THE TAY SALMON FISHERIES IN THE NINETEENTH CENTURY

by

IAIN AITKEN ROBERTSON

Submitted for the degree of Doctor of Philosophy

October 1989

Department of History

University of Stirling

ABSTRACT

At the beginning of the nineteenth century, new methods of preservation allowed Tay salmon to be sold on the London market for the entire fishing season. Such was the size and buoyancy of this market that it absorbed the entire produce of the Tay fisheries, though catches were at that time increasing due to the introduction of stake nets in the Firth. However, these beneficial developments created tensions among the participants in the fisheries. Stake nets took fish which would have ascended to the river, reducing the catches of river tacksmen and the rentals of river proprietors. An increasing number of tacksmen meant that management of the fisheries ceased, as formerly, to be in the hands of a single company and gave rise to more competitive exploitation of the existing salmon stock. A particular result of these developments was that all participants in the fisheries developed an abiding preoccupation with the threat of over-fishing. This was further enhanced by the introduction of stake nets on the coast after they were banned from the estuary, development of a series of stake net substitutes in the estuary, more efficient conventional methods of fishing at more stations, and a revival of poaching from mid-century onwards.

The court case which led to stake nets being removed from the estuary formalised the animosity between the various proprietorial groups. Their subsequent adoption of entrenched positions eventually led to the tripartition of the Tay fisheries into estuarial, river and upper river factions. Successive inquiries and two Acts of Parliament failed to reconcile the enmities which were sustained by strongly held beliefs in property rights and the need to defend rental incomes. The *impasse* was ultimately resolved by a single company which, by doubling rental payments, was able to take all netting stations into its own hands and thus revive unified control of the Tay salmon fisheries.

ACKNOWLEDGEMENTS

The preparation of this thesis has been greatly assisted by the generous help and encouragement provided by many friends and colleagues. I am deeply indebted to them all and take this opportunity of expressing my sincere thanks.

For a second time Stephen Connelly, District Archivist at Perth and Kinross District Archive, helped me in the preparation a piece of academic research. He has been an unfailing guide to the material in his charge and has given freely of his expertise and time. Dr John Berry, CBE, of Tayfield allowed me access to the Tayfield Papers and has been unstinting with his encouragement of and interest in my work. I am indebted to Alastair Cruikshank of Condies and Richard Blake, clerk to the Tay District Salmon Fisheries Board, for allowing me access to the material held at Condie's offices, and to Ian Mitchell, managing director of the Tay Salmon Fisheries Company, for placing his company's records at my disposal. Gordon Struthers of the Freshwater Fisheries Laboratory at Faskally provided most helpful and detailed answers to my queries and J. Bradley Thomas of Stanley allowed me to draw upon his unrivalled knowledge of the upper river and lent me printed material in his possession. George McKenna advised on the preparation of data bases, John Rogers generously took time to process the data drawn from the *Valuation Rolls* and Jennifer Irving most kindly undertook final preparation of the graphical figures.

Throughout the preparation of this thesis I have been sustained by the wise council, trenchant criticism, exemplary patience and unfailing encouragement of Dr Anand C. Chitnis and Dr Neil Tranter of the Department of History at the University of Stirling, my directors of studies. Finally, I should like to thank Irene, Niall and Catriona for their forbearance and encouragement during the preparation of this work.

CONTENTS

		Page
Abstract	.. ..	ii
Acknowledgements	.. ..	iii
Tables	.. ..	viii
Figures	.. ..	x
Abbreviations	.. ..	xii
Chapter One	Introduction	
I	Topography	1.
II	The Natural History of the Atlantic Salmon	13.
III	The Proprietors	21.
References	.. ..	33.
Chapter Two	The Traditional Salmon Fisheries	
I	The Modes of Fishing	43.
II	Preservation and Transportation	52.
References	.. ..	60.
Chapter Three	New Methods of Preservation	
I	The Introduction of Kitting	72.
II	The Introduction of Ice	82.
III	Conclusions	85.
References	.. ..	91.
Chapter Four	The Stake Net Cause	
I	The Coming of the Stake Nets	99.
References	.. ..	111.

		Page
Chapter Five	**The Aftermath of the Stake Net Cause**	
I	Competition Between Tacksmen	126.
II	Adverse Trading Conditions	132.
III	The Continuing Conflict Between River and Estuary	141.
IV	Poaching	147.
V	Proposals for Legislation	151.
	References	153.
Chapter Six	**Parliamentary Intervention**	
I	Natural History	167.
II	The Close-time	175.
III	The Modes of Fishing	179.
IV	Parliamentary Conclusions	182.
	References	187.
Chapter Seven	**Increasing Pressures**	
I	Improving the Navigation	197.
II	The Pre-occupation with Over-Fishing ..	215.
III	Practical Evidence of Over-Fishing	220.
	References	233.
Chapter Eight	**Further Legislation**	
I	The Continuing Agitation in Favour of Stake Nets	262.
II	Poaching	276.
III	The Close-Time	284.
IV	Summary	289.
	References	294.

		Page
Chapter Nine	**Ends Against the Middle**	
I	The Upper River *versus* the River	317.
II	The River *versus* the Estuary	330.
III	The Tacksmen	338.
IV	Formation of the Tay Salmon Fisheries Company	349.
	References	354.
Chapter Ten	**Full Circle**	
I	The Elgin Commission	397.
II	The Salmon Stock	404.
	References	415.
Chapter Eleven	**Conclusion**	429.
	References	447.
Appendices		
Appendix I	Burgh of Perth Fishings, Tacksmen and Rentals - 1697/98 to 1848/49	450.
Appendix II	River Tay Fishings held by John Richardson & Company	454.
Appendix III	John Richardson's "Thoughts upon a Monopoly of the Salmon Trade"	456.
Appendix IV	Accounts of the Former Company, Berry & Bell, after its Sequestration in July 1824 ..	459.
Appendix V	Draft of a letter to the *Morning Chronicle*, 1846..	467.
Appendix VI	Remarks by Robert Buist on the Action between the Earl of Zetland and the Proprietors of the Estates of Errol and Seaside, 1866.. ..	472.

		Page
Appendix VII	Artificial Propagation	478.
Appendix VIII	Was there over-fishing?	482.
Select Bibliography	.. ..	498.

TABLES

		Page
Table 1.1	The Principal Tributaries of the River Tay	8.
Table 1.2	Some Biological Data Concerning the Atlantic Salmon	13.
Table 1.3	Categories of Returning Salmon	16.
Table 3.1	Burgh of Perth Fishing Rentals - 1707-1814	76.
Table 3.2	Produce of the River Tay - 1784-1810 ..	89.
Table 4.1	Some Salmon Prices - 1786-1809	109.
Table 4.2	Burgh of Perth Fishings Produce and Rentals 1800-1856	121.
Table 4.3	Kinfauns Fishings Produce and Rentals 1800-1856	123.
Table 4.4	Panmure Fishings Produce and Rentals 1800-1856	125.
Table 5.1	Average Prices of Spring Salmon - 1816-1835	133.
Table 5.2	Rentals of the Tay Basin - 1828-1904 ..	134.
Table 5.3	Kinnoull Fishings Produce and Rentals 1800-1856	136.
Table 7.1	Estates and Their Proprietors Submitting Returns to the Navigation Commissioners 1830-1846	203.
Table 7.2	Produce Above and Below the Average of 1830-1834 (Eligible Estates)	205.
Table 7.3	Compensation Paid by the Navigation Commissioners to Eligible Fishing Proprietors 1835-1845	207.

		Page
Table 7.4	Produce of the Commercial Fisheries of the Tay Basin 1830-1845	211.
Table 7.5	Burgh of Perth Fishings - Correlation between Produce and Rentals	257.
Table 7.6	Panmure Fishings - Correlation between Produce and Rentals	258.
Table 7.7	Kinfauns Fishings - Correlation between Produce and Rentals	259.
Table 7.8	Kinnoull Fishings - Correlation between Produce and Rentals	260.
Table 7.9	Tay Fisheries - Correlation between Produce and Rentals	261.
Table 8.1	Number, Weight and Value of Boxes of Salmon Sent to Billingsgate - 1834-1900	266.
Table 9.1	Various Proposals to Alter the Conditions Affecting the Tay fisheries	383.
Table 9.2	Number of Fishing Stations in use on the River Tay 1897/98 with number and type of net used (where known), and 1903 with tacksmen and stations worked	385.
Table 9.3	Total Annual Value of Tacks Paid by Selected Tacksmen 1856-1914	341.
Table 9.4	Produce of the Tay Salmon Fisheries Company 1904-1914	389.
Table 10.1	Indexed Rentals of the River Tay Fisheries 1863-1900 - Some Proportions	408.
Table 10.2	Number of Tacksmen on the Tay *per annum* 1855-1914	413.

FIGURES

		Facing Page
Figure 3.1	Burgh of Perth Fishings, Rentals 1740-1799	76.
Figure 3.2a	Produce of the River Tay 1784-1810 (salmon and grilse)	89.
Figure 3.2b	Produce of the River Tay 1786-1808 (total and five year average)	90.
Figure 4.1	Produce of the River Tay 1799-1809 (river fisheries and stake nets)	105.
Figure 4.2	Some Salmon Prices 1796-1809	109.
Figure 5.1	Average Prices of Spring Salmon 1816-1835	133.
Figure 5.2a	Rentals of the Tay Fisheries 1830-1865	134.
Figure 5.2b	Rentals of the Tay Fisheries 1865-1902	135.
Figure 7.1a	Produce of the River Tay 1830-1846 ..	211.
Figure 7.1b	Produce of the River Earn 1830-1846 ..	212.
Figure 7.2	Kinnoull Fishings Produce 1814-1846 ..	216.
Figure 7.3a	Kinnoull Fishings Rentals 1814-1834 ..	217.
Figure 7.3b	Kinnoull Fishings Rentals 1835-1855 ..	217.
Figure 7.4	Tay Fisheries Produce - Three Periods ..	219.
Figure 9.1a	J Johnston & Sons, Tacks 1856-1914 ..	340.
Figure 9.1b	Foote Family & Others, Tacks 1858-1899 ..	341.
Figure 9.1c	Alexander Speedie, Tacks 1857-1896 ..	342.
Figure 9.1d	Powrie & Pitcaithly, Tacks 1858-1894 ..	343.
Figure 9.1e	A & D Powrie, Tacks 1856-1900	344.
Figure 9.1f	George Pitcaithly, Tacks 1860-1898 ..	345.
Figure 9.2a	Tay Salmon Fisheries Company Produce 1903-1914 (salmon, grilse and sea trout)	351.
Figure 9.2b	Tay Salmon Fisheries Co. Produce 1903-1914	352.

		Facing Page
Figure 9.3	Tay Fisheries Produce - Four Periods ..	353.
Figure 10.1a	Tay Rentals by Proportion 1863-1881 ..	408.
Figure 10.1b	Tay Rentals by Proportion 1882-1900 ..	409.
Figure 10.2	Upper River Rentals 1863-1900	410.
Figure 10.3	Estuarial Rentals 1863-1900	411.
Figure 10.4	River Rentals 1863-1900	412.
Figure 10.5	Number of Tacksmen *per annum* 1855-1914	413.

REFERENCE ABBREVIATIONS

National Library of Scotland, Richardson of Pitfour Papers.

MS 20801	Letter Books, 1763-1764.
MS 20809	Letter Book, 1771.
MS 20824	" " , 1785-1788.
MS 20828	" " , 1789-1792.
MS 20976	Sederunt Book of the Partners in the Tay Fishing Business, 1781-1791.

Stake Net Cause

1810 Evidence	Refer to the second case in the Stake Net Cause, 1809-
1811 Evidence	1812, ***Atholl v. Maule***, the abbreviations identify the
1812 Evidence	year in which the evidence was given.

Perth and Kinross District Archive.

B59/16/11-14	Perth Town Council Minutes, 1694-1753.
PE 1/1/1-29	" " " 1753-1905.
B59/35/1-44	Fishing Papers.
PE 1/4/1-3	Harbour Commissioners Minute Books, 1830-1841.
PE 15	Perth Town Council Mass.
PE 16	Town Clerk's Papers.
PE 25	Harbour Commissioners Papers.
PE 51	Perth Town Council Legal Papers.
Glovers	GD 227, Glover Incorporation Papers.
Malloch	MS 5, P.D. Malloch Papers.
Seggieden	MS 34, Hay of Seggieden Papers.

National Register of Archives (Scotland).

Tayfield	NRA(S) 874, Berry of Tayfield Papers.
Leys	NRA(S) 1489, Hay of Leys Papers.
Kinnoull	NRA(S) 1489, Kinnoull Papers.

Sederunt Book Nos. 2-3	Sederunt Books of the Proprietors of Salmon Fisheries in the River Tay, 1843-1862.
TBMB	Minutes of the Tay District Salmon Fisheries Board.
TBP	Tay District Salmon Fisheries Board Papers.

1824 Committee	*Report from the Select Committee on the Salmon Fisheries of the United Kingdom, 1824.*
First Report	17th June 1824.
Second Report	30th March 1825.
Third Report	3rd June 1825.
1827 Committee	*Committee on the Bill for the More Effectual Preservation and Increase of the Breed of Salmon, and for Regulating the Salmon Fisheries, Throughout Great Britain and Ireland, 1827.*
1836 Committee	*Report from the Select Committee on Salmon Fisheries, Scotland: together with the Minutes of Evidence, Appendix and Index, 1836.*
1842 Committee	*Report from the Select Committee of the House of Lords Appointed to Consider of the Bill intituled 'An Act for the Better Regulation of the Close Time in Salmon Fisheries in Scotland;' 1842.*
1860 Committee	*Report from the Select Committee of the House of Lords on Salmon Fisheries, Scotland, 1860 (456) XIX. 1.*

1864 Report	*Nominal Return of Every Salmon Fishery in Scotland; Valuation of Each, and Mode of Capture Practised; 1864 (70) LVIII, 583.*
Buckland & Young	*Report of the Special Commissioners appointed to Enquire into the Effect of Recent Legislation on the Salmon Fisheries in Scotland, C 419, 1871.*
Elgin	Royal Commission on Salmon Fisheries: *Report of the Commissioners;* 1902 Cmnd. 1188 xiii. 1.
Part II	*Evidence and Indices;* 1902 Cmnd. 1269 xiii. 75.
Part III	*Appendix. Section II (Scotland);* 1902 Cmnd. 1281 xiv. 263.

BPB	*Burke's Peerage and Baronetage,* various editions.
BLG	*Burke's Landed Gentry,* various editions.
Complete Peerage	Doubleday & Howard de Walden: *The Complete Peerage,* London, 1932.
DNB	*Dictionary of National Biography.*

CHAPTER ONE

INTRODUCTION

I - Topography

That the River Tay has always been an important salmon river stems from the topography of the Tay Basin. The features of geology and landform are such as to create an environment particularly suitable for the breeding requirements of salmon and the extent of the Tay basin ensures sufficient water area to support a large salmon stock. There follows a brief description of the salient topographical features of that district[1]. The area of the Tay basin is the greatest of all the Scottish rivers, amounting to 2,338 square miles[2], and this very extensive drainage gives the Tay the greatest volume of flow of any river in the United Kingdom. The Tay basin falls into two distinct parts: the Highland area and that within the Scottish Midland Valley, the two divided by the Highland Boundary Fault (HBF)[3]. Although the headwaters of the principal tributary (the Tummel) rise beyond Rannoch Moor near the head of Loch Etive, the Highland Tay and its other tributaries are largely confined to the Central Grampians. This mountainous area consists of a plateau of metamorphic[4] rocks of the Moine and Dalradian Series[5] that has been highly dissected so that little remains of the original peneplain[6] which was itself the eroded remnants of an ancient range of mountains, in this area called the Grampian Caledonides. The peaks and ridges which form the remaining high ground have endured because of the geological character of the constituent rock, for example the tough quartzite[7] of Schihallion above Loch Rannoch, or the schistose[8] grits[9] of Ben Voirlich and Stuc a'Chroin above Loch Earn. The lateral forces which gave rise to the Caledonian mountain-building period were from the south-east in a north-westerly direction, and from the north-west in a south-easterly direction, creating folds whose axes run from

south-west to north-east. This explains the predominant grain of the Grampian area, called the Caledonian Trend. However, in addition to the predominant grain there are two additional trends within the Tay basin. The first of these, the result of faults[10] such as the Tyndrum and Loch Tay Faults, give trends in a more north-south direction. These faults occurred after the Caledonian movements and have resulted in lateral movements of up to five miles. The second additional trend is in an east-west direction and is found in the Rannoch-Tummel basin and in Glen Lyon. These were the result of ice-dispersal and are examples of a discordant drainage pattern. Ice-movements normally followed the Caledonian Trend, but where existing valleys would not allow radial dispersal of ice from a central glacier, the ice cut across the grain creating new valleys. Radial dispersal from the glacier on the Moor of Rannoch is thought to be the explanation in these two instances. The glens which surround the surviving mountains have been subject to considerable further modification during the ultimate phase of the Ice Age.

That part of the Tay basin located within the Midland Valley is relatively simple to define: the northern march is the HBF, to the south the Ochil Hills form the boundary between the Tay-Earn and the River Forth, and to the east the North Sea marks the ultimate destination of the river. The least obvious boundary is to the west where an indistinct watershed separates the Earn from the Allan Water - a tributary of the Forth. Within these confines, three sub-divisions of the Lowland Tay may be distinguished. First, the Tay within Strathmore which begins where the river crosses the HBF beyond the Pass of Birnam. Here the Tay enters a strath formed by a syncline[11], the axis of which runs parallel to the HBF. The further side is defined by the Sidlaw Hills where the downfolded strata return to the surface to form the

northern slope (limb) of the Tay Anticline[12]. The rocks of Strathmore are all unmetamorphosed and belong to the period of the Old Red Sandstone (ORS)[13]. The second sub-division consists of Strathearn. Part of the course of the River Earn is within the Highland area, but it crosses the HBF near Comrie and is thereafter in Strathearn and of the ORS geological series. The formation of Strathearn was partially due to a downward flexing of the sedimentary layers during the ORS period, but the sides of the strath are higher because the lavas associated with the Sidlaw and Ochil Hills have interbedded with the sedimentary layers reducing the extent of erosion. The downward flexing of the strata in Strathearn was part of widespread movements also associated with the third sub-division - the Firth of Tay. As noted above, the Strathmore syncline returns to the surface in the Sidlaw Hills which form the northern limb of the Tay Anticline (Sidlaw-Ochil arch)[14], the Ochil Hills forming the southern limb. The Tay estuary is contained in the gap between these two limbs and was formed when the crest of the arch became detached and downfaulted, "as if the keystone had dropped"[15]. The downfaulting was considerable, Walker suggests two miles[16], and the arch is now buried by a layer of upper ORS and post-glacial infill. Both the Tay and the Earn reach their joint estuary by breaching the Tay anticline, the Tay at Perth by the Perth Gap, and the Earn at Forgandenny.

The true source of the River Tay is a matter of debate: the two contenders are the ***Allt an Rund*** which rises on the 3,000 foot contour at NN 265267 on the steep northern slopes of Ben Lui (3,708 feet), or the ***Allt Coire Laoigh*** which rises at NN 274247 near the 2,250 foot contour on the ***bealach*** between Ben Lui and Ben Oss (3,374 feet), to the south-east of the former mountain. These two hill burns combine to form the River Cononish which at first follows the line of the Tyndrum Fault, then

describes an eastward-tending arc to enter Strath Fillan and become the River Fillan. At NN 345287, almost the point of entry into Strath Fillan, are the Falls of Fillan, the first of three modest falls that occur in the course of the Tay. The River Fillan is a mere three-and-a-half miles in length and at Crianlarich its direction changes from south-easterly to just north of east, so complying with the Caledonian Trend. At this point it becomes the River Dochart[17]. In the sixteen miles from Crianlarich to Killin the Dochart is a more gentle river than the turbulent Cononish or Fillan, for in Glen Dochart the action of the river has been augmented by glaciation so that the glen was straightened and the river meanders on the floor of a typical U-shaped valley. At lochs Dochart and Iubhair the river widens to fill a basin gouged by glacial action, the two lochs being separated by the lacustrine delta of the Benmore Burn which descends from the grits and micaschists that compose the Ben More massif on the south side of the glen.

At the village of Killin are the Falls of Dochart, the second falls on the trunk stream of the Tay, which, like the Falls of Fillan, pose no barrier to ascending salmon. Just before entering Loch Tay the Dochart is joined by the River Lochay and the two rivers enter the loch as one. Loch Tay is sixteen miles long and its considerable depth - to 150 feet below the present sea level - is the result of glaciation. Though it in general follows the Caledonian Trend, it kinks to a more northerly direction where it crosses the Loch Tay Fault, which extends some 50 miles from Loch Lubnaig in the south to Glen Tilt in the north. The northern shore of Loch Tay is dominated by the Lawers Group of mountains whose calcareous schists provide the habitat for a rich variety of Arctic-Alpine *flora*. Loch Tay is also thought to mark the transition from the more heavily glaciated Western Highlands which accumulated a greater depth of ice because of a higher rainfall, to the less eroded

country in the drier east. Loch Tay certainly marks the furthest extent of the last period of glaciation (the Loch Lomond Readvance), and where the river, now called the Tay, issues from the loch at Kenmore it passes through glacial outwash[1e]. After being joined by the River Lyon two-and-a-half miles below Kenmore, the Tay maintains a winding, leisurely course through Strath Appin, beneath Wade's Bridge at Aberfeldy, and so to near Grandtully where the valley narrows and the river becomes more turbulent as it passes over rapids for some three miles. The rough water abates and the river continues a tranquil flow to Ballinluig where it is joined by its principal tributary, the Tummel-Garry, and abandons the Caledonian Trend to flow in the south-south-east direction of its tributary. The Tay is now in the final section of its course as a Highland river and beyond Ballinluig the flow is interrupted by gravel banks and small islands. Above Dunkeld the valley narrows where the river has cut through a band of schistose rocks, exposed on the crags of Craig-y-Barns to the north. Thereafter it is joined by the River Braan before passing beneath Telford's Bridge at Dunkeld and heading for the Pass of Birnam. Here the river again encounters harder schists with the addition of a band of slate which appears (and has been worked) on both sides of the valley. On reaching the HBF the course swings through ninety degrees to head north-east parallel to the HBF for about a mile, before reverting to a south-easterly direction as it flows out on to Strathmore.

The various rocks over which the river passes after crossing the HBF are probably consolidated detritus washed down from the Grampian Caledonides during the period when they were subject to peneplaination. A similar origin is ascribed to the sedimentary sandstones found slightly further out on the strath, the finer silts having been carried further before being deposited[1e]. Thereafter the underlying sandstone is

covered by a layer of alluvium[20] and the Tay assumes the characteristics of a lowland river with a winding and unrestricted course that changes from a south-easterly to a southerly direction. At Kinclaven the Tay is joined by the River Isla which extends the Tay drainage up Strathmore as far as Forfar and into the Angus Glens to the north. The course of the river at Cargill is more constricted where the stream has incised itself into the floor of the strath. Beyond Cargill and above Stanley is Campsie Linn (NO 124340), the third and most significant of the falls on the Tay. Here a dyke of dolerite[21] crosses the river at almost a right angle, causing it to rush and tumble through gaps created by the erosive force of the river. Beyond Stanley and Luncarty, both of which had works operated by water-power, the river is at times incised as it winds over its floodplain towards Perth, and above Perth it is joined by the River Almond, also noted for the water-powered works that formerly lined its banks.

Until the nineteenth century Perth was the lowest bridging point on the Tay, and after passing the North Inch, the river sweeps under Smeaton's elegant bridge, completed in 1772. Perth is at the head of the navigation and the two harbours are on the west shore opposite Moncrieff (Friarton) Island, the largest island in the Tay. The main stream of the river flows to the west of the island, while the smaller Willowgate flows to the east. It is at the foot of Moncrieff Island that the river turns sharply east to pass through the Perth Gap in the Tay Anticline. For four miles or so to the mouth of the River Earn the river follows a single channel with sloping banks particularly suitable for the use of nets, the former islands of Sleepless, Darry (Darien or Incherrat) and Balhepburn having been joined to the shore during deepening operations in the 1830s and 1840s. At the confluence with the Earn the river widens to form the joint estuary of the Earn and the Tay[22], while on the north

shore the Sidlaw Hills diverge to the north-east with the alluvial plain of the Carse of Gowrie filling the intervening ground. The estuary is some twenty miles long and follows an east-north-east direction. Walker is of the opinion that this section is more of an esturine delta than an estuary, as at states of the tide below high water the river threads through a maze of constantly shifting sandbanks[23]. Opposite Newburgh is the reed fringed Mugdrum Island (formerly Reedy Inch), and it is at Newburgh that the Ochil limb of the Tay Anticline begins to slant across the firth in a slightly more northerly trend than that of the river itself. The southern shore thus ceases to be a narrow alluvial plain and is composed instead of lavas and volcanic ashes. The dip slope of the Ochils is away from the estuary, so that a series of steep escarpments are presented to the north with, at places, low cliffs at the river's edge.

The alluvium of the Carse of Gowrie is largely marine clay laid down when the Carse was inundated by the sea during the Ice Age. The carselands are not now subject to flooding as the land has risen since the weight of ice was removed (isostatic warping) and the river has incised itself into the alluvium. However, the natural tendency of the clay is to hold water and impede drainage, and draining and reclaiming the carselands went on into the nineteenth century[24]. At Kingoodie the alluvium of the carse is replaced by the ORS. The estuary narrows towards Dundee, and at the Stannergate at the east end of the Dundee waterfront, the southern limb of the Tay Anticline reaches the northern shore of the estuary. At Broughty Ferry the estuary narrows to less than one mile across to Tayport (formerly Ferry-port-on-Craig) on the southern shore. The termination of the estuary is between Buddon Ness in the north and Tentsmuir in the south, and the waters of the Tay finally merge with those of the North Sea at the Drumlie Sands.

Different texts give difference distances for the length of the River Tay varying between 115 and 120 miles.

Table 1.1

The Principal Tributaries of the River Tay

River	Source	Termination	Length (miles)
Almond	Creag Uchdag NN 706325	River Tay NO 101267	31
Ardle	Glen Loch NN 974709	River Ericht NO 147516	20
Braan	Upper Glen Quaich NN 773369	River Tay NO 023424	19
Garry	Beinn Bhaidheach NN 558656	River Tummel NN 913599	39
Isla	Cairn of Claise NO 194778	River Tay NO 160376	43
Lyon	Cam Chreag NN 383343	River Tay NN 794479	35
Shee	Loch nan Eun NO 065778	River Ericht NO 147516	19
Tummel	Bealach Fuar-chathaidh NN 232484	River Tay NN 977513	56

Source: F. Walker: *Tayside Geology*, Dundee, 1961.

The River *Almond* rises beyond the HBF in the hills to the south of Loch Tay. It crosses the HBF at Harrietfield and from Dalcrue Bridge to Huntingtower it was an important source of power for various works as well as being the source of the Perth lade (Low's Wark). It was impassable to salmon at Buchanty Spout (NN 934283) until that natural obstruction was modified during the nineteenth century[25]. The rivers *Ardle* and *Shee* are Highland rivers traversing the Dalradian strata and their confluence is at Bridge of Cally, whereafter they form the River *Ericht*[26]. Like the River Almond, the Ericht was an important source of power for the works along its banks. The River *Braan*, like the River Almond rises among the hills to the south of Loch Tay where it is initially called the River Quaich, but it is impassable to salmon above Rumbling Bridge (NN 917413). The River *Garry* and its tributaries drain

the district of Atholl south of the watershed with the River Spey at Drumochter. After leaving Loch Garry the river bends through ninety degrees to take up an east-south-east flow that is maintained until its confluence with the Tay. In its upper reaches it cuts across the grain of a flaggy granulite[27] of the Moine Series, but from Struan to Killiecrankie, Glen Garry widens to a flood plain with the river passing over gravel beds. At Blair Atholl the Garry is joined by the River ***Tilt*** which debouches from Glen Tilt, the northern extremity of the Loch Tay Fault[28]. Within the Pass of Killiecrankie the Garry is constricted by mica-schists of the Dalradian Series and just beyond the Pass is the confluence with the River ***Tummel.***

The headwaters of this latter river are further west than any other within the Tay basin - a mere six miles from the head of Loch Etive which is a west coast sea loch. The stream rises on the south-western slopes of Clach Leathad (3,602 feet), a mountain composed of Starav granite[29]. On reaching the floor of Corrie Ba the stream becomes the River Ba which drains the peaty surface of the Moor of Rannoch until it enters Loch Ba. The ***Abhainn Ba*** leads further across the Moor to Loch Laidon which, unlike the shapeless sprawl of Loch Ba, is narrow with a distinct north-north-east trend, the result of its being in the shatter belt of a fault. The river which flows from Loch Laidon is called the River Gaur and it turns east to flow through lochs Rannoch and Tummel to the confluence with the Garry. After passing over the granite of the Moor of Rannoch the rock changes to Moine Series granulite at Loch Rannoch. Near the west end of Loch Rannoch the waters of Loch Ericht flow in from the north via the River Ericht. Near the foot of Loch Rannoch there is a change to the Dalradian Series, well exemplified in the quartzite of Schihallion which rises symetrically on the south shore. The broad glaciated valley continues past Loch Tunnel until near Bonskeid

where it narrows and the River Tummel flows through the same hard mica-schist that the Garry contends with in the Pass of Killiecrankie. The Falls of Tummel (NN 908600) provided an almost impenetrable barrier to salmon throughout the nineteenth century. The combined Tummel-Garry maintains the east-south-east course of the Garry, passing through an open valley and over gravel beds with occasional islands, until the confluence with the Tay at Ballinluig.

The headwaters of the River *Isla* rise in the Angus Glens to the north of Strathmore, but the river is debarred to salmon above Reekie Linn (NN 254537) where a double waterfall makes it impassable. After crossing the HBF the hard lavas of the ORS continue to constrict the river and it is not until Ruthven that the Isla assumes the more placid characteristics that mark the remainder of its course. At Cardean it is joined by the Dean Water, a small river confined entirely within Strathmore, which flows from Forfar Loch, and at Ballrogie the Isla is joined by the River Ericht.

Glen Lyon is one of the longest glens in Scotland and the greater part of the length of the River *Lyon* is within the glen. At its source the Lyon follows the line of the Tyndrum Fault, but it soon trends east and after passing through Loch Lyon adopts that direction. The upper reaches of the river pass over granulites of the Moine Series, but near Bridge of Balgie there is a change to the Dalradian Series. Glen Lyon has been subject to considerable glaciation and has the characteristic U-shaped cross-section with truncated spurs and hanging corries on either side. At Chesthill the glen narrows and the river passes through a gorge composed of phyllites[30] and black schists. After issuing from Glen Lyon the river kinks south for three-quarters of a mile, then resumes its eastward course through an open valley past Fortingall to join the Tay near the head of Strath Appin.

The source of the River *Earn* is the Kendrum Burn which rises in the hills immediately above Lochearnhead. Loch Earn is some six miles long and is overlooked by the Ben Vorlich massif which rises from the south shore and is composed of schistose grits of the Dalradian Series. The river leaves the loch at St Fillans and follows a glaciated valley east towards Comrie where it is joined by the River Lednock from the north and the Water of Ruchill from the south. Beyond Comrie the Earn crosses the HBF, though the transition from Highland to Lowland is not very apparent. Beyond Comrie the valley has a broad alluvial floor, though this is constricted at Thornhill where it is crossed by a ridge of ORS conglomerates and lavas. Just before Crieff the Earn is joined from the north by the River Turret. After Crieff the Earn loses all semblance of a Highland river and meanders across Strathearn, passing over a dyke, similar to that at Campsie Linn, at Dornoch Mill (NN 883185). Strathearn is described as a glacio-fluvial plain and the movement of the ice was to the east, truncating the spurs of the Ochils and generally straightening out the strath. Past Forgandenny where the Earn breaches the Tay Anticline, the strath narrows and the Gask Ridge rises on the north side to its termination at Moncrieff Hill with the scarp slope towards the Earn. The final two miles of the Earn are tidal and it joins the Tay at Carpow. This section is intended to describe the Tay basin as it was in the nineteenth century and no mention has been made of the extensive hydro-electric works constructed during the twentieth century.

The features of particular significance for the salmon which emerge from this topographical description are that the rivers of the Tay basin, almost without exception, rise among rock and so flow clear and without sediment over boulders and gravel, an environment well-suited for salmon

to spawn in. An additional favourable feature is that the headwaters are high, and so the flow is rapid and well-oxygenated.

II- The Natural History of the Atlantic Salmon

As the ice gradually receded at the end of the last Ice Age the rivers of the Tay Basin would have undergone colonisation by the Atlantic Salmon (*salmo salar*)[2]. Perhaps recolonisation would be a more accurate term as it seems likely that these rivers would have been colonised by salmon during previous genial climatic periods when the glaciers had retreated. Whatever the duration of colonisation of the Tay basin by salmon, one of the characteristics of the salmon is also associated with a period of glacial retreat approximately one million years ago. At that time the salinity of the oceans in the northern hemisphere was considerably reduced by the melting ice, which allowed a distant forbear of the salmon, until that time a freshwater fish, to adjust to living in salt-water. As a result, the salmon shares with fish such as the sturgeon and the shad the characteristic of being anadromous, i.e. it migrates from salt to freshwater to spawn.

Table 1.2

Some Biological Data Concerning the Atlantic Salmon

Length of freshwater life	1-4 years
Length of ocean life	1-4 years
Average length at maturity	30 inches
Range of length at maturity	22-38 inches
Average weight at maturity	10½ lbs
Range of weight at maturity	5½-25 lbs
Principal spawning months	November-January
Fecundity of the female	600-800 eggs per lb weight

Source: A. Netboy: *Salmon*, p 29.

The life-cycle of the Atlantic Salmon may be divided into three distinct phases: (i) freshwater existence from the time of hatching; (ii) migration to the ocean, (iii) return to the natal stream to spawn. The incubation period of salmon eggs is from 50 to 110 days, depending on the temperature of the water - the lower the temperature the longer the

period of incubation. During incubation the eggs are buried beneath the gravel of a stream or river bed in what are called redds[32]. It is estimated that that there is a 50% loss of eggs during the incubation period. In Scottish rivers such as the Tay spawning takes place from November to January and hatching from March onwards. The young salmon emerge from the egg as *alevins*, less than an inch long with a large yolk sac upon which they feed until the yolk is consumed. Thereafter they must forage for themselves and are known as *fry*. Growth of the fry is most rapid during the summer when river-borne food such as plankton and larvae are most plentiful. After about one year, when the fry will have attained a length of about two inches, they undergo a further change developing into *parr*. By the end of the first year it is estimated that the fry population may be reduced by up to 95%[33]. The appearance of parr is not dissimilar to brown trout: it has a brownish back with black spots that become sparse as the brown turns to light grey on the belly. The most distinctive markings are the thirteen bars along each side called "parr marks". The duration of the parr stage varies from two to four years depending on the availability of food, but no matter how long the parr stage lasts, the next development always occurs in the spring of the year when the parr marks disappear and the young fish assume a silvery colour and become *smolts*. Another change at this time is that the smolts cease to be solitary in their habits and form shoals. These shoals of smolts begin a gradual descent of the river and by late May or early June have reached the margin between fresh and salt-water. Here they spend some time accustoming themselves to the salinity[34], and then they swim out of the river into the sea to begin the next phase of the their life-cycle. Both the parr and the smolt suffer considerable depredation from starvation and various predators such as pike and fish-eating birds. It is estimated that of those young fish that survive to

become smolts, only 10% will finally reach the sea, and of these only about 6% will return to the river as adult salmon[35].

Upon entering the sea the salmon from Scottish rivers are believed to swim north then west, some out into the North Atlantic, others - probably those that will return as grilse[36] - stay in British waters, possibly circumnavigating the British Isles. At the start of this pelagic[37] phase the adjustments that the young fish have to make are not confined to the salinity of the water. There is a new food supply to be sought out and identified: fish such as sprats and young herring, and the smaller crustacae such as the shrimp which is believed to give the flesh of the salmon its characteristic pink colour. There are new predators to be avoided: mamals such as the seal and the porpoise, and fish such as the cod and halibut. Perhaps the greatest adaptation, certainly that which is least understood, is the ability to navigate in the boundless wastes of the open sea. The means of navigation are not fully understood. One theory has it that salmon steer by celestial features such as the sun, moon and stars, as do birds. Following ocean currents is an alternative theory: some currents, called gyres, are believed to circulate in such a way that a fish swimming in them would eventually return to the point at which it joined. A sense of smell or chemical memory must play a part in the navigation process and will be most important when the salmon is returning to its natal river. By whatever means, it is established that those salmon which set out into the North Atlantic find their way to the Davis Strait off the south-west coast of Greenland where they are joined by others of their species from Southern Europe and North America. Here they remain for up to four years, eating voraciously.

The pelagic phase of the salmon's life-cycle is the one of which least is known. The start of the third phase is the return from the

ocean. Salmon may be classified according to their size and the time of year they return.

Table 1.3

Categories of Returning Salmon

Grilse: salmon which, after migrating to the sea as smolts, have spent a summer, a winter, and part or whole of a second summer in the sea.

Small Spring Fish: salmon which have spent two years in the sea (i.e. summer, winter, summer, winter).

Small Summer Fish: salmon which have been a year longer in the sea than grilse (i.e. two summers, two winters and part or whole of a third summer).

Large Spring and Large Summer Fish: salmon which have spent three consecutive years or three years and part of a fourth in the sea.

Very Large Spring and Very Large Summer Fish: salmon which have spent twelve months longer in the sea than the so called "large" classes.

Source: W.J.M. Menzies: *The Salmon,* p 24.

Calderwood is of the opinion that the varied time spent in the ocean is very significant for maintaining the salmon stocks of rivers[38]. The fish in the sea comprise a buffer stock from which depletions in a river stock may be made good, however, the buffer stock itself may be run down if the depletions in the river are excessive. There is only one reason for the return of the salmon to its natal river, and that is to mate in freshwater. The evidence from tagging experiments suggest that it is not just return to a river system, but return to a particular stream within the system from which the fish originated. The youngest returning salmon, the grilse, appear off the Scottish coast from the middle of April onwards, but they do not enter the rivers until the end of May or beginning of June. Menzies describes how during the nineteenth century there were great runs of grilse, especially to the east coast rivers, occurring with great regularity year after year[39]. Grilse enter rivers in shoals and then loiter in the estuary, advancing and falling back with the tide until a spate encourages them into the river.

During a spate the grilses' ascent of the river may be very rapid. Although the return of grilse is confined to the summer months, there are salmon entering Scottish rivers - particularly large rivers such as the Tay - at all times of the year. The occurrence of "runs" varies from river to river: most have a spring run between January and May when the fish will typically be small or large spring fish. The speed and extent of their ascent appears to be controlled by the water temperature. A temperature of 42°F or more appears to be critical in encouraging the salmon to ascend beyond certain obstacles. "Temperature pools" have been identified on certain rivers beyond which fish will not ascend until the critical temperature has been exceeded[40]. All salmon rivers have a summer run, quite distinct from the grilse. In the summer the rate of ascent is controlled by the amount of water in the river rather than temperature. Many, but not all rivers also have an autumn run during September and October. Runs, however, merely distinguish periods of particular activity and salmon ascend the rivers at all seasons of the year, though not all will spawn in the same season. A study of the River South Esk discovered that half the salmon ascending during the late autumn would spawn that winter, while the other half would not do so until the following winter[41].

The ascent of the salmon to the spawning grounds may acquire the elements of a dramatic spectacle when the fish are confronted by natural obstacles such as rapids or falls. The incorporation of the word *salar* from the Latin *salire*, to leap, in the Linnaean name for the Atlantic Salmon indicates how this activity has captured the imagination of human observers. Mills quotes the work of the late Dr T.A. Stuart of the Freshwater Fisheries Laboratory at Pitlochry on this subject.

> It turned out to be a matter of the relative depth of the water at the foot of the fall and the position of what is referred to in engineering terms as the "standing wave", or

> hydraulic jump. This is a wave produced at the point of impact of the falling water on to the water below. If the standing wave is immediately below the fall, and the depth of water is one and a quarter times that of the height of the fall, then the lift produced by the standing wave, together with the inertia that the salmon can achieve in that depth of water, is sufficient to enable it to clear the fall. The farther away the standing wave is from the point at which the descending water starts to fall, as on a sloping weir, the more difficult it is for the salmon to make a successful jump. The highest jump in Scotland was a vertical one of 12 ft at the Orrin Falls in Ross-shire ...[42]

The falls on the main trunk stream of the Tay are of insufficient height to prevent the ascent of salmon, but the Falls of Tummel (NN 905600) were only passable to salmon under conditions of exceptional spate, thus debarring the salmon from 30 miles of river and 20,000 acres of loch[43]. Given that the period during which spawning takes place is uniform in all rivers, the different seasons at which salmon enter rivers ensure that all the potential spawning areas are utilised. Thus the late autumn and spring fish will have the longest time to ascend and their redds will be in the furthest headwaters. Although entering the rivers later in the year, the grilse apparently travel almost as far as the spring fish, and may at times be found spawning among them. The summer and autumn fish travel shorter distances so that by the time the spawning season comes round all the redds are occupied, right down to tidal waters, indeed salmon have been observed spawning beneath Perth Bridge.

During the third phase of their life-cycle the appearance of salmon undergoes change. On their return to freshwater they have a fine silver sheen on their scales and are in the prime of condition, often with sea lice[44] still attached, though these parasites do not survive in freshwater for more than a week or ten days. As the time spent in freshwater lengthens the fish lose their sheen and become more drab in colour. A yet longer lapse of time leads to further change: in males there is a redistribution of calcium from the scales to the skull so that the former

almost disappear and the skin becomes leathery blotched with black, red and copper, the head becomes enlarged with growth of cartiliginous tissue on both jaws and the lower jaw hooks upward to form a *kype*. The colour changes are not so marked in the female which becomes a more uniform dark colour with no hooking of the jaw. The changes described infer a deterioration in the condition of the salmon, more comprehensible when it is appreciated that they do not eat after they enter freshwater, but live entirely off the fat they have accumulated in the sea. That salmon occasionally succumb to the flies and lures of the angler does not detract from this fact.

Water temperature is significant for successful spawning which will not take place unless the temperature is above 58°F and ideally between 50°F and 52°F. On reaching the spawning beds the male and female fish pair off, though there may be competition for mates among the males. The female lies on her side and scoops a trench in the gravel by dislodging it with her tail and allowing the current to carry it downstream. There follows a courtship ritual which involves the male swimming above the female until she is induced to drop her eggs, at which point the male ejaculates his milt[48] over them. On average there will be between 5,000 and 8,000 eggs. Fertilisation must take place within 1½ minutes as the sperm loses potency after that time. After fertilisation the female swims upstream of the eggs and repeats the gravel-scooping action with her tail so that the eggs are covered. Male fish may mate with more than one female. Glaciation and other forms of erosion have resulted in most of the Highland Tay, and parts of the lowland river, running over some form of gravel so that the potential spawning grounds of the Tay are very extensive indeed. After mating, the salmon are in poor condition having been without food for long periods of time and probably also having exerted considerable physical effort to

reach the spawning beds. The spent fish, both male and female, are called *kelts*. Many die, but all seek to swim downstream in an effort to return to the sea, which some do. Jamieson quoting experiments on the River Conon suggests that between 20% and 36% of fish entering the river to spawn return to the sea, of which 3-6% will return to spawn a second time[46]. The oldest known Scottish salmon came from Loch Maree, it had spawned four times and was estimated to be thirteen years old. The age of a salmon may be estimated by studying the concentric rings on the scales in a manner analogous to counting the rings on the cross-section of a tree trunk. Those fish that do return to the sea resume feeding and quickly recover their physical condition.

From this brief description of the life-cycle of the salmon it will be apparent that it is exceedingly complex and not fully understood to the present day. At the beginning of the nineteenth century when very much less was known, there was infinite opportunity for misinterpretation and misunderstanding, especially when those involved were seeking to promote an interpretation favourable to their interests and to the detriment of others.

III - The Proprietors

No introduction to the Tay salmon fisheries would be complete without a description of the families who owned the various salmon fishings. As will become apparent, the influence of the proprietors on the operation of the fisheries, either directly or through their factors, was considerable, and so some idea of their antecedents, interests and *personae* will be helpful. The entire lengths of the River Tay and its tributaries were assigned to various riparian owners, but for the purposes of this study, those below the confluence of the Tay and the Isla are the most significant. This section is not comprehensive and additional references to individual proprietors are made at appropriate places in the text. Although, as will become evident, there was much division and controversy among the proprietors, there were also many ties of kinship and marriage.

The estate of Meikleour is on the east shore of the Tay immediately above its confluence with the Isla. The Nairne's of Meikleour were Jacobites and the Hon. Robert Nairne, who had assumed his wife's name of Mercer, was killed at Culloden. His wife's family, the Mercers of Aldie, owned the Kinclaven estate on the west shore of the Tay opposite Meikleour. Robert Nairne's heir was his son, Col. William Mercer of Aldie and Meikleour (died 1790), and the estates of Meikleour and Kinclaven passed jointly to his elder daughter Jane, Lady Keith[47], and then to her daughter, Margaret Mercer Elphinstone, Baroness Keith (1788-1867), who subsequently succeeded her cousin to the Barony of Nairne to become Baroness Keith and Nairne before becoming, by marriage, *Comtesse de Flahault*[48]. Lady Keith and Nairne was succeeded by her eldest daughter, Emily Jane Mercer Elphinstone de Flahault, Baroness Nairne (died 1895), who in 1843 married Henry, 4th Marquis of Lansdowne (1816-1866)[49]. Below Kinclaven on the west shore is the estate of

Ballathie, which at some time in the late eighteenth century was acquired by John Richardson of Pitfour[50]. On John Richardson's death in 1821 the estate passed to his son James Richardson, who died in 1823 when Ballathie passed to James Richardson's second son, Thomas Richardson of Ballathie (died 1840), a captain in the 3rd Light Dragoons. Thomas Richardson died unmarried and was succeeded at Ballathie by his brother Robert Richardson of Tulliebelton and Ballathie (1809-1883), third son of James Richardson of Pitfour and brother of Sir John Stewart Richardson, Bart. of Pitfour. Robert Richardson assumed the additional surname of Robertson. He held the rank of General and was colonel of the 3rd Dragoon Guards. On General Richardson-Robertson's death, Ballathie passed to his nephew Major Edmund Robert Stewart Richardson of Ballathie[51].

Below Meikleour on the east shore of the Tay lies the estate of Stobhall, which had originally belonged to the Drummond family who were granted the lands of Cargill and Stobhall in the fourteenth century, but the estate was forfeited to the Crown in 1746 when the Jacobite 3rd (died 1745) and 4th (died 1747) Dukes of Perth supported that cause. Thereafter it became one of the annexed forfeited estates[52]. James Drummond, 11th Earl of Perth (1744-1800), was the nearest male heir to Lord John Drummond, the 4th Duke of Perth, and it was to him that the estate was restored under the *Act of Restoration, 1784*. He was succeeded by his daughter Sarah Clementina Drummond (died 1865), who in 1807 married Peter Robert, 21st Baron Willoughby d'Eresby (1782-1865)[53]. Baron Willoughby d'Eresby was succeeded by his son Alberic, 22nd Lord Willoughby de Eresby, 3rd Baron Gwyder (1821-1870), and on his death the Willoughby de Eresby title passed to his sister Clementina Elizabeth Drummond, Baroness Willoughby de Eresby, Dowager Lady Aveland (1809-1888). She was succeeded by her son Gilbert Henry who became the

first Earl of Ancaster[54]. Adjoining Stobhall on the east shore is the estate of the Earls of Mansfield. Sir David Murray (died 1631), 1st Viscount Stormont obtained a grant of the Abbey of Scone from James VI, though the Murrays already owned land in the area. The first Earl of Mansfield was William Murray (1704-1793), fourth son of David Murray, 5th Viscount Stormont. He was Lord Chief Justice of England 1756-1788, and was created Earl of Mansfield in the County of Nottingham in 1776. The earldom then passed to David Murray (1727-1796), son and heir of the 6th Viscount Stormont and nephew to the 1st Earl of Mansfield, who succeeded his father as 7th Viscount Stormont in 1748[55]. The 2nd Earl was succeeded by his son David William Murray (1777-1840), 3rd Earl of Mansfield and Viscount Stormont, who in turn was succeeded by his son William David Murray (1806-1898), 4th Earl of Mansfield[56]. Taymount (fishings of Bellymore) was a relatively small estate on the west shore of the Tay, below Ballathie. At the end of the eighteenth century it belonged to John Murray, 4th Earl of Dunmore (1732-1809) whose mother was Catherine Murray sister to Robert Mercer of Aldie and aunt of Jane, Lady Keith[57]. Dunmore was a representative peer, 1761-1769, and in 1770 was appointed Governor of the Colony of New York where he was involved in some of the early skirmishes in the American War of Independence. Sometime thereafter the estate and the fishings were acquired by the Mansfield estates[58].

The Dukes of Atholl were very considerable landowners in north Perthshire, including stretches of the River Garry and all of the River Tilt. However, they had only one netting station on the Tay, at Burnmouth on the west shore between Campsie Linn and the village of Stanley. John Murray, 4th Duke of Atholl (1755-1830), succeeded his father, the 3rd Duke, in 1774[59]. The 4th Duke was elected a Representative Peer in 1780 and sworn a Privy Councillor in 1797[60]. He

was succeeded by his son John Murray, 5th Duke of Atholl (1778-1846), who served in the army, but was "invalided home from Portugal 1798, on account of mental ill-health. Died *non compos mentis*"[61]. The title passed to his nephew George Augustus Frederick John Murray, 6th Duke of Atholl (1814-1864), eldest surviving son of James, Lord Glenlyon. The 6th Duke, who was a Lord-in-Waiting to Queen Victoria, in 1839 married Anne, only daughter of Henry Home-Drummond of Blair Drummond[62]. The 7th Duke, John James Hugh Henry Murray (1840-1902) followed a military career until he succeeded his father[63]. He married Louisa, eldest daughter of Sir Thomas Moncrieffe of Moncrieffe in 1863, Sir Thomas was also a fishing proprietor with fishings below Perth and on the Earn[64]. Below Stanley on the west shore is the estate of Balgowan which had belonged the the family of Graham since the sixteenth century. Thomas Graham (1748-1843) afterwards Lord Lynedoch, inherited the Balgowan estate in 1766 from his father. Thomas Graham was M.P. for the County of Perth, 1794-1807, but is particularly remembered for his distinguished military career during the Peninsular War when he rose to the rank of general and was created Baron Lynedoch of Balgowan in 1814. Lynedoch died without issue and was succeeded by various gentlemen by the name of Murray-Graham of Murrayshall[65].

The family of Hay were considerable landowners in and about Perth, and one of the more distinguished branches of the family were the Earls of Kinnoull who owned fishings above Perth on the west shore, and opposite Perth on the east shore. Robert Hay-Drummond (1751-1804), first son of Robert Hay-Drummond, Archbishop of York, succeeded his uncle Thomas Hay as 9th Earl of Kinnoull in 1787. He was appointed Lord Lyon King-of-Arms as was his son Thomas Robert Hay-Drummond (1785-1866) who succeeded him as 10th Earl. Thomas Robert's eldest daughter, Louisa, married Sir Thomas Moncrieffe, Bart., another example of a connection

between the Moncrieffes and another family who were also fishing proprietors[66]. George Hay-Drummond (1827-1897) succeeded his father as 11th Earl of Kinnoull and sold the Kinnoull fishings to Mansfield in 1874[67]. The Burgh of Perth owned the fishings on the shore of the Tay within the burgh bounds, but additionally since 1600, the fishings around three of the islands in the Tay: Sleepless Inch, Darry (Darien or Incherrat) and Balhepburn[68]. The family of Moncrieffe had been in possession of the barony of Moncrieff since the thirteenth century. In the nineteenth century their fishings were on the south shore of the Tay, just below Perth, and on the Earn[69]. The remainder of the fishings on south shore of the Tay to the confluence with the Earn and parts of the lower Earn belonged to the Elcho estate of the Earls of Wemyss, though they were not resident in the district. Francis Charteris Wemyss, 7th Earl of Wemyss (1723-1808) inherited the title in 1787 on the death of his brother, the earldom having been dormant during the latter's lifetime as he had been attainted as a Jacobite[70]. He was succeeded by his grandson Francis Wemyss, 8th Earl of Wemyss and March (1772-1853), who was succeeded by his son Francis Wemyss, 9th Earl of Wemyss and March (1796-1883). Francis Wemyss-Charteris-Douglas, 10th Earl of Wemyss and March (1818-1914) was M.P. for East Gloucestershire, 1841-1846; M.P. for Haddingtonshire, 1847-1883; and a Lord of the Treasury, 1853-1855. He succeeded his father in 1883[71].

On the north shore of the Tay below Perth is Kinfauns Castle, during the nineteenth century, the seat of the Gray family. The Kinfauns fishings were the most extensive of all the Tay fisheries, the majority were on the north shore, but there were also some on the south shore. William John Gray, 13th Lord Gray (1754-1807), committed suicide and was succeeded by his brother Francis Gray, 14th Lord Gray (1765-1842). Francis, Lord Gray was Postmaster-General for Scotland, 1807-1810; and a

Representative Peer 1812-1841. He was succeeded by his son, John Gray, 15th Lord Gray (1798-1867), who was also a Representative Peer, 1847-1867[72]. John Gray died in Paris and was succeeded by his sister, Madelina Gray, Baroness Gray (1799-1869), who was unmarried, and on her death the title passed to her neice, Margaret Grant, Baroness Gray (1821-1878)[73]. Baroness Gray died without issue and was succeeded by her cousin, George Philip Stuart, 14th Earl of Moray (1816-1895), whose grandmother had been first daughter of the 11th Lord Gray and sister of the 12th, 13th and 14th Lords. On the death of the 14th Earl of Moray, the Gray title passed to his neice, but the earldom and Kinfauns estates passed to his cousin Edmund Archibald Stuart, 15th Earl of Moray (1840-1901) who was a Barrister-at-law.

Surrounded on both sides by the Kinfauns estate was the small estate of Seggieden which had the particularly productive fishing of Fluckie and belonged to the Hays of Seggieden. This branch of the Hay family were originally Hays of Pitfour, but had sold Pitfour to John Richardson[74]. James Hay of Seggieden (1771-1838) married firstly Margaret, only daughter of James Richardson of Pitfour (and sister of Sir John Stewart Richardson, 13th Bart., of Pitfour), he was succeeded by his son James Richardson Hay of Seggieden (1802-1854) who was a captain in the army. He in turn was succeeded by his daughter Charlotte Elizabeth Richardson Hay of Seggieden (died 1914)[75]. Charlotte's son, Lt. Col. James Adam Richardson-Drummond-Hay of Seggieden (1863-1928) married Alice Stewart Richardson, second daughter of Sir James Stewart Richardson, 14th Bart., of Pitfour, the second marriage between the Seggieden and Pitfour families in three generations. The Inchyra estate was below Kinfauns on the north shore at the village of that name. In the eighteenth and into the nineteenth century, Inchyra belonged to a family called Blair. In 1837 the proprietor was named as Mr Chrystal

(variously Crystal, Cristal) of Inchyra, and from 1863 the proprietor was named as Rev. Archibald Fleming of Inchyra[76]. The Inchyra estate marched with Pitfour which belonged to the Richardson family. The founder of the family fortune was John Richardson (died 1821) of John Richardson & Company[77]. As well as acquiring the estate of Pitfour from the Hays, John Richardson also acquired the fishings of Poldrait (North Inch) and ¼ Ships[78]. James Richardson, John's son, survived him by only two years, being succeeded in turn by his son John Stewart Richardson (1797-1881) who was served heir to the dormant baronetcy of Richardson in 1837[79]. Sir John was succeeded by his eldest son Sir James Thomas Stewart-Richardson, 14th Bart. (1840-1895), who was a captain in the 78th Highlanders, and he in turn was succeeded by his eldest son Sir Edward Austin Stewart-Richardson, 15th Bart. (1872-1914), who died from wounds while serving with the Black Watch during the First World War[80].

