicuous.
12. The scales are large compared to the body, of silver colour, fall off easily, situated like gutter-tiles.
13. The back is dark grey, but more bluish in the spring season. Sides and belly of silver colour.
14. The belly is in its entirety, from the gills to the anus, somewhat pointed and contracts into a sharp keel; the back is convex, that is, neither pointed nor flat.
15. Four gills on each side, the three outermost of which, that is, the largest ones, are [provided] with a single row of pectiniform outgrowths [gill filaments] that are very long in the outermost, that is, the largest, gill, not dissimilar to the feathery parts of the wings of birds. The bottom, or smallest, gill has a double row of sharp outgrowths, the lowest of which are the shortest.
16. One whitish dorsal fin in the middle with nineteen rays, the first of which is simple, all the rest a bit divided distally; the two first are small.
17. The pectoral fins are whitish, located on the belly, with eighteen rays, the first of which is simple, all the rest a bit divided distally; the outermost are smallest; the first one is largest along with those closest [to it].
18. The pelvic fins are white and small, with nine rays, the first of which is simple, the rest split into four points distally; the first one is large along with those closest, the last one is smallest.
19. The anal fin is white, very close to the tail, with 18 or 19 rays (if one decides to count the final one as two that are extremely close to each other) the two or three first of which are simple, the rest a little divided distally; the first and final ones are smallest.

20. The tail is forked, greyish, with eighteen long rays, two of which are simple (except for the outermost smaller ones), the rest are divided distally.
21. Locale: In Sweden only the sea, the Ocean etc.
22. The heart is four-sided, furnished with sharp angles.
23. The liver is red, small, angled, with the gall-bladder beneath.
24. Two ovaries, large, simple, and wide, extended along the entire belly, joined beneath, packed with innumerable whitish eggs.
25. The stomach is somehow double, divided below the esophagus, however, on its right side there are some appendices to the pylorus, that is, oblong diverticles with juices, 16 or 17 in number, located below the esophagus but only on one side of the intestine, which from there extends straight to the anus. The other, that is, the left side of the intestine is joined at its end with the former by a kind of membrane and has a [pneumatic] duct to the swim bladder. The spleen is small, oblong, located at the beginning of the intestine.
26. The swim bladder is long and narrow, extending along the entire abdomen, simple, of silver colour, easily separated from the back.
27. The peritoneum is dark, that is, blackish. The interior of the kidney is the colour of coagulated blood; it adheres to the spine along all its length.
28. The ribs are thirty-five on each side; the vertebrae are generally fifty-six or fifty-seven. In the *Sprat* of the English I have only counted 48 vertebrae; the *Herring* of the English has, however, 56 or rather 57 vertebrae (and as to the species it is one and the same as the 'sill' or 'strömming' of the Swedes); in *Enchrasicholus*, that is *Anchovies*, there are 45 to 46 vertebrae and 9 false not stiffened ribs.

Full length	5 inches	3 lines
Length to middle of eye		5 lines
Length to pectoral fins	1 inch	2½ lines
Length to dorsal fin	2 inches	4 lines
Length to pelvic fins	2 inches	5½ lines
Length to end of dorsal fin	2 inches	9 lines
Length to anal fin	3 inches	4 lines
Length to end of same	3 inches	9½ lines
Length to beginning of tail	4 inches	3 lines
Vertical width at middle of eye		6 lines
Vertical width at pectoral fins		8½ lines
Maximum width behind pectoral fins		9½ lines
Maximum width at dorsal fin		9 lines
Maximum width at pelvic fins	2 inches	6 lines
Maximum width at anal fin		6 lines
Minimal width just in front of tail		3 lines
Minimal width at beginning of tail		3½ lines.