

CLAM FISHING IN THE FIRTH OF CLYDE.

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The shellfish called Clams in Scotland, or Scallops in England, belong to the Genus *Pecten*, an easily recognised group of bivalve molluscs. The two best known species are *Pecten maximus* (L), easily recognised by its flattish, strongly ribbed shell, the right valve being rather deeply convex, while the left is almost flat, and *P. opercularis* (L), known as "queens," a smaller species in which the valves are almost equally convex. Both these species are gregarious, queens in particular occurring in vast numbers on certain suitable grounds; there are also about ten other less important, economically useless, species in British waters. Both species prefer a sandy or gravel sea-bottom, but occur on mud or sandy mud as well; they are found chiefly in depths of 4 to 20 fathoms. Their food consists of vegetable particles such as diatoms, detritus, algal spores and such small animals as may be drawn in by the ciliary current passing in between the mantle lobes. This current, set up by the cilia on the gills and palps, is filtered by the gills where the food particles become entangled in mucus and conducted to the mouth.

P. maximus, "the clam" of Scottish fishermen, has the two valves unlike (inequivalve), a condition very different from that seen in equivalve forms such as the mussel and cockle. Both valves are strongly ribbed from the hinge to the margin, the ribs on the two halves are more or less alternate so that the waved edges of the shell interlock when closed. The shells are rela-

tively light for their size, which may be an adaptation related to their habit of swimming, for clams swim by separating the two valves and then rapidly clapping them together again. Queens have been known to swim in shoals in this way and migrate for considerable distances.

Clam fishing occurs rather intermittently, often being adopted by fishermen in an off-season when some other fishing fails. On this footing the clam fishing was a welcome stopgap in the Clyde during 1937, when the herring fishing was giving most unsatisfactory results. Clam fishing is usually carried out by use of a dredge of the oyster dredge type, having a narrow oblong frame about 5 feet across the mouth. The lower side of the net is made of iron rings laced or wired together. The lower side of the frame is set with teeth which rake well into the sandy sea-bottom.

The following table shows the amount and value of clams fished in Scotland in recent years:—

Year.	Cwt.	£	Year.	Cwt.	£
1929	11	4	1937	13,413	14,745
1930	14	3	1938	2,648	3,452
1931	22	9	1939	1,980	2,321
1932	14	7	1940	149	206
1933	—	—	1941	1,081	2,996
1934	4	8	1942	883	4,046
1935	74	176	1943	476	1,632
1936	1,646	2,008			

The East Coast now contributes less than 7% of the Scottish total, whereas the Clyde contributes 86%. These returns for recent years, based almost entirely on *P. maximus*, make an interesting contrast in comparison with the returns of some years ago when a fishery based on *P. opercularis* was operated in the

Firth of Forth. In the Annual Reports of the Fishery Board for Scotland the returns for clam fishing during the period 1909-19 show an average catch of some 7,700 cwts., valued annually about £1,160. Twenty years earlier this fishing was of the order of 20,000 cwts. annually, fetching over £2,000. The 33rd Annual Report, 1915, states—"The Firth of Forth beds furnish practically all the clams landed in Scotland;" the only other district showing a return for clams was Ballantrae, where only some £30 worth were being landed yearly.

Clam shells show fairly clear growth rings from the measurements of which we can determine the approximate age of most specimens. There is a good deal of variation in individual growth, but on the average a clam 4 inches wide is five years old. The growth (winter) rings often show clearly up to 8 years, but thereafter may be indistinct, or close, although a few show as many as 12 growth rings quite clearly.

Young clams 66 to 82 mm. ($2\frac{5}{8}$ to $3\frac{1}{2}$ ins.) wide in April, therefore presumably about 33 months old, are mature, and contain well developed eggs. In these and older specimens the reproductive organs show as bright red patches of tissue in the foot. Spawning may occur from April to September, but happens chiefly from June to August. Of the early larval life we know nothing, but in late July and August small *P. maximus* (0.7—4 mm. in size) may be found attached to the Tangle seaweed, *Laminaria saccharina*, in considerable numbers. The attachment is made by means of byssal threads, such as the common mussel uses throughout its life. At about 6 mm. the small clams leave the Tangle and presumably settle on the sea bottom. At this stage the shell is almost transparent and usually marked with brown or yellow bands of colour. From the time of leaving the Tangle until they are an inch or more in size they are very rarely taken. In fact, the case is similar to that of the Lobster and Lug Worm, two

common inshore organisms, of whose early stage of growth we are singularly ignorant.

Thanks are due to the Fishery Branch of the Scottish Home Office for the data for the last few years.

Further information about *Pecten* may be found in—

Dakin, W. J. *Pecten*. The Edible Scallop. Liverpool Mar. Biol. Comm. Memoirs, No. 17, 1909.

Priol, E. *La coquille Saint-Jacques* (*Pecten maximus*).

Rev. Trav. Pêches Maritimes. Paris, 3, 1930.

Yonge, C. M. The evolution of the swimming habit in the Lamellibranchia. Mem. Mus. Hist. Nat. Belg. (2), 3, 1936.

Annual Reports of the Fishery Board for Scotland; Statistical Tables.

THE ROTHESAY BEGGARS' BADGES.

By Rev. JAMES HAY HAMILTON, B.D.

These large metal badges, of which there are some specimens in the Museum, throw light on the social life and customs of this town and parish during the eighteenth and nineteenth centuries.

An important function of the Church in these times was the care of the poor. The Kirk Session of each parish allocated all church collections to the relief of poverty-stricken persons living within the bounds, and this money was supplemented by the fines which they were empowered to impose for breaches of church discipline, and from other sources. Despite these measures, the funds received were quite inadequate to cope with the need, and Kirk Sessions were in the habit of giving badges or tokens to deserving poor persons within their bounds to entitle them to the privilege of eking out their living by begging. The law was very severe in its punishment of able-bodied beggars and vagabonds, but when badges or licences were granted to poor people by competent authorities these badge-bearers or license-holders were allowed to beg with impunity. This begging system was even sanctioned by Act of Parliament. An Act of 1672 directed heritors and Kirk Sessions to "condescend upon such as, through age and infirmity, are not able to work . . . that they may be supplied by the contributions at the paroch Kirk, and gif the same be not sufficient to entertain them, that they give them a badge or ticket to ask alms at the dwelling-houses of the inhabitants of their own paroch only, without the bounds of whereof they are not to beg."