On the south shore opposite to Pitfour were the adjacent estates of Carpow and Mugdrum. Mugdrum belonged to the Hays of Leys and Randerstone, of whom was David Balfour Hay who died in 1868. Carpow belonged to the Paterson family, of whom John Paterson of Mugdrum (died 1822) married Jane, daughter of John Hay Balfour of Leys and Randerstone. Their son was Peter Hay Paterson of Carpow (1816-1865), who was succeeded by his son Edmund de Haya Paterson-Balfour-Hay of Carpow (1849-1908), who inherited the estate of Mugdrum from his grand-uncle David Balfour Hay in 1868[81]. Edmund de Haya Paterson-Balfour-Hay spent most of his life confined in a lunatic asylum[82]. The Mugdrum estate, which included the Island of Mugdrum, stretched to Newburgh, but thereafter the fishings on the south shore belonged to the Balmbreich estate of the Earls of Zetland. Lawrence Dundas, 2nd Baron Dundas of Aske (1766-1839) was an M.P. for thirty years[83]. He succeeded his father in 1820 and was created Earl of Zetland in 1838. He was

succeeded by his son Thomas Dundas, 2nd Earl of Zetland (1795-1873), who was also been an M.P.[94] The 2nd Earl died without issue and was succeeded by his nephew Lawrence Dundas, 3rd Earl of Zetland (1844-1929), whose parliamentary career was relatively brief[95], but who was Viceroy of Ireland (as Lord Lieutenant), 1889-1892; and created Marquess of Zetland in 1892[96]. The Birkhill estate lies east of Balmbreich on the south shore of the Firth of Tay. Alexander Scrymgeour of Birkhill (1743-1811) succeeded to the estate of Wedderburn of Wedderburn in 1788. He was succeeded by his brother Henry Scrymgeour-Wedderburn of Birkhill (died 1841), thereafter two further sons followed their fathers to the end of the nineteenth century[97].

The family of the Earls of Moray, as well as being involved with the Kinfauns estate (*supra* p 26) had a much longer connection with the estuarial estate of Balmerino. The Jacobite 5th Lord Balmerino forfeited his estate after the Rebellion of 1745. It was retained by the Crown until 1755 when it was sold to James Stuart, 8th Earl of Moray (died 1767), who was a nephew of the 5th Lord Balmerino. The 8th Earl was succeeded by his son Francis Stuart, 9th Earl of Moray (died 1810), who married Jane, daughter of John Gray, 11th Lord Gray. On his death, the 9th Earl was succeeded by his son Francis Stuart, 10th Earl of Moray (died 1848) and the Balmerino estate passed to the 10th Earl's twin brother Hon. Archibald Stuart (1771-1832). This latter gentleman was succeeded by his eldest son Francis-Archibald Stuart of Balmerino who died without issue in 1875. His successor was his nephew Edmund-Archibald Stuart (1840-1901) who called himself Stuart-Gray after inheriting the Kinfauns estate in 1878, at which point the Kinfauns and Balmerino estates became jointly-owned[98]. Edmund-Archibald Stuart-Gray became the 15th Earl of Moray on the death of the 14th Earl, at which time the estates of Balmerino and Kinfauns passed to his brother Francis

James Stuart who assumed the name Stuart-Gray[89]. The Naughton estate is on the south shore where the Tay estuary begins to narrow towards the site of the present Tay Railway Bridge. James Morison of Naughton (1738-1816) was succeeded by his daughter Isobel (1760-1850) who married William Bethune of Blebo, and they assumed the additional surname Morison. Their only daughter predeceased her mother and Mrs Bethune Morison bequeathed Naughton to a distant relative, Adam Alexander Duncan-Morison of Naughton (died 1855), grandson of 1st Viscount Duncan of Camperdown (1731-1804). Adam Duncan-Morison of Naughton was succeeded by his daughter Catherine Henrietta Adamina Duncan-Morison of Naughton, who in 1897 married Lieut. Col. Alexander William Anstruther, R.A.[90]

The Woodhaven fishings belonged to the Stewarts of St Fort. Captain Robert Stewart H.E.I.C.S. (born 1746) purchased the estate on his return from India. He was succeeded by his son Henry Stewart of St Fort (1796-1871), who was in turn succeeded by his grand-daughter Caroline Douglas Stewart of St Fort[91]. Although the Tayfield fishings are relatively small in extent, the influence of the Berry family of Tayfield in the affairs of the Tay salmon fisheries was considerable, perhaps because so many of them were lawyers[92]. John Berry (1725-1817), purchased the estate of Innerdovat in 1788 on which was built the house of Tayfield. His son, William Berry of Tayfield (1774-1852) was a Writer to the Signet[93], and William's eldest son, John Berry of Tayfield (1824-1877), was an Advocate. The last successor of the nineteenth century was John's son William Berry (born 1864)[94]. The estate of Scotscraig is the at the mouth of the Tay on the south shore. William Dalgleish of Scotscraig (1770-1824) was an Advocate, and in 1792 he married Jean Isobel, heiress of Archibald Ogilvy of Inchmartine. Their son was Robert Dalgleish (1793-1871), also styled "of Scotscraig",

though the estate of Scotscraig appears to have passed out of the Dalgleish family at this time. William Dalgleish's daughter, Margaret (1796-1869), married James Makgill Maitland-Heriot of Ramornie (1774-1848) in 1813, and their second son, William (1819-1890) married Elizabeth Kinnear Dougall, heiress of William Stark Dougall of Scotscraig and assumed the additional surname of Dougall. He had a distinguished naval career and ultimately became Admiral William Maitland Dougall, R.N., of Scotscraig[95]. He was succeeded by his son Commander William Maitland Dougall, R.N. (born 1852)[96].

To the east of Pitfour on the north shore of the Firth of Tay were the small estates of Wester Errol and Murie. Both had originally belonged to the family of Yeaman (also Yeaman Milne), but the estate was broken up and Wester Errol was acquired by the Morisons of Finderlie (Kinross-shire), the last of whom was John Brown Broun-Morison of Finderlie and West Errol (born 1840)[97]. The Murie fishings were not let after 1872 and the Wester Errol fishings were not let after 1895. The Errol Park estate, about the village of Errol, was more extensive than either Wester Errol or Murie. At the beginning of the nineteenth century Errol Park belonged to the family of Allen (or Allan) after whom Port Allan was named. The last of the Allens was John Lee Allen of Errol Park. According to the *Valuation Rolls* Errol Park was thereafter consecutively owned by Hugh Tennant of Well Park, Glasgow and Francis Molison of Errol. Isabella Marshall Molison, heiress of Francis Molison married William Ogilvy-Dalgleish of Woodburn (1832-1913) in 1860[98]. Ogilvy-Dalgleish was created a baronet in 1896 and became Sir William Ogilvy-Dalgleish, Bart., of Woodburn and Errol Park[99]. At the end of the eighteenth century the estate of Seaside, which was east of Errol Park, belonged to James Hunter of Seaside[100]. Some time after 1850 the estate was sold to the Glover Incorporation of Perth for £25,000[101].

There were other estates on the north shore between Seaside and Dundee, but none were of significance for their fishings, except when the stake nets were used within the firth[102]. The City of Dundee had fishings on the foreshore, but these were of decreasing significance as the area became given over to docks and berths for the shipping. There were fishings at Broughty Ferry which belonged to the burgh, but the last significant estate on the north shore was that of Panmure belonging to the Maule family. William Ramsay (1771-1852) was the second son of George Ramsay, 8th Earl of Dalhousie. He succeeded through his grandmother to the estates of the Earls of Panmure and changed his name to Maule, the surname of the Panmures. He was created Baron Panmure by letters patent in 1831. He was succeeded by his son Fox Maule, 2nd Baron Panmure (1801-1880), who succeeded to the earldom of Dalhousie on the death of his cousin the 10th Earl of Dalhousie in 1860[103]. The 11th Earl was succeeded by his cousin Admiral George Ramsay, 12th Earl of Dalhousie (1806-1880), who was in turn succeeded by his son Commander John William Ramsay, R.N., 13th Earl of Dalhousie (1847-1887). The latter was M.P. for Liverpool, 1880; and Secretary of State for Scotland, April to July 1886. He was succeeded by his son Arthur George Maule Ramsay, 14th Earl of Dalhousie (born 1878)[104].

The proprietors described represent a wide cross-section of the landowning class, but as an attempt will be made at the end of this work to interpret their conduct and attitudes towards the salmon fisheries, a rough classification will be of some assistance. Two main groups may be distinguished: members of the nobility whose wealth and status was such that they were involved in "national" politics and affairs, i.e. London-centered; and those whose sphere of activity and influence remained local or Edinburgh-based. Examples from the first group were the Dukes of Atholl, Earls of Mansfield, Wemyss, Zetland and Dalhousie,

though within that group there was sub-division into those who resided for at least part of the year on estates bordering the Tay (Atholl, Dalhousie and Mansfield) and those who had no residence near the Tay (Wemyss and Zetland). Another distinguishable sub-group were those whose connection with the Tay came about through marriage, e.g. the Marquis of Lansdowne and the Earl of Ancaster. The local group were of the baronetage and gentry: Moncrieffes, Richardsons, Wedderburns, Hays, Maitland Dougalls, etc., though to regard their interests as being purely local would be to disregard the naval and military service in which many were engaged for part of their lives. Some families had territorial associations going back over hundreds of years (Moncrieffes and Hays), others had purchased land in the area more recently after the dynastic founder had acquired wealth in some way (Richardsons of Pitfour and Stewarts of St Fort). During the nineteenth century there was very little change in the ownership of estates apart from succession within families. John Richardson had acquired the estates of Pitfour and Ballathie sometime before the beginning of the nineteenth century, so that there was only the Mansfield acquisition of the Bellymore and Kinnoull fishings, and the Glover Incorporation purchase of Seaside during the nineteenth century. These were virtually the only changes, apart from coastal fishings at Tentsmuir and Earlshall acquired by the tacksman Alexander Speedie[105].

REFERENCES

1. This description is based largely upon the following texts:

F. Walker: *Tayside Geology*, Dundee, 1961.

F. Walker: *The Geology and Scenery of Strathearn*, Dundee, 1963.

J.B. Whittow: *Geology and Scenery in Scotland*, Penguin, revised edition, 1979.

2. The total is made up as follows:

Basin of the River Tay	793.2	square miles
Basin of the River Earn	376.8	" "
Basin of the River Isla	506.3	" "
Basin of the River Tummel	662.1	" "
	2,338.4	

Twelfth Report to the Fishery Board for Scotland, 1893, p xxiii.

3. Highland Boundary Fault: the major fault within a series of parallel faults and fractures which extend from Arran to Stonehaven forming the south-east margin of the Scottish Highlands. It was initiated during the period of Caledonian mountain-building and the land to the south-east has been down-faulted to form the Scottish Midland Valley.

4. Metamorphic: a rock which originally may have been either igneous or sedimentary, but whose character has been radically altered by heat and/or pressure.

5. Moine and Dalradian Series: rocks are subject to stratigraphical study in order to classify them in various ways, especially chronologically, both of these are stratigraphic classifications. The Moine Series precedes the Dalradian and takes its name from its occurrence in an area called *a'Mhoine* in the North of Scotland. The rocks of this series consist of various schistose types. The Dalradian Series take their name from the ancient Scottish Kingdom of Dalriada, they too consist of schistose types.

6. Peneplain: a land surface which is almost a plain, any elevated portions having been worn down by erosion. A peneplain that had been subject to uplift would form a plateau..

7. Quartzite: a highly metamorphosed sandstone composed mainly of quartz, usually very tough.

8. Schistose: of the schist type, i.e. a metamorphic rock in which the constituent minerals lie parallel giving a direction of easy splitting.

9. Grits: a rock similar to sandstone, but the grains are either larger or more angular than sandstone.

10. Fault: a dislocation in a rock strata analogous to a "tear" in the earth's surface, so that one side of the tear moves relative to the other. These mentioned in the text are dislocations in the horizontal plain, though they need not be so.

11. Syncline: a downfold in a strata giving rise to a trough or inverted arch, generally the result of lateral pressure.

12. See *infra*.

13. Old Red Sandstone: also called Devonian, a period in the British geological succession between 359 and 395 million years BP (before present). Considerable deposition of sandstones and conglomerates took place and also extensive volcanic activity.

14. Anticline: an upfold or arch of rock, generally the result of lateral pressure.

15. Walker (1961) *op. cit* p 16.

16. *ibid.*

17. The change of direction probably represents an elbow of capture by which the Dochart pirated the headwaters of the River Falloch which now rises just south of Crianlarich and flows south to Loch Lomond. An elbow of capture is where the headwaters of a river

erode backwards into the course of another river, thus capturing and diverting its waters.

18. Glacial outwash: the detritus washed out of glacial moraines and deposited as alluvium.

19. Whittow, *op. cit.* p 132.

20. Alluvium: sand, silt and gravel carried in suspension by a stream or river and subsequently deposited when the flow becomes less rapid.

21. Dyke: a wall of injected igneous rock.
Dolerite: a dark medium-grained igneous rock.

22. In strict topographical terms the joint estuary of the Tay and Earn start at the confluence of the two rivers. However, in the rest of this work the estuary will be taken to start at the east end of Mugdrum Island where the beginning of the esturine delta dictates a change in the character and methods of fishing.

23. Walker (1961), *op. cit.* p 22.

24. See Chapter Seven, note 2.

25. See Chapter Eight, note 45.

26. Not to be confused with the River Ericht which flows from Loch Ericht into Loch Rannoch, see p 9.

27. Granulite: a granular metamorphic rock.

28. At its head the Tilt has captured former tributaries of the River Dee.

29. Starav Granite: granite is a course-grained igneous rock composed of quartz, feldspar and mica. Starav granites are those located around Ben Starav (NN 126427) at the head of Loch Etive.

30. Phyllites: a very fine-grained metamorphic rock with tiny mica flakes.

31. This section is largely taken from the following texts:

W.J.M. Menzies: ***The Salmon***, Edinburgh, 1925.

A. Netboy: ***Salmon***, London, 1980.

32. Redds: clean, silt-free gravel washed by well-oxygenated water in which the female salmon will choose to deposit her eggs.

33. D. Mills: ***Scotland's King of fish***, Edinburgh, 1980, p 24.

34. See Chapter Six, notes 11 and 17.

35. That is 0.06%.

Mills, ***op. cit.*** p 25.

36. Grilse: from the Norse ***gralax***, grey salmon. The grilse is that part of the salmon population that remains in inshore waters about the British Isles and returns to its natal river to spawn during the summer or autumn after its having left freshwater. Summer grilse will weigh 4-6 lbs and autumn 7-8 lbs. Because of the smaller body weight female grilse produce only 500 to 600 eggs per lb. body weight.

37. Pelagic: pertaining to the open sea.

38. W.L. Calderwood: ***Salmon and Sea Trout***, London, pp 15-16.

39. Menzies, ***op. cit.*** pp 72-73.

40. Drew Jamieson, "The Life Cycle of the Atlantic Salmon", in D. Barr (ed.): ***Salmon Fishing in Scotland***, London, 1981, p 36.

41. ***ibid.***

42. Mills, ***op. cit.*** p 17.

43. See ***infra*** p 285.

For description, see pp 9-10.

44. Sea Lice: ***Lepeophtheirus salmonis***, a parasite which attaches itself to salmon while they are in salt-water. It cannot survive in freshwater and drops off within 7-10 days of the fish's return to the river. Sea lice on a salmon is thus the sign of a "fresh run fish".

45. Milt: the semen of the male salmon.

46. Jamieson, *op. cit.* p 32.

47. Married George Keith, Viscount Keith, 1787.

48. Charles Joseph, *Comte de Flahault de la Billarderie,* was a general in the army of Napoleon I, and sometime French Ambassador to the Court of St James.

49. *BPB.*

Henry, 4th Marquis of Lansdowne, K.G., (1816-1866). M.P. for Calne, 1857-1856; Lord of the Treasury, 1847; summoned to the Lords as Baron Wycombe, 1856; under-secretary of state for Foreign Affairs, 1856-1858.

50. John Richardson's Journal 1795-1820 (MS 20885) contains a statement of his personal assets at 1st March 1796 which does not include Ballathie, however, a similar statement at 1st March 1820 includes "estate of Kercock and Ballathie" valued at £17,741.

See also Chapter Two, note 18.

51. *BPB.*

See also Chapter Ten, note 25.

52. See Annette M. Smith: *Jacobite Estates of the Forty-Five,* Edinburgh, 1982 *passim.*

53. The earldom of Perth was confined to male heirs and reverted to the titular 4th Duke of Melfort (died 1800), who lived in France, his family having been attainted as Jacobites. His brother, the titular 5th Duke of Melfort (died 1840) took action in the Court of Session to recover the Drummond lands, but was unsuccessful.

54. See Chapter Nine, note 78.

55. David Murray entered the Diplomatic Service and was employed in various posts abroad culminating with that of Ambassador to Paris, 1772-1778; he was Lord Justice General for Scotland, 1778-1794;

Secretary of State for the North, 1779-1782; and Lord President of the Council, 1783-1794.

Complete Peerage.

56. *Complete Peerage, BPB.*

See also Chapter Nine, note 4.

57. See *supra* p 21.

58. *BPB, DNB.*

59. The 3rd Duke died at Dunkeld "having drowned himself in the Tay, in a fit of delirium."

Complete Peerage.

60. He succeeded his mother in the barony of Strange, which family had owned the Isle of Man and sold it to the Crown in 1765. The Duke petitioned Parliament on no less than four occasions on the grounds that the payment had been inadequate and finally settled for £409,000.

Complete Peerage.

61. *Scots Peerage.*

62. Henry Home-Drummond of Blair Drummond (1783-1867), see further Chapter Six, note 42.

63. *Scots Peerage, Complete Peerage.*

In 1883 the Atholl estates consisted of "about 202,000 acres in co. Perth, valued at about £42,000 a year. ... The Duke of Atholl is among the 28 noblemen who, in 1883, possessed above 100,000 acres in the United Kingdom, and he stood sixth in point of acreage, though by no means in rental."

Complete Peerage.

64. See Chapter Eight, note 39.

65. First by Lynedoch's second cousin Robert Graham of Balgowan who died without issue in 1859; then, under the terms of Lynedoch's

settlement, by John Murray Graham of Murrayshall (1809-1881), who was succeeded by his nephew, Captain Henry Stewart Murray-Graham, R.A. (1848-1913).

Complete Peerage, BLG.

66. See Chapter Eight, note 39.

67. *BPB.*

68. "...together with our said islands, lying within the said water of Tay, to wit, the Law of Insherrat, Inchyra [Balhepburn], and Sleiples; together with all our fishings pertaining to the said islands, ..."

Charter by James VI in favour of the Town of Perth, 15th November 1600.

PE 51, bundle 538.

69. The estate passed from father to son throughout the nineteenth century Sir Thomas Moncrieffe, 5th Bart. (1758-1818) was succeeded by his son, Sir David Moncrieffe, 6th Bart. (1788-1830), who was in turn succeeded by his son, Sir Thomas Moncrieffe, 7th Bart. (1822-1879) Sir Robert Drummond Moncrieffe, 8th Bart. was the second son of Sir Thomas.

For 8th Bart., see further Chapter Ten, note 5.

70. "In consequence of his said brother's attainder in 1746 he bought the Elcho estate from his father for £8,500 in 1750, ..."

Complete Peerage.

71. *ibid. BPB.*

In 1883 the Vemyss estates "consisted of 41,255 acres in Peebles-shire; 9,167 in Haddingtonshire; 3,541 in Perthshire; 1,513 in Midlothian, and 1,261 in Berwickshire, in Scotland; besides 4,789 in Gloucestershire, and 500 in Worcestershire. *Total,* 62,028 acres,

worth £54,968 a year, inclusive of value of Fishings and Limeworks, but exclusive of £1,373 for minerals."

Complete Peerage.

72. See also p 319.

73. See further Chapter Nine, note 13.

74. See Chapter Two, note 18.

75. See Chapter Seven, note 52.

76. 1810 Evidence, p 119, PB 25, bundle 175, and *Valuation Rolls.*

77. See Chapter Two, note 18.

78. In 1726 the Ships fishing station (formerly called King's Inch) had been the subject of a dispute about ownership: the parties to the dispute being Perth Town Council and David Imbrie of Craigencott. This was ultimately settled by the Court of Session in 1730 to the effect that "the Town is found to have the right to a fourth shot only of the fishing of Ships and that the other three fourth parts thereof belong to David Imbrie in Craigencott." This remained the case after ¾ Ships was sold to John Richardson of Pitfour.

B59/16/12, pp 141, 172.

79. Sir Robert Richardson of Pencaitland, 1st Bart., was created a Baronet of Nova Scotia in 1630.

BPB.

80. *ibid.*

81. *BLG.*

82. See p 398.

83. For Richmond (Yorks.), 1790-1802; for York, 1802-1807; for Richmond (again), 1808-1811; and for York (again), 1811-1820. He was also Lord Mayor of York, 1811-1812.

Complete Peerage.

84. For Richmond (Yorks.), 1818-1830; for York, 1830-1832, 1833-34; and Richmond, 1835-1839.

ibid,

85. M.P. for Richmond (Yorks.) 1872-1873.

ibid.

86. In 1883 the Zetland estates "consisted of 11,614 acres in the North Riding of Yorkshire (worth £21,673 a year), besides (in Scotland) 29,846 in Orkney, 13,600 in Zetland (Shetland), 5,566 in Fifeshire, 4,656 in Stirlingshire, 2,726 in Clackmannanshire, and 162 in Dumbartonshire. *Total* 68,170 acres, worth £49,324 a year, exclusive of £7,723 from mines in Scotland, and of the profits from all mines in Yorkshire." The only Scottish residence was at Kerse House, near Falkirk.

ibid.

87. Frederick Lewis Scrymgeour-Wedderburn (1808-1874) and Henry Scrymgeour-Wedderburn (born 1840).

BLG, James Campbell: ***Balmerino and its Abbey,*** Edinburgh, 1899, pp 658-659.

88. Edmund-Archibald Stuart-Gray was a great-grandson in the female line of the 11th Lord Gray.

Lawrence Melville: ***The Fair Land of Gowrie,*** Coupar Angus, 1981, p 31.

89. Campbell, *op. cit.* pp 556-557.

Francis James Stuart-Gray was one of the Commissioners appointed to the Royal Commission on Salmon Fisheries (Elgin Commission), see Chapter Ten *passim.* He became the 16th Earl of Moray in 1901.

90. Campbell, *op. cit.* pp 524, 648.

91. *BLG.*

92. See Chapter Eight *passim.*

93. His second son, Robert Berry was Professor of Roman and Scots Law at the University of Glasgow and Fellow of Trinity College Cambridge.

BLG.

94. *ibid.*

95. See Chapter Seven, note 28.

96. *BLG.*

97. *BLG,* Melville, *op. cit.* p 68.

98. William Ogilvy-Dalgleish was the eldest son of Captain James Ogilvy-Dalgleish, R.N., of Woodburn and Baltilly (1800-1883), third son of William Dalgleish of Scotscraig (*supra* p 29) who married Isabella Marshall heiress of David Martin of Dundee.

BLG.

99. Sir William Ogilvy Dalgleish, 1st Bart., LL.D, D.L., D.C., J.P. "President of Dundee Royal Infirmary and many other philanthropic institutions and societies; ... joined Baxter Brothers, Dundee [Jute], 1854; made chairman on death of Sir David Baxter, Bt.; retired 1904; ... Owned in Perthshire 3,500 acres, Ross-shire 20,000 acres [Coulin Estate], Fifeshire 300 acres, Forfarshire 35 acres."

Who Was Who, 1897-1916.

100. See p 101.

101. Melville, *op. cit.* p 72.

102. See Chapter Four, *passim.*

103. See Chapter Eight, note 7..

104. *BPB.*

105. See p 346.

CHAPTER TWO

THE TRADITIONAL SALMON FISHERIES

I - The Modes of Fishing

The very extensive basin of the River Tay, described in the previous chapter, has always provided quantities of salmon in excess of local requirements and the export trade in salmon from the Tay is of considerable antiquity. Up to roughly the middle of the eighteenth century the Tay salmon fisheries followed a traditional pattern of operation, but thereafter a number of innovations fundamentally changed their character. One of the consequences of the innovations, particularly those in preservation and transportation, was that the market for Tay salmon was extended. This, in conjunction with increased efficiency in catching salmon, raised the spectre of over-fishing as a threat to the salmon stock[1]. Thus the increase in the number of salmon being caught brought about a recognition on the part of persons engaged in the fisheries that the salmon stock was a finite resource. This laudable view gave rise to suggestions, at both local and national level, for conserving the species. However, because there was conflict between the different groups associated with the Tay fisheries, they failed to act jointly and both the speed of adoption and the effectiveness of conservation measures were considerably reduced.

It should not be thought, however, that a concern for the conservation of salmon was a new development at that time, for Scottish legislation designed to protect the salmon from excessive exploitation goes back to at least the fourteenth century[2]. For example, the season of the year and the period during the week when salmon could be caught were laid down by law. The particular purpose of specifying the length of the fishings season was to protect the salmon during spawning. Similarly, the Scots law had always prohibited the use of "fixed

engines", i.e. any method of catching which was stationary in the water, partly because such engines would be too efficient and allow no fish to escape[3], and partly because use of an efficient engine by one proprietor would result in his getting an excessive share of the available salmon. Two exceptions to this general prohibition were cruives and yairs[4], neither of which could be used unless a proprietor had a specific legal title to use them, a title distinct from the right to fish for salmon which referred only the right to use the universally legal method, commonly called *net & coble*[5]. With a body of protective legislation already in existence, it might be asked why a threat of over-fishing emerged towards the end of the eighteenth century, and it is hoped that some of what follows will provide an answer to that query. For the moment, it may be observed that the problem of the protection of salmon was not so much a lack of statutes as a general tendency to ignore them.

To appreciate the nature and significance of the changes that beset the Tay fisheries, it is a necessary preliminary to describe the situation that existed prior to these changes and the rest of this chapter will be devoted to a description of the traditional salmon fisheries of the River Tay. The most common method of fishing was the legally permitted net & coble mode. At the time this was also the most efficient method of catching fish on the river proper, though not all stretches were suitable to its use. The net involved, often called a sweep net, was folded on the stern of a coble which was partially decked-over for this purpose. Long ropes were fastened to each end of the net and one of these, the head rope, was secured to the coble, while the other, the tow rope, was held by a man on the shore called the towman. The boatmen rowed the shot in a semicircular direction from the shore, embracing as much of the river as possible, the net paying out over the stern of the coble as they progressed. The head rope was attached to

the fore-end of the net by a bridle, and between the bridle and the net itself was the staff which served to keep the net stretched breadth-wise. The starting off place for both coble and towman was called the shot head and, while the boatmen were rowing the shot, the towman would walk along the shore with his tow, keeping the hint-end of the net close to the shore so that no fish could escape. The net formed a curtain in the water suspended from corks attached to the top rope and weighted at the bottom by the ground rope which kept it in contact with the bed of the river. Boatmen and towman would come together again at the hailing with the two ends of the net, thus trapping any fish caught within the sweep of the net. The shot was always rowed with the current, or with the ebb or flow of the tide in the lower river. At the hailing, the closed net, held on the shore by the salmon fishers, would swing with the current until it lay downstream and roughly parallel to the shore. Hailings were often constructed so as to protrude slightly into the river, causing an eddy on the downstream side where the slack-water made the net easier to hail (haul). Hailing the net to the shore was by hand until the 19th century, though there was mention of horses being employed. Sweep nets often had a bag or "bosom" at the mid-way point, where the fish would congregate as the net was drawn ashore. After being taken from the net the fish would be killed by a blow to the head with a wooden club. Ideally, the sweep of the net would encompass the entire breadth of the river. In 1810 the sweep nets were from 47 to 60 fathoms (282-360 feet) in length, and fourteen to twenty feet in breadth. In order for the sweep net to be effective the river had to deepen within a short distance from the shore so that the full width of the net could hang in the water with only the ground rope in contact with the bed of the river. It also required the bed to be relatively smooth and free from both holes and obstructions, as these would allow the salmon to

escape or snag the net. Thus, if the bank of the river shelved precipitously, was rocky, or had extensive shallows, it would be inappropriate for the use of the sweep net. In evidence submitted to the Select Committee of 1824, one of the witnesses, Dr John Fleming, minister at Flisk, considered the net & coble mode of fishing very efficient in the rivers, but not suited to the estuaries or the sea coast.

> In rivers by means of the coble net, the [main] stream can be effectually reached, and consequently it is suited for catching of fish in such a situation, either during their ascent or descent. The regularity of the current in rivers, in one direction is suited to the coble net, and the numerous fords at those pools to which the fish resort likewise furnish facilities for using the coble net, thus rendering it a very efficient engine in rivers in general. In an estuary the coble net is by no means a suitable engine; there the varying depth of the water, the numerous inequalities of the bottom, and the small portion of the stream which the net can embrace, render it an unsuitable engine; but its principal defect in estuaries seems to arise from occasional, or rather the frequent, swell in the water owing to its direct communication with the sea, by which the ground rope of the net is lifted from the bottom, thereby permitting the fish inclosed in the net readily to escape.[7]

Dr Fleming's ultimate conclusion was that there was not a more inefficient engine than the net & coble in the estuaries[8].

Between Perth and Newburgh net & coble was the standard practice and above Perth there were many places where the sweep net could be employed. However, there were two problems associated with the upper waters: the first was that in places where the river was incised, the banks of the river were steep or rocky and thus unsuitable for net & coble and, second the concentration of nets below Perth - even in the late eighteenth century - was such that there tended to be a relative dearth of fish upstream from Perth when the lower nets were in ply during the week. A solution to both these problems was the pot net or croy net, a fixed engine and thus illegal, but widely used on the Tay up to the 1820s. The pot nets were attached to cairns of stones called

croys, which were heaped on the bed of the river with the tops one to one-and-a-half feet above the surface. The croys were anything from three to thirteen yards in length and they caused the current to eddy about them creating little backwaters to which salmon would resort. Croys at the side of the river would have a single net attached to the downstream end, while those towards the centre of the stream would have a net on either side. The pot net was anchored to the bed of the river with boulders, floated to the surface with corks and it streamed with the current. When used in tidal waters, two croys were employed with the pot net strung between them. The pot nets were from six to twenty fathoms in length (36-120 feet), up to seventeen feet in breadth according to the depth of the river, with a mesh three inches square[9]. Unlike sweep nets which enclosed the fish, pot nets were designed to enmesh a salmon by the gills. The nature of the pot net was such that it could be used at locations unsuitable for net & coble because of rocks or other obstructions. It also allowed tacksmen with fishings above Perth access to salmon at weekends when the use of net & coble was prohibited during the Saturday slap (the weekly close-time). Setting pot nets during the Saturday slap secured a share of the fish without a too blatant transgression of the law, besides which the pot nets could be left unattended for periods of up to 48 hours. It was estimated in 1810 that there were 23 croys between Perth Bridge and Thistle Brig, which is about one mile above Stormontfield[10]. Yet higher up the river at places entirely unsuitable for nets of any kind, the fish spear or "leister" was used. This was a very ancient method of catching fish and, as it was almost exclusively used by poachers, its legality must be doubted. A common method of employing the leister was after dark in conjunction with a blazing torch, a mode called "burning the water".

Fishing for salmon in the Firth of Tay presented problems that derived from the nature of the landform described in Chapter One. From Mugdrum Island to opposite Dundee, the shifting sandbanks of the esturine delta did not provide a channel suitable for the use of sweep nets, except for limited periods of each tide. In addition, the channels passed nearer to the south shore leaving great tracts of shallows to the north and rendering the north shore entirely unsuitable for any mode of fishing then devised. Many stretches of the south shore were also unsuitable because of low cliffs at the waters edge, thus there were very few places on the south shore where net & coble could be used and the traditional mode of fishing in the estuary had been the yair (also called a stage net on the Tay) or the toot net. Yairs had in times past been employed on the south shore of the estuary at places where it shelved sufficiently to provide a depth of water a modest distance from the shore. The right to erect yairs was customarily part of the tack of a farm if the land bordered the river, no additional rent being paid for this privilege. The use of stage nets had extended from Balmbreich (NO 273205) in the west, to the Greenside Scalp (NO 430292) in the east, but their use had largely died out by the end of the eighteenth century. The stage net comprised of a "leader" that extended from the high to the low water mark, at which latter end was located a net some fourteen feet wide. The leader was constructed of "stake and rice", i.e. vertical stakes interwoven with twigs to form a barrier impenetrable to fish. The fish were thus diverted out towards the net, above which a man was stationed. When he saw or felt a fish enter the net it was immediately raised and the fish removed. Twenty to thirty fish per tide was regarded as a good haul''.

The toot net was something of a hybrid, for although the net remained stationary in the water after it had been set, it required to be

rowed into position each time it was reset. Thus it was difficult to decide whether or not it was a fixed engine. Toot nets were from 22 to 27 fathoms (132-162 feet) in length, on average fourteen-and-a-half feet deep, with a mesh two to two-and-a-half inches square. One end was fixed to the shore, while the other was rowed some way out into the stream and an anchor dropped so that the net formed a U-shape kept open by the current. A rope was attached to the anchor in the river, and a salmon fisher in a coble would station himself behind (i.e. downstream from) the net to observe if any fish entered. If one did so, the fisher in the coble would signal to another on the shore who would then haul in the anchor from the river, thus closing the net. The net would then be hauled ashore, the fish removed and the process repeated.[12] In 1810 there were fifteen cobles employed at the toot net fishing on the north shore below Dundee, and others at the Scotscraig fishings on the south shore. Given the width of the estuary, even where it narrowed at its mouth, the toot nets could not be regarded as a very effective mode of fishing, the more so if the time taken to close and reset the net is taken into account'[13]

Other modes of fishing were not significant as far as the Tay basin was concerned. There were two cruives, both on the River Earn, one at Colquhalzie (NN 916174) and the other, the Dupplin cruive (NO 068196) which belonged to the Earl of Kinnoull. The cruive or fish trap was a very ancient method of catching fish. The Dupplin cruive was a permanent one, strictly speaking a cruive-dyke which involved a rubble dam with a slap or gap in the centre into which could be fitted a cruive box to trap the ascending salmon. Though not always the case, there was meant to be an additional gap in the cruive called the "King's slap", which was to be kept permanently open so that the river was never completely dammed'[14]. Cruives *per se* did not catch many fish in their

cruive boxes, but if there were no King's slap and if the cruive box were not removed for the Saturday slap or during the annual close-time, as was required by the law, then they became a permanent dam across the river. In such a case, the salmon, unable to ascend further, would gather in the pools immediately below the cruive where they could easily be netted. There was no King's slap in the Dupplin cruive[15]. Though the Earn was much less important than the Tay as a salmon river, this abuse of ancient rights by the Earl of Kinnoull (i.e. both damming the Earn and fishing in the close-time) became a source of contention among those involved in the fisheries, especially after conservation increasingly became an issue. Another example of abuse of an ancient privilege was that by the Earl of Breadalbane who claimed the right to net salmon in Loch Tay all year round. This claim, almost certainly based upon custom rather than legal right, was a similar source of aggravation. In particular, it was seen as having an adverse affect as spawners (i.e. salmon in spawning condition) were caught. In both cases, by exercising their claimed ancient rights, Kinnoull and Breadalbane provided a means by which poachers could legitimise the possession and sale of salmon in close-time as they could claim fish in their possession were from Loch Tay or the Dupplin cruive[16].

The impression that emerges from this description of the traditional modes of fishing is that expediency was more important than legality. According to the statutes, only net & coble, yairs and cruives were legal. The legality of toot nets was dubious, though it had not been tested in the Courts, but there could be little doubt that the pot nets were fixed engines, and thus illegal. The need to adopt modes of fishing that were of dubious or of outright illegality arose because the net & coble mode required a particular type of shore to be effective, and this was largely absent from the estuary. Thus in the firth, resort was

made to stage nets and toot nets, though neither of these were particularly efficient. The use of pot nets can also be explained in terms of expediency: they could be constructed in parts of the river where the sweep net could not be used, and they were also a means of circumventing the Saturday slap when the fish were free to ascend the river below Perth. Because illegal methods were not seen as inappropriate, there was apparently no attempt to conceal these illegalities, the practices having been sanctioned by successive generations of salmon fishers. As long as the market for Tay salmon remained limited by the problems of preservation and transportation there was no pressure to alter established attitudes and practices. It was only during the course of the second half of the eighteenth century, with innovations in catching, preservation and transportation (see *infra* Chapters Three and Four), that the salmon stock was perceived as coming under pressure and the legality of these methods came to be questioned. To that time, no doubt fortuitously, the traditional methods appear to have arrived at a balance between the regenerative powers of the salmon stock and the produce of the salmon fisheries.

II - Preservation and Transportation

The traditional nature of the salmon trade was largely dictated by limitations imposed by the lack of any means of preservation which gave a product acceptable to the United Kingdom market. The preservation of salmon had always been a problem, though the extent of the problem varied with the season. Apart from those consumed locally, the markets for Tay salmon were all at some distance, in particular, London, which was the largest market of all. During the winter and early spring the ambient temperature was usually low enough for freshly caught fish to remain edible for a number of days. "Raw" (i.e. fresh) salmon were packed in baskets filled with straw which provided a rudimentary form of insulation and despatched to the south in salmon smacks. The trade in raw salmon rapidly dwindled as the days grew warmer, and was over by the beginning of May.

With the onset of warmer weather, to continue an export trade in salmon required a method of artificial preservation. In the 18th century certain traditional cures were in use, in particular pickling in brine, kippering, and smoking[17]. Of these, only pickling in brine - the least labour-intensive method - was significant on the Tay where large quantities of fish had to be processed. Unfortunately, salmon preserved in brine were not to the taste of either Scottish or English markets, and so, after pickling, the catch from the latter part of the season was collected into cargoes and exported to various parts of the European Continent. In the second half of the eighteenth century the trade in salmon from the Tay, and many other Scottish rivers, was dominated by the Perth firm of John Richardson & Company. Although they were significant innovators and adopted new methods of preservation, for part of the period Richardson & Company continued to use the traditional methods in parallel with the new, and it is thus possible to get an

impression of the traditional salmon trade from John Richardson's letter books[18].

During 1771 Richardson & Company held a majority of tacks on the Tay and it appears to have purchased fish from the other tacksmen, so that in effect the bulk of the produce of the river passed through its hands. John Richardson's Letter Books indicate that in 1771, from the beginning of the season until June, salmon from the Tay were exported solely to London, and thereafter until the end of the fishing season, which on the Tay was 26th August, they were pickled in brine for export to the Continental markets. The description that follows concentrates on the traditional components of Richardson & Company's business. In this particular season Richardson dealt with two London fishmongers: Thomas Old and William Rutter[19]. Old received 1,120 raw salmon between 2nd February and 8th May, and Rutter received 179 raw salmon between 6th March and 18th April. Prices at the beginning of the season averaged 11s. 5d. per salmon (just under 1s. per lb) and 4s. per salmon (4d. per lb) at the beginning of May[20]. The produce of the river was not constant throughout the fishing season, the number of fish caught increasing as the season progressed, especially after the onset of the grilse in May, however, the quality of the salmon fell off as spring gave way to summer.

The London market appears always to have enjoyed precedence, and so it may be assumed that it was where the highest prices were to be made. But once this market was closed by the rise in temperature, then tacksmen such as Richardson & Company perforce resorted to the salt salmon trade. The change from raw to pickled salmon involved a considerable increase in the geographical spread of its trade and the company became merchants as well as tacksmen. As such the company acted as an intermediary in the salt salmon trade, buying from other

tacksmen, and then seeking out markets. At that time there were many Scottish salmon rivers which were too far from any market to have a trade in raw fish, and on which kitting had not been adopted. From such rivers there was a considerable trade in salt salmon, and Richardson & Company were heavily engaged in this trade. Salt salmon were packed in barrels, also called tierces, which had a capacity of 42 gallons "English wine measure"[21]. A barrel ready for shipping weighed between 425 lbs and 430 lbs, and contained between 30 and 34 salmon[22]. In January 1771 Richardson & Company was still dealing in salt salmon left over from the previous season and Richardson wrote to his Berwick associate, Anthony Forster reminding him that a cargo to be shipped from there had to be accompanied by a certificate signed by a magistrate, confirming that the fish had all been cured in that town and that there had been no infectious diseases within the burgh[23]. Similarly in May, Richardson wrote to Thomas Stevenson, cooper, Bonawe, instructing him to load as much of the last year's salt fish as he could on Captain Blyth's vessel, the *Generous Mind*, to go to Ventura Francises Gomez at Bilbao. Any barrels remaining were to be held over until the 1771 fish were ready[24]. From Bilbao, Blyth was to sail to Setubal (south of Lisbon) to load salt for Bonawe.[25]

The trade in salt salmon was in two phases: buying and then selling, and the first involved Richardson in making vigorous attempts to corner the market. On 13th May, he wrote to Robertson & Company of Portsoy suggesting a selling cartel in foreign markets, such as they had organised in previous years, and further suggesting that the cartel be extended to purchases in Scotland, where they could buy on a joint account[26] A letter to Robertson & Company on 8th July confirmed that all fishings held by their two companies north of Montrose were to be on a joint account[27]. The first salt salmon that Richardson & Company

acquired during 1771 were 69½ barrels of the "Sutherland fish" (i.e. from Sutherland rivers) about the middle of May[28]. During June and July Richardson bargained to acquire Tay salmon from those fishings not in his own company's hands[29]. For the remainder of the buying phase Richardson was active in trying to secure salt salmon in competition with other buyers. This was largely a process of finding out the quantities available and then negotiating a price. On 2nd August, he wrote to Arbuthnot & Guthrie, Edinburgh (presumably factors or agents), offering to take their Peterhead and Sutherland salmon[30]. On 10th August, he wrote to Robertson & Company inquiring whether they had secured the Beauly fish from the current tacksman, Provost Fraser of Inverness[31]. Then on 14th August, he wrote to Anthony Forster at Berwick offering to take a quarter of the fish Forster acquired at Berwick[32], and on the 17th, he wrote to William Baillie at Rosehall (Rivers Oykel and Cassley), asking how many fish he had and requesting that they be sent to Cromarty[33]. By mid-August, Richardson was under pressure to pay higher prices, and he wrote to his agent at Montrose, David Walker, to pay what terms he could for the Montrose fish (Rivers North and South Esk), but he would still be willing to lose 100 or 200 barrels in order to keep the price down[34]. On 24th August, Richardson informed Thomas Stevenson at Bonawe of the fish owned by his company in that area. This comprised: 100 barrels at the Back(?) fishings, 170 barrels at (Richardson's own) Awe fishings, 80 barrels at the Sheal (Loch Shiel) fishings, 71 barrels old salmon (i.e. from previous season) and 60 (estimated) barrels at Fort William[35]. On 9th September, William Forsyth, merchant, Cromarty, received the Rosehall fish on Richardson & Co's behalf, amounting to 116 barrels[36]. Then on the 18th September, Richardson informed Robertson & Company that he had secured a further 200 or so barrels of the Montrose fish and hoped to increase this to 400 barrels[37]. Confirmation of the

Duke of Gordon's Lochy fish was conveyed to Stevenson at Bonawe in a letter of 23rd September.[38] Finally, on the 28th October in a letter to Robertson & Company, Richardson noted that it had secured the Banff fish - about 700 barrels - and he agreed to take a half of the (River) Conon fish and keep all the Montrose fish. He was also interested to know to which of the Mediterranean markets Robertson was shipping 300 barrels; if it were Venice this would be agreeable as Richardson was pretty certain that no one else was to go there[39].

By the end of October the process of buying salt salmon had come to an end. Selling had been going on concurrently, though this extended beyond October. The process of selling also involved the fixing of ships, for it was standard practice for the seller of salt salmon to have them conveyed to an appropriate Continental port. Some idea of the way in which Richardson & Company conducted their business with the Continent may be learnt from a reply which Richardson sent on the 6th August to a letter of inquiry from Peter Martel, merchant, Lille. This letter set out the terms and conditions under which Richardson & Company traded:

> ... we have a great part of the Scots fishery of salmon in our own hand which we either sell or export on our own account. By this you will see how improper it would be for us to say we would serve you on commission for were we to charge you such, it might be a commission on our own salmon. We will supply you at a fixed price as we do our other foreign friends which in general shall be to leave a reasonable view to our buyers according to the state of the market abroad and the fishery at home. We shall send you the 50 barrels or Tierces you mention charging you 57s. 6d. ..[??] aboard, every charge included, bounty ours. The freight will be 3s. the barrel so that they will stand you at Dunkirk exactly £3 0s. 6d. We do think the price at which salmon should sell at Dunkirk this year should be no less than last year. We do not meddle with the Aberdeen salmon, but will find you such as will suit your market which we know well and hope the quality will encourage a future order ...[40]

Unlike the trade in raw salmon which involved the London fishmongers deducting a commission from the price they received for the salmon in the London market, the trade in salt salmon was at a prior price fixed by contract between the parties. The terms and conditions of business with an existing customer are exemplified in another letter Richardson wrote to Soloman & Isaac Treves, merchants, Venice, on 8th June offering a cargo of salt salmon for the coming season of between 300 and 400 tierces, this to be "a joint account with you and us, each a half concern." If this was agreeable, then the Treves were to reply to Richardson & Company with a credit on London "for drawing for our quotient when required, which will be September." Richardson added that Treves was to "insure the debt by charging 2% *del credere* as usual, and when the sale is completed remit us the full of our half, discounting the payment at the rate of 7% monthly so as the adventure may be soon closed".[41] A discount of 7% for payment within one month would seem a reasonable encouragement to prompt payment[42].

On 23rd July Richardson & Company fixed a charter with William Deas, Alloa, to have 300 barrels shipped from the Tay to Le Havre and Bordeaux[43]. On 31st July, it fixed another charter with Charles Dempster, St Andrews to load 600 barrels at Newburgh, 300 hundred barrels for Alicante and the other 300 for Leghorn[44]. The vessel chartered from Deas was the *George*, master James Scotland. It ultimately sailed with 136 barrels and 20 half barrels for James Black & Company, Bordeaux, and 80 barrels and 40 half barrels for Andrew Limozen, Le Havre[45]. Further sales were to such Continental ports as Venice, Ancona, Leghorn, Rotterdam, Campvere and Dunkirk, but towards the end of September 1771, Richardson had apparently exhausted the possibilities for foreign sales of salt salmon for that season and he began to seek out sales among the other Scottish merchants. On 24th September he offered

300 barrels to Walker & Strachan, merchants, Edinburgh[46]. On 28th September he offered 350 barrels to Francis Garbett, a partner in the Carron Company Richardson also informed Garbett that they had "100 barrels in your Firth" (of Forth), 40 at Leven and 60 at Stirling, and if Garbett were not interested in outright purchase of these 100 barrels, then they might be shipped with one of Garbett's cargoes to Leghorn, for which Richardson & Company would pay freight of 5s. per barrel[47]. In a further approach to Garbett in November, Richardson advised him that Anthony Forster of Berwick still had 400 barrels to dispose of[48]. Garbett agreed to take these Tweed salmon to Leghorn in his own vessel at 6s. per barrel, freight[49]. The Montrose fish turned out to be something of a problem, even when they had been sold. One of the last cargoes shipped on Richardson & Company's behalf was 290 barrels on *The Atholl*, master James Cable, Montrose to Dunkirk[50]. However, on 21st November, Richardson wrote to David Walker, Montrose, informing him that there had been complaints about the Montrose fish. Some of the barrels could have held a further two or three fish, and the buyer had refused to accept 200 barrels as a result[51]. The penultimate item in the 1771 Letter Book indicated that the annual cycle had started again, for on 9th December Richardson consigned a cargo of raw salmon to Thomas Old, the first of the new season[52].

The activities of buying and selling described show that Richardson & Company acting not as salmon tacksmen but as merchants. As such they were concerned to buy their product at the cheapest price, in the same way as they would try to sell it for the highest price. To Richardson & Company and like firms, the quantity of salmon produced by a particular river for a given season was not a matter of concern beyond the effect upon the overall supply of salmon. Except for their own tacks on the Tay, they had no need to concern themselves with catching

enough salmon to pay the rent. The Continental market for salt salmon was apparently static in size, for if there were less fish about, the price would rise, and if the produce increased, then the price would fall. The company's expertise as middlemen allowed them to make the best of any given market conditions, and their approach to buying and selling salt salmon was as for any commodity, be it salmon, linen, wool or lime. One of the significant changes wrought by the improved methods of preservation (described in Chapter Three), was that the domestic (largely London) market could be supplied throughout the season, and it was not a static market but could apparently absorb as many salmon as tacksmen could catch. However, in terms of the traditional trade which is the concern of this chapter, if middlemen such as Richardson were the principals in the salt salmon trade, concerned with transactions at one step removed from the fisheries, then there there was no reason for them to pressurise the tacksmen who supplied them to increase the produce of their rivers. The merchants' business was a traditional business following a set pattern. The idea, suggested at the end of Part I, that there was a traditional balance between the regenerative power of the salmon and the extent of the exploitation of the salmon stock is confirmed by this brief description of the traditional trade in salmon.

REFERENCES

1. The phrase "salmon stock" in the context of this work is taken to refer to the number of salmon native to the rivers and streams of a river basin such as the Tay basin. This would include those fish in the ocean yet to return to spawn that make up the "buffer stock" referred to in Chapter One (p 16). Over-fishing would imply that the numbers of salmon being caught had risen to a level where there were insufficient breeders to maintain the existing level and the overall stock would fall.

   The word "produce" is used to describe the total catch of fish over a given time period, usually a season. Thus the produce of the Tay salmon fisheries for 1850 would be all salmon and grilse caught within the Tay basin during the 1850 fishing season. The same meaning is attached to the word ***mutatis mutandis*** when referring to a particular fishing or a particular company. The produce of any season is not the total of fish returning to a river in that season as it does not include the "escapement", i.e. the fish not caught.

2. Lord Moncrieffe, the Lord Advocate, in his evidence to the Select Committee of 1860 quoted legislation for the protection of salmon enacted in 1318, during the reign of Robert I.

3.

> The series of statutes above referred to, which were passed for the preservation of the breed of salmon, were solely prohibitory, and, though they prescribe no specific mode of fishing, the general result of them is, that, except on the shore of the open sea, no fixed engine at all [...] may be used, ... and conduce to the general result, that net and coble [and certain minor exceptions] are alone recognised as legal, ... anything used for the purpose of obstructing the passage of fish is illegal, and also that the right of fishing must not be exercised by means of fixed or standing machinery of any kind. And in order to fulfil the condition of fixity which stamps the engines as illegal, it is not necessary that it be a permanent fixture, but it is sufficient that it should be fixed or motionless, even for a time, in the water.

Charles Stewart: ***A Treatise on the Law of Scotland Relating to Rights of Fishing***, Edinburgh, 1869, p 156.

4. See pp 48, 49-50.

5. Titles to fish by cruives were all of long standing by the eighteenth century, and by then were regarded as anachronistic.

6. ".. the meshes from 1¾ to 3¼ inches on the side, or from 7 to 13 inches in the circuit, excepting one fathom in the middle, the meshes of which are from 1⅛ to 1⅜ on the side, or from 4½ to 5½ inches in circuit."

   1810 Evidence, Notes.

7. Second Report, p 78.

8. Dr Fleming illustrated the inefficiency of net & coble in the estuary by means of an anecdote. When the Seaside stake net had been in operation it had caught 7,000 salmon in one season. Some time after the stake net had been removed, no other form of fishing having been attempted in the interim, the proprietor of Seaside had asked John Richardson & Company to fish Seaside by net & coble with a single crew of salmon fishers. Because Seaside was on the north shore of the firth, immediately opposite to Dr Fleming's manse on the south shore, John Richardson had asked that the crew might use Dr Fleming's barn as a bothy. No fish were caught for some time until, one morning, the foreman of the crew was observed carrying a salmon. Dr Fleming continued: "on congratulating him on his success, he intimated to me, that being about to return to Perth, he had gone to Newburgh, ... to purchase this fish by order of his master, with a view to presenting it to me, in consequence of not having captured during the whole of their trial on the

Seaside bank a fish that could be considered as at all adapted for offering as a present:"

Second Report, pp 82-83.

9. 1810 Evidence, Notes.

10. David Mitchell of Waulkmill, giving evidence in the Stake Net Cause testified that the pot nets were usually set on Saturday night and retrieved on the Monday morning, the reason being that during the week the fishing further down the river was so intensive that no fish could get up beyond Perth Bridge until the Saturday slap was in operation. Mitchell described how he had seen 14 pot nets within 400 yards, overlapping each other, so that the smallest space between them would be ten feet. He had never seen more than fourteen salmon taken from a pot net.

1810 Evidence, pp 91, 93.

11. John Johnstone of Balmerino, a witness before the 1824 Select Committee, when describing stage nets mentioned the net as being a "poke net", i.e. bag-shaped. The poke net was on sliders (runners) so that it could be raised out of the water. The fisherman stood on a stage above the net, the stage being connected to the shore by a gangway. Johnstone identified ten stage nets, located as follows:

Birkhill	2
Balmerino	1
Naughton	3
Peasehill	1
Long Craig	1
Woodhaven	1
St Fort	1
Craighead	1

1824 Select Committee Report, p 39.

12. 1810 Evidence, notes.

13. The word "toot" was also employed as a verb. Salmon fishers using a sweep net would at times stop rowing a shot, particularly at slack water, and allow the net to drift: they would thus "toot" the net. The toot net was also called a "stell net".

14. The ancient regulations defining the King's slap are from the times before standard measurements: "That the mid-stream aw to be free so meikle as a swine of 3 year elde well fed is of length so that neither the gronzie (snout) nor the tail may wyn till any side." Quoted in W.L. Calderwood: ***Salmon and Sea Trout***, London, 1930, pp 120-121.

15. In his evidence to the 1824 Committee, James Gillies described going to the Dupplin cruive with Thomas Proudfoot of Walnut Grove, when the latter was Superintendent of the Watchers on the Tay. This was in the month of September (i.e. in the close-time), and they found the cruive box in place and a boat with a net in the pool below the cruive. They resolved to remove the boat and had it taken to Perth. However, it transpired to be Lord Kinnoull's boat, and his factor summoned those involved, Thomas Proudfoot being find £5. John Johnstone of Balmerino noted in his evidence that the pool below the Dupplin cruive was netted by the Earl of Kinnoull's men several days in the week during the whole year. First Report, pp 52, 141.

16. ***ibid.*** p 52.

17. The traditional methods for curing salmon are as follows:

Kippering involved removing the head, splitting the fish, and removing the intestines and any roe. The fish would be washed both before and after this process. Kippering was a dry cure, and the preserving agents had to be absorbed into the flesh to allow the cure to take place. There would appear to have been a number

of alternative preservatives, though the basic ingredient was salt. To this might be added brown sugar, saltpetre, or possibly rum. The salt mixture would be rubbed into the flesh, though this had to be done very carefully to avoid the flesh "flaking". The fish would also lie in the preservative for up to 48 hours. Next came the drying process: this could be the result of exposure to heat in a kiln, or by exposure to the sun. The salmon had to be stretched open during this process to allow the air to circulate around it. Drying in the sun could take up to five weeks.

From this description it would appear that kippering was a labour-intensive form of curing, and thus probably unsuitable for tacksmen dealing in large quantities of salmon. That there is no explicit reference to this type of cure being used on the River Tay is probably explained by the latter observation.

Sources: "Viking" (R.J. Duthie): ***The Art of Fishcuring,*** Aberdeen, 1911, and John Ross Jnr: "Curing and Preserving Fish in Scotland and Its Islands", from D. Herbert (ed.): ***Fish and Fisheries,*** Edinburgh, 1882.

Pickling in Brine was the oldest of the curing methods, and there are few details to be found. It would no doubt be very similar to the method used for herring and other fish. It can be seen as a "wet cure" alternative to kippering. Thus the preliminaries of heading and gutting would be the same. Thereafter the fish were packed in barrels and topped up with brine. This was much less labour-intensive than kippering, which would explain its extensive use on the River Tay.

Smoking was a variation of the kippering process, in that the kiln drying was carried out over a wood fire with the smoke circulating about the fish. The preliminary was very similar to the

preparation of kippered salmon, including the rubbing in of a salt-based curing agent. It was claimed that smoked salmon would keep about a fortnight during the summer. It too was labour-intensive, and is not mentioned in connection with Tay salmon.

Source: Ross: *op. cit.*

18. John Richardson of Pitfour (died 1821) was the second son of Thomas Richardson, sometime Deacon of the Bakers Calling of Perth, and his wife Beatrix Austin. Thomas Richardson was one of the partners in the Perth Fishing Company (pp 72-75). John Richardson is first referred to in the Perth Town Council Minutes for 1757 as tacksman of three of the Burgh of Perth fishings, thereafter the expansion of Richardson's business as a salmon tacksman was rapid (see Appendices I and II). It is not recorded when the firm of John Richardson & Company was first formed, but Richardson's partners were his brother-in-law, William Stewart, John Campbell and John Ross. A fascinating and scholarly account of Richardson's business activities is given in A.R.B. Haldane's: ***The Great Fishmonger of Tay,*** Abertay Historical Society, 1981.

Richardson was clearly an astute businessman and he died a wealthy man. In his "Wastebook for 1787-1795" (MS 20912) when he was still in business, there is an "Inventory of the Effects etc. belonging to John Richardson, merchant in Perth, March 1787", among which were:

	£	s.	d.
Stock in trade	8,066	19	4
Estate of Pitfour	17,550	3	
Estate of Aberargie	5,893	13	10
Poldrait fishing at cost	2,250		
Ships fishing at cost	2,100		
House, cellar and yard at Speygate	300		
6 shares Perth United Co. (Bank)	240		

Total	38,870	2	10

In 1820,the year before his death, the value of his property amounted to £104,977, including:

	£
Estate of Pitfour	25,946
Estate of Pitcoag, (?) and Chapelhill	12,532
Estate of Kercock and Ballathie	17,741
Estate of Aberargie	6,492
Estate of Muirhall	6,510
Estate of Kinnaird	8,800
Estate of Huntingtower (2/3)*	10,792
Poldrait fishings	2,250
Ships fishings	2,100
Overall total	104,977

*John Richardson was a partner with Robert Smythe of Methven at the Huntingtower bleachfields.

John Shaw: ***Water Power in Scotland 1550-1870,*** Edinburgh, 1984, p 234.

Source: MS 20885.

John Richardson had two children: a daughter called Margaret and a son James Richardson of Pitfour (died 1823) who survived his father by only two years. James Richardson had three sons and six daughters. The sons continued the family connection with the Tay fisheries in the capacity of proprietors (see Chapter One, pp 22, 26-27), and James' sixth daughter, Jemima, married Archibald Butter of Faskally who was also a proprietor (See Chapter Nine, note 6).

John Richardson's letter books and other papers are held in the National Library of Scotland.

BPB.

19. Thomas Old, fishmonger, Wapping Old Stairs, London.

William Rutter, fishmonger, Tower Hill, London.

20. That year, over the period February to June, Richardson & Company sold 3,289 kits of salmon to Old and Rutter. Averaging 3½ salmon per kit, this represented 11,512 salmon[1]. This shows that the trade in raw salmon was a relatively small proportion (11.28%) of the exports to London. Putting the same point in another way, assuming that the trade in raw salmon was a relatively stable quantity over the years, the adoption of kitting had allowed the trade with London to increase almost tenfold. See ,also Chapter Three, I, ***passim***.

1810 Evidence.

1. A kit contained between 30lbs and 40lbs of salmon according to the size of the fish. John Richardson noted that it was better to kit large salmon than small, as 35lbs of large fish would fill a kit, whereas it took 40lbs of small fish to do the same.

MS 20807, p 19.

At this time the average salmon was assumed to weigh 12 lbs and the average grilse 4 lbs.

21. MS 20809, p 338.

22. MS 20801, p 68.

23. MS 20809, p 1.

24. ***ibid.*** p 139.

25. ***ibid.*** p 146.

26. The purchases on joint account were to involve the Montrose, Peterhead, Sutherland, Banff, Spey, Inverness and Ross-shire Salmon. ***ibid.*** p 156.

Richardson's ideas on the formation of monopolies were well developed, for he had gone to the trouble of writing out his thoughts on the subject in his letter book during June 1763.

MS 20801, p 137 ***ff***, see Appendix III.

27. MS 20809 p 247

28. *ibid.* p 169.

29. *ibid.* p 229.

Two other tacksmen are recorded on the Tay that season: Samuel Burn of Berwick and Patrick Keir of Kinmonth and Orchardneuk. In August Richardson asked Robertson & Company of Portsoy if they had any salmon at Newburgh, and offered to take them, but this might have been a reference to Newburgh on the River Ythan rather than the one on the Tay.

ibid. p 334.

30. *ibid.* p 283.

31. *ibid.* p 302.

32. *ibid.* p 319.

33. *ibid.* p 325.

34. *ibid.* p 325.

35. *ibid.* p 336.

Stevenson was a cooper, i.e. a salmon packer, whose yard at Bonawe was well placed as a receiving depot for salmon from the River Awe, which flowed into Loch Etive almost opposite to Bonawe. Bonawe was also well situated to receive fish from the rivers that flowed into Loch Linnhe and beyond.

36. *ibid.* p 379.

For an account of the activities of William Forsyth, see I.R.M. Mowat: *Easter Ross, 1750-1850,* Edinburgh, 1981, p 71 *ff.*

37. MS 20809, p 373.

38. *ibid.* p 377.

39. *ibid.* p 394.

40. *ibid.* p 297.

41. *ibid.* p 205.

The phrase *del credere* implies that the solvency of the buyer is to be guaranteed by the selling agent.

42. Few of Richardson's transactions were for cash, and his use of bills was frequent. As well as receiving payment by means of bills, Richardson & Company made payment in the same way. On 15th May 1771, Richardson wrote to R. Scott Moncrieff, Banker, Edinburgh, informing him that Richardson & Company were due to pay Robertson & Company of Portsoy £1,051 3s., and that they have been, "picking up bills on Edinburgh", with which to pay the account. As some of these bills were nearly due, Moncrieff was requested to collect the payments so that Richardson & Company might draw directly upon Moncrieff when settling with Robertson & Company. The bills totalled £805 17s. 2d.

MS 20809, p 160.

43. *ibid.* p 273.

44. *ibid.* p 281.

45. In letters to Limozen and Black, Richardson suggested the prices be fixed in France at 80 livres in Le Havre and 95 livres in Bordeaux[1]. At 10 livres = 8s. 9d., this would be 70s. and 83s 1½d. respectively (presumably per barrel)[2]. The barrels were valued at 55s. each for insurance purposes, and the freight was £36 10s. (£28 10s. to Black and £8 to Limozen), plus 2/3rds port dues[3]. Thus Richardson was hoping to realise (£350 + £606 8s. 1½d. =) £956 8s. 1½d. from the sale of the salt salmon in France. From this had to be deducted:

	£ s.	£ s. d.
		956 8 1½
the cost of the fish (at insurance valuation)	676 10	
the freight	36 10	
		713
leaving a profit of		243 8 1½

The insurance, port dues and any other incidentals are not known in this instance, though on another occasion insurance rates were quoted at 1½%. Thus, setting aside the unknowns, the profit on salt salmon worth £676 10s. was £243 8s. 1½d, or 36%[4].)

After that Scotland was to sail to Setubal to collect a cargo of salt which had been ordered through John Gordon & Company merchants, Lisbon. Scotland was further instructed that on arrival in France he was not to say where he came from until he had seen either Limozen or Black, in case they thought it expedient for him to claim that he was from Holland. Richardson enclosed a Bill of Loading from Holland for this purpose. This was presumably a reflection of the uneasy relations existing between Britain and France at the time. A further letter to Limozen asks if it would be possible to get a clearance from the customs at Le Havre for the Bordeaux consignment without unloading it, as the duty was very high at Bordeaux.

ibid. pp 311, 312.

1. *ibid.* p 312.

2. See S. Andrews: *Eighteenth Century Europe,* London, 1966, Appendix 4, French Currency.

3. MS 20809, p 304.

4. A letter to Black on 30th October confirmed that the last of the August consignment had been sold at 95 livres.

ibid. p 440.

46. *ibid.* p 382.

47. *ibid.* p 396.

48. *ibid.* pp 451, 453.

49. The ramifications of this deal are further revealed in a letter from Richardson to Forster of 11th November. Garbett's vessel had space for about 200 barrels more than Forster had available to send, and thus could have taken on more freight at Berwick. Richardson had previously written to Garbett, and the letter of 11th November informed Forster of the contents of this letter. Richardson had requested that:

> he [Garbett] will receive no other salmon on board without your [Forster's] consent, but to inform us if we could ship 200 barrels more if they will allow the vessel to call at Alicante to put them ashore, ... Our view in this is, in case Mr [Samuel] Burn [Richardson and Forster's business rival] has not absolutely fixed for his 200 barrels, to prevent them going by this [Garbett's] vessel without your [Forster's] leave. At the same time, if he will still sell them, you will buy them for us if he will now part with them at the same price you pay the others, namely 52s. or 52s. 6d. bounty ours, only protract the payment to the 1st of March. If this take place it will be no disadvantage to you as it may probably keep them [Burn's fish] out of the Leghorn market.

If this stratagem to force Burn to dispose of 200 barrels cheaply by denying him access to a vessel is typical, then there would appear to have been a certain ruthlessness in Richardson's business methods. However, on this occasion he was unsuccessful - Burn refused to sell them.

ibid. pp. 466, 478.

50. *ibid.* pp 415, 428.

51. *ibid.* p 487.

52. *ibid.* p 503.

CHAPTER THREE

NEW METHODS OF PRESERVATION

I - The Introduction of Kitting

There were three innovations that affected the Tay salmon fisheries during the second half of the eighteenth century. The first and second of these, kitting and the use of ice, were improved methods of preservation, and will be the subject of this chapter. The third innovation was a new mode of netting salmon which was effective in the estuary and will be dealt with in the next chapter. The result of the first two was to greatly enlarge the relatively profitable domestic market for salmon by extending the season over which that market could be supplied[1]. The introduction of kitting to the Tay came during the 1740s, and the events leading to its adoption are well-recorded as they were the subject of a court case[2]. The case itself is not significant, as its outcome - unfavourable to the introduction of kitting - was soon reversed. However, as well as giving an account of the introduction of kitting to the Tay, the court case also illustrates the innate resistance to innovation present in a community still run on very traditional lines, even when the innovation was clearly to the benefit to all concerned. The case came before the Perth Magistrates during November 1749 and involved two employees of the Perth Fishing Company, both coopers from Berwick-upon-Tweed. The charge against them, brought by the Wright Calling (i.e. the incorporation of carpenters), was that both were working as coopers within Perth, though neither was a burgess nor a freeman. The Perth Fishing Company were first in introducing to the Tay a new method of preservation which had previously been adopted by the Berwick merchants for Tweed salmon. The method came from further south, and in some sources it is called the "Newcastle cure"[3]. It involved parboiling the salmon, allowing them to cool and then packing them in small barrels

called kits. The kits, each holding 30-40lbs of salmon, were finally topped up with strong vinegar. The process was called "kitting", and the finished product "kitted salmon"[4]. It was stated in evidence that the resultant product "eats little inferior in taste and flavour to fresh salmond." Equally to the point, the kitted salmon remained edible for a period of weeks, even at the height of the summer. According to evidence presented during the case, the adoption of the new cure had revived the Scottish salmon fisheries, to such an extent that

> the price of fish was considerably raised ... The proprietors of salmond fishings in particular found a great increase in rents and tack duties, new fishings were erected, the old ones more diligently fished, great numbers of new hands employed, and the proportion of fish now to what were taken formerly, was nearly four to one.

At first, however, the new found prosperity was not shared by the Scottish salmon merchants. The initial demand for kitted salmon from the London market had been such that they had been unable to meet it because of a lack of coopers with the necessary skills. As a result, the London fish merchants had set up depots in Scotland where they bought fish locally and then undertook their own kitting. The Perth Fishing Company was a case in point. Encouraged by the new developments, it had sought to avail itself of the new method, "but by the ignorance and unskillfulness of the Perth tradesmen ... their salmond gave no price at the London mercat and the project was entirely laid aside to the great loss and discouragement of the company." Thereafter the company had reverted to selling raw salmon to the English merchants. But in 1747 there was a fall in the price of raw salmon such that the company were forced to give up selling raw fish altogether and revert to "the antient method of salting and curing." This was much against the interests of the company as the price it received for salt salmon was but a quarter of

that received for raw fish prior to the depression of the market. Not only that, but it was again forced to seek the services of the Perth coopers "who became extremely arrogant from this necessity of the merchants, and would only serve at such prices, at such times and in such manner as they themselves pleased." Not only were the members of the Wright Calling incapable of mastering the new method of kitting salmon, but their skill with the "antient method", when they chose to bestir themselves, was apparently no better. In 1748 the Perth Fishing Company had exported 536 barrels of salt salmon to John Dunlop, merchant in Rotterdam, who consigned them to Leghorn and other ports on the Gulf of Genoa. But of this number a significant proportion "were quarrelled as unmerchantable by reason of the insufficiency of the casks, some of which leaked and run out the pickle, and a great number in the lower part of the ship ... were prest quite flat by the incumbent weight .."

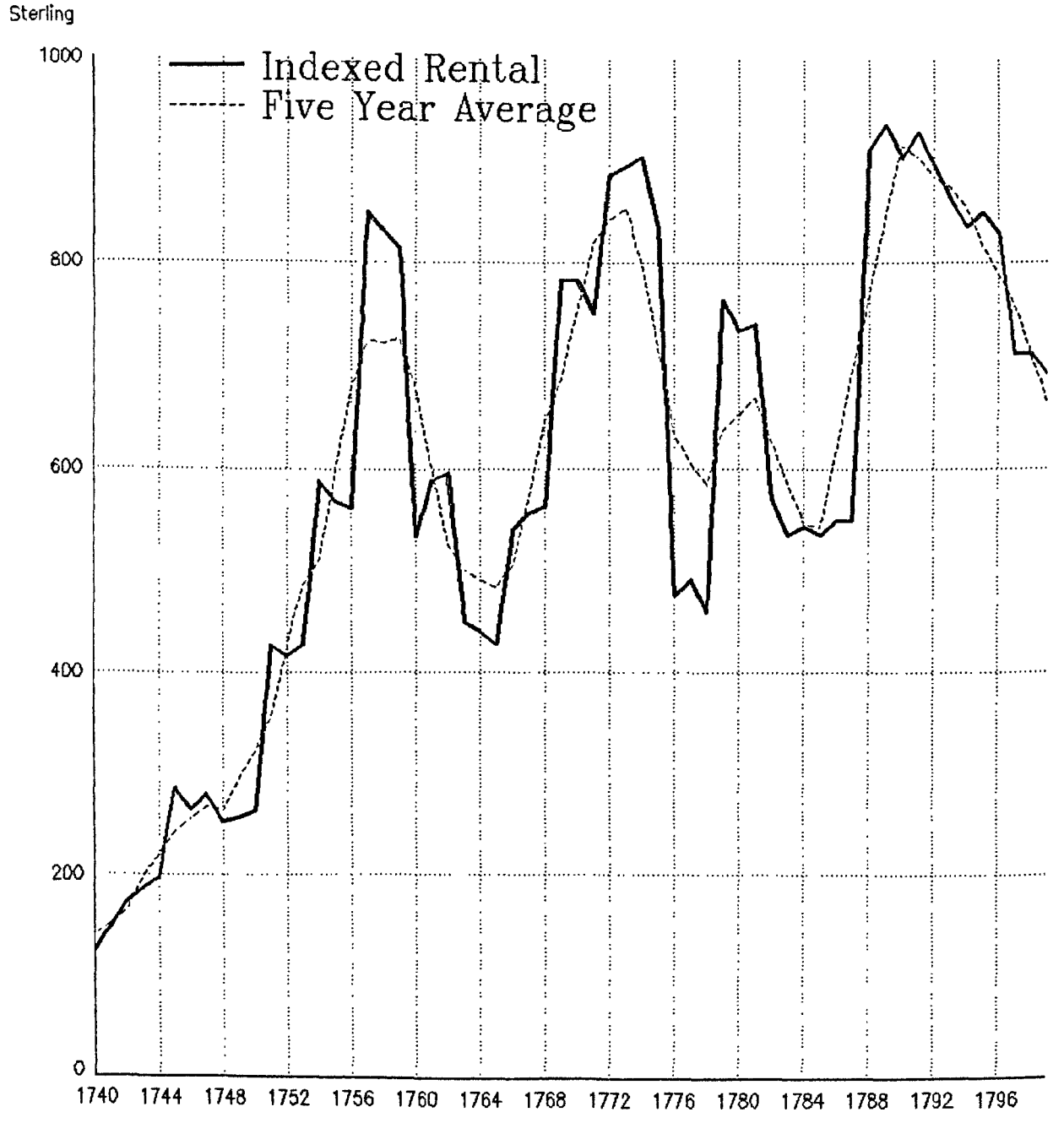
At the outset of the 1749 season things were no better. As soon as they were filled, some of the barrels had to be repacked because the barrels themselves were poorly constructed. The additional expense combined with the continuing low price for salt salmon finally caused the Perth Fishing Company to decide that enough was enough and it resolved to avoid employing members of the Wright Calling and to engage coopers from Berwick, and so re-enter the trade in kitted salmon. The justification for this was a thinly veiled comment on the intransigence of the Perth tradesmen: the company told the magistrates that it intended to employ only "such persons as are their own contracted or engaged servants immediately subject to their inspection, obedient to their orders and in whose skill as well as honesty they have confidence." Foreseeing difficulties with the Wrights, the company had offered payment of a single "valuable consideration" to them if they would admit one of the Berwick coopers to membership. But the Wrights had countered this

proposal with one of their own that required an *annual* payment for membership and the cooper allowed to employ one assistant only. When this was rejected by the company, the Wrights acted to preserve their closed shop and the court case of 1749 ensued. The Perth Fishing Company lost its case, which is not surprising as the magistrates before whom it appeared were drawn from the ranks of a town council which was entirely composed of the burgesses and freemen who constituted the various trade incorporations of Perth. But this reverse did not stop the adoption of the new method, very soon kitted salmon became the principal export of the Tay salmon fisheries from the spring onwards, after the ambient temperature had risen sufficiently to prevent the trade in raw salmon[5].

The revival of the Scottish salmon fisheries in the 1740s, brought about by the introduction of the kitting process, was not a temporary phenomenon. The rentals of the Perth Burgh fishings, shown in table 3.1 and figure 3.1, would be representative of other rentals on the Tay and, in spite of dips about the years 1765, 1777 and 1785, the level of payments for the second half of the century are seven or eight times greater than they were in the first half. There seems little doubt that the ability to supply the London market for part, or all of the fishing season would have been the main contributory factor to this revival. The tenfold increase in the quantity of salmon going to London from the Tay after the introduction of kitting has already been referred to[6]. There was an additional factor which adds weight to these conclusions about the London market and its ability to absorb any additional quantities of salmon made available. Salmon is conventionally thought of as a "luxury" product commanding a premium price in the market, but apparently pickled salmon was not in this category. According to C.A. Wilson in her ***Food and Drink in Britain***, "salmon pickled in vinegar

Burgh of Perth Fishings, Rentals 1740–99

Figure 3.1



Source: Table 3.1

Table 3.1

Burgh of Perth Fishings Rentals - 1707-1814

	(1) Rental in Sterling (£)	(2) Indexed Rental (£)	(3) 5 Year Moving Average (£)		(1) Rental in Sterling (£)	(2) Indexed Rental (£)	(3) 5 Year Moving Average (£)
1707	63	70		1757	781	849	725
1708	63	71		1758	781	831	722
1709	63	67	73	1759	781	814	727
1710	92	88	78	1760	536	533	677
1711	92	70	79	1761	536	589	600
1712	92	94	80	1762	536	596	525
1713	70	74	77	1763	413	449	500
1714	70	74	76	1764	413	439	490
1715	70	71	70	1765	413	426	482
1716	64	67	72	1766	518	540	505
1717	61	63	73	1767	518	557	574
1718	78	83	77	1768	518	563	645
1719	78	79	81	1769	720	783	687
1720	89	93	87	1770	720	783	753
1721	89	89	87	1771	720	750	819
1722	89	93	88	1772	912	885	843
1723	74	81	85	1773	912	894	853
1724	74	83	86	1774	912	903	798
1725	74	80	87	1775	801	834	719
1726	89	92	90	1776	485	475	632
1727	89	97	97	1777	485	490	604
1728	89	97	105	1778	485	458	584
1729	111	118	113	1779	778	763	637
1730	111	122	115	1780	778	734	653
1731	111	129	119	1781	778	741	669
1732	100	111	118	1782	604	570	625
1733	100	115	112	1783	604	535	585
1734	100	115	105	1784	604	544	547
1735	76	90	100	1785	583	535	543
1736	76	94	102	1786	583	550	618
1737	76	85	104	1787	583	550	696
1738	106	125	111	1788	1010	910	769
1739	106	125	122	1789	1010	935	845
1740	106	125	140	1790	1010	902	914
1741	142	149	152	1791	1010	927	904
1742	169	174	166	1792	1010	894	884
1743	169	186	198	1793	1010	863	874
1744	169	197	221	1794	1010	835	854
1745	248	285	242	1795	1010	849	817
1746	248	264	255	1796	1010	828	787
1747	248	279	267	1797	1010	711	758
1748	238	251	262	1798	1010	711	709
1749	238	256	295	1799	1010	692	665
1750	238	262	322	1800	1010	601	658
1751	362	426	357	1801	1010	608	645
1752	362	416	424	1802	1010	678	632
1753	362	426	485	1803	1010	647	620
1754	500	588	512	1804	1010	627	608
1755	500	568	599	1805	1010	540	661
1756	500	562	680	1806	1010	549	711

Table 3.1 (continued)

	(1) Rental in Sterling (£)	(2) Indexed Rental (£)	(3) 5 Year Moving Average (£)		(1) Rental in Sterling (£)	(2) Indexed Rental (£)	(3) 5 Year Moving Average (£)
1807	1500	943	672	1811	501	274	334
1808	1500	898	649	1812	501	277	302
1809	724	428	594	1813	501	264	
1810	724	428	461	1814	501	265	

Source: Appendix 1.
Indexed using the "Consumers' Goods other than cereals" column of the *Schumpeter-Gilboy Price Indices, 1661-1823*, Part B, 1701 = 100.
The Five Year Moving Average in column 3 is of the Indexed Rentals.

was also sent to the south, and was very much a food of the London poor, like pickled oysters, even in the 1830s."[7] Sales of kitted salmon by Richardson & Company for the year 1771 were 1,688½ kits to Thomas Old and 1,600½ kits to William Rutter, a total of 3,289 kits[8]. Like the price of raw salmon, the price of kitted salmon fell as the season progressed. On 18th April, Thomas Old paid £22 for 27 kits (16s. 3d. per kit), whereas on 18th July he paid £151 10s. for 410 kits (7s. 4d. per kit). It has always been recognised that the quality of salmon deteriorated as the season advanced, a "spring run" fish would be of better quality than a summer fish. But of equal significance would be the effect of increasing numbers of fish going to the market as the season progressed[9]. Such variations in price would not be found in the salt salmon trade as it represented an accumulation of fish from different months, probably rendered indistinguishable in quality by the pickling process.

The *diversion* of salmon to the London market was of considerable significance, and there is also evidence that the *volume* of salmon exports leaving the Tay was subject to increase. Here again, traditional attitudes were a stumbling-block to change, on this occasion the attitudes of local consumers. On 9th August 1774 a Petition was presented to the Perth Town Council, signed by Alexander Campbell, vintner, and others[10]. This group of citizens was concerned that in recent tacks of the Burgh fishings the Town Council had not made it a condition that there should be provision for the supply of salmon to the townspeople. The case for the petitioners was presented in the following terms:

> But the petitioners do not apprehend it a natural thing or agreeable to the Spirit of Commerce to allow the Produce of the Earth or Water, designed for the food of the inhabitants of the place where such produce arises, to be taken from these inhabitants and carried to distant corners of the world,

> They conceive that by the Law of Nature and every well regulated Police, the inhabitants of every place are intitled to a due supply of the fishes, as well as the corns produced among them in the first place, and that the overplus only should be exported to foreign parts.

The petitioners also claimed that there would be no loss to the Town's revenue as the salmon sold in the local market would have to pay market dues to the Town, which monies would compensate for any loss from fishing rentals to the Burgh. The Town Council, however, were of the opinion that such a move would be detrimental to the Burgh's revenues, and the fishings worth considerably less if any restriction were placed on the amount of salmon that might be exported. A compromise proposal, to designate one of the Burgh fishings to serve the local market only, was defeated by the casting vote of the Provost.

The resultant legal case was heard by the Court of Session during the summer of 1775. It is clear from the arguments presented to the Court that the dispute had arisen because of the improved prices in the London market for both raw and kitted salmon. The pursuers were concerned to ensure that a proportion of the produce of the Tay be retained for sale in the local market, particularly at the beginning of the season when salmon were relatively scarce. The Town Council's refusal to put such a clause in the tacks of its fishings was based partly on the fact that rentals for the Burgh fishings might be less and partly on the fact that the export of salmon meant that shipping was

> greatly increased and the intercourse with London much facilitated, and rendered more frequent to the no small benefit of the commerce of the country, particularly in the material article of the Linen Trade, the Linen Cloth having formerly been shipped for London only four or five times in the year, and no vessel could sail till she was completely loaded ... whereas during the season of pickling the salmond which comprehends part of the winter, the whole spring and part of the summer the dealers in the Linen Trade have a ready opportunity almost every week of sending their cloth to London by the Salmond Smack."

It was also stated that the increased revenue to the Burgh had allowed expenditure on some "very expensive public works", amounting over the previous ten years to some £10,000. Specific mention was made of the Burgh's contribution to the costs of the new Bridge of Tay, opened in 1772[12]. The pursuer's case that the inhabitants of Perth should have a priority in their requirements for salmon was rejected by the defendants on the grounds that this was "subversive of every principle of commerce". Were the inhabitants of Perth short of foodstuffs in general then, it was conceded, there might be a case, but as this was not so there was no reason why they should "so insist on eating at a low price, and during the season when it is a rarity, the fresh salmond which can be sold at a very high price in London for the use of the luxurious table of the Rich and Great." The reclaiming petition for the inhabitants of Perth was unanimously refused by the Judges of the Court of Session on 10th August 1775, and the "principles of commerce" thus sustained. From the arguments presented during this court case, there seems little doubt that the volume of salmon being exported from the Tay had increased and local persons were taking exception to this. Although this complaint was not based on conservationist grounds, it does nonetheless show that there was an awareness of the increase in the produce of the Tay fisheries.

There is also interest in the contrast between the arguments deployed by the disputing parties. Alex Campbell and his fellow burgesses deployed the "traditional" case that the inhabitants of the region had first call on the produce of the region, and that only the "overplus" should be exported. The town council, and no doubt their tacksmen and others of the fishery interest, stressed the benefits to commerce in general and noted the prosperity that the new volume of exports had brought. It was clearly anathema to them that the

inhabitants of Perth be allowed to eat "at a low price" that which could be sold at a "very high price" in London[13]. This particular case may be seen as an example of the demise of traditional and the coming of more commercial attitudes within the salmon fisheries.

II - The Introduction of Ice

The second significant development to affect the Scottish salmon trade during the eighteenth century was an idea taken from the Chinese by an officer of the East India Company, passed to a member of the House of Commons and finally introduced into Scotland by John Richardson. The Member of Parliament for the Perth Burghs from 1762 to 1790 was George Dempster of Dunnichen, a man noted for his enthusiasm to introduce improvements of all kinds[14]. In James Ferguson's, ***Letters of George Dempster to Sir Adam Ferguson***, there is an account of how Dempster came to hear of a method of preserving fish used by the Chinese[15]. During the year 1786, Dempster had occasion to meet Alexander Dalrymple, Hydrographer to the East India Company[16]. In a subsequent letter, Dempster described how

> Mr Dalrymple told me the coasts of China abounded with snow houses; that the fishers of China carried snow in their boats, and by means thereof were able, in the heat of summer, to convey fresh sea fish into the very interior parts of China. I took pen and ink, and on the spot wrote an account of this conversation to Mr Richardson, who, as well as others, has been in the practice ever since of conveying salmon in ice from the River Tay to London and from Aberdeen, Montrose, and Inverness, voyages of 5, 6, and 700 miles.[17]

The benefit derived from the introduction of ice as a method of preservation was not to ***extend*** the season over which the London market could be supplied, as kitting had done, but it ensured that the salmon arrived at the market in an even more ***acceptable*** form. The evidence in the case before the Perth magistrates in 1749 indicated that the kitted salmon "eats little inferior in taste and flavour to fresh salmond." (*supra* p 73), though it had apparently been relegated to the food of the poor (*supra* p 75). But fish preserved in ice (refrigerated rather than frozen) was to all intents and purposes fresh, and this would have had the effect of raising the the status (and the price) to luxury class

formerly enjoyed only by raw salmon in the spring'[18]. Salmon preserved in ice were not at first exported for the entire season. One initial difficulty was the lack of ice, as there were no facilities for storing it throughout the summer, but ice houses were soon constructed at various points between Perth and the mouth of the Tay and, as the stocks of ice increased, so the use of ice was eventually extended until the end of the fishing season. That ice was the superior form of preservation is demonstrated by the disappearance of kitting from the Tay during the early years of the nineteenth century. The use of ice to preserve salmon and other fish has endured until the present day.

Another result of the introduction of ice was to finally put an end to the trade in salt salmon. In a letter written on 19th September 1788, John Richardson gave an account of the state of the Tay fisheries.

> The salmon fishings on the Tay employ between two and three hundred fishers. Six vessels are employed during the season running to and from London, *which is the principal, if not the only market* [my italics] - A considerable part are sent fresh in the spring season, and for the past two years the greatest proportion of the fresh salmon has been packed in ice'[19].

A further letter written by John Richardson to Rev. James Robertson in 1795 in response to a request for information to include in Robertson's *General View of the Agriculture in the County of Perth*, admirably summarises the state of the Tay salmon fisheries at the end of the eighteenth century. Richardson observed that the most important section of the river for netting purposes was from the mouth of the River Isla to Newburgh "the yearly rent of the fishings on this space is at present £7,000 ..." Between Newburgh and Dundee, however, the fishings were "inconsiderable; not above £100 of yearly rent", and from Dundee to the mouth of the river the rents amounted to not more than £400 *per annum*. These differences reflected the relative efficiency of the net & coble in

the river as compared to the estuary, and the lack of any alternative mode of fishing in the estuary. Richardson confirmed that both salt and pickled salmon had been superseded by preserving in ice "and the benefit of it [ice], not only to the fishery on the Tay, but also to the salmon trade in general, is very great." Methods of fishing had not altered, though Richardson thought they were probably employed more efficiently. However, he was concerned that the number of salmon (caught) had decreased over a number of years and he thought this the result of "destroying salmon in forbidden time, especially before they spawn, ..."[20].

III - Conclusions

The changes affecting the Tay salmon fisheries, and their consequent repercussions, can be seen as examples in miniature of developments that were concurrently taking place throughout the rest of the Scottish economy. The second half of the eighteenth century has been described as a time during which an important transition took place: namely, that period during which Scotland first showed the signs of moving towards an industrial economy[21]. To equate changes in the salmon fisheries with an "industrial revolution" may seem inappropriate as the fisheries were not, and have not become, industrial in method. However, the movement towards industrialisation in a physical sense was accompanied by profound changes in attitude toward the process of trade which made themselves felt throughout the economy. Traditional practices, which had been unquestioned for centuries, were replaced by new methods and there was a harder edge to the processes of buying and selling, whereby the participants took a greater interest in prices and the margins of profit which they represented. The introduction of kitting to the Tay during the 1740s can be seen as an example of this type of change. Given the example set by the Berwick merchants, the partners in the Perth Fishing Company were prepared to abandon a very traditional trade with a given, though uncertain[22] foreign market, and adopt a technique of preservation which allowed for the enlargement of the domestic market. Attempts to hinder the adoption of kitting by traditional interests such as the Perth Wrights were ineffectual, and within a few years the practice of kitting was widespread. Because these changes had been assimilated within the previous forty years, the introduction of ice as a method of preservation did not meet with opposition.

Smout's contention that the move towards "industrialisation" depended partly upon the *stimuli* which came from the Union is undoubtedly true of the salmon fisheries. The "Newcastle cure" originated south of the Border, and the extended market that the kitting process gave access to was found in England. "The close connection between the two countries allowed the immediate transmission of technological advances from one to the other."[23] Another necessary ingredient for change, also identified by Smout, was men willing to broaden their horizons and look in a hard commercial way at the trade in which they were engaged. The Tay salmon fisheries had such a man in John Richardson of Pitfour, Haldane's "Great Fishmonger of Tay". A further pre-condition to change, identified by Lenman, was that the move from the traditional form of the industry to the new had normally to take place without the investment of large capital sums. This condition was also met in the case of the salmon fisheries: the modes of fishing remained traditional, and the design of the salmon smacks did not radically alter - though there may have been more of them. All that John Richardson was required to do by way of investment to adopt the new technology was to construct two boiling houses, buildings roughly comparable in size to a farm steading. The ice houses which came later in the century were smaller and if anything more rudimentary, and these were more often provided by the fishing proprietor than the tacksman. "Growth derived from the exploitation of low-cost, low-overhead trades which were favourably placed to compete in the discipline of the market."[24] If "favourably placed" is taken in the geographical sense, then the location of the River Tay and the town of Perth would appear cases in point. A quotation from the *Old Statistical Account* referring to the Parish of Perth underlines this.

> No town in Scotland is better appointed for intercourse with London than Perth, as every 4 days, at least during the fishing season, 1 smack sails, and in general, makes the passage up within the week, if the weather be in any way favourable; and the passage to London has often been performed within 60 hours; the vessels return with porter, cheese, groceries, and other goods, for the consumpt of the town, and supply of an extensive rising country. There are 7 vessels constantly employed in the trade[25].

The emergence of more commercial attitudes is clearly shown in the contrasting stances of the Perth Town Council in the court cases of 1749 and 1775. In 1749 it was anxious to preserve the *status quo* as exemplified by the privileges of the Wright Calling, even though this prevented the introduction of a new method of preservation. But in 1775 it was the Council that was of the opinion that no restriction should be placed on the increasing export of salmon from the Tay, for to do so would be; "subversive to every principle of commerce."

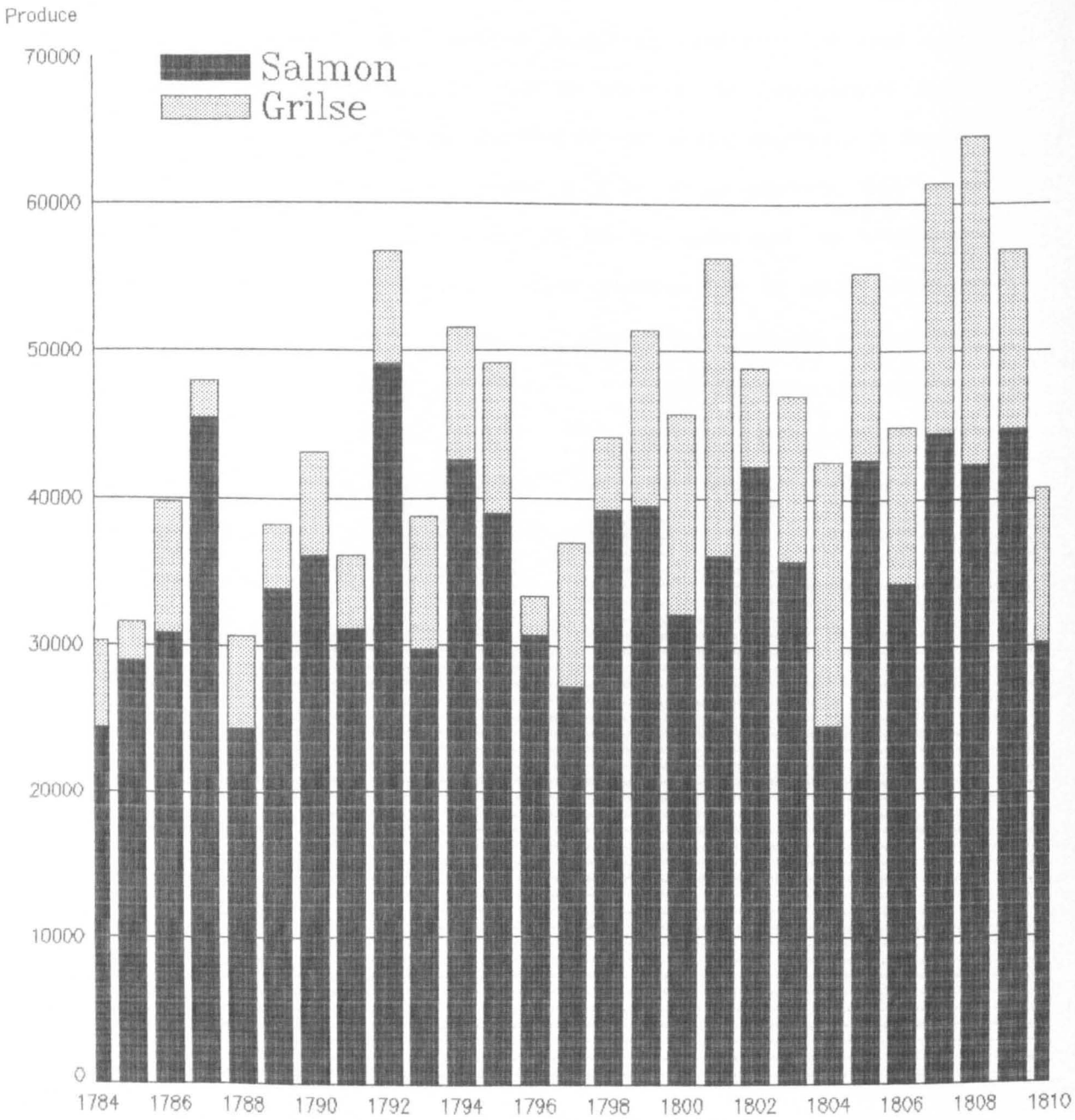
It remains to draw out the significance of these matters. New methods of preservation coupled with the growing demand of the London market during the later decades of the eighteenth century served to greatly stimulate the activities of both tacksmen and merchants. It was no longer necessary to salt the bulk of the catch and send it off to a "precarious" Continental market through the agency of a middleman who might have no direct interest in any one river. Firms like Richardson & Company who invested in boiling houses had to ensure in their own best interests that these facilities were utilised to the full, which meant ensuring that the tacks on the adjacent river were in the company's hands or that other tacksmen sold their fish to them. As far as demand was concerned, the London market was apparently insatiable for Scotch salmon and, though prices inevitably varied, the money was paid within weeks rather than months, as had been the case with the salt-salmon trade. It might be thought that under these changing conditions, over-fishing and

the run-down of the salmon stock might have emerged as an issue from mid-eighteenth century onwards, however, this was not so. From 1784, when data first becomes available, to 1797 (when the stake nets were first introduced), the produce of the Tay was subject to significant annual fluctuations which may be assigned to natural causes. But the five year average shows only a modest upward trend, and that not invariably so (see table 3.2 and figures 3.2a and 3.2b). This suggests that, in spite of a burgeoning market, John Richardson & Company were inclined to husband the supply of salmon. Richardson himself was sufficiently concerned about a perceived decrease in produce prior to 1795, to comment on it in his letter to Rev. James Robertson[25].

During the time when John Richardson managed the river as an entity, he would have been able to, and no doubt did, dispose his salmon fishers in the numbers and at the locations he considered appropriate for the expected numbers of salmon, and that included *not* fishing certain stations. Whether Richardson actually worked through an equation that balanced the productivity of the fisheries against the extent to which he intended to exploit them in purely resource terms is not known. Such a "conservationist" approach is almost certainly a concept inappropriate to the eighteenth century - certainly in the sense of conservation to preserve some "balance of nature" or similar concept. But in purely practical terms, it is hard to imagine that in something approaching 50 years as a major, and commercially successful tacksman on the Tay, "profit and loss" considerations did not suggest to Richardson that he should adopt a balanced approach to the intensity of his company's fishing operations. Unless Richardson had been intent on extracting every last fish from the river in any given season, a possibility for which there is no evidence whatsoever, certainly not so on the evidence of table 3.2, then he must have - consciously or otherwise - arrived at

Produce of the River Tay 1784–1810

Figure 3.2a



Source: Table 3.2

Table 3.2

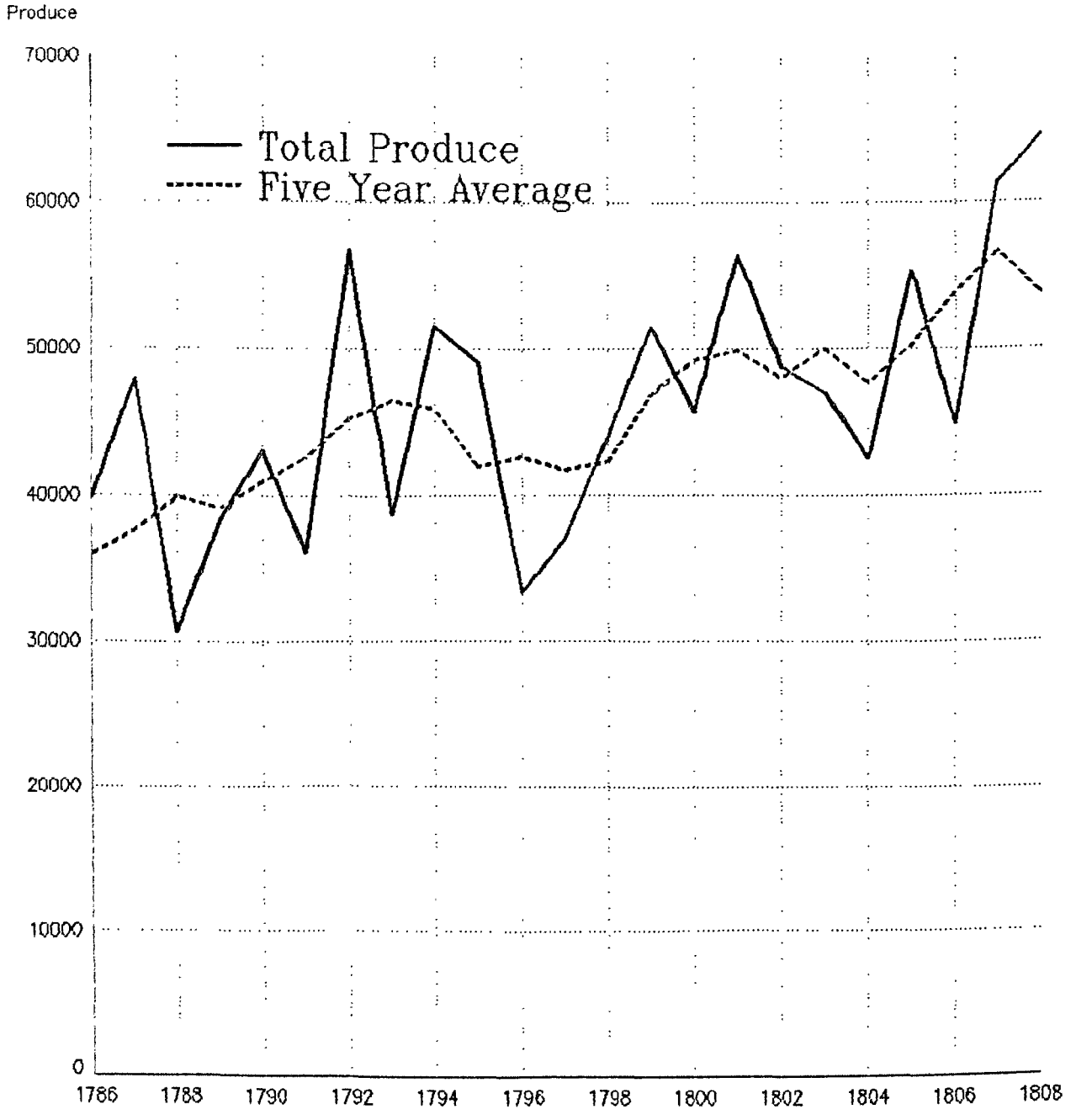
Produce of the River Tay, 1784-1810

	River		Stake Nets			
	Salmon	Grilse	Salmon	Grilse	Total	Five Year Average
1784	24,442	5,829			30,271	
1785	28,957	2,627			31,584	
1786	30,856	8,981			39,837	36,052
1787	45,421	2,509			47,930	37,647
1788	24,432	6,207			30,639	39,955
1789	33,875	4,372			38,247	39,221
1790	36,169	6,951			43,120	40,985
1791	31,058	5,111			36,169	42,618
1792	49,113	7,639			56,732	45,282
1793	29,741	9,063			38,804	46,486
1794	42,612	8,951			51,563	45,913
1795	39,024	10,117			49,141	41,971
1796	30,711	2,594			33,305	42,675
1797	27,257	9,787			37,044	41,747
1798	39,236	4,858			44,094	42,322
1799	36,771	10,936	2,728	1,025	51,460	46,923
1800	26,931	9,282	5,198	4,298	45,709	49,285
1801	26,696	14,329	9,473	5,809	56,307	49,866
1802	26,307	4,731	15,854	1,961	48,853	48,084
1803	17,830	4,583	18,019	6,571	47,003	49,992
1804	17,020	9,702	7,582	8,246	42,550	47,706
1805	24,622	5,113	18,033	7,478	55,246	50,225
1806	16,173	4,970	18,152	5,585	44,880	53,748
1807	17,984	7,862	26,400	9,199	61,445	56,611
1808	12,822	3,605	29,489	18,702	64,618	53,699
1809	10,909	2,417	33,855	9,687	56,868	
1810	6,432	2,147	23,731	8,372	40,682	

Sources: River, 1784-1807, *TBP*, bundle 26. Stake Nets, *1812 Evidence*, Appendix. River, 1808-1810, *1810 Evidence*, p 191.

Produce of the River Tay 1786–1808

Figure 3.2b



Source: Table 3.2

some conservational balance, especially when he negotiated for long tacks of up to nineteen years (see Appendix I). Destroying the Tay salmon fisheries by over-fishing is not consonant with a career as successful as John Richardson's.

Thus as long as the Tay was in the hands of one controlling tacksman, the commercial pressures to overfish were kept in check because it was not in the interests of the one company to do damage to the fisheries which they held, and no doubt hoped to hold for the foreseeable future. But the coming of the stake nets, and John Richardson's subsequent withdrawal from the Tay fisheries (see Chapter Four) put paid to this situation. As the number of tacksmen increased it became necessary for each tacksman to exploit his fishings to the utmost so that he could maximise his share of the available salmon. Where one man had looked at the river as an entity, a varying number of men looked only at parts of the river, and not the same parts over time. What reason was there for any of them to pay heed to the conserving the salmon stock - what reason indeed?

REFERENCES

1. The domestic market, of which London was by far the most significant part, was much more profitable than the foreign alternatives as transport charges were much less, there was much less risk, and prices were higher. Also, as the tacksmen dealt directly with the London fishmongers who sold on commission, there was no middleman to exact an additional margin.

2. Perth Register of Acts and Decreets, B59/13/17.

3. Salmon were boiled for 30 minutes, grilse for 20 minutes, and then they were allowed to cool overnight. Thereafter they were packed in kits and filled up with strong vinegar - about one gallon to each kit. The labour involved in processing was not excessive, and so this would be a method appropriate to fisheries handling large quantities of salmon.

> The other usual way to conserve fish was to pickle it. Sides of salmon, ... split lengthways were rolled in collars and soused like brawn. Cutlets of salmon were put into liquid pickles based upon wine, vinegar and water, or beer. "Some will boil in the liquor some rosemary bound up in a bundle hard, two or three cloves, two races of sliced ginger, three or four blades of large mace, and a lemon-peel", wrote Robert May.
>
> Beer was the secret of the famous Newcastle salmon, which came not from Newcastle at all, but from the River Tweed. The fish were carried sixty miles by pack-horse to Shields and there simmered in the characteristic pickle before being despatched by sea to London and other ports. When the recipe for Newcastle salmon was finally revealed, it consisted in stewing the fish in two quarts of water, with three of strong beer, half a pound of Bay salt and half a pound of common salt; and next day putting it in pots and making up the pickle with strong alegar[1] and several spices. Salmon treated thus would keep, it was claimed, for a whole year.

1. ***alegar:*** sour ale, or vinegar made from it.

C. Anne Wilson: ***Food and Drink in Britain,*** London, 1973, pp 57-58.

4. The Perth Fishing Company had their "boiling house" at the Deadlands or "Diddledan", a sometime orchard which was located at

the west end of the Perth Bridge where the town lade or "Low's Wark" issues into the Tay. There may also have been a boiling house at Corb's Croft on the east shore of the Tay at Perth, nearby the present Kinnoull Church.

5. After the firm of John Richardson & Company was formed it built boiling houses at Orchardneuk (NO 139217), on the south shore of the river below Perth, and at Broughty Ferry. In spite of the introduction of ice about 1786 as a means of preservation, the firm of Little & Company built boiling houses at Nether Kirkton, near Balmerino, and Ferry-port-on-Craig (Tayport) about the year 1800. Richardson & Company's boiling house at Broughty Ferry was strategically placed at the mouth of the Tay. John Richardson's Letter Books give instances of salmon smacks loaded with raw salmon being delayed in the river due to adverse winds. If the delay was such that the raw salmon would go bad before it reached London, then the cargo could be unloaded and kitted at the adjacent boiling house. Prior to the adoption of kitting, the master of a salmon smack *en route* to London, whose cargo was liable to become unsaleable before arrival, was duty bound to put into the nearest East Coast port and there sell the salmon for what he could get. Richardson's Letter Book records an occasion in March 1763, when one of his vessels, loaded with raw salmon, was driven by a storm into the Firth of Forth. Richardson wrote to Robert Anderson, Kinghorn, to arrange for the salmon to be kitted there and thus save the cargo.

   MS 20801, p 30.

6. See Chapter Two, note 20.

7. This text makes no reference to the introduction of ice, but concludes "The coming of the railways, which allowed fresh salmon

to be transported long distances within a short time, finally ended the trade in dried, salted and vinegar-pickled salmon."

Wilson, *op. cit.* p 59.

8. See Chapter Two, note 20.

9. See p 53.

10. PE 1/1/2, pp 317-321.

11. The salmon smacks were small, fast vessels, reputedly capable of sailing from the Tay to the Thames in something over 50 hours when the wind was favourable[1]. In October 1763 Richardson gave the specification for one such vessel which he intended to buy[2]. It was to be 60-70 tons, 45 feet along the keel, 18 feet broad and "about 9 feet below the beams". Further, it was to be, "square stemmed as you advise, pretty full built forward with a good ..[?] The sails and everything else I want to be of the cutter fashion - George Bett is to be master of this sloop." This vessel was called the *Active*, and it was built at Harwich at a cost of £5 per ton[3].

1. *Old Statistical Account*, Parish of Perth, p 496.

2. MS 20801, p 189.

3. Haldane, *op. cit.* pp 13-14.

12. For an account of the role played by the Perth Town Council in building the Perth Bridge, see I.A. Robertson: "The Earl of Kinnoull's Bridge: the Construction of the Bridge of Tay at Perth, 1763-1772", *Scottish Economic & Social History*, Volume 6, 1986.

13. It would be interesting to know if the Town Council's advocate had read David Hume's essay, *Of Commerce*, published in 1742, as it is very much Hume's case he made.

> If we consult history we shall find that, in most nations, foreign trade has preceded any refinements in home manufactures and given birth to domestic luxury. ... The

> profit is also very great in exporting what is superfluous at home and what bears no price to foreign nations whose soil or climate is not favourable to that commodity. Thus men become acquainted with the *pleasures* of luxury and the *profits* of commerce, and their *delicacy* and *industry* being once awakened carry them on to further improvements in every branch of domestic as well as foreign trade; and this perhaps is the chief advantage which arises from a commerce with strangers. It arouses men from their indolence and, presenting the gayer and more opulent part of the nation with objects of luxury which they never before dreamed of, raises in them a desire of a more splendid way of life than what their ancestors enjoyed.

David Hume's Political Essays, edited by C.W. Hendel, New York, 1953, pp 137-138.

A later commentator observed: "But the whole of England, as well as distant Scotland and Wales was touched and transformed by the tentacles of the urban octopus. Any region affected by London tended to specialise, to change and become more commercially-minded, .."

Fernand Braudel: ***Civilisation and Capitalism 15th - 17th Century***, Volume II, ***The Wheels of Commerce***, London, 1985, p 42.

14. George Dempster of Dunnichen (1732-1818) was born at Dundee into a family which "had amassed large fortunes by trade". In 1755 he became a member of the Faculty of Advocates and was active in Edinburgh society, including membership of the "Poker Club" whose other members included David Hume, William Robertson, Alexander Carlyle and others of the Edinburgh ***literati***. In 1761 he gave up the law and became Member of Parliament for the Forfar and Fife (Perth) Burghs, a contest that was reputed to have cost him £10,000. He was an M.P. for 29 years (1761-1790). Dempster was for a time a director of the East India Company, but resigned over that company's political influence in India. In 1786 Dempster purchased the estate of Skibo in Sutherland, to the improvement of which he devoted himself after retiring from the Commons. He was

appointed a director of the British Fisheries Society when it was founded in 1786. "Dempster taught his countrymen the art of packing their fresh salmon in ice for transmission to London and other large towns."

DNB.

15. J. Ferguson: ***Letters of George Dempster to Sir Adam Ferguson, 1756-1813,*** London, 1934, pp 160-161.

16. Alexander Dalrymple, sometime Hydrographer to the Admiralty (1737-1808) was the seventh son of of Sir James Dalrymple, Bart., Auditor of the Exchequer and brother of Sir David Dalrymple, Lord Hailes. He was appointed as a writer in the East India Company's service and sailed for Madras in 1752. He rose in the Company's service, in particular undertaking voyages to seek out further trading opportunities for the Company. "His absorbing and lifelong interest in geography and discovery was given rein when in 1762 he made a voyage via Palembang and Sulu to Canton ..."[1] "In 1779 he was appointed hydrographer to the East India Company; and in 1795, on the establishment of a hydrographic office at the admiralty, the appointment of hydrographer to the admiralty was offered to him. He accepted the offer, and held the appointment till 1808, when he was summarily dismissed in consequence, it is stated, of some offence caused by excess of zeal."[2] Dalrymple was the first choice of the Royal Society to be observer of the transit of Venus in the South Pacific, but the admiralty insisted on a naval officer and it was Captain James Cook "who in 1768 sailed in command of what was to be the first of his three great voyages of discovery."[3]

1. Peter Kemp: ***The Oxford Companion to Ships and the Sea,*** Oxford, 1988.

2. *DNB*

3. Kemp, *op. cit.*

17. Ferguson, *op. cit.* p 161.

> Mr Richardson showed his gratitude by a present of £200 to buy a piece of plate for Mrs Dempster, and also acknowledged in a letter to the *Scots Magazine*, dated October 3rd, 1786, that he made the experiment rather in consequence of Mr Dempster's earnest manner of writing, than in expectation of any good, but that it answered beyond expectation, and that, should any benefit result therefrom, either to the public or individuals, to that patriotic gentleman Mr Dempster it owes its beginning in this country and to none else.

ibid.

18. The following quotation tends to confirm that the change to preservation in ice increased the price salmon could command in the market:

> The transport of fish in ice had been successfully carried out as early as 1820, by George Dempster, a London fishmonger (*sic*). In those days it was a very costly procedure and he employed it solely to bring to London the best Scotch salmon, for which he could ask a high price.

Drummond & Wilbraham: *The Englishman's Food*, London, 1969.

19. MS 20824, letter 19th September 1788.

20. James Robertson: *General View of the Agriculture in the County of Perth*, Perth, 1813, pp 404-406.

In full:

> The valuable part of the salmon fishing on the Tay is from the influx of the Isla, down to Newburgh on the south side, and Errol on the north side of the river; the yearly rent of the fishings on this space is at present £7000 ...
>
> Above the Isla on the course of the Tay up to Loch Tay and upon the Tummel, which joins the Tay at Logierait, there are scattered fishings belonging to different proprietors ...
>
> From Newburgh on the south, and Errol on the north side of the Tay, down to Dundee, the fishings are inconsiderable; not above £100 of yearly rent.
>
> From Dundee to the mouth of the river, including both sides, the rents amount to about £350 to £400.

> Formerly the greater part of the salmon was salted and sent to foreign markets. Within these forty or fifty years, the produce has been sent to London pickled, that is, boiled and preserved in vinegar, and packed up in small wooden vessels called kits. During that period, part was also sent raw to London, put up with straw in boxes.
>
> A few years ago a mode was recommended of preserving salmon raw in ice, in which state almost all that are caught in this river preceding and during the month of May, are sent to London. The application of this discovery, in this county, is owing to Mr Dempster of Dunnichen; and the benefit of it, not only to the fishery on the Tay, but also to the salmon trade in general, is very great.
>
> In the mode of fishing, nothing of late has been discovered. Some alterations indeed have been made in construction of nets, and in adapting them to the state of the river, according to its size, and at different situations: As, where it is shallow and the current rapid, a net is used differently from that where it is deep and runs slow. Improvements of this kind are chiefly owing to the ingenuity and attention of the fishermen, in constructing and applying nets proper for the stations, and varying them according to the rising and falling of the river. As the fishery became more valuable, greater attention and diligence may be supposed to have been bestowed.
>
> It is a well founded opinion, that the number of salmon on the Tay has for many years past been on the decrease. Not that the produce of each successive year is much less than former. The number of salmon caught varies very much in different seasons. But it may be asserted that taking an average of the last nineteen years, the quantity will be found far short of the preceding nineteen. To account for this may be difficult; but the chief and obvious reason appears to be *destroying salmon in forbidden time, especially before they spawn.* Whether it is that the laws made long ago are inadequate to the purpose, or that there is want of vigour and attention in the application of them, it would be presumptuous in me to say.

21. For example, T.C. Smout: ***A History of the Scottish People, 1560-1830,*** Glasgow, 1969; and Bruce Lenman: ***An Economic History of of Modern Scotland,*** London, 1977.

22. Writing to William Baillie of Rosehall on 28th June 1763 on the subject of the salt salmon trade, John Richardson noted: "I could in turn mention as many disadvantages as would terrify a man to deal in this very precarious article ..."

    MS 20801, p 88.

23. Smout, *op. cit.* p 227.

24. Lenman, *op. cit.* p 99.

25. *Old Statistical Account*, Parish of Perth, 1796, Rev. Mr James Scott.

26. See *supra* note 20.

CHAPTER FOUR

THE STAKE NET CAUSE

I - The Coming of the Stake Nets

> "... you and your partners are using unlawful craft to destroy the fish in the Solway by stake-nets and wears; and that we, who fish fairly, and like men, as our fathers did, have daily and yearly less sport and less profit. ... You will destroy the salmon which make the livelihood of fifty poor families, ...

Sir Walter Scott: *Redgauntlet.*

In Scott's novel, set in the summer of 1766 when stake nets were first being developed on the Solway Firth[1], the conflict between the traditional fishers, led by the eponymous Redgauntlet, and the stake net fishers resulted in a battle on the shore between the two factions. No battle in the physical sense ensued when stake nets came to the River Tay in 1797, but there was legal acrimony which kept the lawyers busy for many years. The fundamental conflict between river and estuarial proprietors that led to the Stake Net Cause[2] concerned the right of the estuarial proprietors and their tacksmen to employ a mode of fishing (the stake net) which was effective in the estuary, but which was thus detrimental to the river fisheries by reducing the number of salmon reaching the river. John Richardson's letter of 1795[3] described how at that time the river rentals amounted to £7,000, while those between Newburgh and Dundee, and Dundee and the mouth of the river were £100 and £400 respectively. This considerable discrepancy arose because the form of the esturine delta made it unsuitable for the legal net & coble mode of fishing. The stage nets, traditionally employed on the south shore of the firth, had been given up before the stake nets came, which meant that the only nets used in the estuary were the ineffective toot nets. Thus

though the estuarial proprietors were aware of the many salmon passing through the waters on which they had fishing rights, they lacked an effective means of catching them and received low, if any, fishing rentals. This was the historical situation which, no doubt, had given rise to much frustration on the part of generations of estuarial proprietors. It is not too difficult, therefore, to imagine the enthusiasm with which these proprietors welcomed a mode of fishing that allowed their tacksmen to participate to an undreamt of extent in the salmon fisheries, and pay rentals in proportion. But the river proprietors were not inclined to give up their virtual monopoly of the net fisheries without a struggle - the scope for accrimony between the parties was thus considerable.

A description of the stake net used in the Firth of Tay was given in the case of ***Atholl v. Maule***[4]. A row of stakes was erected between the high and low water marks, running obliquely to the stream with the low water end furthest down the firth. The stakes were four feet to six feet apart and fastened together by strong ropes at the top, middle and bottom. A net was attached to these ropes forming a curtain equal in height to the water level at the highest tide. The meshes of the net were two-and-a-half inches to three inches square. The stake net thus formed what the evidence called a ***barricado*** from the high water mark to the edge of the stream at low water. The ***barricados*** were not single lines, for they were formed into enclosures, called "courts" or "yards", "several acres in extent". At strategic intervals, openings in the net of 20 to 30 yards in width were left which allowed the salmon access to the enclosures. In order to prevent fish leaving the enclosures a "labyrinth" of nets was constructed about the openings so that they in effect became non-return valves. The line of net leading furthest down the stream was called the "leader", which might be up to 800 yards in

length. A further development soon emerged on the Tay by which the entrances to the stake nets were placed so that they received fish ascending with the flood and descending with the ebb tides[5]. Indeed John Halliday, who was a partner in the firm of Little & Company, told the 1824 Select Committee that he had set one stake net at Lucky Scalp on the Scotscraig fishings, solely designed to catch fish on the ebb tide[6].

The stake nets were first introduced to the Tay on the Seaside estate, situated on the north shore of the firth and extending from Randerston (NO 268233) in the west to Powgavie (NO 292254)in the east. The Seaside Bank is *ex adverso* the estate, stretching more than half way to the south shore, uncovered at low tide, and thus entirely unsuited for net & coble fishing[7]. In 1797 Seaside belonged to James Hunter and it was he who let the tack of his fishings to John Little of Newby near Annan, of the firm of Little & Company[8] The Seaside stake net was undoubtedly successful with catches of 3,416 and 5,219 salmon and grilse recorded for the 1800 and 1801 seasons respectively[9]. It is not surprising, therefore, to learn that other proprietors on the shores of the firth quickly followed suit and sought tacksmen who would use stake nets at their fishings. Little & Company and the other stake net tacksmen were not short of sites to develop this new mode of fishing.

When they first came to the Tay, the stake net fishermen had to rely on the ancillary services provided by the resident tacksmen. Thus, lodges were built by the shore to which the fish were taken after being collected from the courts of the stake net. From there they were taken to a barn at Balmerino in which they were kept until there was a sufficient number to make up a cargo to be taken up river for packing at Orchardneuk. Not unnaturally, the salmon were often in a bad condition after this rather protracted time, especially as some were removed from

the courts by dragging them ashore with a rope through the gills. However, Little & Company soon built boiling houses at Nether Kirkton and Ferry-port-on-Craig, and each stake net was provided with its own boat to convey fish to the boiling house[10]. Thus it would seem that initially, there was no friction between the incomers and the existing tacksmen. Indeed it was asserted that John Richardson had only taken action to organise opposition to the stake nets after Little & Company refused to sell their salmon to him[11]. But once the success of the stake nets became obvious, reaction by the upper proprietors became inevitable.

In June of 1798, the year following their introduction, John Richardson wrote to the Perth Town Council informing it that he considered the use of stake nets on the Tay to be illegal[12]. It was this initiative that led in 1799 to the Action of Suspension and Declarator in the name of the Earl of Kinnoull and Others against James Hunter of Seaside[13]. From the evidence presented by the two sides it can be seen that each saw their interests being detrimentally affected by the other. Hunter's defence was that stake nets neither infringed the law nor interfered with salmon traversing the firth on their way to the river. With regard to the law, the defence pointed out, quite correctly, that the purpose of existing legislation affecting salmon was to protect the species, particularly in the breeding season; both the adult breeding salmon and the "fry". But, as the stake nets were removed during the annual close-time, there could be no complaint against them on such grounds, nor were the stake nets capable of catching "fry" as the mesh of the net was too large to trap them[14], thus there could be no infringement of the law. On the matter of intercepting salmon, the defence asserted that fish passing through the firth kept by instinct to the centre of the channel, to which the stake nets did not reach, and there could be no

diminution of fish to the river proprietors. Furthermore, the defence claimed, those fish that were caught in the shallows by the stake net had no intention of going higher as they had come into fresh water to rid themselves of sea-lice, a convenient (but untrue) interpretation of the natural history of the salmon[15]. In spite of these arguments, Hunter lost his case after an appeal to the House of Lords, and the Seaside stake net was suppressed in 1805. Thus one of the immediate effects of the introduction of stake nets was to create a division between the river and estuarial proprietors so that they formed distinct and antagonistic groups. Neither the groups nor the antagonism were to disperse before the end of the nineteenth century.

After 1805 other estuarial proprietors continued to use stake nets in other parts of the firth on the grounds that: (i) the stake net fisheries were in the firth and not in the river, and the law only applied to the river; and, (ii) the Seaside case had not established a principle of law. This led to further interdicts being issued in 1804 and a further court case which did not conclude until 1812. In ***Atholl v. Maule,*** the Pursuers were again upper proprietors and the Defendants largely, but not entirely, estuarial proprietors[16]. In the second case, the Pursuers no longer relied solely on their previous argument that the salmon laws were ***just*** to preserve breeding fish and their progeny, as the Defendants in ***Kinnoull v. Hunter*** had successfully demonstrated that stake nets were not detrimental to either. They extended the legal argument to demonstrate that the purpose of the legislation also included the intention of the Crown, in granting rights of salmon fishing, to prevent the creation of monopolies. "If the Crown in granting rights of salmon fishing to its vassals along the banks of a river, intended to confer upon all of them a real and substantial benefit, ... laws were necessary to prevent one set of grantees from obtaining a monopoly at the expense

of the rest, ..."[17] The natural history of the salmon required it to pass from salt to freshwater, and devices such as the stake net permitted proprietors at the mouths of rivers to intercept all salmon on their return from the sea without breaking any of the regulations about the close time or the preservation of the "fry".

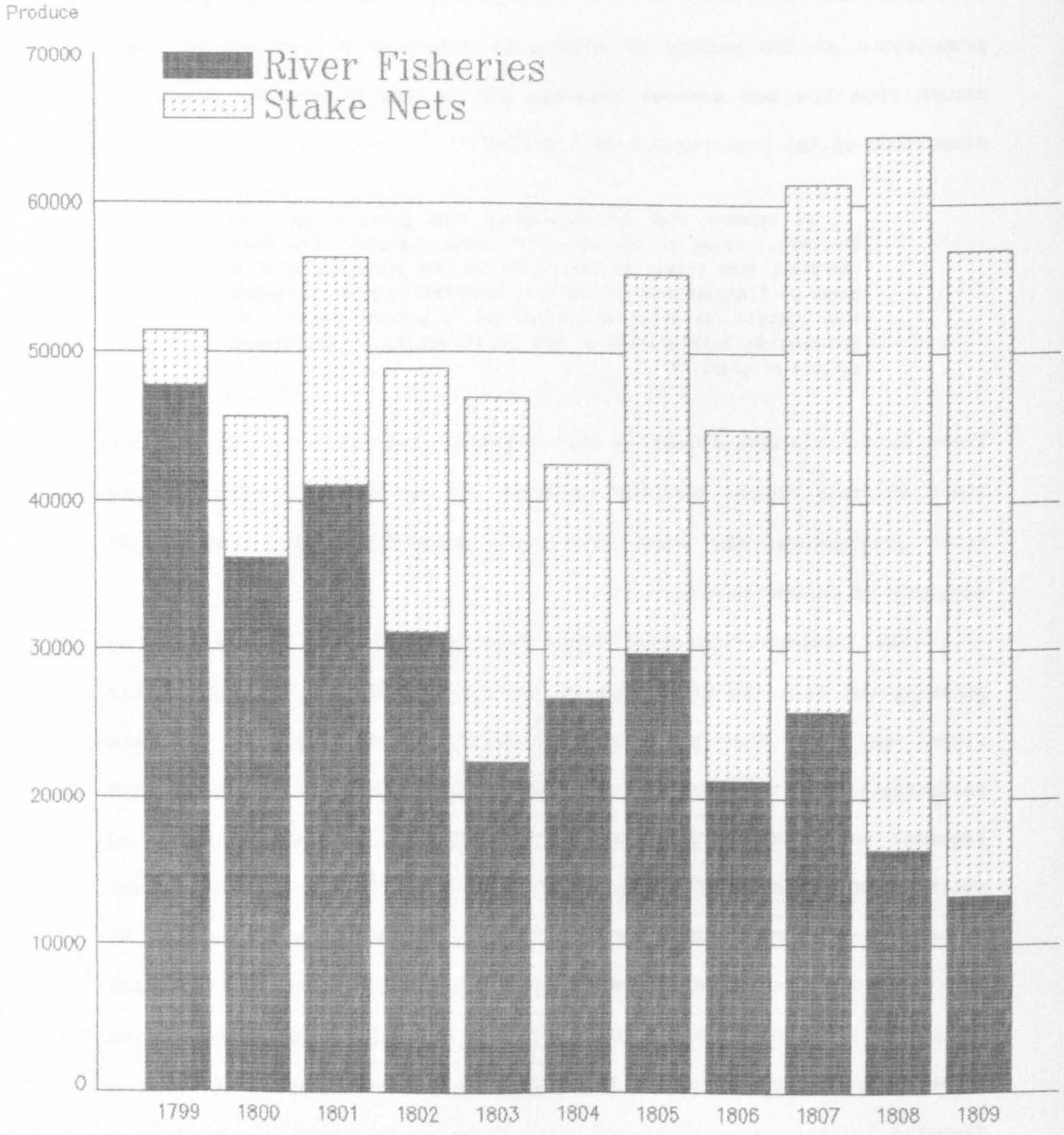
> ... it appears that the Defendants have given a much too limited ... view of the object of these statutes, when they represent them merely as calculated for the preservation of a breed of fish; as many of the most important regulations which they contain can serve no purpose but to prevent monopoly by securing to each grantee a fair participation of the common subject of grant.'[18]

There is an intuitive appeal to this argument, setting out as it does the ideal of "fair shares for all", however, it was made on behalf of the river proprietors who were intent on preserving their own virtual monopoly of salmon netting.

The Pursuers reinforced their "fair shares" line of argument by pointing out that the efficiency of the net & coble (usable only on the river) was such that no proprietor could, "extend beyond a moderate participation of the privilege [of his fishing rights]"[19]. The "equity" argument was continued with the observation that, as the proprietors of estates had at some time purchased them at a price that would have included a proportion to cover the fishing rights, "they had reason to rely upon the produce of those fishings, as much as any part of their revenue". Moreover, as the income of the river proprietors had fallen while that of the estuarial proprietors had risen, there had been a transfer between the two groups: "the inferior heritors are wresting a property out of the hands of a superior heritor, by means of this engine."[20] The final argument deployed by the Pursuers, to be repeated by many others throughout the nineteenth century, was that the numbers of salmon were decreasing and that the decrease was being caused or

Produce of the River Tay, 1799–1809

Figure 4.1



Source: Table 3.2

assisted by the employment of stake nets[21]. A similar decline was attested to by one witness from the Solway who claimed that the stake nets had had a similar effect there. However, table 3.2 and figure 3.2b (see also figure 4.1) show quite plainly that though there was a redistribution of catches from the upper to the lower proprietors, there was an *increase* in the aggregate produce.

The Defendants in turn argued that the disquiet of the river proprietors derived not from the claimed reduction in their catches, but from the challenge to their long-held monopoly. They claimed that fish caught in the stake nets were all in addition to the "natural" catch of the river fisheries. Moreover, it was not enough for the Pursuers to demonstrate that the catches of the river proprietors had declined during some years, for it was the case that the fisheries fluctuated quite naturally (see table 3.2 and figure 3.2b). They also pointed out that, while the number of fish coming to a river in any one year might be fixed in absolute terms, the share of the catch going to any group of fishings could be the result of "the application of increased activity or skill" in the use of any sort of apparatus including net & coble. Thus any group of fishings was capable of increasing its share of the catch at the expense of others, no matter what type of fishing gear they employed[22]. They further observed that the Pursuers had to prove a permanent loss and establish that this was caused by the stake nets. The object of the statutes was not to discourage innovation, the success of a new apparatus should not be "fatal to its legality". The outcome of ***Atholl v. Maule*** was ultimately decided by the House of Lords on 7th March 1812 which judged that "the defenders have no right by themselves, or others employed by them, ***to erect or use yairs, stake-nets, OR OTHER MACHINERY OF THE SAME NATURE*** for the catching of salmon or other fishes."[23] But, the estuarial proprietors having enjoyed a sudden and

very large increase in their fishing rentals were not going to give these up without further struggle. Equally, having won the Stake Net Cause, the river proprietors were determined not to give away their gains by allowing any viable mode of fishing in the firth. The seeds of contention were well sown.

In addition to dividing the fishing proprietors into opposing factions, the introduction of stake nets also raised in the minds of all the participants in the fisheries the possibility that the Tay might be, or might soon become, over-fished because of the increasing numbers of competing tacksmen[24]. A study of annual produce figures must take account of the natural fluctuations in the number of returning fish in any year which would, of themselves, cause the annual produce to vary. Table 3.2 and figure 3.2b[25] demonstrate that the annual variation in catches could be considerable, even before the introduction of stake nets[26]. However, the five year average figures in table 3.2 show that the total produce of the Tay was tending to rise in the years preceding the introduction of the stake nets and thereafter, though there was a dip in the mid-1790s. The dip in catches for 1804 is probably explained by there being no stake nets in the firth for most of that season due to the initiation of ***Atholl v. Maule*** that year[27]. Thus the concern about increased pressure on the salmon stock was justified as there was an increase in the produce of the Tay salmon fisheries, though the figures in table 3.2 show that this was relatively modest.

In this context, it is significant that it was an increase in the number of grilse that contributed most to the rise in the aggregate produce (see figure 3.2a). That the introduction of stake nets coincided with a cyclical upturn in the number of grilse coming to the Tay, is strongly suggested by figure 3.2a. This latter point is more significant if it is borne in mind that grilse, which returned to the river from the

month of May onwards, were inclined to spend some time in the estuary before ascending the river which would have made them more vulnerable to capture by stake nets[28]. For whatever reason, the increase in the produce after the introduction of stake nets drew attention to the possibility of over-fishing. This possibility would have been of greatest moment to the river proprietors as they were the group who were actually suffering a reduction in catches, clearly seen in figure 4.1 where the extent to which the stake nets were pre-empting the total produce of the river is very marked[29]. Thus within the overall increase, there was a transfer of produce and prosperity from the river to the estuary.

The loss of produce to the river fishings had repercussions beyond a reduction in fish caught. One of the changes that John Richardson had brought about on the River Tay was a move from annual tacks, to tacks of longer duration[30]. There were no doubt advantages to be derived from extended tacks, for example, enhancing Richardson & Company's monopoly on the Tay by reducing the frequency with which tacks became available, but paying a fixed rental at a time of falling catches is a situation likely to lead to loss on the part of the tacksman. The evidence strongly suggests that, with the coming of the stake nets, all tacksmen at river fishings were anxious to have rentals reduced and the period of the tacks shortened to give a greater degree of flexibility to respond to the adverse circumstances. Such a situation would also put pressure on them to fish more intensively to alleviate any losses sustained. Appendix I shows the situation with regard to the Burgh of Perth Fishings. When Richardson & Company's tack ended in 1806, John Stevenson of Berwick was optimistic enough to take it for six years at £1500 *per annum*, but in 1807 he was willing to accept £750 less from Baillie Blair and partners

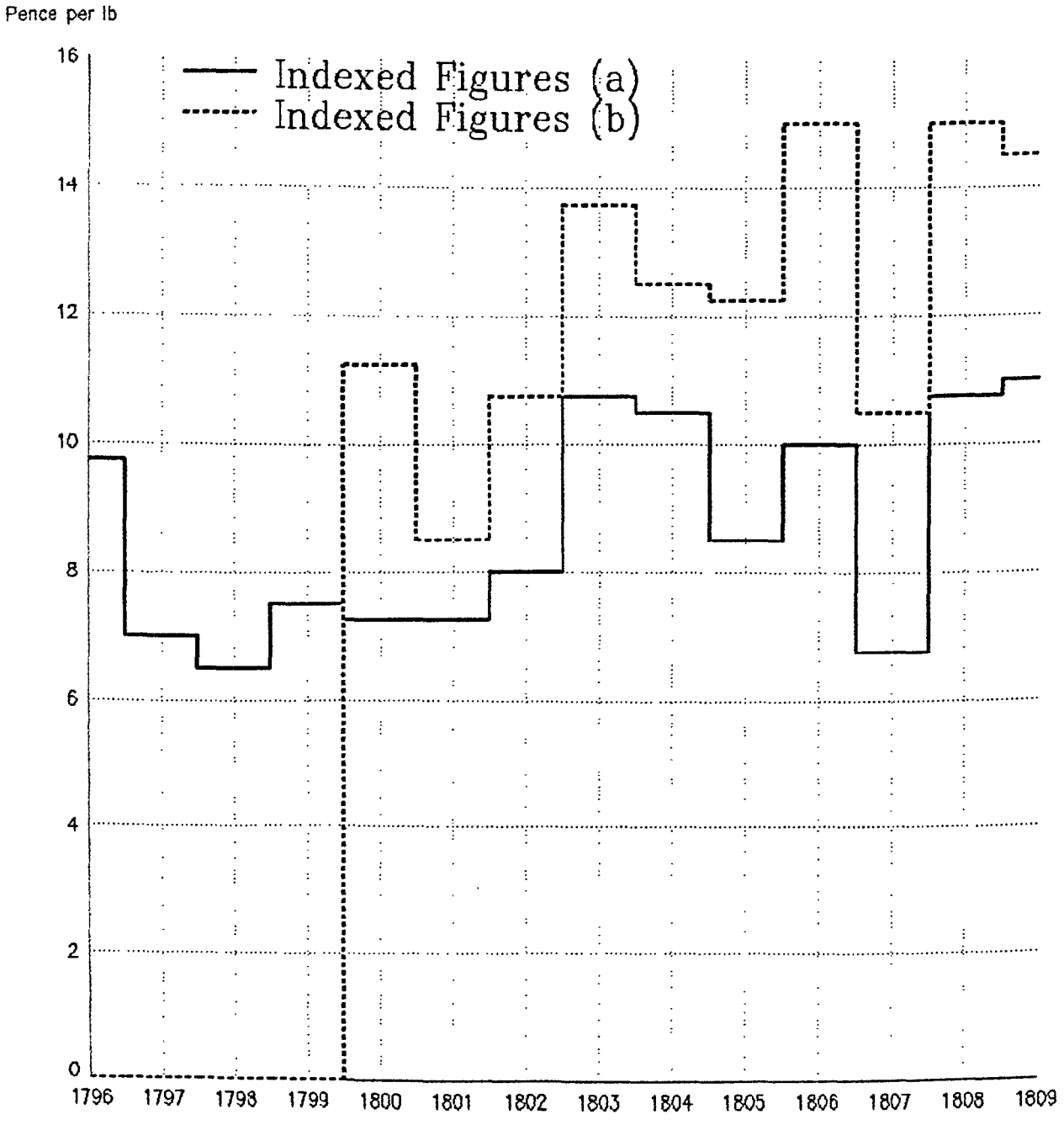
to be rid of it[31]. Thereafter (1808) it went to Gray, Richardson & Company for £724[32].

Another matter which affected, in particular, tacksmen at river fishings, was the price of salmon. As noted, they had to contend with falling catches, fixed rentals and also a general price inflation, but the one price that did not rise was the price of salmon. As table table 4.1 and figure 4.2 show, between 1796 and 1802 the real selling price of salmon fell. Thereafter price increases more than compensated for the effects of inflation, but even in 1808, prices in real terms were only on a par with what they had been in 1796. None of these factors suggest that being in possession of a river tack while the stake nets were in the estuary was a situation likely to lead to profits[33]. The incomes of proprietors and their tacksmen, and matters which affected these were at the heart of the stake net controversy, though they were not afforded prominence in the legal proceedings. The Pursuers' case made reference to the diminution in rents of the upper heritors, "the depreciation in the value of money", and concluded "your Lordships must be forcibly struck with the injury which the owners of those fishings have sustained, from the introduction of this apparatus."[34]

The Stake Net Cause is of particular interest to any study of the Tay salmon fisheries as the issues it raised reflected quite accurately the issues among the participants in the fisheries. But the Stake Net Cause did not reconcile any of these conflicts, it was a milestone not a finishing post. It had two chief consequences: first, it formalised the the controversy between river and estuarial proprietors; and second, it raised the idea that increased competition among more tacksmen might threaten the salmon stock. With regard to the first of these, the aspirations of the estuarial proprietors to have a form of net that allowed their fishings to be worked on a proper commercial basis was

Some Salmon Prices 1796–1809

Figure 4.2



Source: Table 4.1

Table 4.1

Some Salmon Prices - 1786-1809 (omitting 1790-1795)

	Price per lb. fresh		(a) Indexed*	(b) Indexed**	
	s.	d.	d.	s.	d.
1786	1		11¼		
1787		7	6½		
1788		8¼	7¼		
1789		10¼	9½		
1796	1		9¾		
1797		10	7		
1798		9½	6½		
1799		11	7½		
1800	1	0½	7¼		11¼
1801	1		7¼		8½
1802	1		8		10¾
1803	1	4	10¾	1	1¾
1804	1	4	10½	1	0½
1805	1	1½	8½	1	0¼
1806	1	4	10	1	3d
1807		11	6¾		10½
1808	1	6	10¾	1	3d
1809	1	6½	11	1	2½

Source: *1810 Evidence*, p 146, Average Prices of salmon sold by James Bell.

*Indexed using the "Consumers' Goods other than Cereals" column of the *Schumpeter-Gilboy Price Indices, 1661-1823*, Part B, 1701 = 100.

**Indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913*, average of 1865 and 1885 = 100.

more than met by the stake nets. But having briefly experienced an increase in rentals of, in the case of Scotscraig from £5 to £2,100 *per annum*, then the river proprietors, who by resort to the law, reduced these to their former level inevitably earned the estuarial proprietors' rancour. Furthermore, there was no chance of this rancour subsiding when any further attempt by them to devise a form of net that did not conflict with the law was interdicted by the river proprietors (see Chapter Five, III, *passim*). With regard to the second, if there was a perceived threat of over-fishing, then this implied concerted action to produce remedies, but the contention raised by the Stake Net Cause proved to be the rock upon which attempts at concerted action foundered.

In more general terms, the evidence presented in the Stake Net Cause made it obvious that the produce of the river was finite. If one group of tacksmen caught more salmon, then either another group caught less or more was taken from the given salmon stock, i.e. there was less escapement. It was the effect of one group upon another that attracted attention during the Stake Net Cause, though the increase in the aggregate produce was perhaps the more significant matter.

REFERENCES

1. Sir Walter Scott: *Redgauntlet*, Everyman's Edition, 1978, Preface, p v.

2. The Stake Net Cause, as it has since been known, comprised two legal cases: the *Earl of Kinnoull and Others v. James Hunter of Seaside*, and the *Duke of Atholl and Others v. Maule and Others*.

3. Chapter Three, note 20.

4. 1811 Evidence, Appendix, p 2.

5. *An Inquiry into the Present State and Means of Improving the Salmon Fisheries; Including a Digest of the Evidence taken by a Select Committee of the House of Commons*, London, 1827, p 98.

6. First Report, p 72.

7. See Chapter Two, note 8.

8. The development of stake nets on the Solway Firth is described in the anonymous *Observations Regarding the Salmon Fishery of Scotland. Especially with Reference to the Stake-Net Mode of Fishing; the Regulation of the Close-Time; and the Necessity of a Legislative Revisal of the Antiquated Scots Statutes at Present Applicable to These Subjects*, Edinburgh, 1824, published during the propaganda campaign that accompanied the investigations of the Select Committee on the Salmon Fisheries of the United Kingdom in 1824.

   In the Solway Firth the receding tide left many large pools among the sand banks. It had been observed that if these pools were surrounded by nets, then live salmon could be trapped in them. This led to the development of the "tide net" or "floating net". Known pools were surrounded by nets secured by stakes driven into the sand. Parts of the net were so placed that the flood tide opened them, allowing the salmon to enter, but these remained

closed when the tide ebbed. The fish were then removed from the pool at low tide by the salmon fishers.

The account continues:

> And it is a curious circumstance, worthy of particular notice, that, induced by the success of the fishery in these *lakes*, - two brother, William and James Irvine, experienced fishers on the Solway, and nearly related to Messrs. Little, who afterwards introduced the invention into the Tay, - visited the Tay, for the purpose of ascertaining whether there were any suitable *lakes* in that frith, upon which *tide-nets* might be erected. But they returned, reporting to their friends that there were none.
>
> It turned out, however, that these lakes were not essentially necessary for the successful prosecution of the new mode of fishing. Accordingly, Mr John Little, one of the Solway fishers, and a gentleman of great ingenuity and intelligence in other matters, having accidentally visited the Tay about the year 1797, resolved to try the experiment in that frith, and before he left it, he took, for himself and three brothers, a lease of the Salmon fisheries on the estate of Seaside.

9. As a result of the ensuing court case, a record of the catches for the seasons 1800 and 1801, kept by independent persons, showed that 1,430 salmon, 1,986 grilse and 251 trout were caught between 30th June and 26th August 1800 and 3,095 salmon, 2,124 grilse, 612 trout and 1 cod were caught between 22nd April and 26th August 1801.

10. 1810 Evidence, p 65.

11. 1801, Information, Kinnoull *v.* Hunter, p 9.

12. In the light of John Richardson's reaction to the introduction of stake nets on the Firth of Tay, it is interesting to note that in 1771 he had written to Colonel Robert Campbell of Monzie, proprietor of the the River Awe fishings, suggesting the erection of a stake net on that river. In his letter, Richardson admitted that this would displease the fishing proprietors around Loch Awe,

but as he had the tack of the entire river, he could "fish it as I please."

MS 20809, p 39.

13. During the course of ***Kinnoull v. Hunter***, the tacks of fishings were modified to take account of the possible outcomes of the case. This is exemplified in an ***addendum*** by John Richardson & Company to the conditions of the Mugdrum tack, dated 1st September 1800. The tack was to be declared void "if the new mode of fishing in the River Tay is established by law." Similarly, in September 1801: "if the new mode of fishing now practised in the River Tay by Messrs. Little & Company shall be found to be legal, and be accordingly established by the Supreme Court, the said tack shall, from that time *ipso facto*, cease and become null and void."

1810 Evidence, p 122.

The lower proprietors also had conditions attached to their tacks. Thus that between Maule of Panmure and his tacksmen, dated November 1808 for £1500 per annum, contained the ***addendum***; "but under this condition, that in case it shall ultimately be found by a judgement of the House of Lords, that the method at present in use, of fishing some of the said fishings by stake nets, is contrary to law, and shall be prohibited and restrained, then it shall be optional for the tenants to renounce the tack at the end of any one year;".

1810 Evidence, p 138.

14. Both parties in the Stake Net Cause had been concerned to show that the other, through their mode of fishing, caught and destroyed the salmon "fry". In 1810 Wedderburn of Birkhill employed two tenant farmers, James Sime at Wester Flisk and Stewart Shepherd at Balmerino, to survey the River Tay below Perth and look for salmon

"fry" caught in either sweep nets or stake nets. Shepherd testified that, during the survey of 1810, he and Sime had found "fry" in a sweep net at the Stockgreen station, just below Perth, but never in a stake net. Though the former observation was made only once, Shepherd was of the opinion that subsequently the salmon fishers had avoided catching "fry" in the sweep nets when Sime and he were about.

First Report, p 101.

15. 1811 Evidence, p 2.

16. They comprised:

Earl of Wemyss	Allan of Errol
Lord Kinnaird	Paterson of Castle Huntly*
Lord Dundas of Balmbreich	Mylne of Mylnefield*
Maule of Panmure*	Clayhills of Invergowrie*
Wedderburn of Birkhill*	Dundee Town Council*
Morison of Naughton*	Ogilvie of Powrie*
Dalgleish of Scotscraig*	Hunter of Burnside*
Anderson of Balgay*	Kerr of East Grange
Berry of Tayfield	Balfour of Leys
Stewart of St Fort*	Paterson of Carpow
Hay of Seggieden	Anderson of Inchyra
Yeaman of Murie	

* Proprietors with stake nets, the remainder were presumably contemplating their introduction.

Among those who appeared to be proposing the introduction of stake nets were some whose property was well beyond the limits of the estuary. For example, Wemyss and Hay of Seggieden whose estates were above the confluence of the Tay and the Earn. They changed from Defender to Pursuer during the course of the litigation. According to John Bell's *Plan of the Tay*, published in 1836 but referring to 1809, stake nets were not erected further up the firth than Seaside on the north shore and Birkhill on the south shore. The number of stake nets according to Bell's *Plan* was seventeen on the north shore and thirteen on the south shore. They were:

North Shore	South Shore
Monorgan Net	Birkhill Net
Mylnefield Net	Balmerino Net
Invergowrie Net	Beach Net
Balgay Net	Naughton Net
Magdalene Guard Net	Jock's Hole Net
Bottlework Net	Peasehill Net
Stannergate Net	Langcraig Net
Harecraigs Net	Wormit Net
Craigie Net	Woodhaven Net
West Ferry Net	Craighead Net
Broughty Net	Ferry-port-on-Craig Net
East Ferry Net	Larwick Net
Bay Net	Luckyscalp Net
Black Rocks Net	
Milton Net	
Monifieth Net	
Budden Net	

Other stake nets whose locations are not known were: Yardheads, Townhead Cruike, John Brown's Shot, Wilk's Chingle, Norham, Horney and Bowden.

17. 1811 Evidence, p 14.

18. *ibid.* p 18.

19. *ibid.* p 19.

The implication of this is that net & coble was not thought to be very efficient, *cf.* Dr John Fleming's opinion, p 46.

20. *ibid.* pp 79-80.

21. 1812 Evidence, p 12.

John Richardson had claimed a reduction in the produce of the Tay in his letter published in Robertson's, ***General View,*** (Chapter Three, note 20) during pre-stake net times.

22. 1812 Evidence, p 14.

23. There is no record of how much the Stake Net Cause cost in terms of legal and other fees, but it must have been a considerable amount. The only clue is an item in the Perth Town Council Minutes of 7th January 1811, where it was noted that the Council's share of the expenses to that time was £724. The costs were

presumably shared proportionally between the Pursuers, and Perth Town Council was only one among something over ten. This suggests a sum of at least £10,000 for the Pursuers alone, which underlines the importance attached to the case by all the parties concerned.

24. It is convenient to regard Richardson & Company as having had a monopoly of the River Tay salmon fisheries prior to the coming of stake nets. This was not strictly true as there were always other tacksmen (see, for example, Appendix I), but as Richardson & Company bought the produce of the other tacksmen (p 55), they were in effect monopolists. When kitting replaced the salt-salmon trade the effective monopoly remained as Richardson & Company owned the boiling houses. Even when the Berwick firm of Berry & Bell took tacks on the Tay sometime before 1789, the two firms agreed to operate "conjunctly".

MS 20828, p 14.

25. Before making further reference to these figures, some assessment of their accuracy is necessary. They were taken from the books of John Richardson & Company and James Bell (of Berry & Bell) through whose hands passed virtually all the fish caught in the river fisheries until about 1808. To these figures were added fish caught in the firth by the stake nets after 1797. In the case of Richardson & Company, the actual ledgers of the company were produced in court by John Richardson's former clerk, and so it would have been possible to judge if they had been amended in any way, certainly neither side in the case questioned their reliability. Moreover, both firms would have kept accurate records as salmon represented a large proportion of the costs, and the sole product of both companies. Thus they would take care to

see that the produce was recorded precisely to ensure that payments were made and received for each fish caught and sold. It is not possible to be so sure about the figures produced in court by the stake net tacksmen. They were of course under oath, and while there were reasons for them to understate their catches - to play down the impact of the stake nets - there were also reasons to overstate catches - in order to exaggerate the efficiency of the new mode of fishing. On balance, they probably told the truth.

26. In noting this the Defendants asserted that "...the produce of a (single) salmon fishing, in consequence of unassignable causes, varies from year to year, to the extent often of one half, and not infrequently of two thirds or three fourths of the average quantity taken..."

1811 Evidence, pp 10-11.

27. 1812 Evidence.

The figures after 1808 should be regarded with some scepticism, as from then on the tacks of the river fisheries were held by an increasing number of tacksmen, from whom it would be more difficult to gather accurate figures. Also the time involved in collecting together all the statistics suggests that these years were too near to their final presentation for the full picture to be available.

28. Menzies refers to the habit of some grilse of temporarily deserting fresh water for the sea after their return to a river. Known as "droppers", they could have passed the estuarial stake nets a number of times, increasing the likelihood of their being captured.

W.J.M. Menzies: *The Salmon*, Edinburgh, 1925, p 78.

> There is good evidence to indicate that the spawning migration of salmon in our rivers is not necessarily a continuous upstream movement and may comprise a number of "step-lengths" interspersed with "resting" periods or, in some cases, downstream movement e.g. in very high river flows or perhaps if the fish is debilitated. If the fish reverts to upstream migration, then on its displacement downstream it would be regarded as a "dropper". Radio-tracking investigations by Mr John Webb (commissioned by the Atlantic Salmon Trust) have this very year (1987) tangibly demonstrated in the River Tay upstream and downstream movements which potentially spawning salmon may undergo within a river system.
>
> However, these observations have not shown any evidence of fish dropping back from fresh water into the sea, but this does not necessarily mean that it does not occur. The attenuation of radio signals in salt water precludes the use of radio tags in the sea and, therefore, confines observation to fresh water. Tracking studies in the Aberdeenshire Dee in 1986 and 1987 also show evidence of upstream and downstream movements within fresh water. In addition, Mr Webb, who has also been involved in the Dee research, tells me that a radio-tagged fish, caught and released this year (1987) at the South Breakwater at the mouth of the Dee was recaptured in the River Tay 4 days later! However, we do not know if the fish had migrated into freshwater in the Dee before heading for the Tay.
>
> Conventional mark-recapture studies in Scotland have resulted in some smolts from one river being recaptured in another i.e. straying. Most have been caught in esturine nets but a few have been taken in freshwater. Unfortunately, we do not know if these "strays", had they survived, would have "dropped" back into the sea and continued their search for their home river.

Private communication from Gordon Struthers Esq., Freshwater Fisheries Laboratory, Pitlochry, 29th November, 1987.

29. Information about the effect of the stake nets on individual fishings is also available from the evidence. Three fishings for which there are data for a longer period are used: two upper and one estuarial. The figures for the Burgh of Perth and Kinfauns fishings are given in tables 4.2 and 4.3. Neither are continuous over time, but both show catches falling during the onset of the stake nets and subsequently recovering. It should be noted that although the House of Lords decision against stake nets was arrived at in 1812, they were not finally removed from the Firth of

Tay until 1817. Maule of Panmure's Fishings, table 4.4, provide a more dramatic contrast in the pre- and post-stake net catches than do the upper fishings.

30. See Appendix II.

31. See also 1810 Evidence, p 34.

32. *ibid.* p 125.

A letter from James Bell to Robert Peddie, writer, Perth, dated 15th November 1809, was quoted in the 1810 Evidence. The subject of the letter was the fall in rentals on the river, showing how they were marked down as soon as they came up for renewal after 1797. Among the instances cited were: "Duke of Atholl's 3 years ago, were let at £300 *per annum*; last season at £150, and I believe for less this present year."; "General Graham's (Balgowan) I had for 9 years at £507; and were let last Friday at £140."; "Lord Gray's (Kinfauns) I had for 7 years at £3200 *per annum*; but gave them up at first 3 years, and are now let at £2100 *per annum*.", and so on[1]. The Defendants tried to play down James Bell's evidence, suggesting that the river proprietors and tacksmen had conspired to give the impression of reduced rentals, but the decrease in the Burgh of Perth rentals did not involve Bell[2]. By comparison, the Greenside Fishings of the Scotscraig estate at the mouth of the Tay were let for 20 years from January 1799 @ £5 for the first five years, £10 for the second five years, and £18 for the remaining ten years, plus five salmon as kaim fish[3]. However, that tack must have been breached at the end of the first five years, for on 12th December 1804, the Scotscraig fishings were let to James Grubb & Company and John Little & Company for £710 per annum, plus thirty stones of kaim salmon[4]. According to the 1811 Evidence the

Scotscraig Fishings had been subsequently let at the "enormous sum of £2100."[5]

1. 1810 Evidence, p 125.

2. 1812 Evidence, p 22.

3. Kaim fish was a form of payment in kind. Part of the rent of a salmon fishing could be specified as salmon or grilse. This could be quite detailed as to the size of the fish, and the time of year at which they were to be made available. There was less and less use made of this form of payment after the beginning of the nineteenth century.

4. 1810 Evidence, pp 137-138.

5. 1811 Evidence, p 80.

33. See Berry & Bell at Seggieden, pp 127-128.

34. 1811 Evidence, p 79.

Table 4.2

Burgh of Perth Fishings Produce and Rentals 1800-1856

	Salmon	Grilse	Total	Rentals (£)
1800	3,317	1,370	4,687	910
1801	3,374	1,906	5,280	706
1802	3,364	561	3,925	902
1803	1,238	305	1,543	871
1804	1,060	910	1,970	795
1805	3,653	700	4,353	910
1806	1,615	631	2,246	944
1807				1,429
1808				1,250
1809				561
1810	2,175	762	2,937	544
1811	1,563	364	1,927	371
1812	602	1,367	1,969	358
1813	4,475	2,553	7,028	319
1814	3,628	2,487	6,115	334
1815	3,124	4,647	7,771	
1816	3,468	4,796	8,264	
1817	3,708	4,796	8,504	
1818				
1819				
1820				
1821				
1822				
1823				
1824				1,310
1825				1,146
1826				1,398
1827				1,444
1828				1,429
1829				1,494

[over

Table 4.2 (continued)

	Salmon	Grilse	Total	Rentals (£)
1830	3,603	7,790	11,393	1,512
1831	2,126	5,236	7,362	1,434
1832	2,625	5,269	7,894	1,466
1833	1,795	4,842	6,637	1,631
1834	2,522	4,518	7,040	1,631
1835	2,583	5,381	7,964	1,652
1836	2,934	3,478	6,412	877
1837	2,525	5,301	7,826	877
1838	2,298	4,376	6,674	886
1839	2,415	2,086	4,501	1,075
1840	1,223	3,197	4,420	1,111
1841				1,031
1842	2,973	8,370	11,343	1,064
1843	4,251	4,813	9,064	1,163
1844	3,411	2,922	6,333	1,149
1845	1,774	3,925	5,699	1,205
1846				1,256
1847				1,147
1848				1,159
1849				810
1850				1,252
1851				1.002
1852				1,028
1853				856
1854				754
1855				784
1856				798

Sources (produce): 1800-1806, ***1811 Evidence***, Appendix, pp 19-21. 1810-1817, ***1827 Committee***, Minutes of Evidence, p 22. 1830-1845, various documents entitled, ***State Comparing the Returns for (date) with the Average for the Five Seasons preceding 1835***, PE 25, various bundles.

Sources (rentals): B59/16/11 to B59/16/14 and PE 1/1/1 to PE 1/1/14. Identical figures from 1828 onwards are found in ***Rental of the River Tay and Its Tributaries, Years 1828 to 1858 Inclusive.*** "Extracted from the Minute Books and Assessment Rolls of the Proprietors of Salmon Fishings in the Tay." Indexed using the "animal products" column of the ***Rousseaux Price Indices, 1800-1913,*** 1865 and 1885 = 100.

Table 4.3

Kinfauns Fishings Produce and Rentals 1800-1856

	Salmon	Grilse	Total	Rentals (£)
1800	6,631	1,852	8,483	
1801	6,335	3,061	9,396	
1802	7,037	1,141	8,178	
1803	4,208	887	5,095	
1804	4,051	3,219	7,270	
1805	5,458	1,258	6,716	
1806	4,072	1,242	5,314	
1807	5,306	2,209	7,515	
1808				
1809	3,383	1,072	4,455	
1810	3,132	947	4,079	
1811				
1812				
1813				
1814				
1815	8,239	7,674	15,913	
1816	10,811	12,746	23,557	
1817	15,056	7,719	22,775	
1818				
1819				3,604
1828				4,396
1829	5,566	7,853	13,419	4,598
1830	5,825	10,605	16,430	4,186
1831	3,218	6,836	10,054	4,396
1832	5,292	9,822	15,114	2,247
1833	3,672	9,016	12,688	3,125
1834	5,960	10,196	16,156	3,375
1835	7,591	13,876	21,467	3,418
1836	7,668	8,179	15,847	2,872
1837	5,352	12,641	17,993	2,872
1838	5,523	9,639	15,162	2,903
1839	7,379	6,686	14,065	2,903
1840	3,735	9,215	12,950	3,333
1841				3,093
1842	7,305	21,153	28,458	3,191
1843	9,847	11,475	21,322	3,488
1844	7,772	7,775	15,547	3,678
1845	4,991	10,336	15,327	3,614
1846	8,249	7,031	15,280	3,333
1847	4,794	5,836	10,630	3,261
1848	4,018	7,451	11,189	3,297
1849	3,411	8,899	12,310	2,988

[over

Table 4.3 (continued)

	Rentals (£)
1850	2,831
1851	2,461
1852	2,000
1853	1,823
1854	1,881
1855	1,892
1856	1,927

Sources (produce): 1800-1807, *1811 Evidence*, Appendix, p 24. 1809-1817, *1827 Committee*, Minutes of Evidence, p 26. 1829, *1836 Committee*, Minutes of Evidence. 1830-1845, documents entitled, *State Comparing the Returns for (date) with the Average for the Five Seasons preceding 1835*, PE 25, various bundles. 1846-1849, *Statement of Returns for the Kinfauns Fishing Co.* PE 25, bundle 87.

Sources (rentals): 1819, *1836 Committee*, Minutes of Evidence, p 327. 1828-1856, *Rental of the River Tay and Its Tributaries, Years 1828 to 1858 Inclusive*. "Extracted from the Minute Books and Assessment Rolls of the Proprietors of Salmon Fishings in the Tay." Indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913*, 1865 and 1885 = 100.

Table 4.4

Panmure Fishings Produce and Rentals 1800-1856

	Salmon	Grilse	Total	Rentals (£)
1800	553	1,043	1,595	
1801	1,134	1,084	2,218	
1802*			5,573	
1803*	8,002	2,919	10,921	
1804*	3,343	3,478	6,821	
1805*	4,872	2,228	7,100	
1806*	2,832	1,615	4,447	
1807*	5,277	2,680	7,957	
1808*	3,444	2,050	5,494	1,250
1809*	7,523	500	8,023	1,163
1828				462
1829				483
1830	1,884	4,073	5,957	488
1831	1,539	1,731	3,270	725
1832	1,121	1,997	3,118	719
1833	1,418	2,591	4,009	656
1834	1,089	1,140	2,229	688
1835	898	1,172	2,070	696
1836	998	812	1,810	585
1837	650	850	1,500	457
1838	582	1,147	1,729	462
1839	590	415	1,005	462
1840	204	343	547	478
1841				443
1842	632	1,367	1,999	177
1843	686	547	1,233	193
1844	584	374	958	294
1845	418	740	1,158	325
1846				321
1847				293
1848				280
1849				297
1850				315
1851				311
1852				319
1853				266
1854				107
1855				105
1856				107

*includes the produce of stake nets.

Sources (produce): 1800-1809, *1810 Evidence*, pp 141, 161-168, 183, and 192. 1830-1845, documents entitled, *State Comparing the Returns for (date) with the Average for the Five Seasons preceding 1835*, PE 25, various bundles.

Sources (rentals): 1808-1809, *1810 Evidence, p 138.* *1828-1856, Rental of the River Tay and Its Tributaries, Years 1828 to 1858 Inclusive.* "Extracted from the Minute Books and Assessment Rolls of the Proprietors of Salmon Fishings in the Tay." Indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913*, 1865 and 1885 = 100.

CHAPTER FIVE

THE AFTERMATH OF THE STAKE NET CAUSE

I - Competition Between the Tacksmen

The final judgement in the Stake Net Cause confirmed rather than settled the conflicts that had become apparent among the participants in the Tay salmon fisheries. At best the litigation clarified some of the issues, but it solved none of them. The particular issues to emerge before, during and after the Stake Net Cause were:

i a belief that an increase in the intensity of fishing by tacksmen was leading to an adverse imbalance between the exploitation of the fisheries and the reproductive capacity of the salmon stock;

ii a deepening sense of conflict between the river and estuarial proprietors;

iii a growing realisation of the need for additional legislation to regulate the salmon fisheries;

iv in particular, legislation to alter the annual close-time and to effectively prohibit poaching.

This chapter and the one that follows will seek to demonstrate that there was an increasing awareness of all these issues among the participants in the Tay fisheries, and elsewhere, and strongly held beliefs as to how matters should be remedied. However, converting these aspirations into action was greatly hindered by the narrow attitudes displayed by all parties. Thus when recommendations for legislation were forthcoming, these were subject to extensive lobbying by the competing interests and the legislation they gave rise to was ineffective.

The perceived threat of over-fishing was potentially the most serious issue, for it implied, if nothing were done, the ultimate demise

of the Tay salmon fisheries. Awareness of the threat arose initially, not because of more fishing stations, but because the existing fishings were spread among more tacksmen who fished them more intensively. As noted in the previous chapter, when John Richardson & Company had the majority of the tacks on the river, the company's approach to the opposing requirements of profitable catches and a viable salmon stock was one that had apparently resulted in a balance between exploitation and reproduction. But this was no longer the case in the early 1800s, when no single person or company was in the position to take an overview of the Tay fisheries, and each tacksman sought to maximise the produce of the fishings he had rented. If he did not, the fish would be caught by his competitors and he might not be able to pay his rent. Thus no restraint was exercised by the tacksmen or demanded by the proprietors, and the inevitable result was increased intensity of fishing. The problem of over-fishing was not long in becoming a matter of general concern. If a tacksman was himself fishing more intensively, it would not be difficult for him to recognise the same behaviour in others, but contemporary attitudes saw the solution as being a curb on the activities of others rather than any restraint on the part of the individual.

The impetus to fish more intensively had arrived before the conclusion of the Stake Net Cause[1]. In 1807 because of the number of fish being caught in stake nets in the estuary, river proprietors were facing difficulties in letting their fishings. In that year the firm of Berry & Bell took the tack of the Seggieden fishings on the condition that if they made a loss no rent would be paid, which is what happened. Between 30th January and 14th August 1807 total expenditure at the Claybrae station amounted to £110 16s. 4½d, but the total value of the produce amounted to £108 0s. 7½d, representing a loss of £2 15s. 9d. on the season *with no contribution to the rent*[2]. Such a loss would be a

strong incentive to increase the intensity of fishing. Another illustration, also from 1807, shows how the growing intensity of fishing was also causing increased tensions among the participants in the fisheries. This involved a legal case between the Richardsons of Pitfour (i.e. John Richardson, late of John Richardson & Company and his son, James Richardson) and James Bell of Berry & Bell. In that year Berry & Bell were tacksmen of the Earl of Kinnoull's fishings, opposite which on the west shore above the Perth Bridge, was the Richardsons' North Inch fishings (also called Poldrait), which they were working with their own fishers. During Richardson & Company's monopoly of the Tay fisheries they had not fished both banks on this stretch of the river, although they had held the tacks on both shores. With the arrival of Berry & Bell, however, the stations on both banks were worked, and the Richardsons objected to Berry & Bell's fishers at the Powguild station rowing their shots and interfering with the fishing at Poldrait. The case was finally decided in Kinnoull's favour and the two fishings were, according to the practice of the river, required to take sweep (shot) about[3]. The significance of this case is not, however, the dispute about the location of a fishing station, such disputes were common enough, but how the commercial pressures on river tacksmen to catch more fish were making them open up stations that had not been worked for 40 years or more, and this on a stretch of the river that had previously been netted (presumably to the satisfaction of the single tacksman) from one station.

Action to increase the intensity of fishing was not confined to the tacksmen. In June 1821 the Perth Town Council received a report from George Alexander, the Surveyor of Town's Works, regarding the "new fishing station now erecting" on Kinfaun's land on the south shore of the Tay below Tarsappie and almost opposite the Burgh fishing of ¼ Ships[4]. At this point the shore of the river curved south to form a bay, and

Alexander reported that the west end of this was being filled in with whin stones, "extending at present to about eighty yards in length and about ten feet broad at the base, and sloping in upon the sides to about four feet broad upon the top." It was decided to ask Lord Gray to desist in this and, if he did not, to apply for an interdict[5]. Some result of the action by the Town Council must have been forthcoming, for there was no further word of developments opposite Ships until 1843 when, after much more civil engineering work, the station of Blacklug was let for the first time at a rent of £140 per annum[6]. It is scarcely necessary to note that if more fishing stations were opened, then there would be as great, if not a greater threat to the salmon stock as that posed by fishing more intensively at existing stations.

The pursuit of commercial advantage is well marked in the conduct of the firm of Berry & Bell. They remained aggressively active as tacksmen on the Tay after 1807 as their frequent appearances as defendants in court cases would indicate. In 1810, for example, they were taken before the Sheriff charged with encroaching on the fishings of another firm, Gray, Richardson & Company, who were tacksmen of the Mansfield fishings at the Rome station[7]. The complaint was that James Bell's fishers at Kinnoull's Muirton station on the opposite shore had erected a croy in the river and fixed pot nets to it, such that they were encroaching upon Mansfield's section of the river. It is noteworthy that Gray, Richardson & Company did not complain of the more serious offence of using an illegal fixed engine, no doubt because that company were themselves employing pot nets near the same spot[8]. This incident also illustrates that both tacksmen and their proprietors were more concerned with commercial gain than the niceties of the law, even a law intended for the preservation of salmon. It cannot be imagined that anything so large and permanent as a croy could go unremarked by a proprietor or his

factor, thus two *bona fide* tacksmen had constructed illegal croys in the full knowledge of the proprietors of the fishings. At that time both Kinnoull and Mansfield were pursuers in the Stake Net Cause, in which their lawyers were seeking to convince the judges that the net & coble was the only legal method of catching salmon in rivers.

One final example of the extent to which competition between tacksmen had become of overriding importance is provided by *Proudfoot v. Rannie*, a legal case of 1833 which shows how the pressures felt by tacksmen in the first quarter of the 19th century were becoming yet more intensified. Thomas Proudfoot[9] was tacksman of the Kinfauns fishings at the Langlaw station, and Robert Walker Rannie, farmer at Mains of Pitfour was tacksman at the Inchyra Estate station of Ladyhole. These two stations were almost directly opposite to each other: Ladyhole on the north shore, about one mile upstream from Inchyra village, and Langlaw on the south at Balhepburn Island. As these stations were opposite, the rule was "shot about", but Proudfoot's complaint was that Rannie's fishers were not complying with this practice and had been taking unfair advantage by rowing consecutive shots. One witness, Andrew Gray of Gray & Company told that his company had at different times held both the stations in question and had worked them with ten men, five men relieving the other five every 24 hours. Gray explained that the idea of "shot about" was quite specific in that a second crew at an opposite station could not row their shot until either the staff or the bag of the net of a first crew was on the shore. This was known as "staff on land" or "bag on land". However, if the staff (or bag) were landed and the second crew not ready to row their shot, or did not choose to row their shot, then the first crew *could* row a consecutive shot. "Shot about" assumes that all things are equal, but this was not always the case. Gray rather thought that the Langlaw shot was longer than that of

Ladyhole, or took longer to row because of the flow of the river[10]. Other witnesses testified to "staff on land" applying at various other opposed stations on the river, e.g. at Sleepless and Pyeroad, Vennels and the Stanners, Girdom and Bowes and at Rashbush and Carpow[11].

The significance of these instances is the evidence they provide regarding the intensity with which the netting was being carried out. Stations like Ladyhole were being worked on average for 20 out of the 24 hours, and this was was by no means uncommon at other stations. Adjacent stations on different estates like Ladyhole and the Venture, probably with different tacksmen, were so close to each other on the same shore (note 10) that they had to synchronise their shots. Furthermore, a tacksman such as Proudfoot was prepared to go to law to protect his "right" to shot about, even when he was clearly saving on wages by employing only a single crew at a station that had previously had a double crew. The tacksmen at Rashbush and Cairnie were so concerned about the same matter (note 11) that they were prepared to employ extra men and gear in order not to lose their turn, especially when the fish were running. All these activities point to the intensity of fishing by the tacksmen, and their preoccupation with their own narrow interests. But in addition they demonstrate the tacksmens' awareness of the activities of their fellows, especially if these activities were perceived to encroach upon another fishing.

II - Adverse Trading Conditions

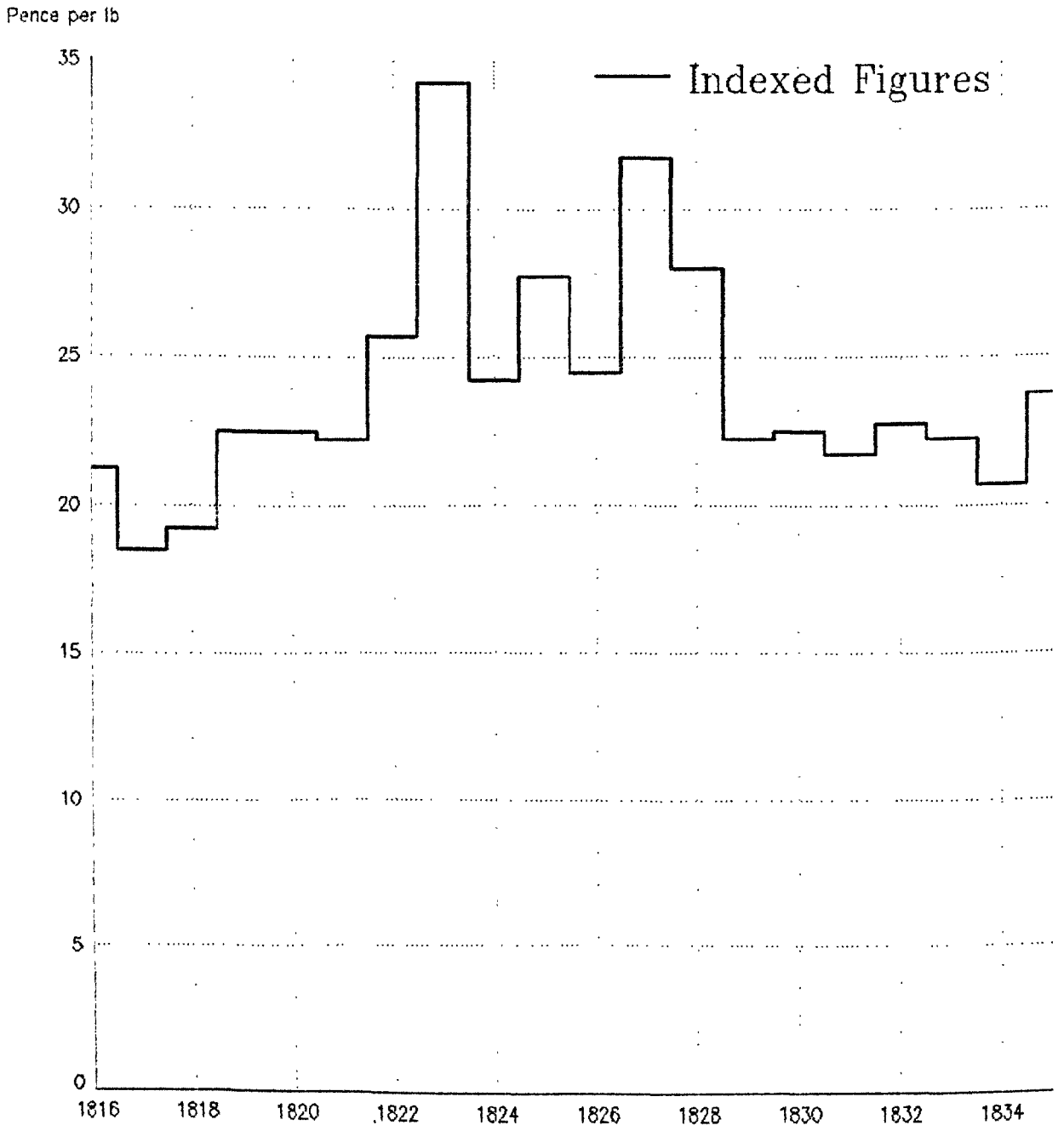
One of the more important reasons for tacksmen acting aggressively in operating their fishings was the generally adverse trading conditions which they had to endure for most of the first three decades of the nineteenth century. The most direct evidence of commercial difficulties during this time is contained in a document dated 1850, *Losses on Tay since 1819 to which Mr Robert Buist can speak.* The losses for Gray, Richardson & Company between 1820 and 1831 totalled £12,860, for Berry & Bell between 1820 and 1823, £14,072, and for other tacksmen during the 1820s, £13,500, a total of £40,432 for the decade, "exclusive of progressive interest which amounted to some thousand pounds."[12] If Buist's figures were accurate then they certainly indicate very adverse trading conditions.

Any investigation of losses requires information on revenues and costs, but unfortunately the data is incomplete for the Tay fisheries at this time. There is a price series for the period 1816-1835 which is given in table 5.1 and figure 5.1. Spring salmon, to which the figures refer, commanded a premium because of their high quality and relative scarcity, but the figures may be assumed to have the same *trends* as salmon prices in general. Table 5.1 shows stability of prices within the range twenty to twenty-five pence, except in the mid-1820s when they went rather higher. The prices, in isolation, do not suggest why the losses occurred.

With regard to costs, one possible explanation of the losses was that "throughout the years from 1825 to 1834 great losses were incurred by the tacksmen on the Tay, the rents still being high."[13] Rental evidence for the entire Tay fisheries is only available from 1828 onwards and, as is shown in table 5.2 and figure 5.2a. Rentals on the Tay were higher in the late 1820s than in any of the following three decades, the

Average Prices of Spring Salmon 1816–35

Figure 5.1



Source: Table 5.1

Table 5.1

Average Prices of Spring Salmon - 1816-1835

	(1) Price per lb.		(2) Indexed	
	s.	d.	s.	d.
1816	1	8½	1	9¼
1817	1	8½	1	6½
1818	1	11¼	1	7¼
1819	2	1	1	10½
1820	1	10½	1	10½
1821	1	7½	1	10¼
1822	1	8	2	1¾
1823	2	3½	2	10¼
1824	1	8¼	2	0 ¼
1825	2	2½	2	3¾
1826	1	10¾	2	0½
1827	2	4¾	2	7¾
1828	2	1½	2	4
1829	1	7½	1	10¼
1830	1	7½	1	10½
1831	1	7¾	1	9¾
1832	1	8¼	1	10¾
1833	1	5¾	1	10¼
1834	1	4¾	1	8¾
1835	1	6¾	1	11¾

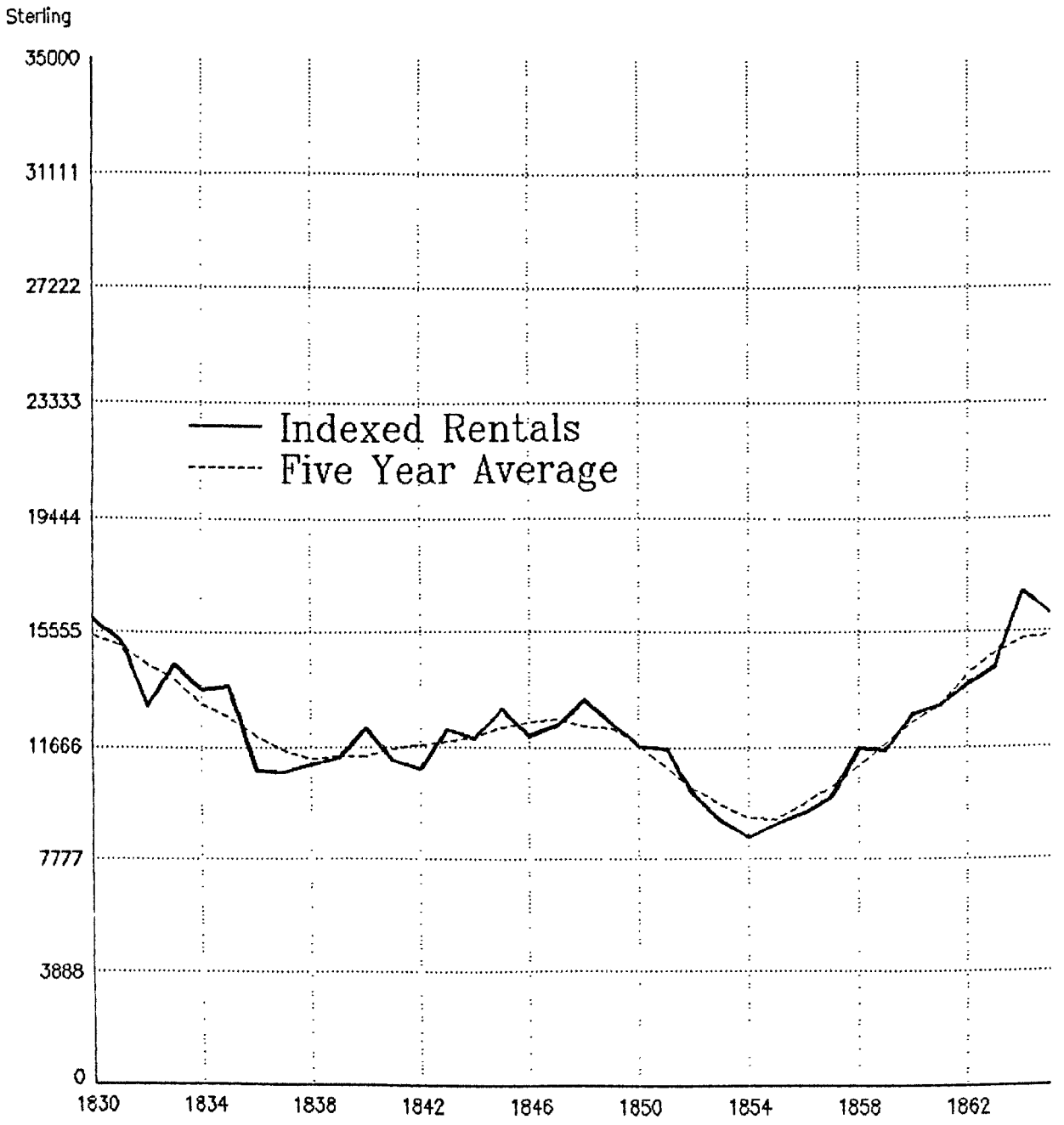
Source: Appendix to the *1836 Committee*, p 328. "Monthly Prices of Salmon in the London Market, received by Robert Buist for Tay fish, in the following years."

The original figures were price per fish for the seven months February to August each year, and were "what was left for each salmon after paying freight and other charges, reckoning three grilses equal to one salmon." The average weight of salmon to 1st May each year was also given, thereafter salmon and grilse were weighed together, and it is not possible to calculate an average weight for salmon only. The first column has been calculated by taking the average price per fish from February to April, and dividing that by the average weight of salmon for the particular year. Thus the first column is average price per lb. for spring salmon.

The second column has been indexed using the "Animal Products" column of the *Rousseaux Price Indices, 1800-1913*, average of 1865 and 1885 = 100.

Rentals of the Tay Fisheries 1830–1865

Figure 5.2a



Source: Table 5.2

Table 5.2

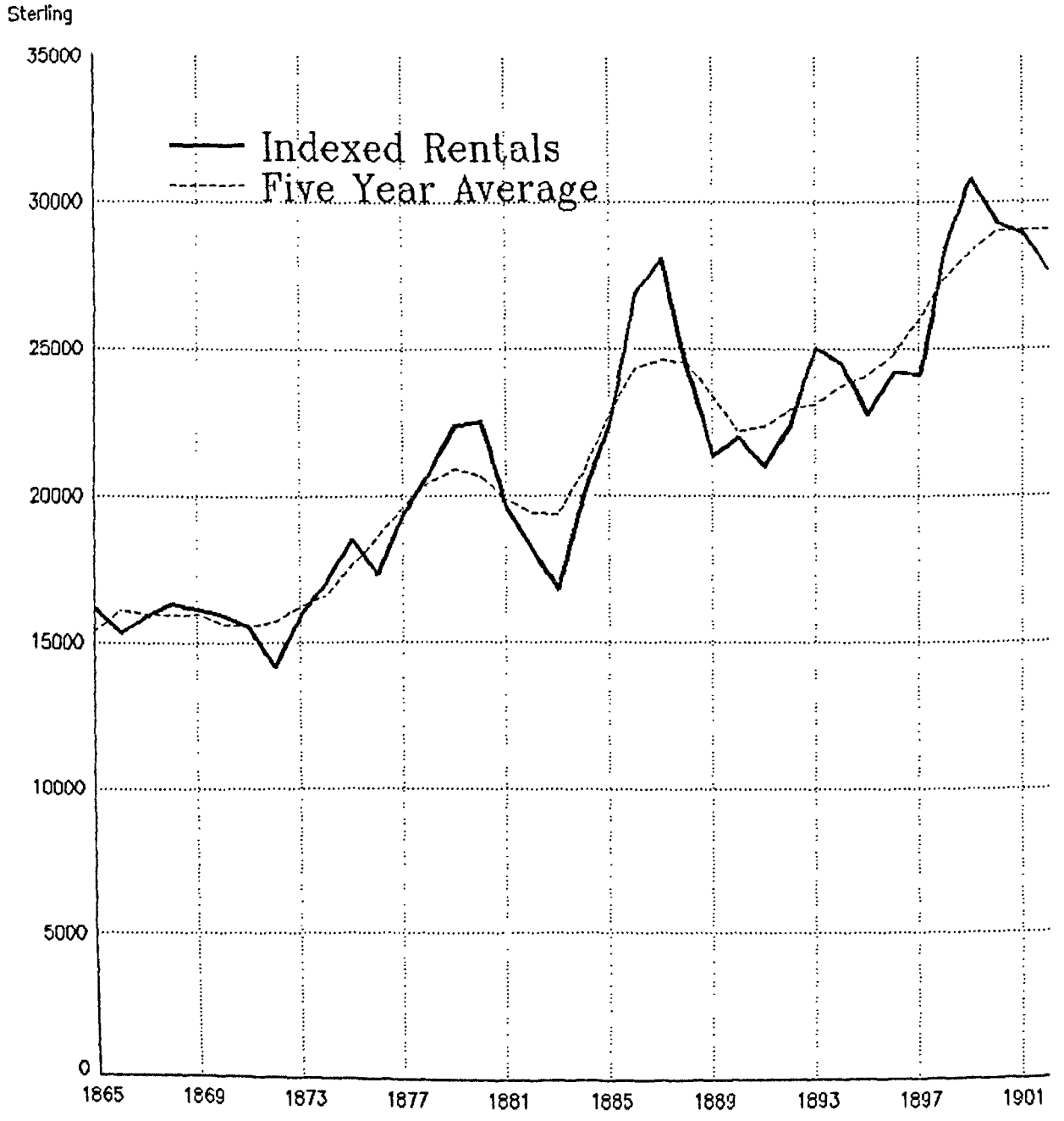
Rentals of the Tay Basin 1828 to 1904

	Rental	Indexed Rental	Five Year Average		Rental	Indexed Rental	Five Year Average
	(£)	(£)	(£)		(£)	(£)	(£)
1828	14,575	16,016		1867	16,853	15,899	15,970
1829	14,530	16,701		1868	16,966	16,313	15,923
1830	13,747	15,985	15,403	1869	17,445	16,153	15,959
1831	13,874	15,246	15,094	1870	17,044	15,929	15,614
1832	11,629	13,066	14,481	1871	16,382	15,502	15,536
1833	11,577	14,471	14,032	1872	15,163	14,171	15,719
1834	10,908	13,635	13,156	1873	17,520	15,927	16,231
1835	10,857	13,743	12,702	1874	18,942	17,065	16,597
1836	10,212	10,863	12,020	1875	21,634	18,491	17,639
1837	10,150	10,798	11,550	1876	19,931	17,331	18,608
1838	10,285	11,059	11,259	1877	21,127	19,383	19,669
1839	10,498	11,288	11,323	1878	21,187	20,772	20,475
1840	11,058	12,287	11,341	1879	21,698	22,369	20,924
1841	10,846	11,181	11,574	1880	22,518	22,518	20,675
1842	10,236	10,889	11,704	1881	19,580	19,580	19,874
1843	10,512	12,223	11.837	1882	19,222	18,134	19,411
1844	10,387	11,939	12,006	1883	17,773	16,767	19,395
1845	10,752	12,954	12,311	1884	19,656	20,057	20,846
1846	10,100	12,024	12,517	1885	20,417	22,436	22,825
1847	11,422	12,415	12,624	1886	22,542	26,836	24,325
1848	12,058	13,251	12,377	1887	22,144	28,030	24,586
1849	10,730	12,477	12,297	1888	19,655	24,265	24,499
1850	9,492	11,719	11,807	1889	17,731	21,363	23,336
1851	9,530	11,622	10,973	1890	17,820	22,000	22,205
1852	7,973	9,966	10,179	1891	17,237	21,021	22,356
1853	8,719	9,082	9,633	1892	19,018	22,374	22,977
1854	9,269	8,504	9,180	1893	21,763	25,015	23,134
1855	9,978	8,989	9,163	1894	19,578	24,473	23,770
1856	10,200	9,358	9,667	1895	17,091	22,788	24,124
1857	10,772	9,883	10,274	1896	17,181	24,199	24,810
1858	11,487	11,603	11,037	1897	17,869	24,147	26,075
1859	11,885	11,539	11,784	1898	21,048	28,443	27,374
1860	13,828	12,804	12,569	1899	22,482	30,797	28,319
1861	14,010	13,093	13,124	1900	22,549	29,284	29,017
1862	14,081	13,805	14,198	1901	22,559	28,922	29,054
1863	14,233	14,377	14,870	1902	22,664	27,639	29,054
1864	16,742	16,911	15,315	1903	22,902	28,627	
1865	17,618	16,163	15,374	1904	23,099	30,799	
1866	17,465	15,320	16,121				

Source: *Twenty-Third Report to the Fisheries Board for Scotland, 1904*, p xi. Indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913*, average of 1865 and 1885 = 100.

Rentals of the Tay Fisheries 1865–1902

Figure 5.2b



Source: Table 5.2

rental for 1854 being half that of 1829. Tables 5.1 and 5.2 indicate, as the quotation suggests, that a contributory cause for the losses could have been rentals being slower to fall than prices.

The other data is on produce and it is very fragmentary. The entire river fisheries suffered during the time of the stake nets in the firth as is shown in figure 4.1 (facing p 105). Thereafter (post 1812), there was a recovery as indicated in the Burgh of Perth and Kinfauns fishings (see tables 4.2 and 4.3, pp 121-124), but neither of these have produce figures for the 1820s. The most extensive data for that period are the Kinnoull fisheries (table 5.3) which show a recovery in both produce and rentals in the aftermath of the Stake Net Cause, but these trends had reversed by the beginning of the 1820s, and by 1830 both produce and rentals were roughly half what they had been in 1817 (when the stake nets were finally removed). All this suggests that, for the river fisheries, conditions in terms of produce were adverse from the beginning of the century to the time of removal of the stake nets (1812-1817). This was followed by a relatively brief period over which prices, catches and rentals all rose, but though prices and produce had started to fall by the mid-1820s, rentals were rather slower to follow suit - the Kinnoull rentals did not fall radically until after 1827. If these circumstances were indeed widespread throughout the Tay fisheries, then they would explain how losses and the generally adverse trading conditions came about. As will be suggested in further sections of this and the following chapter, the other contributory factors leading to the losses were poaching and the introduction of stake nets on the coast, both of which further eroded the salmon stock.

Details of the adverse trading conditions as they affected a particular firm are provided by the sequestration of Berry & Bell. This was an event of considerable contemporary significance, and the events

Table 5.3

Kinnoull Fishings Produce and Rentals 1800-1856

	Salmon	Grilse	Totals	Rentals (£)
1800	1,416	577	1,993	270
1801	1,484	518	2,002	210
1802	1,263	356	1,619	268
1803	1,172	413	1,585	259
1804	862	729	1,591	236
1805	1,757	383	2,140	270
1806	722	336	1,058	280
1807	774	440	1,646	
1808	859	362	1,221	
1809				465
1814	2,491	2,091	4,582	720
1815	2,001	1,764	3,765	923
1816	2,921	4,072	6,993	1,125
1817	4,788	2,285	7,073	1,081
1818	3,040	1,596	4,636	992
1819	2,116	1,591	3,707	1,081
1820	1,663	1,864	3,527	1,200
1821	1,483	770	2,253	1,364
1822	1,538	741	2,279	733
1823	1,129	1,557	2,686	875
1824	1,334	1,431	2,765	714
1825	1,023	1,639	2,662	781
1826				978
1827				1,011
1828	873	2,052	2,925	549
1829				703
1830	1,277	2,052	3,329	564
1831	510	594	1,104	577
1832	694	632	1,326	590
1833	477	713	1,190	656
1834	742	774	1,516	250
1835	690	1,171	1,861	241
1836	659	540	1,199	213
1837	421	684	1,105	234
1838	457	489	946	237
1839	484	254	738	237
1840	464	826	1,290	283
1841				263
1842	534	1,039	1,573	271
1843	655	668	1,323	297
1844	517	487	1,004	293
1845	472	778	1,250	307
1846	638	353	991	306

[over

	Rentals (£)
1847	237
1848	240
1849	253
1850	269
1851	128
1852	106
1853	89
1854	63
1855	66
1856	78

Sources (produce): 1800-1808, ***1810 Evidence,*** pp 147-159. 1814-1828, ***PE 51,*** bundle 514. 1830-1845, various documents entitled, ***State Comparing the Returns for (date) with the Average for the Five Seasons preceding 1835,*** PE 25, various bundles. 1846, ***PE 25,*** bundle 91.

Sources (rentals): 1800-1809, ***1810 Evidence,*** pp 123-124. 1814-1827, ***PE 51,*** bundle 514. 1828-56, ***Rental of the River Tay and Its Tributaries, Years 1828 to 1858 Inclusive.*** "Extracted from the Minute Books and Assessment Rolls of the Proprietors of Salmon Fishings in the Tay." Indexed using the "animal products" column of the ***Rousseaux Price Indices, 1800-1913,*** 1865 and 1885 = 100.

prior and subsequent to the sequestration give some further idea of the circumstances at the time. Sometime about 1820 Berry & Bell became tacksmen of the Burgh of Perth fishings[14]. The first hint of trouble came in a letter to the Town Council on 4th November 1822 in which James Bell asked for an abatement of the rent because of "the great deficiency in the produce of these fishings during the last three years." This request was presumably not met, for a further letter of 7th July 1823 asked for the same, adding that Lord Gray was prepared to give an abatement on rentals of the Kinfauns fishings held by Berry & Bell, provided that other proprietors did the same. On 1st September 1823 the Council agreed to give an abatement of 10% for the years 1822 and 1823, in line with Lord Gray[15]. The deepening crisis in the affairs of Berry & Bell was further recorded in the Council Minutes of 1st December 1823 when the Provost reported that he had been visited by Mr William Wilson of Berwick, nephew to Mr William Berry (Bell's partner), and also by Berry's agent, George Turnbull W.S., a Perth lawyer. It would appear that there were at least two year's rent outstanding, for Wilson offered to pay the rents for the years 1822 and 1823, plus interest, less the 10% abatement. This was agreed to by the council[16]. The next development came in July 1824 when James Bell was declared bankrupt. Subsequent to this Perth Town Council resolved to follow the example of other proprietors to whom Berry & Bell were tacksmen and, "make application to the Sheriff for warrant to sequestrate the produce of the fishings in security of the rent,". They also took steps to prevent William Berry from claiming any of the said produce[17].

Some explanation of the events leading to bankruptcy were given by James Bell in his evidence to the Select Committee on the Salmon Fisheries of the United Kingdom (1824 Committee) on 10th May 1824, when he stated that "the salmon fisheries on the Tay have been decreasing

since 1819, the decrease is general and applies to both the fresh water and the tideway."[19] He attributed the decline to the use of stake nets. These had been finally removed from the Firth of Tay (then defined as west of a line from Buddon Ness to Tentsmuir Point) in 1817, but they had been introduced on the coast from 1821[19]. In addition, the spasmodic attempts by the estuarial tacksmen to circumvent the restriction on stake nets, described in III of this chapter, must also have had some effect on river catches. Bell also cited the non-observance of the close-time and insufficient penalties for poaching as contributory factors[20]. He told the Committee that he was currently paying (or to be more accurate not paying) £8000+ of rents on the Tay, and a further £1200 on the Tweed. Bell's testimony raises the question of why he offered to pay rentals he apparently could not afford, at a time when he believed the produce of the river to be falling. The representations made to Perth Town Council by William Wilson and George Turnbull on behalf of William Berry suggest dissension within the partnership, and Berry clearly wished to sever his connection with the Tay part of its activities. But what caused the dissension or led to the decline in the fortunes of "James Bell" remain veiled from view. It would appear that although adverse trading conditions were significant, the downfall of the firm of Berry & Bell was not solely because of any deficiency in the produce of the Tay, nor the price of salmon. There must have been an additional inability on the part of James Bell to take account of changes affecting the fisheries, possibly combined with faults of personality or competence in the running of the firm itself. Nonetheless, the rather protracted death throes of Berry & Bell would not have been conducive for that firm to be anything other than rigorous in exploiting the fisheries they had in tack and other tacksmen would take the same message from the events[21].

Berry & Bell were sequestrated in July and for the remainder of the fishing season their tacks, on behalf of the three creditors (Burgh of Perth, Kinfauns and Pitfour), were managed by Robert Peddie, lawyer and town clerk of Perth. Peddie's detailed accounts for this period run to nineteen foolscap pages and are summarised in Appendix IV[22]. These accounts also give a clue as to why the number of tacksmen tended to increase after Richardson & Company gave up their monopoly. The capital investment in a salmon fishery was principally the title to the right of fishing, which was held by the proprietor. In addition the proprietor might also provide a lodge for the use of the salmon fishers which would automatically be included in the tack[23]. The other necessary capital equipment consisted of cobles and nets. If the tacksman were well-established, like Berry & Bell, they would provide their own. If the tacksman did not own cobles or nets, then they might be provided by the proprietor for an additional charge, or be hired by the tacksman from some other source[24]. This implies that it did not require a great deal of capital to become the tacksman of a fishing, provided that a man was willing to start out in a modest way. Boats and nets could be hired, the rent was paid twice during the tack, but not in advance. Thus all that was required to start was sufficient capital to pay wages and running expenses. Later in the century there is more evidence to suggest that it was quite usual for individuals or small partnerships of salmon fishers to take a tack for a season. If this were the case, then the multiplication of tacksmen would certainly lead to greater dangers from over-fishing.

III - The Continuing Conflict Between River and Estuary

Although the estuarial proprietors and the stake net tacksmen lost their case in the courts in 1812, they continued to campaign for legalisation of the stake nets, or some return to the *status quo ante* which had brought such prosperity to their fishings[25]. Concurrently they and their tacksmen sought to devise methods of fishing which would be both effective and legal in the eyes of the law as it then stood. There were thus two areas of activity in which the estuarial proprietors were involved and in which their adversaries were the river proprietors: first, a propaganda campaign to have the law altered and, second, in seeking modes of fishing that would be efficient and legal under the existing law. The river proprietors, for their part, were adamant that there should be no change in the law and were constantly vigilant to prevent any new variant of net being introduced.

For the purposes of propaganda the lower heritors relied on two full-length books to make their case[26]. One relied heavily on evidence presented during the Stake Net Cause, and the other drew on evidence presented to the 1824 Committee. As both the Stake Net Cause and the 1824 Committee are dealt with elsewhere (see Chapters Four and Six, respectively) it is not necessary to rehearse further these arguments, suffice it that both events were interpreted in such a way as to endorse the legalisation of the stake net. Lobbying activity on behalf of stake nets was resumed in August 1823 when Perth Town Council noted with disquiet an Act of the Convention of Royal Burghs of the previous month, proposing alterations to the laws on salmon fishing to allow again the use of stake nets in estuaries[27]. The following year saw counter-propaganda in the form of a pamphlet putting the case of the river proprietors against the reintroduction of stake nets[28]. A second, briefer pamphlet, originated about the same time and similarly fulminated

against such proposals[29]. The continuing need for vigilance against pressure from stake net supporters was shown again in 1827 when Perth Town Council was forced to petition Parliament, "against a Bill recently introduced by Mr Kennedy that would allow stake nets in the estuaries of rivers."[30] Later in the same month, Robert Buist, in his capacity Trade's Baillie on Perth Town Council (and as a partner in Gray, Richardson & Company) sent two public letters, to the Provost of Dundee complaining about the Provost's proposal to organise a petition in favour of stake nets[31]. Later, in a private letter to Alex Mackenzie, Writer, Perth, Buist made plain how his personal interest as a tacksman would be affected. His prophecy was dire: "If it [Kennedy's Bill] passes, our occupation here as salmon fishers is gone. A few men fishing for their daily bread may occupy a few of the best fishings, but rent is out of the question." In other words, he saw the demise of the tacksman in the river fisheries[32].

Another matter of increasing concern after 1821 was the introduction of stake nets on the sea coast. The shores of the lower estuary of the River Tay, below Broughty Ferry, were not greatly different in character from the sea coasts. It was, therefore, a logical step for the stake net tacksmen, excluded from the firths, to seek out other parts of the coast where they could erect their nets without legal hindrance. Their success in this gave rise to alarm among the river proprietors, who sought to have the ban on stake nets extended to all such nets, no matter where they were situated. A legal opinion on the matter was that the right of river proprietors to challenge the use of stake nets in the sea rested upon two questions: whether the stake nets were illegal in the sea, and whether the stake nets in the sea were injurious to the river proprietors. With regard to the first question, it was recalled that the previous case against stake nets had rested on the point that fixed

engines were illegal in rivers, and it had then to be proved that an estuary was part of a river, this admitted that fixed engines were legal in the sea. As to the second question, the interests of the river proprietors were undoubtedly harmed since fish caught in the stake nets would otherwise have ascended the rivers[33].

To appreciate the attempts by the estuarial proprietors to evade the existing law it is necessary to bear in mind that in 1812 the Courts had ruled against: "the use of *yairs, stake nets, OR OTHER MACHINERY OF THE SAME NATURE*" (original italics) It became necessary, therefore, to devise a net that was not "of the same nature" in the eyes of the law, but which was capable of catching fish among the sand banks of the firth. In the immediate aftermath of the decision in the Stake Net Cause, this involved avoiding the use of stakes, and instead stretching the net (which was renamed a "bag net") from the shore floated on corks or bladders, weighted on the underside and secured to a large stone or anchor some way offshore. Faced with this new threat to their near-monopoly, the river proprietors presented a bill of suspension and interdict against what they saw as an evasion of the Court's previous finding. The Court found for the pursuers, and the defendants were interdicted from catching salmon "*by means of any other fixed machinery, or BY ANY OTHER MODE OF FISHING THAN THE ORDINARY WAY OF NET AND COBLE*" (original italics). With bag nets declared illegal the estuarial proprietors and their tacksmen adopted an alternative called a "pock net", and also adapted the croy used in the river for use in the firth[34]. These devices must have had some success, for the river proprietors sought to have them banned in a case that came to court in 1820. The pock nets were quite specifically, "not those as used on the Forth" (which were legal), but "large bags, composed of netting about fifteen feet long, and, when stretched out, about six feet in diameter." The mouth of the

net was kept open by poles, with the upper edge floated with corks, and the lower edge weighted. The pock was located at the end of another stretch of net acting as a "leader", which would also have had corks and weights, the whole forming a semi-circle concave to the direction from which the fish were expected to come. The pock could be either at the land or deep-water end of the leader. A coble with a man onboard was stationed near the pock and if he observed fish entering the net, he would close the entrance, draw up the pock, and remove the fish. The process was not dissimilar to the toot net, but it was in fact a variation of the bag net. The croys complained of by the river proprietors were used by John Bell on the Scotscraig fishings at Ferry-port-on-Craig which, being in tidal waters, involved two croys. The pursuers' case was upheld by the courts and an interdict granted against the defenders preventing them "from erecting or using in future the machinery or apparatus foresaid, or any other fixed-machinery, or ***any fishing apparatus whatever, except net and coble,*** for the purpose of catching salmon." (original italics)[28]. The courts were clearly trying to draw yet tighter their definition of a net, to prevent any possible variation of a stake net slipping through.

Despite this, the lower proprietors remained determined to get some sort of return from their fishings, and pock nets were again introduced to the Tay in 1826, some apparently up to 200 yards in length. The users were largely the same people as had been interdicted in 1820. Their success in having them accepted on this occasion was no greater than it had been previously. About the same time, a further variation of the bag net was tried, called a "sole net". This was very similar to the pock net, except that the pock was replaced at the end of the leader by a chamber of netting which was open at the top. Sole nets could extend up to 300 yards from the shore with the deep-water end fixed in the channel

by an anchor or stake[36]. As soon as the use of these devices was known, the river proprietors once more successfully applied for a bill of suspension and interdict[37]. Use of the sole net seems to have survived this initial interdict, for on June 14th 1832 the massed ranks of the river proprietors were again seeking suspension and interdict against John Bell of Ferry-port-on-Craig for employing one at the Panmure fishings. The pursuers' case contained a querulous *resumé* of events from 1812 onwards. Since the imposition of the ban on stake nets, the pursuers noted, "the tenants of the lower heritors have been exerting their ingenuity in order to evade it. By changing, in some respects, the construction of their engines, and above all, by changing their *name*, they have contrived from time to time to raise questions with the complainers with regard to the application of the final judgement." However, they had not been successful, and interdicts had been granted "automatically" in recent years. John Bell's claim that he was using a toot net, not a sole net, was of no avail and he was finally interdicted in 1835[38]. Other cases about the same time all came to a similar conclusion.

It is evident from the preceding quotation that by the 1830s interdicts were being taken against tenants only, there being no mention of proprietors. But, although the estuarial proprietors had apparently ceased to involve themselves directly in the expense of defending the imposition of an interdict, the impression that they were no longer involved in seeking to defy the ruling of the courts cannot be seriously entertained. They remained as concerned as their tenants to revive their fishings. Of interest is the ambiguous attitude of the river proprietors to the use of croys and pot nets by the estuarial proprietors. Both the Earls of Kinnoull and Mansfield had countenanced their use by their own tenants in 1810[39], but the names of Kinnoull and Mansfield were among the pursuers seeking interdict against John Bell for

using croys at Scotscraig in 1820. It would seem that having achieved a favourable decision in the Stake Net Cause, the river proprietors were not prepared, apart from the net & coble and toot nets, to allow the use of any type of net which would be effective in the conditions found in the firth. This attitude even applied to the crude and ineffective stage nets, which had been employed from time immemorial along the south shore of the estuary up to the second half of the eighteenth century[40]. Attempts to reintroduce them had been met with the threat of interdict[41].

Of all the divisive forces apparent among those participating in the Tay fisheries that between the river and estuarial proprietors was the strongest and the most damaging. Inevitably, this lack of agreement meant that no one person or group was able or prepared to take an overview of the interests of the Tay fisheries as a whole. In this instance, the lack of common purpose was not to the immediate detriment of the salmon stock, as has been suggested was the case with the competition among tacksmen. Indeed, by preventing effective fishing in the estuary, the salmon stock of the river was preserved to a greater extent than it would have been otherwise. But, by their attitude, the river proprietors had created a situation in which there was a permanently aggrieved minority of proprietors, whose participation in the fisheries was kept to a minimum by constant vigilance and constant resort to the law. Thus the possibility of a consensus view emerging on any matter concerning the fisheries was the more remote. On the other hand, the controversies aroused by attempts to re-introduce stake nets did at least create an awareness of the dangers of over-fishing and of the need for some degree of conservation. By the 1820s this awareness was strong enough to generate action.

IV - Poaching

The one matter that apparently united the various witnesses appearing before the 1824 Committee was their concern at the prevalence of poaching and the ineffectiveness of the laws against it. However, as the evidence made clear, many of those who made complaint were themselves guilty of poaching. One of the matters which many of the witnesses were trying to establish in their evidence was that there had been a decline in the produce of the Tay fisheries and this was often ascribed by them to poaching and non-observance of the close-time. The distinction between these was a fine one, resting largely upon the status of the persons involved. If a tacksman, possibly in conjunction with some of his fellows, decided to extend the legally defined fishing season by "washing the nets" for a week or so at the fishings of which they were tacksmen, then this was non-observance of the close-time. If, however, a salmon fisher or some other person took a salmon without the proprietors' leave, in or out of the fishing season, then this was poaching. The lack of a right to fish *at any time* appears to have been the criteria for outright poaching. This general tendency to extend the netting season may be seen as yet another example of the pressure to intensify fishing by tacksmen.

The part played by the fishing proprietors in all this is significant: it is difficult to imagine that a tacksman could carry on for a week or so "washing the nets", without this being observed by the proprietor or his factor. If no action were taken, as was apparently the case. this suggests at least tacit complicity, with the further possibility that the unofficial extension of the season had been allowed for in the rent. Where fishings were of no commercial value (e.g. on the upper river beyond the mouth of the Isla), the proprietors appeared quite unconcerned who fished their waters or when. The virtual annihilation

of breeding fish on some of the upper spawning beds of the Tay by the use of both nets and leisters is an example of this attitude.

The ineffectiveness of the law against poaching and the attitudes thus engendered, are explained by the penalties for the first two offences being too lenient, and the penalty for the third offence being too severe, because of this the law was not enforced. The fine for the first offence was believed to be 16d. or 18d. Scots (1.3d or 1.5d. sterling), and the penalty for the third offence was variously described as "imprisonment", "banishment", or "death". The lack of unanimity was eloquent testimony to it never being imposed. George Little of Annan, was adamant that the law was ineffective against poaching. He claimed that a night's poaching could result in the poacher taking 50 or 60 salmon, worth £20 or £30, against which any fine was trifling. It was Little's case that it was the value of the salmon that provided the encouragement to poaching.

> ... since the fish have been sent regularly to the London market from Scotland, ... salmon has become of great value even close to the fisheries. The general establishment of coaches over the kingdom has likewise aided in raising the price of salmon; formerly we could only eat salmon at a fishery, ... but now there is not a town in England, in which you cannot have fish as regularly as you can have it at any fishery ... thus, the coaches running over the kingdom have added very materially to the increase in the value of salmon, and it is an object now for a man to go at night and get himself wet, in order to get a salmon; a salmon is of some value, and killing forty or fifty salmon is a considerable sum to a poor man, and to be fined only the stated penalty is nothing at all[42].

Little's conclusion was that the law was deficient in protecting the breeding fish, partly because of the smallness of the penalties for the first and second offences, and partly because the penalty of death for the third offence was "too much again, that a man should forfeit his

life."[43] The other particular legal shortcoming complained of was that there was no attempt to prosecute those dealing in salmon during the close-time[44]. Kelts or "foul fish" were meant to be protected by the law but, as noted above, many of the tacksmen had allowed their employees to take the kelts as a perquisite[45].

The generally cavalier attitude towards the poaching laws is well illustrated by the case of James Gillies. Gillies was 36 years of age when he gave evidence to the Select Committee, and he had been a salmon fisher, i.e. an employee of tacksman, since the age of ten[46]. As an employee, his observations on poaching were from a different viewpoint. It was Gillies' opinion that, due to the lack of penalties, all and sundry took salmon when they pleased. He claimed to have seen 250 salmon lying in Alexander Campbell's cellar in the Kirkgate in Perth during September 1820, part of a regular trade in poached salmon. He admitted to poaching himself during the close-time along with others who were salmon fishers during the season, "up to 50 fish per night." He claimed there had been an increase in poaching due to the bad example set by the tacksmen in fishing beyond the end of the season. The only person to take a stand against this fishing in close-time appeared to have been the proprietor, James Richardson of Pitfour who in 1821 had gone to Edinburgh to secure an interdict and have the fishing after the end of the season stopped. Asked by the Select Committee about agreements among the tacksmen to extend their fishing into close-time, Gillies stated that it was not widespread to fish before the official opening of the season, though it had been done for a number of years at the Linn of Campsie, but as to fishing after the end of the season, "all the companies in Perth agree to do the same."[47] Gillies had also been employed as a Watcher on the upper part of the Tay and Loch Tay during the close-time.

He described finding the local people blazing the water and spearing the spawning fish on the redds[48].

The evidence on poaching is a clear indictment of the river tacksmen, the salmon fishers, and by implication the river proprietors. For them all, the pressure to have more productive fishings outweighed their obligation to remain within the law, albeit laws discredited by desuetude. The only group who do not appear to have been guilty of poaching were the stake net tacksmen, who operated in the estuary between 1797 and 1817. This may have been because they were all strictly law-abiding, but it is relevant to point out that as the stake net fishing did not start until May, they could hardly fish before the start of the season. Also, the stake nets were prominent objects, impossible to hide. Thus a continuation of their use after the end of the fishing season would have been a very public transgression of the law[49].

V - Proposals for Legislation

During the first three decades of the nineteenth century the Tay salmon fisheries were at the centre of much controversy. The stake nets had created sudden and unprecedented prosperity for the fishings of the estuarial proprietors, then the judgement of 1812 reversed this situation, and the prosperity was transferred back to the river proprietors. The duration of this prosperity was, however, brief: by the 1820s it had apparently evaporated producing a catalogue of losses, the most serious being the bankruptcy of Berry & Bell. These losses arose from a combination of high rentals, excessive poaching that depleted the salmon stock, coastal stake nets, and the intermittent use of stake net substitutes in the firth. The two enduring features of the era were the dispersion of the fisheries among a growing number of tacksmen with increasing competition among them to secure a share of the produce on the one hand and, on the other, a battle by the estuarial proprietors and their tacksmen to avoid the interdicts of the river proprietors. The consequence of the first was to put pressure on tacksmen to look to the short-term maximisation of the return on their tacks, and this in turn led to forms of behaviour generally considered to be detrimental to the overall welfare of the fisheries, in particular, a general disregard of the law laying down the start of the annual close-time. The consequence of the second was a constant resort to the courts, and permanent division among proprietors. There was, however, one favourable outcome from these times: a growing realisation of the need for conservation of the salmon stocks.

The agitation for legislation to regulate the salmon fisheries ultimately bore fruit in the 1820s[50]. The build-up to it began in 1822 with an initiative by the river proprietors who promoted a Bill for regulating the fishings on the Tay[51]. The initiative, which progressed

no further than a set of proposals, was called the *Bill for Regulating and Improving the Salmon Fisheries in the River Tay and the Rivers and Streams Running into the Same*. The main proposals were:

i that the close-time be altered to run from 5th September to 1st January (it was at the time from 26th August to 10th December);

ii the buying and selling of salmon in close-time to be strictly prohibited;

iii salmon spawn or "fry" not to be taken;

iv no objects to be placed in the river to prevent the run of salmon;

v boats and nets to be removed from the river during close-time;

vi pot nets to be banned;

vii leisters to be used only with a licence;

viii water bailiffs to be appointed (this would have legalised the *status quo* on the Tay);

ix the costs of administering the legislation to be born by a levy on the fishing proprietors[52].

As a Bill promoted by the river proprietors, this was clearly a piece of legislation favourable to their interests, and it is of considerable significance to note that the clauses were clearly conservational in intent. Although not an outright admission that there was over-fishing by legitimate commercial methods (i.e. net & coble), here was a clear statement of concern that too great inroads were being made into the salmon stock. The proposals of 1822 went no further, and the legislation of 1828 and evidence presented to the Select Committees of the House of Commons which led up to it will be discussed in the next chapter.

REFERENCES

1. See p 106 *ff.*

2. In 1807 the Seggieden fishing stations consisted of Claybrae, Thornie and Flukie. The disbursements for Claybrae included the following:

	£	s	d
4 men's wages @ 14s. per week (for 28 weeks)	78	8	
11 bolls* of coals	2	18	2
4 pairs of boots @ 10s. per pair	2		
1 net with ropes	1	10	
12 new corks		1	
9 new net cloths @ 3s. 8½d. each	1	13	4½
1 pair of oars		5	

Other items included twine @ 2s. 6d. per quarter (28lbs), ropes, wear and tear on two boats and "1 ancor lost or stole from bot".

*1 boll = 212 litres dry measure.

The produce of Claybrae was as follows:

	st.	lb.		£	s	d
February 7 salmon =	4	11	@ 20s. per stone*	4	13	9
March 31 =	29	9	@ 16s.)			
April 32 =	26	11	@ 16s.)	44	14	
May 23 =	18	14	@ 10s.	9	8	9
June 48 =	40	14	@ 8s.	16	7	
July 85 =	81	9	@ 6s.)			
August 6 =	4	15	@ 6s.)	25	19	
119 grilse =	27	10	@ 5s.	6	18	1½
				£108	0	7½

Seggieden, bundle 13.

*The Scots stone remained equal to 16 lbs until the Act 5 Geo. IV. c. 74 of 1824, which established the uniformity of weights and measures for the United Kingdom and reduced the stone to 14lbs. *The Concise Scots Dictionary*, p 817.

3. Kinnoull, bundle 363.

4. See Chapter One, note 78.

5. It may be noted that the Council's objection was not framed in terms of damage to the existing fishings, but rather the danger to

shipping. This was because, although their concern was with the potential damage to the produce of the Ships station, the Council had no powers to regulate fisheries. They were, however, "Conservators of the Tay" with the responsibility of keeping the channel free for navigation. It would thus have been easier for them to object to Lord Gray's developments in that capacity.

PE 1/1/8, p 245.

6. PE 16, Bundle 664.

7. The firm of Gray, Richardson & Company was formed in 1808 to operate as salmon tacksmen on the Tay. The partners were Andrew Gray and Patrick Richardson. There is no recorded connection between Patrick Richardson and the Richardsons of Pitfour. Over time the company extended its activities until it became one of the major tacksmen on the Tay. Robert Buist was at first an employee of the company, but subsequently became one of the partners. After 1826 it was known simply as Gray & Company.

8. PE 51, bundle 288.

9. Thomas Proudfoot of Walnut Grove, sometime superintendent of the watchers (see Chapter Two, note 15 and *infra*, note 48) was one of the more important tacksmen on the Tay during the early years of the nineteenth century.

10. *ibid.* bundle 392.

This was confirmed by another witness, Adam Taylor, who had worked for Rannie at Ladyhole during the 1833 season. There had been the usual ten men in the Ladyhole crew, but only five men and then a sixth at Langlaw. Taylor deponed that the Ladyhole fishers took consecutive shots because the Langlaw fishers could not keep up. Yet another witness, Peter Ferguson, noted that there was an added complication as the Ladyhole on the north shore was immediately

adjacent to the Venture station, probably within 100 yards. Being so close, Ladyhole and the Venture had to row off together, otherwise their nets would have become entangled. This reduced their flexibility *vis-a-vis* the station on the opposite shore. Rogers claimed that because the Langlaw fishers could not keep up, he had frequently seen the nets of all three stations in the water at the same time, something which "staff on land" was designed to avoid.

11. The Rashbush station, one of the Pitfour fishings on the north shore below Cairnie pier, had a longer shot than the Carpow station opposite. The result was that Rashbush could not keep pace with Carpow. The former had two boats, two nets and two crews, but the latter used a third boat, net and men. The same applied at Cairnie and the Girnal, which were just above Rashbush and Carpow respectively. Because Cairnie had a longer tow, an extra boat was put on "when the fish were plenty" in order not to lose a shot.

    ibid. bundle 392.

12. Other figures giving further losses during the 1830s and 1840s are also given in the document.

    PE 25, Bundle 54.

    Robert Buist (died 1868) played an important role in the Tay salmon fisheries during the first half of the nineteenth century. He is first mentioned as an employee of Gray, Richardson & Company, but he latterly became a partner in that company (*supra* note 7.). He was also a tacksman on his own account on the Tay and on the coast, he being the first person to use a stake net on the coast in 1821 (*infra* note 19). As well as being a tacksman, Buist was also superintendent of the watchers on the Tay for some thirty years, a member of Perth Town Council and of the Glovers Incorporation.

After his retiral from superintendent of the watchers he was in charge of the Stormontfield Hatchery and published reports on the work there in *The Field* under the *nom de plume* "Peter of the Pools". He also published a book *The Stormontfield Piscicultural Experiments.* His brother, Andrew Buist, was also a tacksman.

> Death of Mr Robert Buist
>
> On Saturday last died, at the ripe old age of 82 years, Mr Robert Buist of Perth. Mr Buist, in company with some others, at one time rented nearly the whole of the Tay fisheries, and, by keeping an accurate register of every salmon and grilse killed in the Tay for a number of years, the mass of evidence he collected in the shape of statistics has formed a textbook for salmon legislation for a quarter of a century. The knowledge he acquired of the habits of the salmon, and his great activity combined with his sterling honesty, caused him to be appointed superintendent of the Tay fisheries about the year 1840. The services rendered by Mr Buist to the cause of natural history as regards the salmon were considerable. Following in the steps of Shaw and Young, he was able, in common with those associated with him in the Stormontfield experiments to make clear much of the history of the young of salmon which was hitherto unsettled. The establishment of the Stormontfield ponds, and the success which attended them, were chiefly owing to his energy. On this great undertaking we need not particularise, as our readers have already had the fullest possible information respecting it, from time to time, from the pen of Mr Buist himself, who for many years contributed to our columns under the modest *nom de plume* of "Peter of the Pools". The deaths of Andrew Young, Mr Ffennell, and Mr Buist, with the retirement of Mr Eden from an active participation in the labour of our salmon reformers, has left a gap in their ranks which it will be hard indeed adequately even to fill up.

The Field, 3rd October 1868.

13. *Venator, The Field,* 18th October 1868.

14. In the name of John Bell, James Bell's son, with Bell senior as cautioner.

As well as his son John, who was the nominal tacksman of the Burgh of Perth fishings in 1824, James Bell also had two sons in London "acting as his agents" (see Appendix IV, table IV/5, note 5). His clerk at Perth was called George Bell (see Appendix IV, table IV/4),

though whether he was a relative is not stated. His foreman William Bell was not a relative. The ice bought from Aberdeen (see Appendix IV tables IV/4 and IV/6) was from the firm of Alexander Bell, who became tacksman of the Burgh of Perth fishings in 1830 by subsetting them from the firm of (Mathew) Bell & Davis. It was Bell & Davis who succeeded to the Burgh of Perth fishings in 1825. It would be interesting to know what connections, if any, there were among this tribe of Bells, but nothing is known beyond James Bell's immediate family.

15. PE 1/1/8, pp 366, 402, 410.

16. In paying off the outstanding rents, William Berry was apparently trying to end his association with James Bell and with Berry & Bell's activities on the River Tay. In a letter to the Town Council on his behalf, George Turnbull wrote, "Mr Berry has now no concern in the fishings of the Tay belonging to the City of Perth held by Mr John Bell and Mr James Bell as his cautioner, and the City will look to them alone for payment of their rents."[1] The council were not, however, agreeable to this, being adamant that the tacksmen of their fishings remained the firm of Berry & Bell, no matter what changes may have been made in the private arrangements between the partners, and that the tack had one more year to run, i.e. the 1824 season.

1. *ibid.* p 436.

17. *ibid.* p 468.

18. *First Report,* p 19.

19. Robert Buist was first to erect a coastal stake net at Dunninald (NO 70 53) south of Montrose in 1821. A. Russel: *The Salmon,* Edinburgh, 1864, p 189.

20. In these latter complaints, Bell showed considerable audacity, for in other evidence presented to the 1824 Committee, he was named as both buying and fishing for salmon in close-time.

21. What appears to have been the final episode in the sequestration of Berry & Bell is contained in an item from the Perth Town Council minutes of 10th December 1828. It was noted that the Council had received a letter from George Turnbull offering £800 from the estate of the deceased William Berry in payment of the Town's claim against him. This was accepted by the Council.

PE 1/1/9, p 364.

22. PE 25, Bundle 91.

A significant omission from Peddie's accounts is any reference to the kitting of salmon. The kitting of salmon must have continued beyond the beginning of the nineteenth century for it is known that Little & Company, the stake net tacksmen had built boiling houses about 1800. But at some time during the second decade of the 19th century kitting must have been superseded by preservation in ice, for the accounts indicate that the latter method was being used to preserve the fish right up to the end of the season.

23. Where the proprietor owned the fishings only, and not the land to which the fishings were *ex adverso*, then the lodge might be built on ground rented from another landowner. This was the case with Richardson of Pitfour who rented ground on the North Inch at Perth from Perth Town Council for a lodge for the Poldrait fishers. Perth Town Council in their turn rented land at Incherrat from Hay of Seggieden for the Incherrat fishers.

24. An example is provided by the "Articles and Conditions of Roup and Let of Scotscraig Salmon Fishings 1821". The tacksman was obliged to:

> take and receive the whole boats, nets, cobles, etc, presently belonging to the fishings and that a valuation to be made by two neutral men, one to be chosen by the proprietor and the other by the tacksman, and the latter shall be obliged to pay the proprietor the value of the articles so appraised within 3 months of the valuation; But declaring that at the expiry of the lease, the said Mr Dalgleish [the proprietor] ... shall be obliged to take and receive the said whole boats, nets, cobles, etc, at a valuation by two neutral men."

Tayfield, box 41, bundle 1.

25. Some idea of the economic impact following from the banning of stake nets in the parish of Balmerino is given by James Campbell in his ***Balmerino and its Abbey.*** "In this Parish the loss sustained by the abolition [of stake nets] was estimated to amount to £1000 or £1200 annually to the proprietors, and £1000 in the shape of fishermen's wages." In the light of such sums, the desire on the part of the estuarial proprietors and their tacksmen to devise effective, but legal methods of catching salmon is easy to comprehend.

James Campbell: ***Balmerino and its Abbey,*** Edinburgh, 1899, pp 595-596.

26. Both of these were anonymous. The first was, ***Observations Regarding The Salmon Fishery of Scotland. Especially with Reference to the Stake-Net Mode of Fishing; The Regulation of the Close-Time; and the Necessity of a Legislative Revisal of the Antiquated Scots Statutes at Present Applicable to These Subjects,*** Edinburgh, 1824, the second was, ***An Inquiry into the Present State and Means of Improving the Salmon Fisheries: Including a Digest of the Evidence taken by a Select Committee of the House of Commons,*** London, 1827.

27. PE 1/1/8, p 406.

28. This was called, ***Statement Relative to the Fisheries in the River Tay***, published in Edinburgh in 1824. It amounted to 36 pages of text, unoriginal in argument and assertion, with the exception of an acknowledgement of the case for the preservation of the species: "some bounds should be set to the rapacity of mankind in their [the salmon] destruction. If ingenuity were sufficiently exerted, no one can doubt the possibility of intercepting and destroying every single fish which may enter the river." Both sides in the conflict over stake nets sought to associate their case with the preservation of salmon, but there is little doubt that the principal consideration in both cases was the protection of their income-generating property. This was made clear in the pamphlet which suggested that, if Kennedy's Bill (a specific proposal to legalise stake nets) were successful, compensation should be paid to the river proprietors for the loss of rentals that this would entail. It cited as precedent the compensation paid to clan chiefs for the abolition of Heritable Jurisdictions after 1745 and that more recently paid to the proprietors of mills for the loss of thirlage. For the rest, the pamphlet restated the arguments made during the Stake Net Cause or before the Select Committee of the House of Commons in 1824, one of these being that the best measure of the worth of a fishing was the rent offered (see also Chapter Seven, II).

TBP, bundle 41.

29. The arguments were largely as unoriginal as its title, ***Statement as to the Salmon Fisheries of the River Tay.*** It was much more brief than the 1824 pamphlet, and provided a succinct ***resumé*** of the anti-stake net case. It did, however, touch on the matter of conservation by scorning the idea that the produce of the river

would necessarily be ***permanently*** increased by the legalisation of stake nets. This was a valid point, for although the stake nets had increased the produce of the Tay according to the statistics presented during the Stake Net Cause (see table 3.2, p 89, and figure 3.2b, p 90), the period of their use was relatively short, and the increase could not be claimed to be permanent on the evidence of so brief a time. Indeed, it could be argued that if the quantities of fish being caught during the stake net period amounted to over-fishing, which would ultimately have led to a reduction of the produce of the River Tay. The anonymous author(s) did not, however, proceed further to make the conservationist case for the protection of the species.

A good proportion of the text of this second pamphlet was devoted to the iniquities of transferring property from one group of proprietors to another, though why the property of one group should be sacrosanct was not explained. The preservation of vested interests is implicit in very negative arguments put forward.

> Even if the public were to benefit [from the reintroduction of the stake nets], surely it were a departure from the salutary rules hitherto acted on by Parliament, to cut down the vested rights of private parties without indemnification; but much more would it be an act of the greatest injustice to do this merely to transfer these rights to a new class of speculators.

Seggieden, bundle 28.

30. PE 1/1/9, p 154.

31. Buist's letters do not add much light to the debate, they rehearsed the assertions he was to make the following month in his evidence to The Committee on the Bill for the More Effectual Preservation and Increase of the Breed of Salmon (1827 Committee). For

perusal by the general public, these were simplified to the argument that "the stake nets cannot furnish a greater or cheaper supply [of salmon] than is done by the present modes of fishing." As a tacksman, Buist was not concerned about conservation, but was intent to show that there had been no *loss to the food supply* since the stake nets had been removed. Buist, as a member of Perth Town Council, showed its preoccupation when he wrote "were stake nets allowed, £10,000 of yearly rent would be transferred from the upper to the lower heritors, and the Town of Dundee would thus obtain the greatest and perhaps the only object of their petition, the transference of £1000 a year from the City of Perth's to the Town of Dundee's revenue."

PE 25, bundle 89.

32. PE 16, bundle 57.

His letter continued, "The Stakers are now enlisting the London Press in their favour, and have been moving heaven and earth to accomplish their purpose. Let us therefore strain every nerve and oppose them with all the anxiety of persons contending for their last Stakes."

Buist clearly liked to have it both ways: in 1821 he was the one to first introduce stake nets to the coast (*supra* note 19), but in 1827 he was fulminating against their re-introduction to the estuary.

33. TBP, bundle 24.

Second Division, 13th January 1829, PE 15, bundle 425.

34. For further details on croys, see p 47.

35. Second Division, 13th January 1829, PE 15, bundle 425.

36. At the outer end, the net was turned back upon itself in a hook-shape to which a floor of netting or "sole" was attached. To this

sole was further attached a netting door or apron. The sole net was worked by three men: one in a coble (the sight boat) at the outer end to watch for fish entering the chamber; another nearer the shore on the upstream side of the net in another coble (the haul boat), to close the door at a signal from the watcher; and a third on the shore to pull a rope that opened the door after the trapped fish had been removed.

37. Second Division, 13th January 1829, PE 15, bundle 425.

38. Outer House, 14th June 1832; TBP, bundle 34.

39. PE 51, bundle 288. See also *supra* pp 129-130.

40. See p 48.

41. ***First Report,*** p 43.

42. ***ibid.*** pp 117-118.

43. ***ibid.*** p 119.

44. See also Chapter Six, note 25.

45. See p 173.

46. Gillies' involvement with Thomas Proudfoot at the Dupplin cruive has already been noted, Chapter Two, note 15.

47. ***First Report,*** p 134.

48. Gillies' own poaching had been done nearer to Perth. Asked if he had ever been involved in taking salmon in close-time for Thomas Proudfoot, he replied that he had.

> He came to me one night many years ago, and took me out of my bed, and said he understood there was a number of salmon in the mouth of the Almond; and I said there was a good deal leaping about it; he said that if I would go along and fish with him, that he would manufacture the fish and send them to Edinburgh, ... we went about two miles for another man, and we took a net, and all we got was only four trouts.
> Had that part of the river been fished before?
> It was fished the night before.
> Were you one of the people that fished the night before?
> I was one of them.
> How many did you get the night before?
> I dare say upwards of a hundred.

Then Mr Proudfoot was very disappointed?
He was at the time.

N.B. this is the same Thomas Proudfoot who was appointed the first superintendent of the watchers, a literal example of the poacher turned gamekeeper.

First Report, pp 137.

Dr Fleming of Flisk, whose evidence was mainly on the natural history of the salmon, did not have much to say on the subject of poaching, but in his description of the mating behaviour of salmon he noted that if the male salmon of a mating pair were killed, then another male would come forward to take its place. "It is well known to poachers, that if in the act of spawning they destroy the male fish, the female fish leaves the bed, and in the deep pools endeavours to find another mate. In that way, the poachers, by attending to the operation of one female, may succeed in capturing many males,"

Second Report, p 66.

49. It is worth noting that the poaching of salmon in Scotland at this time was free from the social division and bitter struggles of the "poaching wars" in England*. This was partly because the salmon on the River Tay was a commercial fish, and not yet a sporting one; but partly also because all classes were guilty of poaching or of condoning poaching. The situation deteriorated in the second half of the century.

*See for example, H. Hopkins: ***The Long Affray,*** London, 1986.

50. The Tay proprietors and tacksmen had forestalled the legislation by forming in 1816 an Association of Fishing Proprietors to take action to protect salmon in the close-time. This was financed by a levy of 3d. in the pound (1¼%) on all fishing rentals; half paid

by the proprietors and half by the tacksmen[1]. The scheme was in operation by 1816, though it had first been mooted in 1806. In the latter year James Bell had written to the Provost of Perth seeking the support of the Town Council for measures to prevent the killing of salmon and kelts in close-time. The letter contained a proposed advertisement to be inserted in the newspapers.

> Notice is hereby given that a society has been formed and a subscription entered into for raising a Fund to be applied in prosecuting all persons who may be found guilty of killing and destroying salmon and black fish in forbidden-time and positive directions have been lodged with Mr Ross, Procurator Fiscal for the County of Perth diligently to enforce the law and to levy such fines as may be inflicted and this intimation is made that none may pretend ignorance.
>
> Persons are appointed on the different rivers to look after the offenders and a handsome reward will be given to informers and the informers names concealed[2].

Although the advertisement reads as if the society were in operation, this was either not the case or it did not continue so for long. In 1812 Perth Town Council was being asked to give its support to a *proposed* association of river proprietors for the protection salmon fry and prosecuting those taking fish in the close-time[3].

A further development prior to actual legislation had been a *Memorandum* from the proprietors of the river fishings, proposing the appointment of a river superintendent. The first such appointment had been Thomas Proudfoot of Walnut Grove in 1823. The appointment was for the close-time only, and so could be combined quite conveniently with the occupation of tacksman. An example of Proudfoot's work as river superintendent is provided by an incident in October 1825, when he petitioned the Sheriff of Perthshire against James Fenwick of Oudinard (near Bridge of Earn).

Part of the superintendent's work was to prevent fishing in close-time, however, the latter was impracticable as long as the cobles and nets of legitimate tacksmen were allowed to remain in position after the end of the fishing season. Proudfoot took the view that leaving the gear *in situ* was a deliberate encouragement to improper use being made of it. To discourage this, the watchers had taken it upon themselves to remove the gear if the owners would not do so. This had been done with Fenwick's gear, and it had been taken to Perth, and Fenwick informed he could collect it if he cared. Fenwick had subsequently sued Proudfoot for £5, the value of the gear, hence Proudfoot's petition to the Sheriff (*cf.* Proudfoot and the Earl of Kinnoull, Chapter 2, note 15).

1. PE 1/1/7, 2nd September 1816
2. PE 15, bundle 31.
3. PE 1/1/7, 7th September 1812.

51. PE 1/1/8, p 300

52. PE 51, bundle 363.

CHAPTER SIX

PARLIAMENTARY INTERVENTION

I - Natural History

By the third decade of the nineteenth century the concerns and controversies among the participants in the salmon fisheries of the River Tay, and on other salmon rivers in the United Kingdom, had become sufficiently serious to attract parliamentary attention. As is evident from the *Minutes of Evidence* presented to the parliamentary inquiries of 1824 and 1827, the matter of greatest concern was over-fishing'. In their investigations into this problem the Committees collected evidence on a number of possible contributive causes - the life-cycle of the salmon, the timing and duration of the fishing season, the extent and effects of poaching and, above all, the relative effects on the salmon stock of the net & coble and stake net modes of fishing. On these matters the Committees were confronted by a welter of conflicting evidence and opinion, the view put by witnesses (with a few honourable exceptions) being that which served the witness's own best interests. The various interpretations of the life-cycle of the salmon provide a good example of these conflicts.

It was generally accepted by those testifying before the Committees that the salmon was a migratory fish, spawning in freshwater but whose adult development was in salt-water. In most other matters, however, there was controversy. The protagonists in these disputes took their attitudes from that part of the river where their interests lay and the principal divide was between river and estuary. One matter of concern was an explanation for salmon entering rivers at all times of the year, when it was known that breeding took place only in the late autumn. If, for example, it could be demonstrated that salmon entering rivers at times apart from the breeding season were "non-breeders", then there

would be no reason to restrict access to them. No real answer was forthcoming to this question, but in order to absolve their own activities, the estuarial interest claimed that a proportion of those salmon entering the estuary were intent to ascend no further before returning to the sea, and thus catching such fish represented no threat to the river fisheries. On the other hand the river proprietors and tacksmen asserted that *all* salmon coming to the estuary *were* intent on ascending the river and the stake nets prevented this, either by catching them, or by turning them back[2].

The Reverend Dr John Fleming, minister at Flisk and an acknowledged expert on salmon and other fish, gave extensive evidence to the 1824 Committee[3]. Fleming's evidence is of particular interest as it shows the extent of contemporary understanding of the natural history of the salmon. Asked directly if salmon entered rivers for any purpose other than spawning, Dr Fleming's opinion was that they did not. However, he made a distinction between the river and the estuary, stating that once committed to freshwater, salmon would not return to the sea until they had spawned, but this did not preclude them from lingering in the estuaries if "the river is not in a fit state for them, or they are not in a fit state for the river;"[4]. While in the estuary he thought salmon should be considered inhabitants of the sea coast, subject to the ebb and flow of the tide and not necessarily intent upon ascending the river. Thus when the stake nets were present in the Firth of Tay they caught fish moving according to the influence of the tide, which Fleming took as an indication of lack of intention to ascend further. He did not subscribe to the generally held belief that salmon entered freshwater merely to rid themselves of sea-lice, as he had observed that other species of fish affected by sea-lice did not enter freshwater. Asked if the presence of stake nets in an estuary helped or hindered the

destruction of salmon by their natural predators, Dr Fleming's opinion was that they assisted preservation by tending to discourage predators. He also agreed with the observation that if the salmon were not caught by stake nets in the estuary, then they would fall prey to the seals and grampuses, a point taken as favourable to the stake net case. Dr Fleming made his opinion on these matters quite unambiguous by agreeing "that considerable numbers of salmon ... frequent estuaries and the sea coast, which are not seeking the river, and which would not be caught by the river nets, although they escape the nets in the estuaries and upon the sea coast."[5] Thus Dr Fleming's interpretation of the natural history of the salmon was one that envisaged the stake nets catching salmon that were (largely) not part of the potential catch of the river fisheries and, furthermore, diverting to human consumption fish that would otherwise have fallen prey to natural predators.

It was another man of science, Sir George S. Mackenzie, Bart. of Coul, who took Dr Fleming's arguments to their logical conclusion and, thereby, reversed their generally favourable conclusions on the stake nets. Mackenzie noted that all salmon originated from some river or other, thus any salmon intercepted before its return to the river to spawn - whether by stake nets or by natural predators - would be a loss to that river. Moreover, stake nets did not take fish that would otherwise have been eaten by predators, they took them ***in addition***, ensuring a greater reduction in the salmon stock than otherwise[6]. Mackenzie's view was shared, though not disinterestedly, by the river proprietors who argued that salmon entered firths and rivers solely to spawn and so stake nets acted as a barrier to turn back those salmon which they did not catch[7].

Among those whose interest in the Tay fisheries was more practical, the differences of opinion were more obviously derived from

where they saw their personal advantage to be. Robert Buist, who was identified with the river interest, claimed that the stake nets were proved to be detrimental to the river fisheries by the revival in river catches after their withdrawal beginning in 1812 (see tables 4.2, 4.3 and 5.3, pp 121, 123 and 136 respectively). In contrast, John Halliday[e] a stake net tacksman, gave it as his opinion that the produce of the river fisheries might have fallen off a little, but not to any greater extent than they had done before or since due to the natural annual variations. He thought that any reduction in the produce of the river fisheries could be as easily ascribed to the destruction of parent fish and fry due to the close-time being inappropriate and not being observed. Questioned about the reduction in rentals of river fisheries during the period of the stake nets (see tables 4.2, 4.3 and 5.3), which could have been taken as evidence of falling catches, Halliday stated that for at least some of the time the nominally competing firms of John Richardson & Company and Berry & Bell had acted conjunctly and, because "there was no one to oppose them", the rents had been bid down[e]. Neither of these arguments contain outright falsehoods, but the way in which they are presented makes clear the bias of the protagonists.

There was general agreement about the necessity to preserve the breeding stock of salmon, but as salmon were only *visibly* in breeding condition from late August to November, the case of the estuarial interest was that for the rest of the year the salmon were not breeders, and the need for their conservation was irrelevant. Tacksmen who operated estuarial stake nets could see no reason for any restraint on catches or methods of fishing out of the breeding season. Indeed, to such men the removal of stake nets was both discrimination against themselves and an unnecessary reduction in the salmon catch. On the other hand, the river interest claimed (correctly) that all salmon entering the estuary were

destined for the river, ultimately to breed, and so any impediment to them in the estuaries was detrimental to the breeding stock.

On the question of the size of the salmon stock there was common error in the evidence of both parties. It was favourable to the case of the estuarial group to suggest that numbers of salmon were so large that over-fishing was not a serious threat. To the river group it was in a sense irrelevant what the number of salmon was, their case being that whatever the number, salmon had patently not ascended the rivers during the operation of the stake nets. Thus their preoccupation was with the depredations of the stake nets, rather than the size of the salmon stock. However, the evidence of all parties on this matter was flawed by an erroneous understanding of the life-cycle and survival rates of the salmon which led to a very considerable overestimation of the size of the salmon stock. The number of eggs produced by the female was estimated at an average of 18,000, a not unreasonable figure[10]. But, instead of allowing for a period of two to three years in freshwater before the young salmon were sufficiently mature to descend to the sea, it was assumed by all those testifying before the 1824 Committee that young salmon, or "fry", descended to the sea in the same season as they emerged from the redds[11]. Dr Fleming noted that the "fry" made their appearance from the gravel during March, April and May and then descended the river to the open sea[12]. Because beliefs about the freshwater development of the species telescoped its duration, failing completely to distinguish between the alevin, fry, parr and smolt stages, the survival rate was assumed to be very much higher than it actually was. Furthermore, there appeared to be little recognition of natural predators affecting the "fry", apart from man. It was consequently assumed that the number of "fry" getting to the sea and returning as adult fish was vastly in excess of what is now known to be the case[13].

It was further believed that the grilse that came to the rivers from early summer were the same "fry" that had descended to the sea but a few weeks earlier. These beliefs gave rise to confident statements such as: "accordingly, it almost exceeds the power of numbers to express the myriads of salmon which exist."[14] Why the immature fish should not be vulnerable to depredation was not explained, but given the assumption of "myriads of salmon", the conclusion was that "the proportion that falls to the share of man, after the utmost stretch of his ingenuity and exertions sinks into insignificance when compared with what is consumed by the largest marine animals"[15]. This led to the comfortable conclusion that, except for the breeding stock (confined to the autumn months), conservation was irrelevant. If any additional conservation was necessary, it could be best effected by a reduction in the numbers of grampuses, porpoises and seals. This interpretation was particularly favoured by the estuarial interest, though the river interest did not dispute it, concentrating instead (as noted) on the effects of the stake nets[16].

The need to preserve "fry" and kelts had led Dr Fleming to put forward a further argument in favour of stake nets. He, and others, testified that while descending the rivers "fry" and kelts kept to the edge of the stream, "apparently because the margin is easy water, and consequently best fitted for their young and weak state." This made it more likely for them to be caught in the small-mesh sweep nets. But, "when they reach the estuary or tide-way, then the margin of the water being there most disturbed, the fry avoid the margin and betake themselves to the deepest parts of the channel, disappear from observation and capture, and so go out to sea."[17] The case was similar for kelts. Thus if either had evaded capture in the sweep nets during their descent from the redds, their return to the sea via the deep

channel would not be threatened by stake nets. Both river and estuarial groups were agreed on the importance of preserving "fry", and each accused the other of destroying them. In fact, the small-meshed sweep nets must have caught many parr and smolts, the latter being difficult to distinguish from trout, and as the salmon fishers were allowed to keep trout and other small fish as a perquisite, this would have encouraged the use of small-mesh nets[18].

It will clarify matters if a distinction is drawn between those errors in the interpretation of the natural history of the salmon which were genuine and those which derived from partiality. The most significant genuine misunderstanding was shortening the freshwater component of the salmon's life cycle. This allowed the belief that a very large number of "fry" descended unscathed to salt-water. It was not stated outright that they were not subject to depredation while in the sea, but it was only known for sure that they were harried by natural predators when they returned to the estuaries. This gave rise to the beliefs about "myriads of salmon". Of a more partial nature was the identification of a stock of "non-breeding" salmon which remained in the sea and venturing occasionally into the estuaries. If the "myriads of salmon" were accepted, then it followed that this "non-breeding" stock could be drawn upon *ad libitum* with no detrimental effects upon the river fisheries. This case was put by the estuarial faction and was disputed by the river faction who, in particular, jibbed at salmon entering the estuary with no intention of ascending the river. The difficulty for the river interest was to make credible, for fish not visibly in spawning condition, their assertion that all salmon were heading for the river to breed. The partiality of the estuarial witnesses was most apparent on whether the stake nets were or were not a barrier to ascending fish, and on the evidence about the effects of the stake nets on the river

fisheries. In both these cases they sought to contradict some very persuasive statistics (see figure 4.1, p 105). Both parties were agreed on the need to protect "fry" and kelts. The stake nets were a threat to neither, but as parr and smolts were not at the time (probably quite genuinely) recognised as being the young of the salmon, they were captured in the sweep nets as a perquisite of the salmon fishers. In spite of claims to the contrary, kelts were another perquisite of the salmon fishers at the net & coble fishing. Thus the activities of sweep nets must have had a considerably adverse effect on parr, smolts and kelts.

II - The Close-time

The extent to which all parties on the Tay had become concerned about conservation of the salmon stock is illustrated by the attitudes displayed in their evidence about the beginning, close and duration of the fishing season, though here too attitudes were biased by adherence to sectional viewpoints. According to its terms of reference, the 1824 Select Committee was required to investigate the annual close-time, otherwise known as the "fence-months" or "forbidden-time", i.e. that period of the year during which fishing for salmon by both net and rod was illegal. Prior to the Act of 1828, the annual close-time had been fixed by an Act of the Scottish Parliament of 1425 (and possibly from before then) as from "the Feast of the Assumption of our Ladie quhill the Feast of St Andrew in Winter", that is from 15th August to 30th November, new style. These dates were not, however, strictly adhered to as, quite apart from poaching, local variations were observed according to whether a river was regarded as "late" or "early". For example, the close-time on the River Tay prior to 1828 was from 26th August to 10th December. The lateness or earliness of a river was purported to be a reference to the time of spawning on that river, though the 1824 Committee found no evidence to suggest that there was such variation between rivers. The Committee's opinion was that the distinction between an "early" and a "late" river was not the time of spawning, but the time of year when "clean" fish again entered the river[19], and this concern derived from the "natural rapacity of mankind"[20]. Proprietors observing clean run fish entering their river at a relatively early time would claim theirs was an "early" river in order to have access to these fish. The Report cited the example of the Tay in this respect: at those few stations strategically placed for catching early spring fish the very high prices

which they could command in the market made the expense of an early start to the season more than worthwhile.

The conflict between the estuarial and river parties in relation to the close-time concerned both the starting and closing dates. While clean fish could be caught in the upper river from January onward, the estuarial fishings were not worth fishing until about the month of May when the grilse arrived. On the other hand, at the end of the season, while there were few fish worth catching in the river, some of the following year's spawners would be in the estuary waiting for the "Lammas Floods" to allow them access to the river. Thus it was in the interest of the river tacksmen and proprietors to start the season in say January and close at the end of July, while those in the estuaries would seek an opening to the season in May and a close nearer to September. Making the case for the stake net tacksmen, John Halliday argued that because the season started too early "immense numbers" of kelts were caught during February and March, "in the upper parts of the Tay there must be thousands taken annually."[21] Kelts were not saleable as salmon *per se*, though they could be processed to make them acceptable in certain markets[22]. Halliday's point was that if such fish were allowed to return to salt-water they would revive and perhaps return in future seasons. He thought that the end of the close-time should be extended to the beginning of April and the beginning of the close-time be 10th September, a recommendation based on the belief that there would be a sufficient supply of breeding fish left in the rivers after that time[23]. Much the same testimony was given by George Little, of the Little & Company[24], who claimed that the situation was exacerbated by tacksmen allowing their employees to take kelts as a perquisite, which they then sold to persons in Perth who specialised in dealing in foul fish[25].

A contrary opinion was put by Robert Buist in his evidence to the 1827 Committee. Questioned about the productiveness of the river fisheries at the start of the season, Buist stated that in "December and January it is not productive; it just a little more than pays the wages."[26] However, he thought that the fish taken during these months were of better quality than those taken in March or April, and commanded a higher price[27]. It was Buist's opinion that the end of the close-time should be moved to the middle of January. If this were done, Buist recognised that such an extension would mean that those fishings which could catch early spring fish would lose, but this "sacrifice" would bring a "permanent advantage to the fishery". He also thought that the close-time should remain different for different rivers, as in the Tay there were fine fish in December and January, while the South Esk which had none until February.

A less partisan view of matters concerning the close-time is to be found in Dr Fleming's evidence. He thought that the 10th of December was too early to start the fishing season as at that time the sweep nets could still disturb the spawning beds and interrupt the kelts and "fry" during their progress to the sea. As a naturalist, and bearing in mind the conditions that would produce the greatest quantity of fish, he thought that the close-time should be from the 1st August to the 1st May. By limiting the fishing season to three months only (May, June and July), he thought that because of the greater protection of the species there would be a much greater quantity caught. Dr Fleming admitted that other economic considerations might lead to a recommendation for a longer season. If that were to be the case, he thought the alteration should be at the beginning of the netting season rather than starting the close-time later than 1st August[28].

The associated matter of the weekly close-time or "Saturday slap" was also discussed by Buist. In 1827 the legal slap was from midnight Saturday to midnight Sunday, though Buist stated that his company never fished after 22.00 hours on the Saturday. A suggestion by the Committee that the slap might commence at 20.00 hours on the Saturday was not favoured by Buist on the grounds that it would damage the valuable river fisheries in the tideway. He claimed that such a restriction could result in a whole "tide" being lost, and as it was possible for a shoal of salmon to pass completely through the tideway within the space of one "tide", such shoals would be lost to the fisheries[29]. The division between the river and estuarial interests is again evident in the matter of the close-time. Both sought an alteration, but an alteration that would suit best their own interests. The natural history deployed in evidence was carefully selected to make a particular case rather than to produce general enlightenment.

III - The Modes of Fishing

The greatest area of conflict among the views expressed to the two Committees concerned the relative effects of net & coble and stake net modes of catching salmon, and each side was concerned to condemn the mode used by the other. According to the stake net tacksmen, in the early part of the year the ground rope of the sweep net damaged the spawn of the salmon on the redds, seriously threatening the progeny. John Halliday in his evidence to the 1824 Committee claimed that he had observed the net being dragged over a redd and causing a great destruction of the spawn[30]. The evidence given by Robert Buist was, needless to say, not in accord with the stake net proponents. He did not see how the ground rope could disturb the redds, and all attempts by the members of the Select Committee to get him to admit that the ground rope, however weighted, might disturb the redds were to no avail[31].

The case for the stake nets was made at length in the two anonymous polemics referred to in Chapter Five[32]. The *Inquiry* of 1827 summarised the arguments in favour as follows:

i. stake nets allowed fishing to be carried out at locations, including the sea coasts, where catching salmon would otherwise be impossible.

ii. There would be a great increase in the number of salmon coming to the market each year if stake nets were allowed.

iii. The use of stake nets in estuaries could be extended to many more places than were tried prior to 1812 (e.g. on the Tay), and there was scope to improve their efficiency.

iv. Using the "myriads" of salmon assertion, it was stated that "the fish taken by stake nets, in the salt-water, are almost wholly a direct gain to the public; and are not fish which would necessarily go to the rivers and be there taken for the use of man."[33]

v. By their location in the firth they could not affect the spawning beds, as did the ground rope of the sweep nets, nor did they detain the "fry" when they descend to the sea.

These were commercial arguments concentrating on the increase in the salmon catch to be gained by employing stake nets. On the other hand, the stake net proponents were aware of the case made by their opponents which claimed that through the efficiency of the stake nets, the salmon stock might be reduced by over-fishing. Their answer was that if this possibility arose, it would be up to the legislature to take protective measures, and these should apply to ***all*** modes of fishing. "In the view of the legislature, all classes are the same; none is entitled to favour at the cost of another. If, therefore, there be a danger of ***over-capture***, let ***all*** classes be ***partially*** restrained[34]." The estuarial interest, however, sought to detract from any admission that there might be over-fishing by deploying the "myriads of salmon" argument[35].

A more telling criticism of the net & coble mode was made by Sir George S. Mackenzie of Coull, though he was not referring specifically to the Tay[36]. It was his opinion that the most destructive factor to the breed was killing the spawning fish. He suggested that the ground rope of the sweep net should not be weighted until after the "fry" and kelts were clear of the rivers. He had also observed that the sweep nets were worked 24 hours a day "with several nets overlapping each other, and one left to hang in the water", in effect presenting an impenetrable barrier to the ascending salmon. His remedy to this was that no netting should take place between sunset and sunrise, and that at the end of one shot another should not be rowed within 100 yards until twenty minutes had elapsed. To avoid catching "fry" the mesh of the sweep nets should be at least two inches from knot to knot. Where one proprietor owned both

banks of a river, the sweep net should not be longer than three-quarters the width of the river; and where he owned only one bank, the length should be not more than two-thirds the width of the river[37]. Mackenzie's case was stronger because it was not entirely negative, but set out remedies to the perceived faults.

Mackenzie was even-handed in his criticisms of the two rival modes of fishing. He thought the stake net undoubtedly injurious to the salmon "fry" at the mouths of narrow rivers (not the Tay), but, if the net was kept properly stretched, there was no reason why the "fry" should be caught. Also, if the stake nets were not permitted to be erected until May, then most of the "fry" would have left the river. Mackenzie subscribed to the concept of salmon "belonging" to a particular river, meaning that each would ultimately return to its natal river to breed. Thus each and every fish taken in a stake net was "lost" to the river. He underlined his disagreement with the "myriads" case by stating quite categorically that he thought the fisheries would be ruined by overfishing if the stake nets were extended to all places round the coasts suitable for them. However, some extension of the coastal netting would be acceptable, provided that the policing of the rivers was made efficient[38]. Mackenzie's evidence is unique in its commonsense and freedom from partisanship.

IV - Parliamentary Conclusions

The conclusions of the 1824 Committee were set down in the form of a number of Resolutions submitted to the House of Commons on 30th March 1825. In summary, the resolutions are as follows:

i that the produce of the salmon fisheries of the United Kingdom had been decreasing rapidly for many years and, would continue to do so unless remedial action were taken promptly.

ii That the annual close-time should be extended and should be uniform throughout the United Kingdom.

iii That the possession of, or sale of salmon during the close-time should be an offence.

iv That the weekly close-time should be extended so that it ran from sunset on Saturday until sunrise on Monday.

v That there should be a penalty for the molestation of salmon on the redds during the annual close-time.

vi That mill lades should have protective gratings to prevent fish getting into the machinery.

vii That no noxious effluents be allowed to enter rivers or streams.

viii That "burning the water" be made illegal.

ix That mesh sizes be regulated.

x That each river system should have a body of watchers to see that the law was enforced. These to be paid for by the proprietors and tacksmen.

xi That the process of law be changed to allow the summary conviction of offenders.

xii That a Bill containing these resolutions be prepared for submission to Parliament.

The Committee's opinion on what was happening to the stock of salmon was made quite clear in their first resolution, and it is equally clear that they were convinced of the need to take positive steps to halt the perceived decline. Among the specific resolutions, the majority followed naturally from the evidence submitted, and were in the general interest. However, numbers six and seven implied that interests outside the salmon fisheries might be adversely affected, i.e. those of industry. The more controversial recommendations affecting industry were returned to in the *Second Report*, published on 3rd June 1825. Comparing the 1824 Committee's resolutions with the Bill for the River Tay promoted by the river proprietors in 1823 (*supra* p 152), it is evident that the spirit of the two sets of proposals was very similar, as central to both was a concern for the salmon stock. One difference was that whereas the Tay Bill had specific proposals for the dates of the annual close-time, the parliamentary proposals went no further than uniformity of (unspecified) dates throughout the United Kingdom. However, the river proprietors would have had little to complain of had the parliamentary proposals been enacted as mooted.

A particular matter mentioned in the Committee's *Second Report* was the need to do something for the interests of the upper river proprietors. It was thought that unless those proprietors were allowed to take, "some proportion of the countless multitudes of fish ***which their care and protection may bring to life*** (my italics), it is in vain to expect that such care will be exercised, or any protection will be given,"[38]. In other words, the upper proprietors had to be offered a *quid pro quo* to gain their co-operation in the protection of the breed. This is the first recorded instance of recognition of a tripartite division of the Tay.

The crucial matter of modes of fishing was not mentioned in the First Report, and no opinions were expressed in the Second Report beyond a hope that the matter might be taken up in future sessions of Parliament. The stake net controversy was thus left unsettled. As this was, for the Tay, the central controversy from which most of the others sprang, this was a serious omission. It was perhaps a conflict incapable of being resolved at the time, as the interests of the river and estuarial groups were almost diametrically opposed. If, as Sir George S Mackenzie suggested, all fish taken in the stake nets were a loss to the river fisheries, then the implacable attitude of the river proprietors to stake nets is understandable. But the "all or nothing" outcome of the Stake Net Cause had left the estuarial group with a sense of grievance which had in no way abated prior to the inquiries of the 1824 Committee, and which their *Report* did nothing to allay. A solution would have involved a compromise between the two groups, for example the legalising of some effective form of netting in the estuary, with a balance between the river and estuarial fisheries maintained by a representative body. Such an idea had been put forward by Mackenzie when he suggested a central board of commissioners at national level, but the 1824 Committee in their Report fell well short of this[40]. In spite of recognising the need to offer a *quid pro quo* to the upper river proprietors, the conclusions of both the 1824 and 1827 Committees failed entirely to give practical recognition to the emergence of the third group of interested parties formed by the upper river proprietors. It is thus clear that the resolutions put forward by the 1824 Committee would not have solved all the problems facing the salmon fisheries of the River Tay, though they would have done much good had they been enacted as proposed.

As things turned out, the failure to resolve the split between the upper and lower heritors proved disastrous for the passage of the Bill through Parliament. The conflict waged between the estuarial and river interests during the various readings wrecked the Bill almost completely. A description of events prior to the 1828 Act from the point of view of the river interest explained that:

> the stake net proprietors raised such a pother about the natural advantages that would result in the shape of an immensely increased take of salmon, from the stake nets being planted in the estuaries of rivers, that a parliamentary inquiry on the subject was the consequence; and in 1827 a Bill was actually introduced with the object of legalising them, but it was thrown out. In 1828 Mr Home Drummond's Bill for the protection of the river fisheries became law. But here again the evil influence of the stake net interest was felt. The Bill would not have been allowed to pass at all, unless Mr Home Drummond had consented to extend the period of net fishing ... an extension which proved most detrimental to the Tay, already sufficiently prejudiced by the existence of the stake nets on the coast.[41]

Because of the parliamentary infighting, what finally appeared on the Statute Books was but a tattered remnant of the proposals made by the two Committees. The ***Salmon Fisheries (Scotland) Act, 1828,*** (9 Geo. IV. c. 39), commonly called the ***Home Drummond Act***[42], dealt with nothing more than the close-time, formal powers to establish a force of watchers, and penalties for poaching. The most positive result was that the new penalties for poaching were such that the courts would enforce them, and this allowed proprietors to procure successful prosecutions with their legalised force of watchers. But the alteration in the annual close-time was less successful. The annual close-time was altered to run from 14th September to 1st February, the Saturday slap staying the same. This meant that the duration of the close-time was increased from 107 to 139 days, but the time was added at the *end* of the fishing season when the run of spawners to the rivers was at its greatest, and taken away from

the beginning of the season when the number of fish in the rivers was much less. This was more damaging to the salmon stock than the *status quo ante* as it allowed more fish to be taken. It gave no concessions to the upper river proprietors, such as an extension to rod fishing after the end of net fishing, and so there was no inducement for them to take more steps to protect the spawners on the redds. From the outset, the ***Home Drummond Act*** was regarded as unsatisfactory by all parties, but another thirty years were to pass before there was further legislation affecting the salmon fisheries. In terms of the River Tay in particular, the ***Home Drummond Act*** solved nothing. There were no grounds for compromise between the different factions, and the fisheries as a whole continued to be subject to increasing pressures, an opportunity had been lost. The blame for this parliamentary fiasco must be laid at the door of the warring factions. Had there not been dissension among the interested parties, there would not have been rival Bills, and the proposals of the 1824 and 1827 Committees might have entered the Statute Books to form worthwhile legislation. Rather less intransigence would have allowed a better Bill.

REFERENCES

1. The first of these was The Select Committee on the Salmon Fisheries of the United Kingdom (1824 Committee). Evidence was taken by this body during 1824, and its Report was published in three parts: the *First Report* on 17th June 1824, the *Second Report* on 30th March 1825, and the *Third Report* on 3rd June 1825. The recommendations of the 1824 Committee gave rise to a Bill, but prior to its enactment, The Committee on the Bill for the More Effectual Preservation and Increase of the Breed of Salmon, and for Regulating the Salmon fisheries, Throughout Great Britain and Ireland (1827 Committee) also heard evidence and issued a *Report* on 31st May 1827.

2. Present day understanding of the habits of salmon would be favourable to the river tacksmen's case. Though the salmon might linger for considerable periods in the estuary, moving up and down with the tides, yet whatever the time of year, they would be ultimately intent upon ascending the river system to breed at the appropriate season.

   See Chapter 4, note 28.

3. The Reverend Dr John Fleming (1785-1857) was minister of the Parish of Flisk in the County of Fife, to which charge he had been appointed in 1811. He had previously conducted a mineralogical survey of the Northern isles on behalf of Sir John Sinclair and his *Economical Mineralogy of the Orkney and Zetland Islands*, was published in 1807, about the same time he was appointed minister at Bressay in the Shetland Islands. His interest in fish preceded his move to the banks of the Tay, for while at the University of Edinburgh he had studied the Ichthyology of the River Forth and had written an article on Ichthyology at the request of Dr Brewster

for inclusion in the *Edinburgh Encyclopedia*. After his translation to Flisk "many papers on local natural history and cognate topics were written for the learned societies, and Fleming soon became known as the first zoologist in Scotland." In 1822 he published his *The Philosophy of Zoology*, which gave an account of the structure of animals, methods of classifying animals, and the laws which regulated the habits of animals. This was followed in 1828 by *British Animals*. In 1832 he was presented to the parish of Clackmannan by Lord Dundas and in 1834 he was appointed to the Chair of Natural Philosophy in the King's College, Aberdeen University. When the Disruption occurred in 1843 he joined the Free Church and thereafter accepted the Chair of Natural Sciences at Free Church College, Edinburgh.

The Select Committee were given to understand, and appeared to have accepted that Dr Fleming testified; "solely as a naturalist, and as a disinterested individual," i.e. he did not represent either the estuarial or the river interest, though his evidence does appear to favour the estuarial case.

Second Report, p 63. *DNB*.

4. *Second Report*, p 70.

5. *ibid.* p 81.

6.

> From what I have stated I have no manner of doubt whatever, that every salmon found in the sea, whether in estuaries or in the ocean, belongs to some river or other, ... The conclusion is, that stake or other nets in the sea deprive some river or rivers of as many fish as they take, ... It has been said that stake nets intercept but very few salmon that would go into a river; that most of those taken would have been devoured by porpoises and seals, or have gone out to sea again, and been lost. Granting the first allegation to be true, it is not an argument in favour of stake nets, but a powerful one against them; for it is absurd to suppose, that because seals and porpoises are deprived of what they would have eaten, they would refrain from pursuing salmon. They are only driven by this deprivation to devour what would have escaped them had the stake nets been out of the way; and thus

> all the salmon taken in a stake net are a clear loss to the rivers, which cannot make it up as the seals and porpoises do. With respect to the other allegation, that the stake nets catch only such fish as would go out to sea and not enter the rivers, I do not believe it. It is attempted to be proved by fish being caught both during the flow and the ebb of the tide. This, however, proves nothing; because the salmon do not all make directly in a straight line, for the river, but swim in all parts of the estuary indifferently. If they did not, but kept to the main channel, they would never come to the stake net at all. ... and when they do enter a river they will not leave it, if they be not removed, until after they have deposited their spawn.

ibid. Appendix 3, p 23.

Sir George Steuart Mackenzie of Coul (1780-1848), is mainly remembered as a mineralogist. He first came to notice in the scientific world in 1800 when he obtained "a decisive proof of the identity of diamond with carbon." In 1810 he travelled to Iceland with the purpose of studying the mineralogy and geology, and 1811 published ***Travels in Iceland***, of which he was joint author along with Sir Henry Holland and Dr Richard Bright. "Although the scientific portions of the book have long been superseded, it contains much information of permanent interest on the social and economic condition of Iceland." Mackenzie also wrote a ***General View of the Agriculture of Ross and Cromarty***, published in 1813, and many articles on a wide range of subjects. He was elected FRS and FRSE.

D.N.B.

7. ***First Report***, p 28.

8. John Halliday in 1824 was a salmon tacksman with over forty years experience in places like the Solway, the Forth and the Tay. He also had coastal fishings near St Cyrus, as well as other fisheries in England and Ireland. He had come to the Tay in 1797 where he had taken tacks in conjunction with the Little & Company as well

as on his own account. His house was on the north shore of the Tay. He had conducted a survey of the salmon fishing around most of the coast of Ireland, "in that particular year in which Lord Kilwarden was taken out of his carriage in the streets of Dublin, and killed." (1803). After being excluded from the estuaries, he, with two of the Little brothers had done a survey of the east coast of Scotland, north as far as the Dornoch Frith, and south as far as the River Coquet in Northumberland looking for alternative locations to set up stake nets.

9. *First Report*, p 71.

10.

> Fecundity in terms of numbers of eggs per lb weight of parental female is now only used to provide an approximate estimate of egg production. Fork length is now considered a more suitable criterion and formulae have been calculated to estimate egg production of females on a number of Scottish rivers - the Tay, however, is not included.
>
> If you wish to use weight as the criterion, then a range of 500-800 eggs per lb of female salmon would be reasonable although we do have evidence of figures both greater and lesser than that range.

Private communication from Gordon Struthers, Esq., Freshwater Fisheries Laboratory, Pitlochry, 29th November 1987.

11.

> From studies of salmon smolts and adults on the River Tay system, the majority of smolts are 2 or 3 years old, with the younger group most numerous. As you might expect, age composition varies from year to year and, indeed, there are also likely to be differences between tributaries, and between the tributaries and the main river.
>
> The main smolt migration into the estuary occurs mainly in May and June by which time the young salmon will have put on current year's growth. As the precise "birth date" [hatching] of the young salmon in the wild is unknown, it is impossible to state the actual age of a smolt in terms of years, months and days - however, at the time of emigration, it would be reasonable to suggest that the majority of smolts in the Tay would be of the order of 26 months [2 year + smolts] and 36 months [3 year + smolts] of age.

Gordon Struthers, Esq., *ibid.*

12. *Second Report*, p 67.

13. The number of smolts returning to their natal river is estimated to be in the region of 0.06%, see p 15.

14. *An Inquiry into the Present State and Means of Improving the Salmon Fisheries: Including a Digest of the Evidence taken by a Select Committee of the House of Commons*, London, 1827,Chapter 1, section 5.

15. *ibid.*

16. An example of this mode of thinking is provided by John Halliday the stake net tacksman. He was of the opinion that there would still be plenty of fish left for breeding purposes "even after the 15th of September" (one of the proposed starting dates for the annual close-time), provided that this date was observed. This was because, he estimated, an average of 18,000 fish came to the London market (illegally) each year after the 15th of September. If each pair of fish produced progeny amounting to 12,000, "which is making a very great allowance for what might not come to perfection," then this would increase the number of salmon and grilse about 108 or 110 million.

First Report, p 81.

17. *Second Report*, p 67.

The following extract is a more modern description of the behaviour of descending smolts.

> Capture of Smolts
>
> ... the maximum intensity of salmon smolt migration was in the fifth week [11th to 16th May], ...
>
> Migration Factors
>
> The descending smolts hang at certain ascertained points before running down to the salt water; the arrival at, and departure from the higher waiting points is more gradual than with those in the lower reaches, where a shorter halt is made. The halts do not seem to be largely influenced by variations of current velocity, and temperature gradation is the

> suggested governing factor for the selection of any general zone, the actual point at which smolts hang being governed by the local physiographical conditions.
>
> Subject to the conditions of temperature being no longer adverse, storm appears to be a favourable factor for smolt descent, ...

John Berry: ***Report of an Investigation of the Migration of Smolts in the River Tay during Spring 1931***, HMSO, 1932.

18. See also the evidence of Sime and Shepherd, Chapter Four, note 14. Asked about the fisherman keeping foul fish, Buist said that for the previous (to 1827) five or six years there had been an agreement with the salmon fishers that all foul fish were to be thrown back, otherwise the men were to be dismissed. This was of course an admission that foul fish ***had*** been kept before that. Buist was of the opinion that "nature pointed out the first of September" as the date to commence the close-time.
1827 Committee, p 8.

19. A "clean" salmon is one that has recently entered fresh water and has not lost the silvery sheen on its scales. A clean fish entering the river in January or February would not spawn until the subsequent spawning season.

20. ***An Inquiry***, p 48.

21. ***First Report***, p 83.

22. See ***infra*** note 25.

23. See ***supra*** note 16.

24. In 1824, George Little's address was given as; Coleraine, Ireland. At the time he was tacksman of the River Bush in Ireland, and part of the Nith in Dumfries-shire. As a salmon tacksman he had worked on the Solway and the rivers Nith, Annan and Esk that run into the Solway. On the east coast, the rivers Tweed, Forth, Tay and Spey. In England the River Lune in Lancashire and the River

Eden in Cumberland. He had also fished many rivers in Ireland.

25. One of the witnesses in the Stake Net Cause had been a Mrs Bell(e) Hood, Perth, wife of Charles Alexander of the 42nd Regiment, dealer in kelts and foul salmon.

1810 Evidence, p 85.

On the subject of foul fish, John Johnstone of Balmerino explained that they were "generally kippered, sometimes salted, or sold fresh in the country wherever they could be sold; sometimes they are put into kits and sent to London."

First Report, p 55.

26. 1827 Committee, p 3.

27. Buist quoted the following prices to illustrate the latter point:

February, 2s. 6d. to 3s. per lb

March, 1s. 6d. to 2s. per lb

April, 1s. to 1s. 6d. per lb

ibid. p 8.

The London fish salesman, Henry Goter, commenting on the variations in the quality of salmon throughout the season, considered that the quality of the winter fish was very good, particularly those caught in February. He thought salmon in season (i.e. saleable) until September, but the quality fell off after March. The number of salmon he received kept on increasing from the beginning of the season until the month of July.

ibid. pp 9-10.

28. *Second Report*, pp 76-78.

29. 1827 Committee, p 20.

30. 1827 Committee, p 6.

He explained that the sweep nets were constructed so that the ground rope was about a fathom and a half (9 feet) shorter than

the top rope. Thus when tension was applied to the net the ground rope pressed forward, acting as a dredge. Halliday also claimed to have seen "fry" caught in sweep net.

First Report, p 66.

31. 1827 Committee, p 6..

32. Chapter Five, note 26.

33. ***An Inquiry***, 1827, p 123.

34. ***ibid.*** p 159.

35.

> The truth is, however, that there is no hazard of over-fishing, although all the powers of man be exerted, provided only that the fishing be confined to the proper season, and that the breeders and the spawn be protected.
>
> To those ignorant of the natural history of the salmon, it may at first sight be alarming to contemplate the almost boundless extent of fishery which is promised by the use of stake nets. But when the extraordinary productive powers of the fish are considered, the veriest alarmist must be satisfied that all the efforts of man, *in proper season*, can have no perceptable effect upon the stock. ... When it is considered that the roe of a single salmon yields 18,000 *ova*, all of which are deposited in the gravel, how insignificant does the produce of all our fisheries appear when compared with the numbers which must be produced! How many thousands of spawning fish are annually depositing their spawn in every considerable river! What myriads of young fish are seen to descend every spring!
>
> No doubt, the vast numbers of fish, both in a young state and when full grown, are destroyed by marine animals and by the recklessness of man. But that very fact demonstrates the folly of contemplating with dread the consequences od any extent of fishery within human power. A very few parent fish, if their spawn and their young brood were protected, would yield more than all that man can ever destroy. His share bears a proportion almost imperceptable to the myriads which are produced; ...[1]

Relating these conclusions quite specifically to the River Tay, the ***Inquiry*** concluded:

> It appears accordingly, to be very doubtful, whether there *was* any considerable diminution even in the river Tay, although so great a quantity of fish were taken in the estuary of the river. ... There appears little reason to doubt, that the river fisheries in the Tay, during the time of the stake nets on that estuary, caught nearly all the salmon they would have caught although no such net had ever been erected. ... *the*

> *produce of the stake net fishing is almost wholly, a positive gain to the public.*[2]

1. *ibid.* pp 161-162.

2. *ibid.* pp 144-149.

36. Mackenzie was a proprietor of river fishings in Easter Ross, but he also had property on the coast of Wester Ross which was reputed to be suitable for stake nets, though they had not been tried there. He assured the Select Committee that his opinions were formed *before* he knew of the potential for stake nets on his property.

37. Mackenzie thought too that watchers should be employed during the close-time, financed partly by an assessment on rentals, partly by a duty on salmon brought to the markets, and partly from the public purse. He further thought that the regulation of salmon fisheries should be put in the hands of a central board of commissioners with powers to enforce the laws, appoint watchers, and make local regulations.

38. *Second Report,* Appendix 3.

39. *ibid.* p 4.

40. See *supra* note 37.

41. *Venator,* "Notes on the Tay Salmon Fisheries", *The Field,* 17th October 1868.

Also:

> It is difficult for us now to conceive what led to dissatisfaction with the close-time that had subsisted for 400 years, and to the adoption of what turned out to be a perfect revolution in the salmon fishing of the Tay, and succeeded in reducing the rental below £8,000. It has been said that the provisions in the Bill for establishing a police force for protection of the river could not have been agreed to unless there were the concession to some people who wanted an extension of the autumn fishing to 14th September, ...

John Dickson: *Memorandum,* no. 3, p 2. Leys, bundle 191.

42. Henry Home Drummond (1783-1867) was M.P. for Stirlingshire 1821-1831 and for Perthshire 1840-1852. He was the son of George Home Drummond and the grandson of Henry Home, Lord Kames. He was called to the Scottish Bar and was a director of the Royal Bank of Scotland. "A Conservative, but in favour of free trade." ***Who's Who of British Members of Parliament,*** vol. 1, 1832-1885, Sussex, 1976.

CHAPTER SEVEN

Increasing Pressures

I - Improving the Navigation

Deepening the River Tay in order to increase the size and number of vessels using Perth harbour cannot be regarded as a matter of primary concern to a study of the Tay salmon fisheries. However, the operations undertaken to improve the navigation inevitably had an effect upon all river interests and the activities of the Navigation Commissioners (also called the Harbour Commissioners) will be examined to the extent that they affected the salmon fisheries. Although over twenty miles from the sea, Perth had always been a significant port. The shallowness of the Tay, however, was a problem, one which became more serious from the beginning of nineteenth century with the advent of larger ships. Additionally at that time, the port of Perth came under threat from new harbour facilities at Dundee and, slightly later, the Dundee and Newtyle Railway which opened in 1832. These offered the traditional hinterland from which Perth harbour drew its trade, the agricultural area of Strathmore, an alternative outlet to the sea[1].

The shallows occurred in two places: the sandbanks in the firth (though the scouring action of the current at low water always ensured at least one navigable channel, albeit one that frequently changed its location): and more seriously the fords and other obstructions in the river between Mugdrum Island and Perth. Perth Town Council were both aware of and concerned about these barriers to shipping, and as early as 1819 had commissioned a report on the subject of the "fords"[2]. From this Report it is clear that there were two aspects to improving the navigation on the Tay: first to deepen the channel by scouring or dredging, and second to remove obstructions such as fishing cairns and

dykes, requirements that immediately suggest conflict between improvement to the navigation and the interests of the fisheries[3].

The Council's mounting concern with the navigation was shown during 1821 when they sought advice from counsel on what legal action they might take to stop the practice of building cairns by tacksmen seeking to improve their fishings[4]. Concern with the navigation extended further than the Council Chamber, for in the same year the Council received a letter from Lord Wemyss' agent suggesting that Balhepburn Island should be joined to the south shore, "to the benefit of both the navigation and the salmon fishing."[5] It is not clear why joining Balhepburn to the shore would have improved the fishings, but the navigation would have benefited from narrowing the river by blocking off one channel and increasing the scour of the current in the other, a principle successfully employed on the River Clyde since the 1770s[6]. The pressure for action was maintained in the following year when the Council received a petition from merchants and shipmasters requesting an improvement in the navigation, in particular the removal of the Weel Ford at Perth which had an average depth of only eighteen inches at low water[7].

The Town Council's enthusiasm for improvement to the navigation was, however, tempered by doubts as to the effect such works might have on the salmon fishings and, in particular, the reaction of the fishing proprietors. In 1825, for example, the Council noted that Lord Gray's fishings were adjacent to where the channel would be deepened, and were concerned that if these fishings were injured a case for damages might result. "Anxious as they are for the prosperity of the Burgh and improvements of the navigation, the hazards of encountering such claims is so great that they will be under the necessity of relinquishing their intentions, in case they cannot carry their operations into effect without

the chance of trouble on the part of the fishing proprietors."[9] The Town Council's disquiet about the response of the fishing proprietors was quite justified given their generally unco-operative attitudes on previous occasions when their fishings had been affected in any way. Thus in spite of Lord Wemyss' suggestions about Balhepburn, the reaction of the fishing proprietors to the proposals for deepening the river was in general antipathetic[9]. The Town Council rehearsed its case against the objections in a ***Memorandum as to Objections to Perth Navigation Bill and evidence required to meet the same:*** while recognising that there would be problems with regard to the fishings, the final opinion of the ***Memorandum*** was that the difficulties were not insurmountable and, in fact none were sufficient to stop the impetus for improvement[10].

The initiative continued with the issue of a document entitled ***Suggestions as to the Course Proper to be Adopted by the Magistrates & Town Council of the City of Perth, in Exercising Their Powers in Regard to the Navigation of the River Tay, and Checking Encroachments on Their Vested Rights in Relation Thereto, 1833,*** in which the Town Council continued to express concern about the difficulties of navigation in the Tay, this made clear that the Council considered the right of free navigation ***to be paramount over the rights of fishing proprietors*** (my italics)[11]. The right of free navigation, the Council insisted, "may be exercised without providing indemnification for any consequential injury such fishings may thereby sustain."[12] Despite this statement, the ***Suggestions*** continued thereafter in a more placatory vein observing that there might, however, be a moral duty to observe the interests of others. Although required to maintain the navigation as an obligation of its grant of Free Port, Harbour and Navigation, the Town Council recognised that this should not be detrimental to the general interest. Within the limits of the Town's jurisdiction, the prosperity of the salmon fisheries

should not be adversely affected as this would be contrary to the prosperity of the Burgh. The salmon fisheries added to the prosperity of the shipowners, as well as providing local employment, and the Burgh owned salmon fisheries from which they derived one-fifth of its annual revenue. For these reasons, the *Suggestions* accepted that it was best to proceed with the concurrence of all parties'[13] The Town Council was in reality a body with a foot in both camps, a fact which helps to explain the ambivalence of its public statements: while it was interested in having the navigation of the Tay improved with as little opposition and impediment as possible, it also recognised that the interests of the Burgh and of the community at large, to say nothing of a group of very influential landowners, depended to a considerable extent upon the prosperity of the salmon fisheries, and there was little point in improving the navigation to the detriment of the fisheries.

Having set down the parameters within which the Council hoped to operate, the *Suggestions* proceeded to list various actions to be carried out, during which the Council would adopt as their motto, *suaviter in modo sed fortiter in re* (gentle in manner but resolute in deed)'[14]. One novelty was the intention to employ a steam dredger for deepening the river, a method which, it was believed, would be quicker, would scare the fish less, could work at states of the tide when the fisheries could not be fished, and would be cheaper'[15]. Inquiries had revealed that the fishings, rather than being damaged by the dredging operations, might instead be materially improved. Evidence to this effect was provided in letters from John Gibb, Engineer to Aberdeen Town Council, and John Clark, Superintendent of the Clyde Navigation, both of whom testified that dredging would not harm the fish'[16]. Thus the Town Council and subsequently the Navigation Commissioners (fourteen of whom were members of the Town Council) were at pains to see that the interests of the

salmon fisheries were looked after during the dredging operations. Their spirit of obligation, if that is what it was, was not returned by the fishing proprietors.

The first piece of legislation designed to improve navigation on the Tay was passed in 1830, but it suffered from the considerable controversy that had surrounded its passage through Parliament and was as a result largely ineffective[17].

> unfortunately, the bill was so defective, that the operations under it were confined between the Friarton-hole, and an imaginary line, drawn 450 yards below the County-buildings [roughly the length of Moncrieffe Island], without any reference to the fords below; although it was well known that these fords had become an almost insuperable bar to the navigation of the river. During the progress of the bill in Parliament, in consequence of the numerous objections that were started, and the opposition given by each party to their antagonists' views, as well as from those connected by the fishings, or otherwise with the river, an immense expense was incurred.[18]

The *1834 Act* was more practicable, though Penny noted:

> This bill met with much opposition from the proprietors of the fishings, during its progress through the House of Commons, which involved the [Navigation] commissioners in much expense. A compromise which they were obliged to make with the fishing proprietors [see *infra*], has been the source of much delay and expense; and, in addition to these difficulties, they have been dreadfully annoyed and subjected to great expense, by the litigious conduct of the trustees on the estate of Moncrieff.[19]

This latter Act authorised the Commissioners appointed under the *1830 Act* to extend their activities to include building a dock or docks at Perth and to improve navigation on the Tay by joining the islands of Sleepless, Darry and Balhepburn to the mainland and by removing all obstructions in the main channel of the river as far down as the south deep between Mugdrum Island and the Newburgh shore.

The *1834 Act*, like its forerunner, allowed for compensation to be paid to proprietors or tacksmen of fishings adversely affected by the operations authorised by the Navigation Commissioners. This compensation was the means by which the opposition of fishing proprietors had ultimately been "bought off". There were two forms of compensation payment: one was to be paid annually during those years when the works were in operation for any loss due to the work in progress: the second was for any permanent loss and was not to be awarded until five years after the works had been finished. The formula for awarding compensation was rather complicated. The produce of the fishings belonging to any one proprietor was expressed as a proportion of the produce of the entire fishings of the River Tay from the mouth of the Isla to the sea (for details see table 7.1), both of these calculations based upon the average of the five years preceding commencement of the works (1830-1834). If the proportion of the produce of any proprietor's fishings fell below this benchmark during the years the works were in operation, then that proprietor was compensated for that year (see tables 7.2 and 7.3, pp 205 and 207). The rate of compensation was to be the average price of Tay salmon and grilse in the London market during the particular season, this figure to be provided by some of the local tacksmen. The same principle was to apply to permanent loss: if the average produce of a proprietor's fishings over the five years succeeding the completion of the works fell below that for the five years preceding the works, then he was deemed to have suffered a permanent loss and compensation was to be paid[20]. The *1834 Act* also increased the permitted borrowing by the Navigation Commissioners by a further £34,000 in addition to the £16,000 authorised under the *1830 Act*. Both these sums were ultimately guaranteed by the community of Perth. Then in a clause that gave a significant hostage to fortune (described by

Table 7.1

Estates and Proprietors Submitting Returns to the Navigation Commissioners 1830-1846

Upper River

Meikleour Estate, Parish of Caputh, Lady Keith and Nairne.
Stobhall Estate, Parish of Cargill, Lord Willoughby D'Eresby.
Bellymore Fishings, Parish of Kinclaven, John, Earl of Dunmore.
Ballathie Estate, Parish of Kinclaven, John Richardson.
Burnmouth Fishings, Parishes of Stanley and Kinclaven, Duke of Atholl.
Stanley Fishings, Parish of Stanley, The Stanley Company.
Balgowan Estate, Parish of Redgorton, Lord Lynedoch.
Mansfield Estate, Parishes of Scone and St Martins, Earl of Mansfield.

River

Kinnoull Fishings, Parishes of Kinnoull and Perth, Earl of Kinnoull.
*Friarton Fishings, Parish of Rhynd, Sir Thomas Moncrieffe.
*Burgh of Perth Fishings. Parishes of Perth, Kinfauns, and Rhynd.
*Kinfauns Estate, Parishes of Kinfauns and Rhynd, Lord Gray.
*Seggieden Estate, Parish of Kinfauns, J.R. Hay of Seggieden.
*Elcho Fishings, Parish of Rhynd, Earl of Wemyss.
*Inchyra Estate, Parish of Kinnoull and St Madoes, R. Crystal of Inchyra.
*Carpow Estate, Parish of Abernethy, Peter Hay Paterson of Carpow.
*Pitfour Fishings, Parishes of Perth, Kinfauns and St Madoes, Sir John S. Richardson of Pitfour.
*Mugdrum Estate, Parishes of Newburgh and Abernethy, David Balfour Hay of Mugdrum.
Murie Fishings, Parish of Errol, Miss Yeaman of Murie.

Estuary

Errol Estate, Parish of Errol, J. Lee Allan of Errol.
Balmbreich Estate, Parishes of Dunbog and Flisk, Lord Dundas.
Balmerino Fishings, Parish of Balmerino, Hon. A. Stewart.
Birkhill Estate, Parish of Balmerino, A. Wedderburn.
Naughton Estate, Parish of Balmerino, Mrs Morison of Naughton.
Woodhaven Fishings, Parish of Forgan, A.C. Stewart of St Fort.
Douglas Estate Fishings, Parish of Dundee, Lord Douglas.

Burgh of Dundee Fishings.
General Hunter.
Col. Fotheringham of Powrie.
Scotscraig Estate, Parish of Ferryport-on-Craig, Mr Dougall.
Hunter of Blackness.
Panmure Estate, Parish of Monifieth, Lord Panmure.
Seaside Estate, Parish of Errol, Mr Hunter of Seaside.

River Earn

Carie Fishings, Parish of Abernethy, Mr Ritchie of Carie.
Dunbarney Estate, Parish of Dunbarney, Mr George Clerk Craigie.
Freeland Estate, Parish of Forgandenny, Lord Ruthven.
Condie Estate, Parish of Forgandenny, Mr Laurence Oliphant.
Dupplin Estate, Parish of Aberdalgie, Earl of Kinnoull.
Elcho Estate, Parish of Rhynd, Earl of Wemyss.
Moncrieffe Fishings, Parish of Rhynd, Sir Thomas Moncrieffe.
Kinmonth Estate, Parish of Dunbarney, David P. Small Keir of Kinmonth.
Carpow Estate, Parish of Abernethy, Peter Hay Paterson of Carpow.

*Estates affected by the operations of the Navigation Commissioners and eligible to receive compensation from them.

Source: documents entitled, *State Comparing the Returns for (date) with the Average for the Five Seasons preceding 1835*, PE 25, various bundles.

Table 7.2

Produce Above and Below the Average of 1830-1834 (Eligible Estates)

	1835		1836		1837	
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse
Moncrieffe	-135	1048	32	257	-292	-347
Burgh of Perth	-861	-1621	63	-246	51	-868
Kinfauns	1076	2109	2237	1920	671	2273
Seggieden	189	944	178	341	116	410
Elcho	-116	-858	-351	-465	364	2172
Inchyra	747	1920	608	977	809	1789
Carpow	146	203	34	14	37	-42
Pitfour	53	969	-334	-710	-124	-185
Mugdrum	368	613	86	33	170	384
Annual Total	1467	5327	2553	2121	1802	5586

	1838		1839		1840	
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse
Moncrieffe	-255	-433	-78	174	-63	-146
Burgh of Perth	61	-457	-78	-446	-97	-230
Kinfauns	1290	1516	2661	2432	1238	3455
Seggieden	133	294	-237	-212	99	173
Elcho	275	105	761	657	-144	-158
Inchyra	891	1592	673	742	517	970
Carpow	-19	-188	-95	-178	252	532
Pitfour	-787	-2333	-280	-607	46	11
Mugdrum	96	-127	137	60	-48	-151
Annual Total	1685	-31	3464	2622	1830	4456

	1842		1843		1844	
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse
Moncrieffe	-683	-1571	-961	-670	-412	-525
Burgh of Perth	195	-720	642	-115	179	-625
Kinfauns	2049	5878	3019	3194	1658	1815
Seggieden	386	228	234	13	116	77
Elcho	599	4813	1324	3186	2050	2337
Inchyra	762	3750	1409	2241	1144	1907
Carpow	-309	-1323	-260	-480	-96	-238
Pitfour	104	-649	-678	-2308	-675	-1596
Mugdrum	642	2258	1025	1189	1236	1261
Annual Total	3745	12664	5754	6250	5200	4413

[over

	1845		Total 1835-1845 (omitting 1841)	
	Salmon	Grilse	Salmon	Grilse
Moncrieffe	-645	-1071	-3492	-3284
Burgh of Perth	-435	-1115	-280	-6443
Kinfauns	813	1866	16712	26458
Seggieden	338	482	1552	2750
Elcho	1938	4297	6730	16086
Inchyra	686	1945	8246	17833
Carpow	-103	-501	-413	-2201
Pitfour	-651	-2084	-3326	-9492
Mugdrum	799	2003	4511	7523
Annual Total	2740	5822		

Source: PE 25, various bundles

Table 7.3

Compensation Paid by the Navigation Commissioners to Eligible Fishing Proprietors 1835-1845 (Omitting 1841)

All salmon and grilse prices taken to the nearest eighth of a pound.

	1835		1836		1837	
	Sal	Gri	Sal	Gri	Sal	Gri
Rate per fish	9s. 9d. (£0,5)	2s. 4d. (£0,125)	12s. 9¼d. (£0,625)	3s. 4d. (£0,125)	10s. 7½d. (£0,5)	2s. 9½d. (£0,125)
Moncrieffe					£146,00	£43,00
Burgh of Perth	£431,00	£203,00		*£9,00	*£83,00	
Pitfour			£209,00	£89,00	£62,00	£23,00
Others	£58,00	£107,00	£219,00	£58,00		*£13,00
Total	£489,00	£310,00	£428,00	£156,00	£291,00	£79,00
Combined total		£799,00		£584,00		£370,00

	1838		1839		1840	
	Sal	Gri	Sal	Gri	Sal	Gri
Rate per fish	12s. 4¼d. (£0,625)	3s. 4½d. (£0,125)	13s. 2¼d. (£0,625)	3s. 5¾d. (£0,125)	12s. 10½d. (£0,625)	2s. 11¼d. (£0,125)
Moncrieffe	£159,00	£54,00	*£27,00		£39,00	£18,00
Burgh of Perth		*£19,00	£49,00	£56,00	£61,00	£29,00
Pitfour	£492,00	£292,00	£175,00	£76,00		
Others	*£44,00		£208,00	£49,00	£101,00	£39,00
Total	£695,00	£365,00	£459,00	£181,00	£201,00	£86,00
Combined total		£1,060,00		£640,00		£287,00

	1842		1843		1844	
	Sal	Gri	Sal	Gri	Sal	Gri
Rate per fish	10s. 4d. (£0,5)	2s. 2½d. (£0,125)	8s. 11d. (£0,5)	2s. 5½d. (£0,125)	9s. 9¼d. (£0,5)	2s. 2¼d. (£0,125)
Moncrieffe	£342,00	£196,00	£481,00	£84,00	£206,00	£66,00
Burgh of Perth	*£8,00		*£307,00		*£11,00	
Pitfour		*£29,00	£339,00	£289,00	£338,00	£200,00
Others	£155,00	£165,00	£130,00	£60,00	£48,00	£30,00
Total	£505,00	£390,00	£1,257,00	£433,00	£603,00	£296,00
Combined Total		£895,00		£1,690,00		£899,00

*balance only, where an estate had a surplus of one kind of fish and a deficit of the other in the same year, only the deficit balance, if any, was paid. Thus in 1835 Moncrieffe had -135 salmon (@ 9s. 9d. = £65 8s. 3d.) and +1,048 grilse (@ 2s. 4d. = £122 13s. 4d.), thus no compensation was paid.

[over

	1845		Totals
	Sal	Gri	All fish
Rate per fish	10s. 1d. (£0.5)	2s. 4d. (£0.125)	
Moncrieffe	£322.00	£134.00	£2,317.00
Burgh of Perth	£218.00	£139.00	£1,623.00
Pitfour	£325.00	£261.00	£3,199.00
Others	£52.00	£63.00	£1,599.00
Total	£917.00	£597.00	£8,738.00
Combined total		£1,514.00	£8,738.00

Thus the total amount of compensation paid by the Navigation Commissioners (less that paid out in 1841 for which there are no figures) was £8,738.

Sources: numbers of fish from table 7.2 and prices from "Statement of the City of Perth Fishing averages, as fixed by Decreet Arbitral of Hugh Barclay Esquire, Sheriff Substitute of Perthshire." PE 25, bundle 175.

Penny as "a compromise"), the Navigation Commissioners were constrained from spending more than £15,000 above that already spent until compensation had been paid to the proprietors of fishings for any losses sustained up to that time.

Work on the improvements to the navigation began in July 1835 under the direction of Robert Stevenson & Son, civil engineers[21]. Almost as soon as it commenced there was trouble from the fishing proprietors, disturbed to learn that the Navigation Commissioners were planning to undertake the whole work simultaneously instead of in stages as had been originally intended, and determined to ensure that the clause in the Act which did not allow expenditure to exceed £15,000 until compensation had been paid to them would be adhered to[22]. As a result of this intervention by the fishing proprietors there was every possibility that the Commissioners would reach their spending limit with the works incomplete and no possibility of earning income. In the face of this opposition, the Navigation Commissioners, on the advice of Robert Stevenson, decided to revert to their original intention of completing the work in stages[23]. In 1839 a third Act was passed extending the time over which the Navigation Commissioners could carry out their operations and increasing to £21,000 the expenditure they could incur before paying compensation to the proprietors of fishings[24] At the General Meeting of the Navigation Commissioners in July 1839, the Stevensons were able to report that the "most hurtful" of the fishing cairns as well as many large boulders had been removed from the river. Experiments were being conducted with rafts to see if they could be substituted for cairns[25].

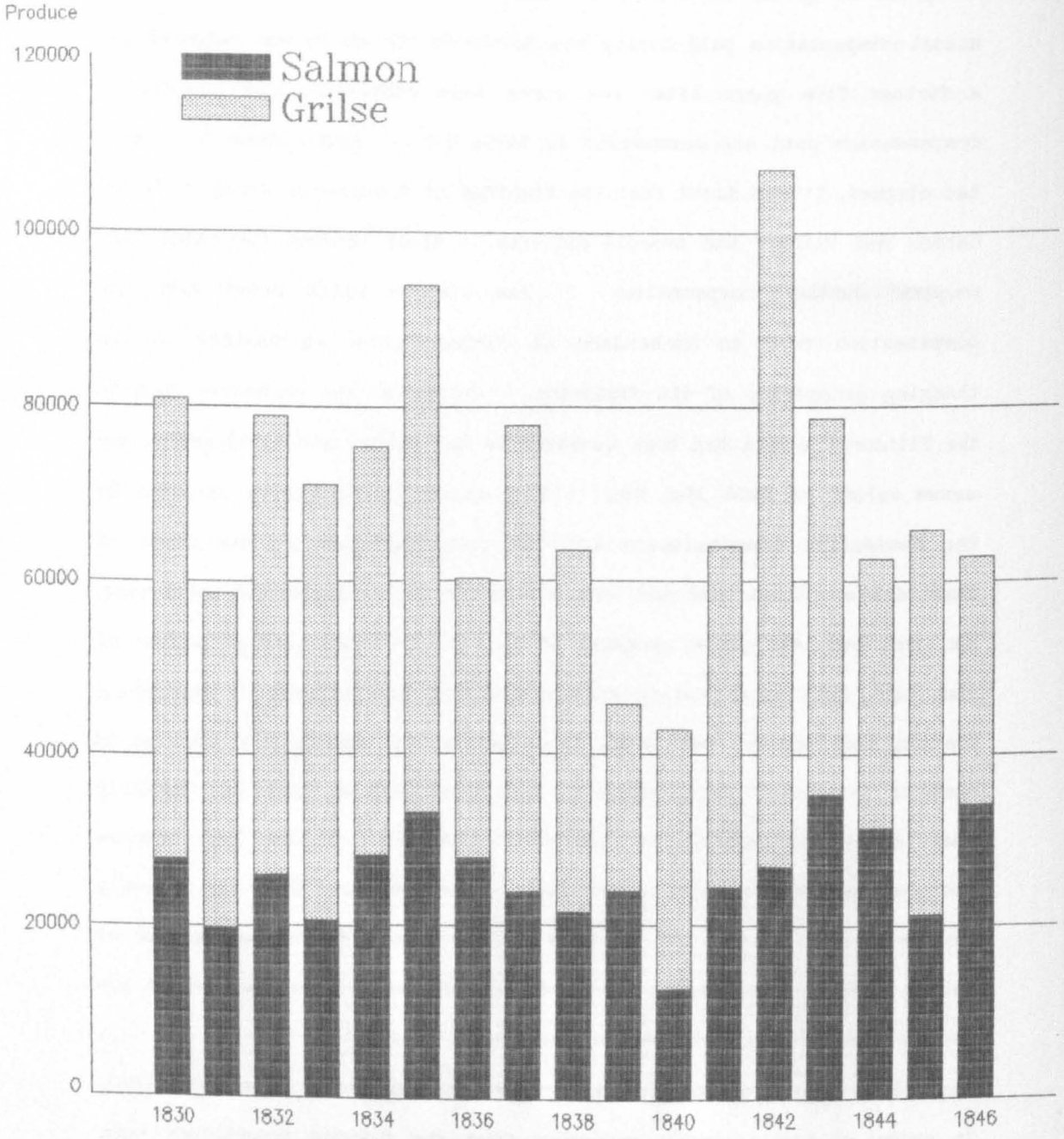
Generally, the disruption to the fisheries caused by dredging was less than had been anticipated. In no year during or after the dredging operations over the period 1835-1845 (omitting 1841 for which the figures are missing) did the produce of the fishings eligible to receive

compensation fall below the average for 1830-1834, with the single exception of grilse in 1838 (see table 7.2). Under the *1839 Act* the annual compensation paid during the course of the works was extended for a further five years after the works were completed (the amounts of compensation paid are summarised in table 7.3). After these five years had elapsed, it was found that the fishings of Moncrieffe, Burgh of Perth, Carpow and Pitfour had overall deficits in their produce for which they received further compensation. The dispute which arose over the compensation paid to Richardson of Pitfour gives an insight to the changing prosperity of the fisheries. Initially, the permanent loss to the Pitfour fishings had been assessed at 547 salmon and 1,498 grilse *per annum* valued at £436 19s. 5½d. This assessment had been disputed by the Navigation Commissioners and the case had gone to the Court of Session where Richardson had been awarded £4,665 in permanent settlement, i.e. just over ten years purchase of the value of the average number of fish lost, this amount being equated with the loss of rent. Richardson claimed that he had still lost, for although his rentals had returned to more or less their level prior to the improvements, they had formerly been about one-seventh of the total rentals of the Tay whereas subsequently they were only one-tenth. He contended that the recovery in his rental income was not due to a restoration of the *number* of salmon caught, but was the result of and *increase in prices* due to the introduction of rail transport to the London market[26].

The operations of the Navigation Commissioners ceased in 1841. In spite of the acrimony emanating from the fishing proprietors both before and during their activities, the improvements to the navigation had little ultimate effect upon the salmon fisheries. Table 7.4 shows the produce of the river over the period 1834-1846. Catches do appear to dip somewhat over the period, but not excessively so, and a recovery

Produce of the River Tay 1830–1846

Figure 7.1a



Source: Table 7.4

Table 7.4

Produce of the Commercial Fisheries of the Tay Basin, 1830-1845

Part I - All Fisheries

	River Tay		River Earn		Totals		Total
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse	Fish
1830	27,658	53,249	902	2,655	28,560	55,904	84,464
1831	19,827	38,754	523	1,765	20,350	40,519	60,869
1832	25,898	53,085	766	2,638	26,664	55,723	82,387
1833	20,556	50,612	773	2,240	21,329	52,852	74,181
1834	28,045	47,469	733	1,685	20,778	49,154	69,932
1835	32,964	60,953	1,214	3,394	34,178	64,347	98,525
1836	27,623	32,572	867	1,657	28,490	34,229	62,719
1837	23,871	54,069	685	2,630	24,556	56,699	81,255
1838	21,492	41,936	710	2,506	22,202	44,442	66,644
1839	23,981	21,754	766	1,512	24,747	23,266	48,013
1840	12,650	30,162	447	1,334	13,097	31,496	44,593
1841	24,373	39,563					
1842	26,779	80,539	789	2,994	27,568	83,533	111,101
1843	35,126	43,617	692	1,666	35,818	45,283	81,101
1844	31,213	31,353	858	1,239	32,071	32,592	64,663
1845	21,316	44,541	602	1,778	21,918	46,319	68,237
1846	33,807	28,954					

Part II - River Tay only

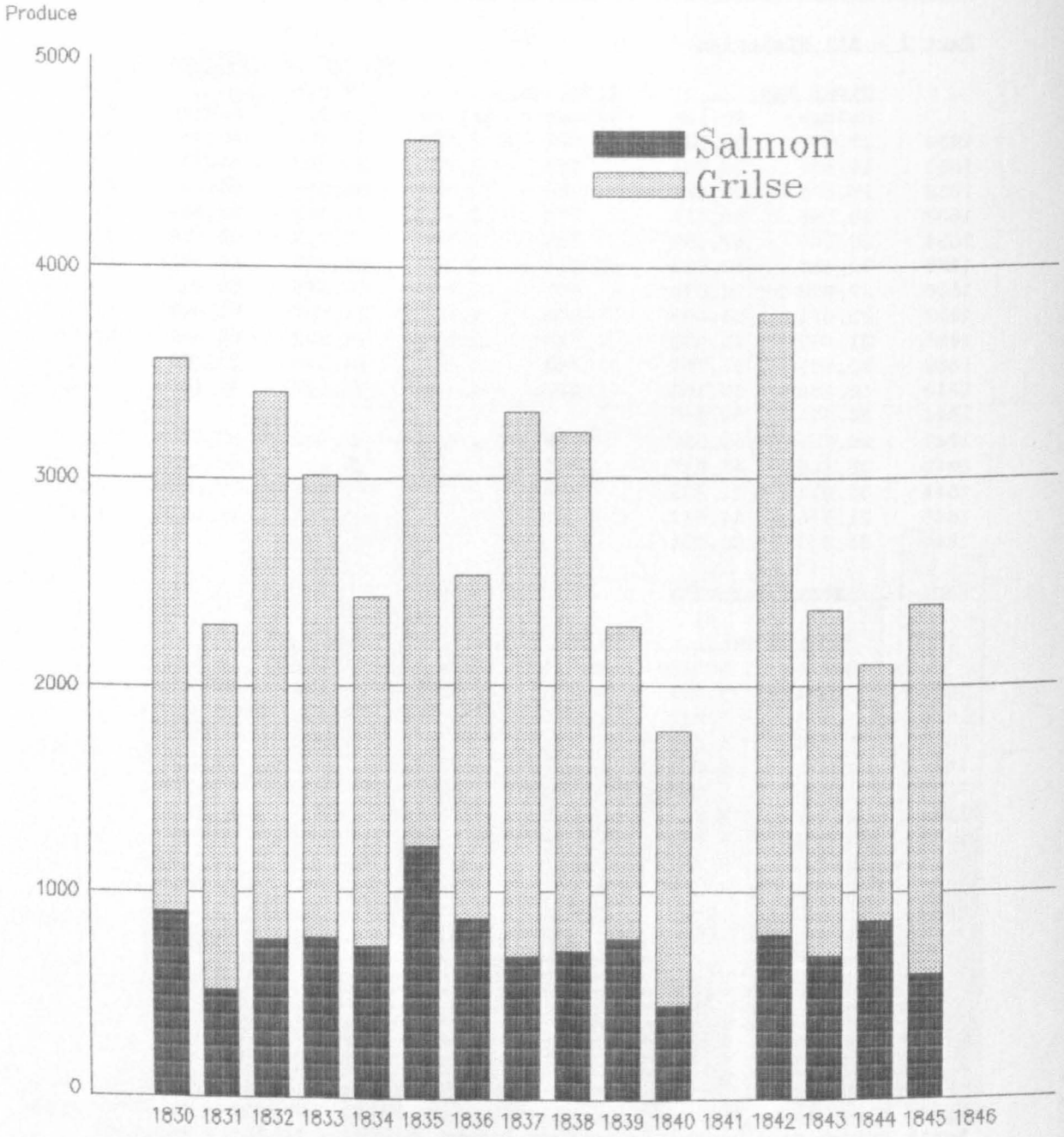
	Upper River		River		Estuary	
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse
1830	3,444	5,726	19,220	36,560	4,994	10,963
1831	1,494	1,217	12,454	28,073	5,879	9.467
1832	1,424	1,293	18,912	40,108	5,562	11,684
1833	1,473	1,460	12,237	32,349	6,846	16,803
1834	1,825	1,636	19,423	35,088	6,817	10,745
1835	2,042	2,111	23,434	48,785	7,488	10,057
1836	2,272	1,875	20,900	25,054	4,451	5,643
1837	1,683	2,152	17,556	43,687	4,622	8,230
1838	1,660	2,406	16,096	29,776	3,739	9,554
1839	1,653	1,348	19,319	17,763	3,009	2,643
1840	782	1,337	10,467	25,964	1,401	2,861
1841						
1842	1,776	3,558	21,476	68,631	3,527	8,350
1843	2,381	2,205	28,861	36,805	3,884	4,607
1844	1,345	843	25,737	26,372	4,131	4,138
1845	1,069	1,399	16,887	37,095	3,360	6,047

Upper River above Perth Bridge (Mansfield to Meikleour estates), River from Perth Bridge to the foot of Mugdrum Island (Kinnoull to Murie estates), Estuary from Mugdrum to the sea (Errol to Panmure estates), for details see table 7.1.

[over

Produce of the River Earn 1830–1846

Figure 7.1b



Source: Table 7.4

Part III - Some Proportions

	Salmon and Grilse as a proportion of the total (%)		River Earn as a proportion of the total (%)	
	Salmon	Grilse	Salmon	Grilse
1830	33.81	66.19	1.07	3.14
1831	33.43	66.57	0.86	2.90
1832	32.36	67.63	0.93	3.20
1833	28.75	71.24	1.04	3.02
1834	29.71	70.29	1.05	2.41
1835	34.69	65.31	1.23	3.44
1836	45.42	54.58	1.38	2.64
1837	30.22	68.78	0.84	3.24
1838	33.31	66.69	1.07	3.76
1839	51.54	48.46	1.60	3.15
1840	29.37	70.63	1.00	2.99
1841				
1842	24.81	75.19	0.71	2.69
1843	44.16	55.84	0.85	2.05
1844	49.60	50.40	1.33	1.92
1845	32.12	67.88	0.88	2.61

River Tay only (%)

	Upper River		River		Estuary	
	Salmon	Grilse	Salmon	Grilse	Salmon	Grilse
1830	12.45	10.75	69.49	68.66	18.06	20.59
1831	7.54	3.14	62.81	72.44	29.65	24.43
1832	5.50	2.44	73.02	75.55	21.48	22.01
1833	7.17	2.88	59.53	63.92	33.30	33.20
1834	6.51	3.45	69.26	73.92	24.30	22.64
1835	6.19	3.46	71.09	80.04	22.72	16.50
1836	8.23	5.76	75.67	76.92	16.11	17.32
1837	7.05	3.98	73.55	80.80	19.36	15.22
1838	7.72	5.74	74.89	71.00	17.40	22.78
1839	6.89	6.20	80.56	81.65	12.55	12.25
1840	6.18	4.43	82.74	86.08	11.08	9.49
1841						
1842	6.63	4.42	80.20	85.21	13.17	10.37
1843	6.78	5.06	82.16	84.38	11.06	10.56
1844	4.31	2.69	82.46	84.11	13.23	13.20
1845	5.02	3.14	79.22	83.28	15.76	13.58

Sources: series of documents entitled ***State Comparing the Returns for (date) with the Average for the Five Seasons Preceding 1835,*** PE 25, various bundles. No document found for the year 1841. Identical figures for the River Tay only, but including the years 1841 and 1846, also given in W.L. Calderwood: ***The Salmon Rivers and Lochs of Scotland,*** London, 1909, p 57.

after 1841 is quite marked. Figures, 7.1a for the Tay, and 7.1b for the Earn, show much the same trends, though there was no dredging at all on the Earn, suggesting that at least some of the variation was part of a natural cycle. In the case of an individual fishing like Kinfauns, table 4.3 (pp. 123-124) shows that catches were no worse and probably marginally better after the improvement to the navigation than before. The improvement of beaches and hailings by the deposition of gravel from the dredger may well have had a favourable effect. Asked by the 1842 Committee if the fisheries had increased or decreased as a result of the dredging, Sir John Richardson of Pitfour replied that, although individual proprietors had suffered, "as a whole the fish continue much the same, because if they are not taken in one place they are taken in another."[27] Opinions expressed to the 1860 Committee were generally favourable. Admiral Maitland Dougall of Scotscraig believed that some fishings had been damaged, but not all[28]. The tacksman, John Dunn, took a more favourable view stating that the improvements to the navigation had benefited all the fishing stations where the work was carried out[29]. Another commentator, writing in 1868 noted that:

> ... the effect of the deepening operations, ... was not a general injury to the fishings, but rather a considerable transference of property - that is to say it injured certain fishings, and greatly enhanced the value of others. ... The dredging machine removed from the channel many large boulders, behind which the fish were accustomed to shelter themselves during the rapid ebb of the tide, and were afterwards easily taken; but now they have no such resting place, and therefore go down at once with the receding waters.[30]

The most adverse circumstance resulting from the deepening of the Tay was the bankruptcy of the Navigation Commissioners. In 1847 the Perth to Dundee railway was opened and this had an immediate and devastating effect on the shipping traffic on the Tay. In 1848 the

Dundee, Perth and London Shipping Company withdrew its lighter service from Dundee to Perth as it was cheaper to unload cargoes destined for Perth at Dundee and send them the rest of the way by rail. In addition to these commercial reverses, the demands of the fishing proprietors for compensation were another major factor in the Navigation Commissioners' ultimate bankruptcy in 1854 with debts of £86,000. The Burgh of Perth as guarantor had the misfortune to end up by having to take on the entire debt[31]. *Venator* commented, "this important episode in the history of the Tay forms a strong warning against, hasty, crude and chimerical schemes on the part of public bodies."[32] Arguably he was too severe in his judgement. The advantages of the improvement to navigation may have been slow to come, but eventually they came to fruition. With particular regard to the salmon fisheries, the most adverse effect was that attention was diverted from the more fundamental problems of the fisheries. While the fishing proprietors indulged their taste for dispute with others and among themselves, the problems of over-fishing were endlessly discussed but not acted on. Furthermore, by devoting their attention to what was happening to individual fisheries, the proprietors failed to notice that, according to the statistics collected for the payment of compensation, the average annual produce of the Tay over the period 1830-1845 was *greater* than it had been during the time of the stake nets, a matter of potential significance for the future of the salmon stock.

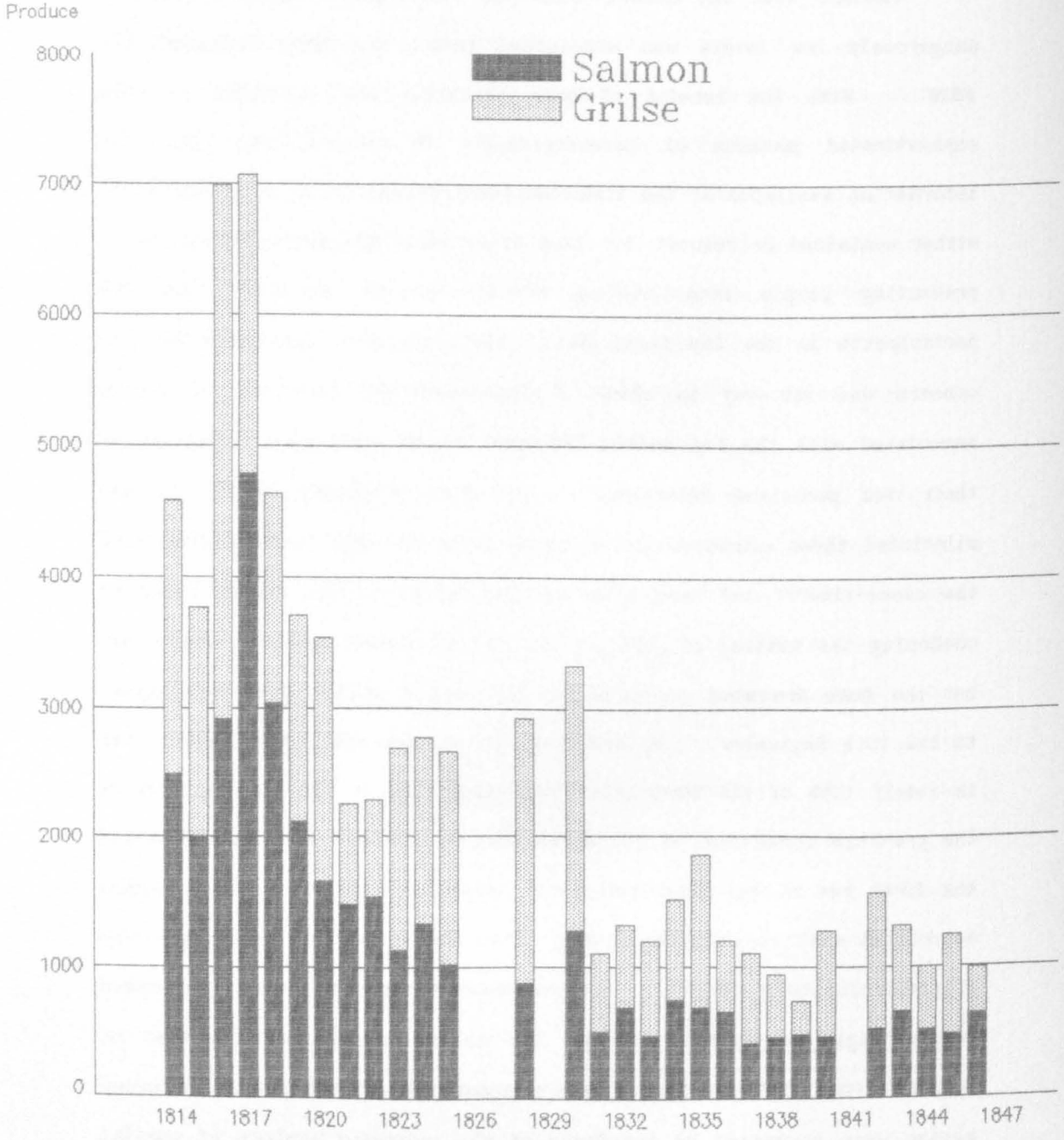
II - The Pre-occupation with Over-Fishing

Concern that the salmon stock of the Tay was being reduced to dangerously low levels was widespread before the ***Home Drummond Act, 1828.*** With the benefit of both hindsight and reference to more sophisticated methods of investigation[33] it can be seen that the information available at the time was insufficient for such a view to be either sustained or refuted, but lack of evidence has never been a reason preventing people from holding strong beliefs, certainly not the participants in the Tay fisheries. The particular importance of this concern was the way in which it influenced the behaviour of groups associated with the Tay salmon fisheries to be even more protective of their own perceived interests. The ***Home Drummond Act*** in no way alleviated these concerns: for example, prior to 1828 "non-observance of the close-time"[34] had been seen as detrimental to the salmon stock by condoning the netting of fish at the end of August and into September, but the ***Home Drummond Act*** extended the netting season from 26th August to the 15th September. An extension of 21 days was a significant time in itself (15% of the total post-1828 close-time of 138 days, or 20% of the pre-1828 close-time of 107 days), but as the last week in August and the first two in September frequently coincided with the runs of salmon associated with the "Lammas Floods", then the number of fish caught was disproportionately large[35]. The possibility that the legally prolonged season might permanently damage the salmon stock was a matter of concern from 1828 onwards. Fears about the effects of the extended season were augmented by knowledge of the increased numbers of coastal nets[36].

One of the factors which fuelled the disquiet about over-fishing was that the produce of individual fishings was seen to be falling. This was a typically narrow view of the situation, for a more significant

Kinnoull Fishings Produce 1814–1846

Figure 7.2



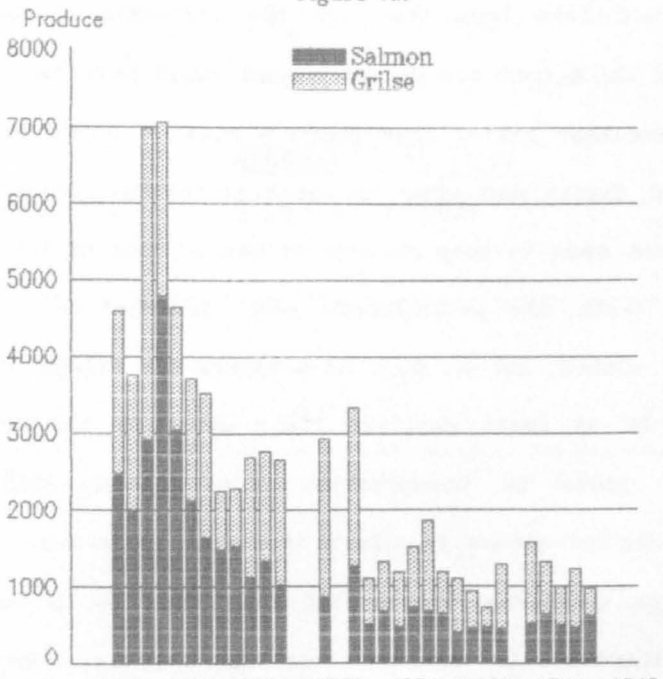
Source: Table 5.3

statistic would have been that for the aggregate produce of the Tay fisheries, in which case the danger signal would have been for the annual figure to have been rising (see *supra* p 214). Apart, however, for the period before, during and after the work of the Navigation Commissioners, no attempt was made to keep records of the produce of the fisheries as a whole. In truth, the participants were concerned only with their own fishings and wished, not so much to preserve the salmon stock *per se*, as to increase or at least maintain their share of the produce. Thus contemporary ideas on conservation were equated with reducing or removing altogether access by others to the salmon stock.

Although the belief that a fall in the produce of the fishings was widespread, there are few statistics to verify this. The longest series on produce are those for the Kinnoull fishings shown in table 5.3 (pp 136-137) and figure 7.2. If these are typical then the fall in the produce of individual fishings is well marked, however one incomplete series is not sufficient verification. The data on rentals are more extensive over time and they appear to confirm the decline. However, if they are to shed any light on the produce of the fisheries some connection between produce and rentals needs to be established. There is of course an intuitive connection: it is not difficult to assume that tacksmen would offer lower rents if they thought the produce of a fishing was or would be lower[37]. Tables 7.5, 7.6, 7.7, 7.8 and 7.9 (pp 257-261) investigate the extent of the statistical correlation between produce and rentals. The results are rather inconclusive, the coefficients of correlation ranging from 0.796 for the Kinnoull fishings to -0.154 for the Kinfauns fishings. The similarity in trend between produce and rentals for the Kinnoull fisheries is visually apparent (see rentals figures 7.3a, 7.3b, and produce figure 7.2, p 217), though the changes in the rentals lag two or three years behind the changes in produce. This

Kinnoull Fishings Produce 1814–1846

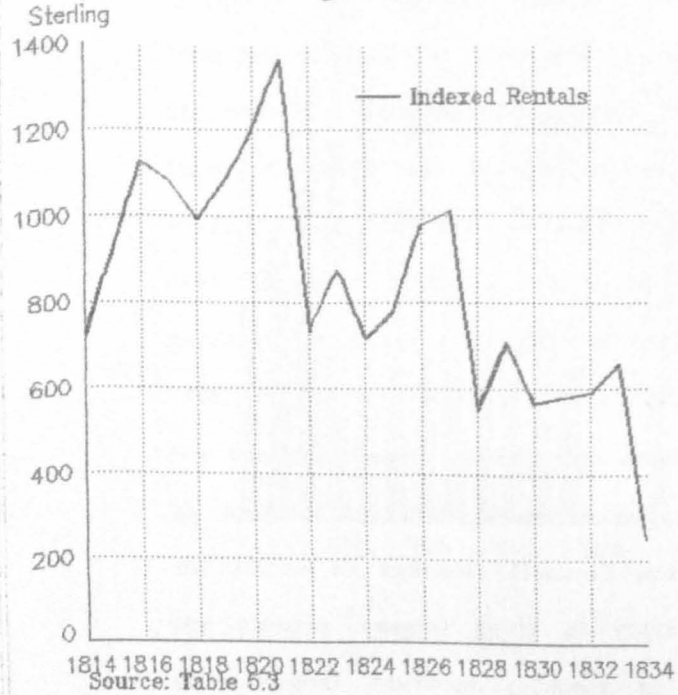
Figure 7.2



Source: Table 5.3

Kinnoull Fishings Rentals 1814–1834

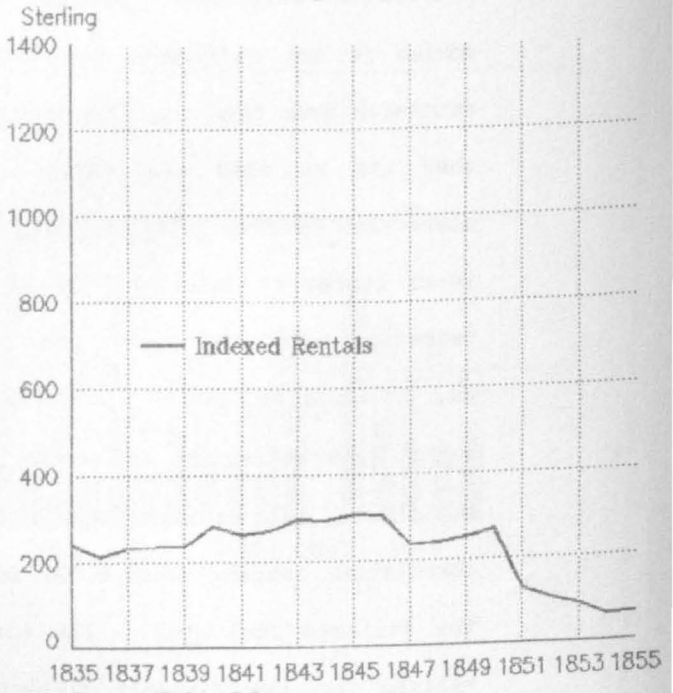
Figure 7.3a



Source: Table 5.3

Kinnoull Fishings Rentals 1835–1855

Figure 7.3b



Source: Table 5.3

latter point can be explained by tacks being for periods of up to three years, and so adjustments to the perceived worth of the fishings lagged behind adjustments to the produce. The Kinnoull rentals show a further decline during the 1850s (table 5.3, p 136 and figure 7.3b), by which time they were a mere 5% of what they had been in the 1820s, indicating, if the correlation is sustained, further falls in the produce. The relatively weak statistical correlation shown in the Burgh of Perth fishings (R = 0.4) and the lack of any positive correlation in the other examples does not remove the possibility of a connection between rentals and produce. Taking all these matters into account it seems not unreasonable to conclude that during the first half of the nineteenth century reductions in rentals, (broadly) albeit imperfectly, tended to reflect reductions in the produce. This being so, the rental data appear to confirm that the produce of individual fisheries was in decline over the period.

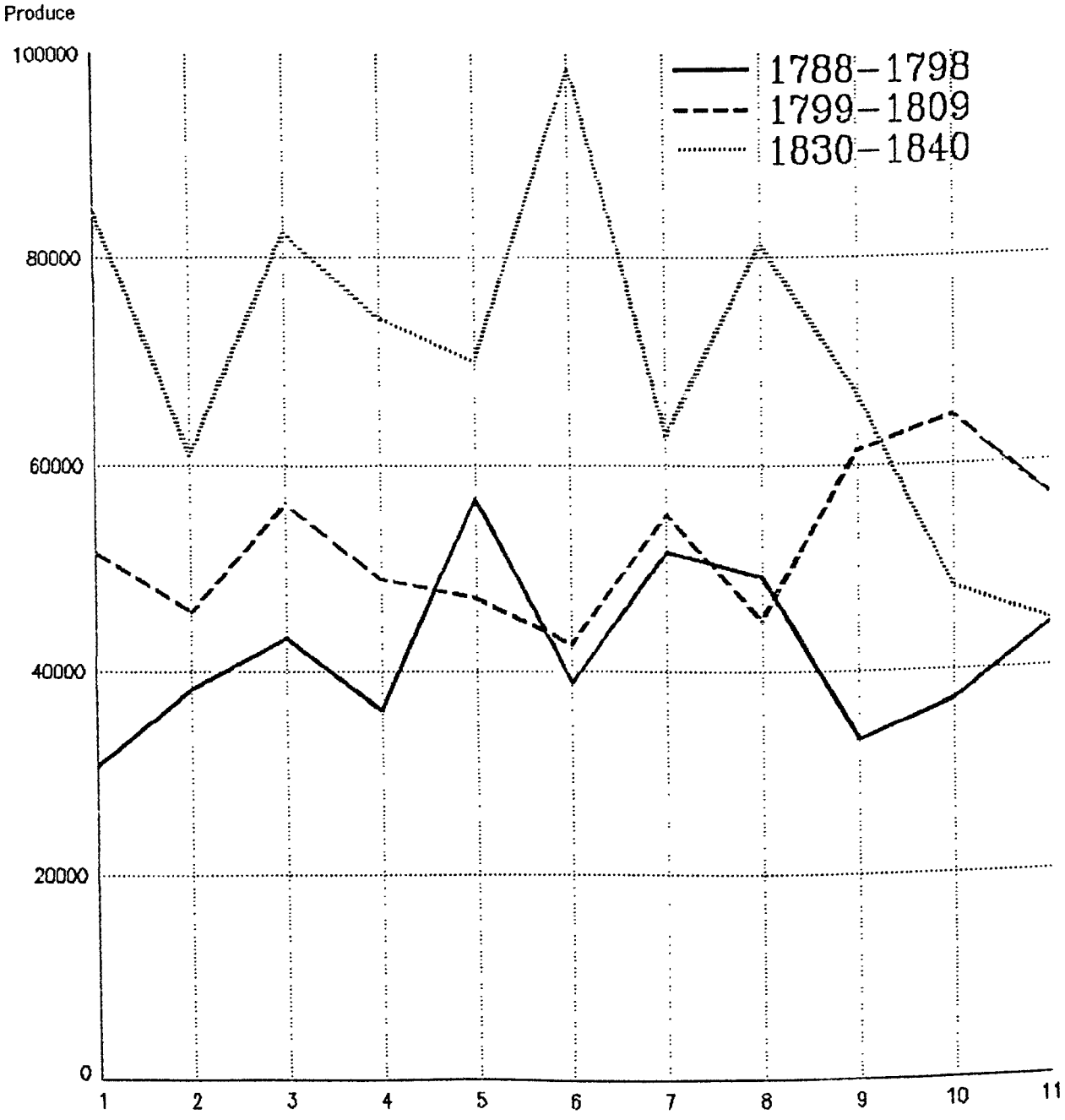
The reason for the fall in the produce of individual fishings can be ascribed to the longer netting season, coastal nets and more intensive fishing by tacksmen. The practical evidence for the latter is dealt with in III of this chapter. However, before looking at the practical aspects, there is also the matter of profitability. Such evidence as there is indicates that losses were common on the Tay fisheries during the second quarter of the nineteenth century. As noted in Chapter Five, II, accumulated losses by various tacksmen totalled £40,432 from 1819 to 1830, and on particular fishings, £1,200 in 1839-40 and £524 in 1841-46[**]. Further confirmation of losses is contained in the detailed accounts available for some of the Burgh of Perth stations at the beginning of the 1850s. In 1850 the Sleepless and Cally stations remained unlet and Andrew Buist managed them on behalf of the Town Council. On this occasion revenues totalled £856 17s. 5d. and

expenditures were £853 6s. 3½d., exclusive of rent. To the small surplus on trading of £3 11s. 1½d. was added the value of the inventory of gear and various other sums to give an overall contribution to rent of £111 4s. 4½d., just over one-half of the nominal rent of £200[39]. In 1851 George Pitcaithly took the tack of the Burgh's Incherrat fishings at a rent of £602, a sum offered in the belief that there would be a great demand in the London market because of the Great Exhibition that year. By the end of the season, however, Pitcaithly claimed that he, in common with almost all the other tacksmen on the Tay, had suffered great losses and they were looking for a rebate on their rents[40]. However, the losses of the early 1850s mark the end of the period of unprofitability, thereafter the coming of the railways restored the Tay salmon fisheries to profitability[41].

The significance of the losses is that they would certainly not encourage tacksmen to pay high rents, which helps to explain the fall in rentals, but more important to the point at issue, they could also have been a contributory factor to the fall in the produce of individual fishings. If losses caused the tacksmen to fish their tacks more intensively and this was accompanied by proprietors opening more stations, then the produce *of each fishing* would tend to fall as greater inroads were made into the (relatively fixed) salmon stock[42]. It thus follows that the fall in the produce at fishings could have been a consequence of tacksmen working more tacks more intensively to try and recoup losses. With regard to the overall situation, which was ignored at the time, a fall in the produce of individual fishings is not inconsistent with a rise in the aggregate produce if more stations were being worked over a longer netting season. The period 1830-1845 is too short to conclusively demonstrate that the aggregate produce had increased permanently, but an inspection of tables 3.2 (p 89) and 7.4

Tay Fisheries Produce – Three Periods

Figure 7.4



Source: Tables 3.2 and 7.4

(pp 211-212), shows that in by far the greater number of years the produce of the Tay was higher from 1830-1846 than it was from 1788-1809. An extended comparison is made in figure 7.4 in which three sequences of eleven years are shown. There is no significance in the chronological order of the figures, but they show that the produce 1830-1840 was greater than that for 1788-1798 and 1799-1809, except for two years[43].

Although the available data is insufficient to justify conclusively the contemporary fears about over-fishing, nonetheless, such data as are available on produce, rentals and profits all point to less salmon at the fishings, and it is not surprising that such data were used to support the then current opinions. The contemporary pre-occupation with what was happening at individual fishings may have masked an increase in aggregate catches, as suggested by the figures for 1830-1845 (table 7.4, p 211), though this too cannot be sustained on the available evidence. If there were such an increase, then it may be seen as a manifestation of the same problem: more stations being worked more intensively for a longer season giving lower catches per station, but a higher aggregate catch for the Tay fisheries.

III - Practical Evidence of Over-Fishing

In a practical context, there were three factors which were seen as being causes of over-fishing during the second, third and fourth decades of the nineteenth century. One was the lengthening of the fishing season in 1828 as a result of the ***Home Drummond Act***, the second was the increased use of coastal nets and the third was the greater intensity of fishing within the river over the entire fishing season. The first of these has been dealt with[44], and the second may be dealt with relatively briefly. After being finally removed from the Tay in 1817, stake nets were soon re-established on the coast. Their use at coastal sites increased over the years and the basic stake net was augmented by the bag net which was not so restricted as the stake net in the locations at which it could be used[45]. Although at the time there was controversy as to whether fish caught in the coastal nets were thus "lost" to some river, there is now no doubt that this was so. Salmon in coastal waters are intent upon entering their natal river, thus the coastal nets were an additional inroad into the salmon stock. In terms of a single river like the Tay it is not possible to identify which coastal nets were catching fish specifically destined for the Tay, though it seems not unreasonable to assume that the coastal nets nearest to the mouth of the river would be the ones catching the highest proportion. That there were stake nets both north and south of the entrance to the Firth of Tay would strongly suggest that the salmon stock of the Tay was depleted for this reason.

Evidence based upon fishing practices that point to an increase in the intensity of fishing has already been referred to up to and including the 1830s[46], but it is necessary to establish that this continued to mid-century and beyond. In this context it is important to bear in mind that over-fishing was not necessarily the result of the introduction of

new modes of fishing, but usually more intensive use of existing legitimate modes. The practitioners in the salmon fisheries had an ambivalent attitude toward innovation, tending to oppose any deviation from the *status quo* on the part of others, but not averse to adopting new methods themselves, particularly if these gave them a unique advantage. It was implicit in the legislation affecting salmon fisheries that all those with a legal title to participate in the fisheries should have *equal* access to the fish. Although this principle did not and could not work in practice (e.g. the dearth of fish in the upper river made the idea of equal access quite ludicrous), it was nonetheless used to stifle any innovation that might give an advantage to a particular proprietor or one of his tacksmen[47]. As a commentator from later in the century noted:

> It is a peculiarity of fishery property that it cannot be used as absolutely at the owner's disposal, to 'make the best of' like some other kinds of property. ... But a man who exercises ingenuity and industry to take as many fish as possible out of his fishery, these fish being travellers, and neither natives nor residents, makes a proportionate deduction from the share falling to his neighbours. ... It is a necessity ... that the law can permit only uniform machinery or a limited degree of efficiency.[48]

But if the law discouraged any man from fishing more intensively than his neighbour, it remained possible that *all* men could increase the intensity of their fishing, and this is what seems to have occurred. An article in *The Field* in 1868 noted that

> ... the stations were placed far too closely, so that the nets were incessantly plied. The fishermen on opposite banks could only work by turns, owing to the comparative narrowness of the river; and as soon as one boat touched the land, the other was launched. Stations were multiplied everywhere,[49]

A court case in 1845 exemplified the efforts made by tacksmen to maximise the returns from their fishings and illustrates also the courts' attitude to one tacksman taking an advantage denied to another. The

case involved two tacksmen at the adjacent fishings of West Muirton (Kinnoull) and Thummie (Mansfield). The defendants had anchored a boat downstream from their fishings in order to observe any fish approaching, thus allowing them to prepare the nets in advance of the arrival of the fish. To improve their chance of seeing fish, they had tipped a load of broken white china into the river, over which the fish were likely to pass. This was successfully objected to and an interdict granted by the Sheriff, who noted that the illegality of the practice derived from it enabling the tenant to "take more [fish] than he otherwise would in the usual mode of fishing."[60]

When, however, circumstances did change, proprietors and their tacksmen were not slow to take advantage of the situation. An example of this is provided by what became known as the "Bermony Boat Case" which aroused considerable interest at the time[61]. This involved the Burgh of Perth at their Incherrat station and Miss Charlotte Elizabeth Hay of Seggieden, whose Flukie station was immediately downstream (east) from Incherrat[62]. The Seggieden case was summarised in a *Memorandum* prepared in July 1859[63]. Although the erstwhile island of Darry belonged to Seggieden, the fishings around it - the stations of Incherrat, Millhurst and Darry - had since 1600 belonged to the Burgh of Perth. After the island was joined to the north shore, the Darry station in the former north channel became inoperative, as did the two Seggieden stations of Claybrae and Thornie on the opposite north shore. This left the Burgh of Perth with two stations (Incherrat and Millhurst) and Seggieden with one (Flukie). It was the practice of the fishers at Flukie to row their shot from a point on the north shore out into the river as close to the east end of Darry Island as possible and then beyond into the mainstream of the river. At the time of the Navigation Commissioner's dredging activities the Incherrat hailing was about 100

yards upstream from the end of the island which meant that there was no overlap between the two stations. Much of the dredged material from this reach of the river was used to improve the hailings and tow paths at Incherrat, and the same was done at Flukie by way of compensation for the loss to the Seggieden estate of the Claybrae and Thornie stations.

Had this been all that happened, there would have been no reason for a dispute, but two additional factors brought about the strife. The first problem derived from the threat posed to the finances of the Navigation Commissioners by the opening of the Perth to Dundee railway in 1847. It soon became apparent that insolvency of the Navigation Commissioners was inevitable and the *Memorandum* for Miss Hay claimed that, as the interests of the Burgh of Perth and the Navigation Commissioners had always been largely coincidental because of their mutual financial arrangements and because many Town Councillors were also Navigation Commissioners (fourteen out of twenty-eight), every effort had been made by the Commissioners to "save or improve the Town's property in its fishings at the expense of the other proprietors." Furthermore, when it became evident that the Navigation Commissioners would have no resources to pay any claims outstanding against them, including any that might have been paid to the Burgh, the Town Council redoubled their efforts to use the activities of the Navigation Commissioners as payment in kind, i.e. improving the Burgh fishings by dredging and the deposition of gravel, but "preventing and attempting to prevent all repair and improvement by any other proprietor ...", a perceived case of discrimination by the Councillors and Commissioners against the interests of other proprietors of fishings.

The second factor was a spate which deposited a bank of gravel at the east end of Incherrat, extending the end of the erstwhile island into the waters opposite the Flukie station. This interfered with the Flukie

shot, and the Flukie fishers sought to alleviate this by augmenting the gravel bank and turning it into a proper tow path, as they were entitled to do by the custom of the river[54]. By occupying the new bank the Flukie fishers would have moved their shot further out into the mainstream of the river and, more important, would have moved closer to the Incherrat station thus making it more likely that they would intercept fish heading for Incherrat. Fortunately for the Town Council, the new bank was across the mouth of the backwater formed by joining Darry Island to the north shore, called the Back Lake, and in augmenting this, the Flukie fishers had cut off the backwater from the river. This gave the Perth Town Council the opportunity to object, not on the grounds of the Flukie fishers occupying the new bank, their actual concern, but on the grounds that they were interfering with the navigation of the river by blocking off the Back Lake. The Seggieden estate was forced to pay for the re-opening of the Back Lake and the Incherrat station was moved downstream to take advantage of the new bank, access to which was denied the Flukie fishers by the re-opened channel to the Back Lake. It was to counteract this last development that the Seggieden tacksmen had adopted the Bermony boat[55].

The Bermony boat was an aid to the net & coble fishing that had been developed on the Tay some twenty years previously[56]. The purpose of the Bermony was to extend the sweep of the net by extending the length of the tow. Two stakes were erected, one on the shore the other in the river itself and a rope attached to both. On the Bermony boat there were two sets of rollers through which the rope passed allowing the boat to travel the distance between the stakes by means of a man in the boat pulling along the rope. The coble with the net and the Bermony boat would come together at the river stake, similar to coble and towman at the shot head. Thereafter the coble would row the shot and the

Bermony would return to the shore with the tow rope, either directly to the hailing or to some point short of it, after which the towman would walk to the hailing where the two ends of the net would again come together. Thus the basic net & coble practice, which confined the towman to the bank, was extended so that the tow could start at some point only accessible by boat. As the evidence noted, "by this contrivance, the proprietors of salmon-fishings are enabled to get into deep water, where the salmon generally are, at places where it would be impossible otherwise to obtain this advantage."[57]

Contrary to what happened with other innovations, the Bermony boat was not been challenged for some time after its introduction. It remained in use at Rashbush only until 1832 when it was used at another station called Sir Law or The Knight[58]. The effect of the use of the Bermony boat was described as "very remarkable". It was estimated that Lord Wemyss would have lost £1,000 out of his total rentals of £1,818 if the Bermony had been withdrawn from his stations and similar claims were made for the Inchyra and Mugdrum fishings[59]. It was the introduction of the Bermony boat at Flukie in 1843 that Perth Town Council objected to, claiming that it intercepted and frightened off fish heading for the Incherrat station[60], and in June 1855 Perth Town Council raised an action of Declarator against the Hays to prevent the further use of the Bermony boat[61]. The case came to court on 13th February 1856 and on 27th May 1856 the Court of Session found in favour of the Council and against Miss Hay of Seggieden[62]. The defendant's case was that the Bermony boat was not a fixed engine (as was claimed) because it was not designed to catch fish, being rather a device to allow fish to be caught by the legitimate net & coble method. The pursuer's case involved the restatement of the principle set down at the beginning of this section, namely, that all participants in the fisheries should have equal access to

the salmon. Observing that Miss Hay's lawyers had asserted that it made no difference to the fish whom they were caught by, and that it was correct that she should pursue her own interests to the best of her (tacksmens') abilities, the counter-argument made was that ***"what is her gain is another's loss,*** [my italics] and that the assertion of the rights of property in a common object is restrained by rules which she totally overlooks, in the pursuit of her own interest." While it was not certain that fish ***not*** caught at Seggieden ***would*** be caught on the pursuer's fishings, nevertheless "the more fish she destroys the less must necessarily be destroyed by those who have the second chance;". She must thus confine the practices at her fishings to what was "fair and legitimate".[63] Turning to the more practical outcomes of the adoption of the Bermony boat, various tacksmen attested to the dire results for the fishings above those where Bermony boats were employed. Alexander Speedie summed up this case as follows: "it would be something like the stake nets. We need not care whether we fished up here or not, we would get few or no fish."[64] The case went to appeal in October 1857[65] and Perth Town Council were again successful at the termination of the appeal in June 1860, but further legal activity followed culminating in an appeal to the House of Lords in 1862 which reversed the verdict of the lower courts and pronounced that the Bermony boats were legal[66]. The Bermony Boat Case is a prime example of the enduring attitudes of self-interest displayed by the majority of the participants in the Tay Salmon Fisheries. The fate of the salmon stock played little part in their calculations.

Other changes in methods that increased the efficiency of the net & coble mode included the introduction in 1824 of windlasses for winding in the head rope of the net, though they were not in widespread use until 1830[67]. As part of the evidence submitted in the Bermony Boat Case made

clear, some windlasses were fixed, while others were on wheels, a development introduced in the mid-1840s[68]. Longer nets became general in the 1840s. William Semple, a tacksman, stated that the longest tow (rope) he had used was 80 fathoms (480 feet) and he had used a net of similar length. "I am on the Darry [Incherrat] fishings this season [1862] ... In the filling [flood] tide we stand sometimes at the east point of the island. If we used net and tow of the above lengths we would be out 160 fathoms [960 feet] from the island."[69] Semple went on to observe that the tows and nets were all of different lengths according to circumstances. David Pitcaithly, who was foreman at Flukie and who had 39 years experience at that station, recalled how introducing heavier nets had improved the catches. "We had four classes of nets, called Donalds, heavy halflins, light halflins, and strakes, which we used at different states of the water. The result was that we got more fish ..."[70]

In addition to improvements in the fishing gear, the pressure to increase or maintain a share of the produce led to the opening of yet more stations by the fishing proprietors. As early as 1816, the Burgh of Perth had created the Vennels station. In 1850 it was noted that the Earl of Wemyss had created no less than five completely new stations on his Elcho estate over the previous twelve years. In 1842, Lord Gray of Kinfauns created three additional stations, including that at Blacklug opposite to the Ships station[71]. This meant that the Ships station had to take shot about with Blacklug, to the detriment of the catches at Ships. At other times, Sir Thomas Moncrieffe created two new stations, as did Mr Christal of Inchyra, and Sir John Stewart Richardson of Pitfour added an additional shot at the North Inch (Poldrait) station, though he had given up fishing at the Diddledan and probably had an extra fishing cairn at Cairnie[72]. Yet another example is mentioned in a letter among

the Town Clerk's Papers on how the Burgh fishings might be improved. This pointed out that the most valuable fishings were those at bends in the river "favoured with the water running rappidest upon the opposite side which makes the net go well". There was one such bend at the Burgh fishing of Sleepless, but the shallows called the Bow Heads (Ox Rocks or Oaks) prevented its proper exploitation. It was strongly recommended that this be dredged and the fishing improved. An additional station below the existing Burgh station of Girdom was also suggested, the shot head to be the Girdom hailing[73].

There was also a revolution taking place in the transportation of salmon which almost certainly made the trade more profitable from mid-century onwards. As early as the 1830s, one London fishmonger in his evidence to the 1836 Committee, commented on the favourable effects of the introduction of steam vessels. Whereas the supply of Scotch salmon prior to then had been subject to considerable fluctuation according to the direction of the wind, since the introduction of steam the supply was very regular and the time taken for the journey was such that the ice in which the salmon were packed was never entirely melted away, making a more acceptable product[74]. By the 1840s, according to the *New Statistical Account*, "all fish taken in the river above Newburgh are shipped from Perth by lighters for the Dundee steam ships."[75] Dodd in his *The Food of London*, published in 1856 noted that though the railways were bringing salmon to London by that time, about half the Scotch salmon still came by steamer[76]. The earliest record of Tay salmon being sent to London by rail occurred in 1850 when Andrew Swan, tacksman, stated this as part of his evidence in a court case[77]. In 1851-1852 Robert Buist stated that "towards the end of the season the prices were much higher than before the days of the railways which now even in the heat of summer take fish to the market in excellent

condition."[78] At the end of the 1850s another London fishmonger attributed the rise in the average price of salmon over the previous six or seven years to the superior quality of the fish arriving by rail[79].

Another aspect of the growing pressures on the salmon stock was the increase of *legitimate* activity in the estuary. The general unsuitability of the estuary for the net & coble mode of fishing and the various permuations of fixed engines devised by the estuarial proprietors and their tacksmen to get round the prohibition on fixed engines have been described elsewhere[80]. The constant succession of interdicts imposed by the courts at the behest of the river proprietors had by the 1840s temporarily exhausted the ingenuity of the estuarial interest and they were forced, for the time being, to make the most of what was sanctioned by the law, i.e. the toot net and the sweep net[81]. In spite of its general ineffectiveness, there were certain states of the tide at which a sweep net could be operated at places in the estuary. When the tide was high and the sandbanks were covered the use of net & coble was quite impossible, however, as the tide receded and the river flowed in channels among the banks, it was possible to fish with a sweep net from those banks that shelved relatively steeply. It was a mode of operation very restricted in time.

> When they [sweep nets] are used, they are used as much at low water as at any other time. They are not used at high water. They generally go on to fish at the estuary after the tide has run fully half back, and then they fish perhaps an hour in the flow again with the sweep net. ... The men who are down on the banks are tide fishers. ... Suppose they go on at nine o'clock in the morning and that the tide was probably half run back, they would fish perhaps until one o'clock, when it would be one hour's flood, or about that. ... The sweep net will not be in actual operation, I should say, for more than eight hours out of the twenty-four. ... In some places they would not have [i.e. row] more than two shots in the hour. They could not take a shot in eight minutes down there; it is further up where they can take them so frequently as that. I refer to Pyeroad at Kinfauns, which is among the smartest stations on the river[82].

Not only was fishing by net & coble restricted to about eight hours per day, but the season on the lower river was later in starting. The bank fishing below Newburgh did not begin until after the Newburgh Market, which was the third Saturday in June. Despite these shortcomings, activity on the banks spread further down the river during the 1830s. The banks round the island of Mugdrum had always been worked, it was those below that began to be colonised. This involved the fishings of the Seaside, Kinnaird and Castle Huntly estates in particular. In 1833 the Carthagena Bank belonging to Seaside was first let for net & coble fishing. By 1849 activity had reached as far down as Powgavie (Kinnaird), and about the same time Patterson of Castle Huntly laid claim to the Channel Bank which no one had fished before[93]. The increase in activity on the banks is attested by the increase in fishing rentals for the Seaside and Castle Huntly estates. In the 1855/56 season the rent paid for Seaside was £36. By the season 1865/66 it had risen to £202, at which point, after a court case, some of the stations were transferred to the ownership of Lord Zetland (Balmbreich) on the south shore. Between 1856/57 and 1864/64 the rent of Castle Huntly fishings rose from £13 to £150[94].

The daily and seasonal time restrictions imposed upon the bank fishers, considerable though they were, were not the only difficulties they encountered. The nature of the banks themselves meant that they were constantly shifting, appearing and disappearing. Thus a bank worth only a few shillings rent one year might be worth £100 in the next. The Haggis station had only existed for a few years prior to 1864, but in that year it was rented for £195. Another bank called Eppie's Taes gave rise to a great deal of trouble by gradually shifting toward the south shore until it was claimed as part of the Balmbreich fishings, though it

had started out as belonging to the Seaside estate on the north shore. The inevitable court case followed (see Appendix VI)[86].

At other places in the estuary the traditional toot net continued in use. In his evidence to the 1860 Committee, for example, Admiral Maitland Dougall of Scotscraig told of the practices on his estate. On the coastal stretch he employed stake nets and bag nets, while in the estuary he used the stell (toot) net. Maitland Dougall tried to make the case that the sweep net and the toot net were the same, apart from the toot net being smaller: "the difference being that the salmon are not moving about in such quantities where the stell net is used; it is found useless continually sweeping with no fish. There is a boat that holds the outer end of the stell net; when a fish is seen by the man who is watching near, he calls out 'haul', and the net is drawn, ... the outer end being held is the difference."[87]

In his book *The Salmon*, published in 1864, Alexander Russel, editor of *The Scotsman*, was quite clear that over-fishing was "the grand cause of the general decrease" in the Scotch salmon fisheries. He ascribed this to two causes: first, over-fishing by net & coble, the efficiency of which increased with demand, price, population and improved transport; and second, the coastal nets. The statistical evidence presented in the second part of this chapter, and the study of fishing practices in this third part would be sufficient to confirm the contemporary fears about over-fishing. Moreover, the intensity of the fishing in all parts of the Tay salmon fisheries continued to increase as proprietors and tacksmen engaged in a constant game of "Deil tak' the hindmost" jockeying for the most favourable conditions to apply at their fisheries. Improvements to the gear in the form of superior nets, "patent" windlasses and Bermony boats all made the process of fishing more efficient. And these efficient methods were conducted at a greater number of stations in both

the river and the estuary, though the estuarial fishings remained at a considerable disadvantage[87]. It can thus be appreciated why there was concern that the salmon stock was being depleted.

REFERENCES

1. See Bruce Lenman: *From Esk to Tweed*, Glasgow, 1975, pp 82-83.

2. The Report was undertaken by George Alexander, Surveyor of the Town's Works, and he identified no less than nineteen obstructions, as follows:

    1. The Town's Ford (or Ford of Kinnoull) at the head of Moncrieff Island.
    2. Weel Ford at the Weel of the West fishing station (NO 121223).
    3. The ford opposite the farmhouse on Moncrieff Island (NO 121217).
    4. The ford between Friarton Hole and Orchardneuk.
    5. Sleepless Ford at the top of Sleepless Inch.
    6. The Oaks, also called the Ox Rocks, or Bow Heads, "an interruption of large stones" opposite Kinfauns Castle.
    7. Millhurst (Milnhurst) Ford (hurst or hirst means a ford), at the the top (west end) of Darry (Darien or Incherrat) Island.
    8. Flooke (Flukie) Ford at Seggieden.
    9. "A cairn of stones laid down in the tideway for a fishing law a little below Inchyra pier." Probably the Hurlecairn fishing station (NO 185201).
    10. "Two cairns of stones laid down in the tideway for fishing laws opposite Pitfour Castle, commonly called the Rhynd Cairns." (NO 194189)
    11. "Two smaller cairns of stones laid down in the tideway near the west Rhind cairn."
    12. "Scott's Cairn [possibly the Wemyss Cairn], near the mouth of the Earn, said to be the property of the Earl of Wemyss."

13. "Two cairns of stones in the tideway below the mouth of the Earn upon the Carpow property."

14. "Another cairn of stones upon Carpow property, laid in deep water."

15. "Another cairn of stones in the tideway on the east side opposite 14, called the Rash Bush Cairn, distant from the tideway."

16. "A stone dyke erected by Carpow to gain land [NO 202186], about 100 yards into the tideway, but still distant from the shipping."

17. Carwhingle (Kirwhinnel) Ford, which extended from the north end of Mugdrum Island to the south shore.

18. "Cairn of stones in the tideway at the corner of Mugdrum Island." This would be the Isle of Peat fishing station (NO 215185).

19. There was a further dyke below Newburgh extending 407 feet into the tideway from Lord Dundas' ground (Balmbreich) on the south shore. This was considered to be a danger to shipping.

PE 1/1/8, p 127.

Of the obstructions to shipping listed, numbers 1, 2, 3, 4, 5, 7, 8, and 17 were genuine fords in the sense of crossing places. Lenman suggests that some were artificial, while others were natural dykes of rock running across the river[1]. No doubt the latter would have been augmented with additional deposits of rubble. The Oaks (no. 6) was another natural obstruction of boulders. On Ritson's 1833 *Survey of the River Tay*[2], the Oaks is called the "Ox Rocks". There would be a similarity in

pronunciation of the words "oaks" and "ox" in the local dialect, which perhaps explains the alternative names.

The fishing cairns (or laws) were all artificial. Ritson's *Survey* shows no less than five cairns near the south shore immediately above the mouth of the Earn, which correspond to numbers 10, 11 and 12 in Alexander's Report. These would be part of the Earl of Wemyss' fishings, and would include the Rhynd Cairn and the Girnal fishing stations. On the same side below the mouth of the Earn, Ritson shows another four cairns which would be part of the Carpow fishings. On the north shore, above and below Cairnie pier, Ritson shows another six fishing cairns, these would be divided between the Inchyra fishings and the Pitfour fishings, and would include Rashbush. Rashbush and the other cairns on the north shore became incorporated into the shore when a new embankment was built at Cairnie. This embankment also incorporated what had previously been Nethermains Island (the name "Nethermains" remains in use at Nether Mains farm (NO 203198). The dykes listed as numbers 16 and 19 were examples of a common feature of the firth up as far as the mouth of the Earn. The dykes were led out into the river at right angles to the shore creating slack water on either side according to whether the tide was ebbing or flowing. The slack water caused the deposition of silt, and thus an extension of the land. It was the danger to shipping which these represented with which the report was principally concerned.

1. Lenman, *op. cit.* pp 28-29.

2. *Survey of the River Tay from Perth to Invergowrie and Balmerino in reference to the Improvement of its Navigation and the Extension of the Harbour of Perth by means of a Wet Dock,*

surveyed under the direction of Robert Stevenson and Alan Stevenson, Civil Engineers, Edinburgh, 1833, James Ritson, Surveyor.

3. It was believed that the fish ran in the deep water, thus an artificial promontory or a cairn standing separate from the shore would be an aid to the fishing.

See also the use of Bermony boats, p 222 *ff.*

4. PE 1/1/8, p 254.

5. *ibid.* p 291.

6. See J.F. Riddell: *Clyde Navigation*, Edinburgh, 1979.

7. PE 1/1/8, p 328.

8. *Memorial* dated Edinburgh, 17th May 1825.

PE 15, bundle 66B.

9. Lord Gray's (Francis, 14th Lord Gray) opinion was quite emphatic:

> I now beg to state that I will give the intended Bill every opposition in my power on the score that I conceive these plans while executing, will completely ruin my fishings, and when completed would make such an alteration in the course of the river, as more than probable would have a similar effect,
>
> There are only two ways in which I think the Town could get the better of my opposition the first is, let them take a long lease of my fishings, the second let them purchase them if this can be arranged.

PE 25, bundle 124.

10. PE 15, bundle 74. For example:

1. Deepening the river would cause a stronger current which would endanger the Perth Bridge and the embankments below Perth. The answer to this was that because of the windings of the river, the increase in the speed of the current would not be excessive.

2. That any compensation paid to fishing proprietors would be from harbour revenues and these were hypothetical. In reply it was argued that this was inevitable as any payments were in the

future, but the extent of the trade through the harbour at Perth in previous years was available for inspection from existing records.

3. That the operation of a dredging machine would be prejudicial to the fishings by muddying the water. The answer to this was that the bed of the river where dredging was to take place consisted of clean gravel which would not produce such an effect. It was also expected that the work of dredging could be accomplished during the close-time.

11. PE 15, bundle 90.

12. *Suggestions*, p 2.

13. *ibid.* pp 3-5.

14. *ibid.* pp 5-7.

15. *ibid.* pp 8-9.

16. *ibid.* pp 9-12.

A further letter from Glasgow gives more detail on this matter.

Glasgow 19 April 1834

Dear Sirs
No attempt was ever made on the part of the proprietors of fishings on the Clyde to prevent the passing of the Acts of Parliament under which the navigation of the River has been and is now being improved on pretext of injury which the projected operations would occasion to their fishings. But within these few years the proprietors of certain fishings have brought small claims against the Trustees for improvement of the Navigation for the damage which certain special acts then performing by the Trustees was likely to occasion. The works complained of consisted of the steep bank or dyke by which the channel of the River was considerably narrowed. In one instance the Trustees sloped the embankment so as to afford the proprietor nearly the same facilities in drawing his nets as he had previously enjoyed. And with that we are informed the proprietor was satisfied. In a second instance which occurred with the Town of Renfrew, the Trustees about two years ago entered into a contract by which they bound themselves to make good to the Town of Renfrew in all time coming the average rent which the Town of Renfrew has derived from their fishings during the ten preceding years. Heretofore the fishings of the Town of Renfrew have been let at higher rents than what were got for these fishings prior to the date of agreement. And the Trustees on the River have of course had nothing to pay under it. In the third remaining

instance that of Govan fishings about two miles below the City - the Trustees have in respect of their operation paid a small sum of damage and in order to diminish the claim they have taken a lease of the fishings for three years and subset it at a small cost.

So far as we can learn, the operations of deepening and confining the channel by embankments, as practised on the Clyde have not had the effect of preventing the fish from frequenting the river although the carrying the embankment across the shots where the nets were previously drawn has in the instances before referred to impeded the fishing of the River and rendered it more difficult. It is very likely that a different system of improvement may be adopted for the Tay than what has been adopted for the Clyde: that embanking may be dispensed with altogether, and hence that the improvements may be carried on without any injury whatever to the fishings.

The mass of poisonous matter which is introduced into the Clyde from the public works upon its banks and in and around Glasgow are generally considered to be much more injurious to the fishings than the deepening and embanking of the River. In very dry seasons that poisonous matter which by means of the steam boat agitation is thoroughly mixed with the stream, prevents the fish from ascending the River. We have seen the surface of the River sometimes covered with small fish in a dead or dying state from this cause. And we are told that a great number of salmon have been occasionally found dead in the River from the former cause. When a fresh, however, occurs in the River and the poisonous matter is thereby more quickly carried off the salmon we are told begin to ascend pretty freely.

Mr James Oswald one of the Members for the City is we believe a principal proprietor of the Govan fishing and he should be able to give your London Solicitors every information as to the effect produced by the improvements upon the fishings. Mr James Ewing the other member was for a considerable time previous to the Reform connected with the Town Council and in this capacity a Trustee of the River. He must also we think be able to afford similar information - particularly regarding the claims made upon the Trustees for the injury done to the fishings by the improvements.

Mr James Brown one of the Trustees who has of late taken the principal lead in the improvements is just now in London and will be there for some weeks on parliamentary business. He is we believe more conversant with details than any of the other gentlemen. He will be found at the Union Hotel, Cockspur Street.

We are

Dear Sirs

Yours truly
McGregor Murray McGregor

21 April

We retained the foregoing letter till this day that we might have an opportunity of speaking to the City Chamberlain whom we had no opportunity of seeing on Saturday. He confirms this information which we had otherwise obtained. He adds that of late years a number of dead salmon have been found floating in the River owing, as we have stated, to the poisonous matter

> introduced to it. The rental of the Clyde fishings is so very small that we doubt if any inference can be drawn from them in favour of your operations on the Tay. The rental of the Renfrew fishings is only £230 - that paid by the Trustees for the Govan fishings £120 - and the Govan fishings is subset by the Trustees for £90. The Tacksman of the Govan fishings says it is a farce to call the sum he pays rent; as he considers the money given just for the privilege which the lease of the Govan fishings enables him to exercise of introducing Irish salmon into the market as Clyde salmon. Still it is the poisonous matter introduced into the River which we conceive depreciates the fishing and not the improvements.
>
> Messrs. McGregor Murray McGregor

17. The 1830 Act was, ***An Act for Enlarging, Improving, and Maintaining the Port and Harbour of Perth, for Improving the Navigation of the River Tay to the said City, and for other Purposes therewith connected,*** (Geo. IV/Wil. IV, cap. 121).

18. George Penny: ***Traditions of Perth,*** Perth, 1836, (facsimile edition, 1986) p 266.

19. ***ibid.*** p 267.

The second Act was, ***An Act to alter and amend an Act passed in the Eleventh year of the Reign of His Late Majesty and First Year of the Reign of His Present Majesty, intituled 'An Act for enlarging, improving, and maintaining the Port and Harbour of Perth, for improving the Navigation of the River Tay to the said City, and for other Purposes therewith connected,*** (Wil. IV, cap. 67).

20. Specifically, the compensation was to be based on:

> the average Proportion, which the Salmon and Grilses taken upon the Fishing [or fishings] ... of each such Proprietor, during the Five Years or Fishing Seasons, immediately preceding the Commencement of the said Operations, bears to the whole Salmon and Grilses taken during the same Period of Five Years, in the River Tay ... and this Average Proportion being so fixed and ascertained, the said Owners and Occupiers of Fishings, shall be entitled to have it ascertained, in like manner, at the end of each Fishing season, ... during the continuance of the said operations in improving the Navigation ... and also during the Five Years or Fishing Seasons, immediately succeeding the

> Termination of such Operations ... whether there has been taken on the Fishing [or fishings] ... the same Proportion of Salmon and Grilses ... which it was previously ascertained, had been taken ... and in the Event ... [that it] shall fall under the Proportion ... the said Commissioners ... shall be bound ... to make good and pay ... the Loss or Damage arising from such Deficiency, to be ascertained at the Average of the selling price of Tay Salmon in the London Market, for each such Fishing Season.

21. It is interesting to note that though the borrowing powers of the Navigation Commissioners were limited to £50,000, Stevenson's original estimate was for £54,314, made up as follows:

	£	s.	d.
Improvement of the navigation	5,600	14	3
Tide-harbour	9,168	18	
Entrance lock	10,343	8	8
Ship canal	6,464	12	11
Wet-dock	22,737	4	4
	54,314	18	2

Report on the Navigation of the Tay, and Extension of Perth Harbour, Robert Stevenson & Son, Civil Engineers, 22nd January 1834.

PE 1/4/18(1-2).

22. "The Commissioners are deviating from the spirit and intention of the Act in so far as they propose to execute in whole and at once, a work which was intended to be executed progressively and in departments." Comment by Robert Stevenson.

PE 1/4/1, p 232.

23. *ibid.* pp 231-232.

One result of this was that the works were never completed to the extent originally planned.

24. *An Act to alter, amend, and enlarge the Powers and Provisions of Two several Acts of the Eleventh Year of the Reign of King George the Fourth and First Year of the Reign of King William the Fourth, and Fourth and Fifth Year of the Reign of King William the Fourth,*

for improving the Port and Harbour of Perth, and the Navigation of the River Tay to the said City, (2 & 3 Vict. cap. xxi).

The method for calculating the compensation was as follows, taking the Moncrieffe fishings as an example.

	salmon	grilse
The gross annual take of salmon and grilse in Tay and Earn on an average of 5 years preceding 1835 was	25,147	50,829
Of which the proportion taken on the Moncrieffe Fishings in Tay was	1,981	3,347
The gross take in Tay and Earn for 1835 was	34,178	64,347
Of which the above ratio of 1981:25,147 for salmon and 3404:50,826 for grilses the Proportion effeiring to Moncrieffe Tay fishings would be	2,692	4,309
But actual number taken was	2,557	5,357

Thus the Moncrieffe fishings were deficient of 135 salmon, but had an extra 1,048 grilse (see further table 7.2).

Source: PE 25, bundle 175.

25. PE 1/4/2, p 273.

The experiments with rafts were not successful.

26. Richardson's ***Memorandum*** was printed as Appendix F to the Report of the 1860 Committee.

The use of rail was from *c.* 1850.

Where permanent damage did occur at fishings, this was chiefly at those (e.g. Moncrieffe) located at or near the new harbour, the construction of which was destructive to fishings in the immediate area. The same applied to a lesser extent to some of the Burgh of Perth fishings (e.g. Weel of the West and ¼ Ships). As for the rest, the way in which the channel was deepened and the removal of large stones (see quote from ***Venator*** p 213) would have had a largely beneficial in levelling the bed of the river.

In other ways, the activities controlled by the Navigation Commissioners were both a help and a hindrance to the fisheries. On the positive side, there were many requests for gravel for the repair of beaches at fishing stations and these appear to have been met in the majority of instances (*cf.* the claims of Miss Hay's lawyers during the Bermony Boat Case, p 223). On the negative side, the Navigation Commissioners made strenuous efforts to have all fishing cairns either removed completely or resited on the adjacent shore. For example, the cairns erected on the Elcho and Carpow fishings at the mouth of the Earn.

> The direction at which the River Earn meets the Tay has produced a great bank between the Earn mouth, and the top of Mugdrum Island, and the evil has been aggravated by the erection of several cairns on the very verge of the fairway. These combined obstructions have tended to send through the north channel at Mugdrum Island a great part of the water which would otherwise pass the quays at Newburgh. The removal of the cairns becomes a work of immediate and imperative necessity, and the only question which needs consideration, regards the best method of affording the fishers a new site for shooting their nets, so as to lessen the damages which may ultimately come on the Commission. The cairns might either be shifted back or removed altogether, and a new fishing bank formed in their place. That the latter plan is the most advantageous for the navigation there cannot be doubted ...

PE 1/4/2, p 159.

27. 1842 Committee, p 23.

28. 1860 Committee, p 204.

Admiral William Heriot Maitland Dougall, R.N. of Scotscraig (1819-1890), second son of James Maitland Heriot of Ramornie and nephew of Rear-Admiral Sir Frederick Lewis Maitland, R.N. of Lindores. Assumed the additional surname of Dougall in 1851 when he married Elizabeth Kinnear, heiress of William Stark Dougall of Scotscraig.

BLG.

29. *ibid.* p 307.

30. *Venator:* "Notes on the Tay Salmon Fisheries", *The Field,* 21st November 1868, p 421 *ff.*

31. Lenman, *op. cit.* pp 99-101.

This transfer was formalised by legislation in 1856[1]. The extent to which the demands from the fishing proprietors for compensation led to the bankruptcy of the Harbour Commissioners may be judged from the following. The Navigation Commissioners Minutes are extremely coy about the final phase of their existence and and about the sums of money owed by them. There is an equal dearth of information as to why the sums to the fishing proprietors were still outstanding at the beginning of the 1850s. But setting these mysteries aside, the estates of Moncrieffe, Pitfour and Carpow, and the the Burgh of Perth were all due to receive payment for permanent loss of produce due to the works on the river (see table 7.2, p 205). Richardson of Pitfour declared to the 1860 Committee that the sum he received was £4,665 (see 1860 Report, p 444). The amount of the award to Carpow was stated as £3,067

in August 1850, though the figure of £3,705 was quoted in October of the same year as the total amount owing to Carpow[2]. In 1851 the Navigation Commissioners Minute Books declared the amount owing to Moncrieffe and Pitfour was £12,000 in total, which makes Moncrieffe's settlement (12,000-4,665 =) £7,335[3]. In a pamphlet printed in 1854 concerning the amount of compensation to pass to the Town Council from the Commissioners, the sum of £6,126 is given as the final amount owing, although one or two other small amounts were included in this. This made the grand total of compensation for permanent loss of produce in the region of £21,500, which was 25% of the total amount owed by the Navigation Commissioners[4]. If the £8,738 paid out as compensation prior to 1845 is added (see table 7.3, p 207), then the grand total paid in compensation to fishing proprietors was something over £30,000. The proprietors in receipt of this compensation were those whose estates bordered the "throat of the river" and whose rentals were the highest on the river. This select group of proprietors did rather well out of the Navigation Commissioners, though the Burgh of Perth had the misfortune to end up by having to take on the entire debt[5].

1. ***An Act to provide for the Arrangement of the financial Affairs of the City of Perth; for the Maintenance of the Port and Harbour; and for other Purposes therewith connected,*** (19 & 20 Vict. cap. cxxxviii.)

2. PE 1/4/4, pp 152, 167.

3. *ibid.* p 246.

4. This was made up as follows:

Pitfour	4,665
Moncrieffe	7,335
Burgh of Perth	6,126
Carpow	3,705
	£21,831

5. A document called *Abstract State of the Affairs of the City of Perth*, published in 1866 shows the Harbour Funds owing the Burgh no less than £101,204.

32. *Venator, op. cit.*

33. See Appendix VIII

34. See Chapter Five, IV, *passim.*

35. See further Chapter Ten, II, *passim.*

36.

> The salmon fishings were indeed formerly confined to the rivers, and it is not many years since the bag and stake net fishings were established along the coasts as they now are ... There cannot be any reasonable doubt that, from this cause, the river fishings have been, and must continue to be, seriously injured, and their value reduced.

James Thomson: *The Value and Importance of the Scotch Fisheries*, Aberdeen, 1849, p 14.

37. This was certainly the opinion at the time. Admiral Maitland Dougall in his evidence to the 1860 Committee consistently equated catches with rentals, i.e. if rentals had increased he assumed that catches had increased.

See James Bell's letter, Chapter Four, note 32, also Chapter Five, note 28.

38. *Losses on Tay fishings since 1819 to which Mr Robert Buist can speak.*

PE 25, bundle 54.

39. Abstract: Andrew Buist's Cash Transactions with City of Perth's Fishings, Season 1850.

Charge	£	s.	d.
London sales, season 1850	550		4
Home sales	80	12	4
Incidents received		3	6
Ice sold	16	17	
Cash from City Chamberlain	209	4	3
Amount of charge	856	17	5

Discharge	£	s.	d.	£	s.	d.
Cash disbursement for wages etc.				428	16	2
Cash disbursement for outfit	224	4	7½			
Deduct carried to repairs on fishing stations and lodges	30					
				194	4	7½
Cash disbursement for repairs on fishing stations, etc. per Wm. Moir's A/c and sundries	50	5	6			
Add as above from Outfit A/c	30					
				80	5	6
Cash paid to City Chamberlain				150		
Amount of discharge				853	6	3½
Balance due to City of Perth by Andrew Buist				3	11	1½

Note: Under the head "outfit" is included all the materials for additions and repairs to fishing lodges, also extra twine and cordage destroyed by the sharp stones in the bed of the river where the net travelled over having been left in this ruinous state since the October Floods of 1847 until they were cleared out by the crane barge under William Bell the overseer of Sleepless island fishings in 1850, and therefore £30 is deducted from the Outfit A/c and placed to the account of Repairs on Fishings and Lodges.

Statement of Rent left for City of Perth's fishings on Sleepless Island and Cally shot, kept in their own hands. Season 1850.

Andrew Buist, Manager.

	£	s.	d.
Amount of Inventory at 7th February 1851 per James Young's valuation	86	12	
Permanent repairs on fishing stations on Sleepless Island paid out of proceeds of sales of fish per Head no. 4	80	5	6
Cash balance in Andrew Buist's hands 20th Sept.	3	11	1½
	170	8	7½

Deduct balance of monies received from and paid to Chamberlain as follows:					
Cash received from Chamberlain	209	4	3		
Cash paid to Chamberlain	150				
				59	4	3
Which falls to be deducted from the above				111	4	4½

Note:

Cally - that turned out very ill, not paying nearly the wages, materials and expenses, only about £70 worth of fish altogether, which had it not been fished would have left £50 more rent to Sleepless Island.

The £80 5s. 6d. was chiefly for carrying gravel from upper Girdom to Lower or Little Girdom having to make it fishable as it had not been wrought for many years, and likewise for clearing Sleepless Shot of stones, it was in such a bad state of repair when the fishing commenced in March 1850.

PE 15, bundle 130.

40. Pitcaithly's grounds for a rebate were specifically:

i "the unprecedented scarcity of fish", caused perhaps by the "gradual diminution and past extirpation of the species", but also by disease among the salmon and grilse;

ii the exaction for the first time of shore dues at Perth harbour by the Navigation Commissioners;

iii because of encroachment on the Incherrat fishings by Lord Wemyss' tenant at the Upper and Lower Mary stations opposite;

iv because of the loss which he had sustained on the fishings: total revenue from the sale of fish was £624 14s. 6d., expenditure had been £312 2s. 6d., leaving a surplus of £312 12s. towards a rent of £602[1].

Pitcaithly did not mention price as an adverse factor.

1.

	£ s. d.	
578 salmon @ 16s. 6d.	476 17	
845 grilse @ 3s. 6d.	147 17 6	
		£624 14s. 6d.
Men's wages	210 12	
Coals, boats and windlasses	11	
Ropes and twine	65 10 6	
Ice and shore dues	25	
		£312 2s. 6d.
Leaving for rent		£312 12s.

PE 15, bundle 130, see also PE 1/1/13, pp 413-416.

In 1848 the produce of Incherrat was 986 salmon and 2,701 grilse and in 1849 1,162 salmon and 3,559 grilse, and so Pitcaithly did have a case with regard to his first complaint.

See "Produce of Fishings occupied by the New Kinfauns Fishing Co., 1848 and 1849." PE 25, bundle 87.

41. See p 347.

42. See *infra* note 72.

43. It may be noted also that the composition of the produce changed between the two periods. From 1784-1810 (table 3.2, p 89) the average annual catch of salmon was 35,626 and that for grilse 9,711. Over the period 1830-1845 (table 7.4, pp 211-212), however, the average annual catch of salmon was 25,488 and that

for grilse 47,757 (see also figures 7.1a and 7.1b for the proportions of salmon to grilse).

44. See *supra* p 215, also Chapter Eight, III, *passim*.

45. The bag net used on the coast was anchored in position, rather than being suspended from stakes, thus it was less restricted in the number of locations at which it could be used.

See also pp 272-273.

46. See Chapter Five, *passim*.

47. It is appropriate to cite again the quotation: "If the Crown in granting rights of salmon fishing to its vassals along the banks of a river, intended to confer upon all of them a real and substantial benefit, ... laws were necessary to prevent one set of grantees from obtaining a monopoly at the expense of the rest, ..." 1811 Evidence, p 14.

48. A. Russel: *The Salmon*, Edinburgh, 1864, p 142.

49. *Venator, op. cit., cf.* Proudfoot and Rannie, pp 130-131.

50. PE 51, bundles 530 and 534.

51. Variously Bermoney, Bearmoney, Beardmoney, Bermoncy, etc.

52. Charlotte Elizabeth Richardson Drummond-Hay of Seggieden (1834-1914), only surviving daughter and heiress of Captain James Richardson Hay of Seggieden, succeeded her father in 1854. In 1859 she married Henry Maurice Drummond, youngest son of Admiral Sir Adam Drummond of Megginch and assumed the additional surname of Drummond.

53. Seggieden, bundle 65,

54. Fishers could fish from a bank deposited in the waters *ex adverso* to their station provided that they kept their backs to the original station, i.e. they kept to the side of the bank facing the main channel.

55. Seggieden, bundle 65.

56. On the River Isla there was a village called Bermony (Boat of Bardmony NO 243448, is immediately adjacent to a bridge over the Isla) at which there was a ferry. The ferry crossed by means of a rope attached to each bank and passing over a wheel or rollers in the boat. In 1821 some salmon fishers at the Pitfour station of Rashbush who were aware of this method of propulsion employed it there for the first time.

57. PE 51, bundle 558/1.

In more detail:

> Both parties are substantially agreed in regard to the description of the system of fishing by bermoney boat. A stake or pin is fixed on the shore, or in the water near the shore, to which a rope is attached. The rope is then carried outwards into the river, and there fixed to another stake or anchor, in the tidal bed of the river. A boat, called the bermoney boat, runs along this rope, there being a wheel fixed and elevated in the boat, along which the boat runs. These wheels are generally in the top of uprights like low masts. A man in the bermoney boat impels it along by pulling the rope, and thus the bermoney boat is impelled from pin to pin without the use of oars.
>
> The use of this boat is to enable the fishing coble to depart upon its sweep from deep water. The coble containing the net leaves the outer pin, and the man in the bermoney boat takes hold of the tow rope of the net at that place, and returns with it in the bermoney boat to the shore. The coble in the meantime has gone upon its sweep, dropping the net in deep water. It returns to the shore with the other end of the net, and the haul is then made. ...
>
> By this contrivance, the proprietors of salmon fishings are enabled to get into deep water, where the salmon generally are, at places where it would be impossible otherwise to obtain this advantage. When the tide is back, the river is at certain places very shallow near the banks, and in consequence, the salmon are not to be found there. If, therefore, the coble went from the shore at these places, there would be required such a length of tow rope, in order to get into deep water, as to render the net altogether unmanageable, and therefore the fishing in such circumstances in a low state of the tide is impracticable. It is necessary to start with the coble from deep water, and there are two ways of doing this. Either, *first,* by making a roadway through the shallow water on to the deep channel by depositing earth and stones in the bed of the river; or *2ndly,* by forming a roadway, or what serves the purpose of a roadway, by the

> contrivance of the bermoney boat. The former of these courses has been pronounced illegal, ...

58. Although thereafter widely adopted, there appeared always to have been some doubt as to the legality of the Bermony boat as it was customary for proprietors to insert a clause in their tacks to the effect that its use could not be guaranteed though the tacksman was at liberty to use it if he chose.

A "Statement" by Thomas Proudfoot dated 22nd August 1855 among the Town Clerk's Papers gives the use of Bermony boats as follows:

Lord Wemyss (Elcho)	5
Carpow	3
Inchyra	2
Seggieden	1
Burgh of Perth	1
Lord Gray (Kinfauns)	1
	13

PE 16, bundle 664.

59. The use of the Bermony boat was apparently unique to the River Tay. A letter from Andrew Young of Invershin who was in charge of the Duke of Sutherland's fishings, but who had worked on the Tay from 1814-1832, stated that during that time and at no time since on any other river had he come across "such a fishing as this Bearmony .... nor does he believe there is such a mode in any other river in Scotland." It was Young's opinion that the Bermony was illegal.

PE 1/1/14, p 722.

60. The Council's attitude to the use of Bermony boats was ambivalent as their tacksman at the Cally station had been using one "for many years". See a letter to the Town Clerks of 1st July 1856 from Andrew Buist who was the tacksman at Cally.

PE 16, bundle 81.

The "Inventory of Nets, etc. belonging to the Town" (of Perth) of 7th February 1851 includes "1 Bermony boat and chain", valued at £5 10s.

PE 25, bundle 89.

61. PE 1/1/14, p 148.

62. *ibid.* p 251.

63. Respondent's Case, ***Hay v. Perth Town Council,*** 1863, p 12.

64. *ibid.* p 13.

65. Miss Hay was perhaps encouraged to appeal by an agreement with other interested proprietors to share the costs according to a proportion based upon the rents of the stations where Bermony boats were used, at the time these were the Elcho, Mugdrum and Seggieden estates only (a rare case of co-operation among proprietors).

Seggieden, bundle 47.

66. PE 1/1/15, p 264.

67. Prior to the introduction of windlasses, "winches and capstans" had been used, but they were of a semi-permanent nature less suited for use on a beach over which the tide advanced and retreated.

1824 Committee, p 66.

In 1834 an improved "patent" windlass came into use.

Leys, box 7, bundle 147, "Excerpts from Proof of Submission between Peter Hay Paterson Esq. of Carpow and the Tay Navigation Commissioners, 1849."

68. Windlasses on cairns, covered by the tide at high water, had poles with "cows" of broom attached as a warning to vessels.

PE 51, bundle 558/2.

69. PE 51, bundle 534.

70. HNC, p 73.

71. See also pp 128-129.

In this considerably assistance had been provided by the Navigation Commissioners depositing gravel in Blacklug Bay.

72. PE 16, bundle 664.

"Memoranda and Notes for Town" from Andrew Buist, December 1850. The details of the new stations were:

Elcho Estate
- Sir Robert Peel
- Lower Mary
- Reform
- Muirhead
- Cock

Kinfauns
- Blacklug
- Venture
- Ribneys (Desperation)

Moncrieffe
- Little Weel
- Bells Point

Inchyra
- Ford
- Hen

Pitfour
- back shot of North Inch
- Cairnie

less Diddledan

An additional thirteen stations.

73. PE 16, bundle 379, letter from Robert Powrie, Elcho Cottage to Andrew Buist, Barnhill Cottage, 12th August 1850.

74. 1836 Committee, p 264, evidence of Robert Wilson, salmon factor, Lower Thames Street, London.

75. ***New Statistical Account,*** Parish of Perth, p 92.

76. George Dodd: ***The Food of London,*** London, 1856, p 120.

77. PE 25, bundle 74, Interlocuter, ***Perth Harbour Commissioners v. Andrew Swan,*** 22nd May 1850.

78. TBMB, 8th October 1852.

79. 1860 Committee, testimony by George Ridpath of Forbes, Stewart & Company, p 127.

80. Chapter Five, III, *passim*.

81. See further Chapter Eight, I, *passim*.

82. HNC, Pursuers' Proof, p 14, evidence of Alexander Lumsden, Superintendent of the River Watchers.

A precise timetable of events on the banks about the head of Mugdrum island is contained among the Hay of Leys Papers.

"Notes as to Fishing Stations, Thursday 26th June 1884",

4.32 am high water Dundee

6.36 am high water Newburgh

9.20 am Wonder station, top of bank not seen.

Carpow, top of bank seen, men at work in the water.

Girnal, about 4ft. above water.

Wemyss Cairn, about 5ft. above water.

Reekit Lady, top of windlass seen.

Carwhip, windlass about clear, men at work.

9.50 am Wonder, 6 ins. of bank.

Girnal, fully 4ft.

Wemyss Cairn, 50ft. (horizontally) of bank.

Carwhip, gravel appearing.

Reekit Lady, 2ft. of windlass.

Little Bank, top of windlass barely clear.

Crombie Point, bank 2ft. above water.

10.13 am Little Bank, top wheel of windlass.

10.15 am Reekit Lady, top roller of windlass seen.

Carpow, bank 1½ft. above water.

Wonder, 1ft. above water.

10.40 am Carpow, bank clear.

Isle of Peat, sand bank appeared.

Reekit Lady, bank in sight.

10.50 am	Little Bank, windlass clear, men fishing.
	Lord Zetland's hailing appeared, but bank not above water.
11.10 am	Reekit Lady, windlass clear.
11.30 am	Reekit Lady, fishers went out.
12.15 pm	Wonder, bank beyond hailing seen.
	Carpow, greater part covered.
	Girnal, bank covered.
	Wemyss Cairn, small portions still dry.
12.45 pm	Low water.
1.49 pm	Low water Carpow.
2.45 pm	Reekit Lady, bank covered.
3.30 pm	Carpow, men off bank.
3.45 pm	Reekit Lady, windlass covered and men off bank.
	Wonder, bank covered to bottom of windlass.
	Carpow, bank covered to bottom of windlass.
3.55 pm	Wemyss Cairn, 4ft. of cairn above water.
	Girnal, 3ft. above water.
6.00 pm	High water.

Notes: Wemyss Cairn shifted back about two years ago and raised higher. Men go on Girnal and cairns about 1¼ hours after high water. Men go on Carpow about an hour after Girnal - 2½ hours after high water. Wonder about three(?) shots after Carpow or about ¾ hour, say 3 hours after high water. Abernethy goes on same time as Carpow.

Leys, box 7, bundle 147.

The times for the Reekit Lady station confirm Lumsden's statement about fishing on the banks being about four hours per tide.

83. Glovers, box 11, bundle 4. "Copy Precognitions as to Glover Fishings, 1872.

84. *Valuation Rolls.*

85. Glovers, box 11, bundle 1. "Remarks by Robert Buist on the Action between the Earl of Zetland and the Proprietors of the Estates of Errol and Seaside.", Perth, 11th August 1866.

86. 1860 Committee, p 192.

87. Admiral Maitland Dougall described the estuarial fisheries where they were restricted to toot nets only as "almost worthless". 1860 Committee, p 202.

Table 7.5

Burgh of Perth Fishings - Correlation between Produce and Rentals

Year	Rentals Y	Produce X	Y*Y	X*X	X*Y
1800	1010	4687	1020100	21967969	4733870
1801	1010	5280	1020100	27878400	5332800
1802	1010	3925	1020100	15405625	3964250
1803	1010	1543	1020100	2380849	1558430
1804	1010	1970	1020100	3880900	1989700
1805	1010	4353	1020100	18948609	4396530
1806	1010	2246	1020100	5044516	2268460
1807					
1808					
1809					
1810	724	2937	524176	8625969	2126388
1811	501	1927	251001	3713329	965427
1812	501	1969	251001	3876961	986469
1813	501	7028	251001	49392784	3521028
1814	501	6115	251001	37393225	3063615
1830	1300	11393	1690000	129800448	14810900
1831	1305	7362	1703025	54199044	9607410
1832	1305	7894	1703025	62315236	10301670
1833	1305	6637	1703025	44049769	8661285
1834	1305	7040	1703025	49561600	9187200
1835	1305	7964	1703025	63425296	10393020
1836	824	6412	678976	41113744	5283488
1837	824	7826	678976	61246276	6448624
1838	824	6674	678976	44542276	5499376
1839	1000	4501	1000000	20259001	4501000
1840	1000	4420	1000000	19536400	4420000
1842	1000	11343	1000000	128663648	11343000
1843	1000	9064	1000000	82156096	9064000
1844	1000	6333	1000000	40106889	6333000
1845	1000	5699	1000000	32478601	5699000
	Sum Y	Sum X	Sum Y*Y	Sum X*X	Sum X*Y
	26095	154542	26910933	1071963457	156459940

N = 27

0.40 R = 0.4

Using the formula: $R = \frac{N\Sigma XY - \Sigma X\Sigma Y}{SQR([N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2])}$

Where R = the Pearson product-moment correlation coefficient
N = the number of cases

Source: table 4.2

Table 7.6

Panmure Fishings - Correlation between Produce and Rentals

Year	Rentals Y	Produce X	Y*Y	X*X	X*Y
1830	420	5957	176400	35485849	2501940
1831	660	3270	435600	10692900	2158200
1832	640	3118	409600	9721924	1995520
1833	525	4009	275625	16072081	2104725
1834	530	2229	280900	4968441	1181370
1835	550	2070	302500	4284900	1138500
1836	550	1810	302500	3276100	995500
1837	430	1500	184900	2250000	645000
1838	430	1729	184900	2989441	743470
1839	430	1005	184900	1010025	432150
1840	430	547	184900	299209	235210
1841					
1842	166	1999	27556	3996001	331834
1843	166	1233	27556	1520289	204678
1844	255	958	65025	917764	244290
1845	270	1158	72900	1340964	312660
	Sum Y	Sum X	Sum Y*Y	Sum X*X	Sum X*Y
	6452	32592	3115762	98825888	15225047

N = 15

Ø

R = 0.391

Using the formula: $R = \dfrac{N\Sigma XY - \Sigma X\Sigma Y}{SQR([N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2])}$

Where R = the Pearson product-moment correlation coefficient
N = the number of cases

Source: table 4.4

Table 7.7

Kinfauns Fishings - Correlation between Produce and Rentals

Year	Rentals Y	Produce X	Y*Y	X*X	X*Y
1829	4000	13419	16000000	180069560	53676000
1830	3600	16430	12960000	269944899	59148000
1831	4000	10054	16000000	101082915	40216000
1832	2000	15114	4000000	228432995	30228000
1833	2500	12688	6250000	160985344	31720000
1834	2700	16156	7290000	261016335	43621200
1835	2700	21467	7290000	460832086	57960900
1836	2700	15847	7290000	251127407	42786900
1837	2700	17993	7290000	323748047	48581100
1838	2700	15162	7290000	229886244	40937400
1839	2700	14065	7290000	197824224	37975500
1840	3000	12950	9000000	167702499	38850000
1841					
1842	3000	28458	9000000	809857762	85374000
1843	3000	21322	9000000	454627681	63966000
1844	3200	15547	10240000	241709208	49750400
1845	3000	15327	9000000	234916928	45981000
1846	2800	15280	7840000	233478400	42784000
1847	3000	10630	9000000	112996899	31890000
1848	3000	11189	9000000	125193720	33567000
1849	2570	12310	6604900	151536099	31636700
	Sum Y	Sum X	Sum Y*Y	Sum X*X	Sum X*Y
	58870	311408	177634899	5196969254	910650100
	N = 20				

R = -0.154

Using the formula: $R = \frac{N\Sigma XY - \Sigma X\Sigma Y}{SQR([N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2])}$

Where R = the Pearson product-moment correlation coefficient
N = the number of cases

Source: table 4.3

Table 7.8

Kinnoull Fishings - Correlation between Produce and Rentals

Year	Rentals Y	Produce X	Y*Y	X*X	X*Y
1800	300	1993	90000	3972049	597900
1801	300	2002	90000	4008004	600600
1802	300	1619	90000	2621161	485700
1803	300	1585	90000	2512225	475500
1804	300	1591	90000	2531281	477300
1805	300	2140	90000	4579600	642000
1806	300	1058	90000	1119364	317400
1814	1080	4582	1166400	20994724	4948560
1815	1080	3765	1166400	14175225	4066200
1816	1080	6993	1166400	48902049	7552440
1817	1200	7073	1440000	50027329	8487600
1818	1200	4636	1440000	21492496	5563200
1819	1200	3707	1440000	13741849	4448400
1820	1200	3527	1440000	12439729	4232400
1821	1200	2253	1440000	5076009	2703600
1822	850	2279	722500	5193841	1937150
1823	700	2686	490000	7214596	1880200
1824	600	2765	360000	7645225	1659000
1825	750	2662	562500	7086244	1996500
1828	500	2925	250000	8555625	1462500
1830	485	3329	235225	11082241	1614565
1831	525	1104	275625	1218816	579600
1832	525	1326	275625	1758276	696150
1833	525	1190	275625	1416100	624750
1834	200	1516	40000	2298256	303200
1835	200	1861	40000	3463321	372200
1836	200	1199	40000	1437601	239800
1837	220	1105	48400	1221025	243100
1838	220	946	48400	894916	208120
1839	220	738	48400	544644	162360
1840	255	1290	65025	1664100	328950
1841					
1842	255	1573	65025	2474329	401115
1843	255	1323	65025	1750329	337365
1844	255	1004	65025	1008016	256020
1845	255	1250	65025	1562500	318750
1846	255	991	65025	982081	252705
	Sum Y	Sum X	Sum Y*Y	Sum X*X	Sum X*Y
	19590	83586	15431650	278665174	61472900

N = 36

R = 0.796

Using the formula: $R = \frac{N\Sigma XY - \Sigma X\Sigma Y}{SQR([N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2])}$

Where R = the Pearson product-moment correlation coefficient
N = the number of cases

Source: table 5.3

Table 7.9

Tay Fisheries - Correlation between Produce and Rentals

Year	Rentals Y	Produce X	Y*Y	X*X
1830	13747	84464	188980008	7134167252
1831	13874	60869	192487876	3705035156
1832	11629	82387	135233641	6787617728
1833	11577	74181	134026928	5502820728
1834	10908	69932	118984463	4890484592
1835	10857	98525	117874448	9707175572
1836	10212	62719	104284943	3933672934
1837	10150	81255	103022499	6602374984
1838	10285	66644	105781225	4441422738
1839	10498	48013	110208003	2305248152
1840	11058	44593	122279363	1988535654
1841				
1842	10236	111101	104775695	1.23434321E10
1843	10512	81101	110502143	6577372156
1844	10387	64663	107889768	4181303560
1845	10752	68237	115605503	4656288144
	Sum Y	Sum X	Sum Y*Y	Sum X*X
	166682	1098684	1871936508	8.475695146E10
	N = 15			

R = -0.04

Using the formula: $R = \frac{N\Sigma XY - \Sigma X\Sigma Y}{SQR([N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2])}$

Where R = the Pearson product-moment correlation coefficient
N = the number of cases

Source: table 5.2

CHAPTER EIGHT

FURTHER LEGISLATION

I - The Continuing Agitation in Favour of Stake Nets

Given the widespread disquiet about what was happening to the salmon stock of the Tay, why was nothing done? The answer is implicit in the events described in previous chapters and in what follows: any action to implement conservational remedies would have had to be joint action, but the primacy of self-interest and mutual antagonisms within the Tay fisheries preclude this. The enmity between river and estuarial interests, initiated during the Stake Net Cause, continued unabated, and by mid-century the once cohesive river and estuarial groups themselves were becoming increasingly fragmented', though joint initiatives emerged when an issue of primary importance left no alternative. Because of their fragmentation, proprietors saw remedial action in terms of restrictions on the activities of others. Thus participants' first priority was to defend their own share of the salmon stock, and then seek curbs on the excesses of others. Regulation when it eventually came had to be imposed from Westminster, but this was a long time in coming because of struggle over the form legislation should take and which group it should favour.

To give some idea of the nature of these delays and diversions, it is necessary to follow the course of the river/estuary conflict through the 1830s, 1840s and 1850s. Up to the time of the settlement of the Stake Net Cause in 1812, the conflict was analogous to a pitched battle with both sides seeking to impose their interpretation of the law upon the other. The river interest "won" the battle in that its interpretation was accepted by the courts and thereafter the struggle resembled a siege with the estuarial faction seeking to dislodge the river faction from its entrenched position. From time to time ingenious

new forms of net were adopted by the estuarial proprietors in an attempt to undermine the defences of the river proprietors, but these were invariably dispatched by a well-directed interdict. Both sides also indulged in a propaganda battle, firing off pamphlets at one another, particularly when there was a parliamentary inquiry in the offing. During the 1830s the estuarial proprietors withdrew from the field of battle in the sense that they no longer directly involved themselves with new forms of net and the like, leaving the field to those tacksmen and fishers who were willing to act as irregulars and skirmishers. From then on the proprietors concentrated their energies exclusively on diplomacy and lobbying tactics.

Their lobbying activities are chronicled in the Tayfield Papers as the Berry family were among the prime instigators of such activities. In March 1836, two letters from Christopher Kerr, a Dundee lawyer and legal representative of some of the estuarial proprietors, to William Berry of Tayfield told of a move to set up a Parliamentary Select Committee (the 1836 Committee) on the salmon fisheries. Kerr noted, "this will suit us perfectly, for under it we may raise the stake net question." However, in a second letter Kerr stated that those opposed to an inquiry had narrowed the terms of reference so that "stake nets do not directly fall under it ... and the committee named is evidently packed for a purpose."[2] As a counter to the narrowing of the terms of reference, Kerr proposed "vigorous movement" when the Committee took evidence with as many petitions as possible in favour of stake nets, a pamphlet setting out the pro-stake net case, and "direct instruction" to the Committee[3]. Presumably as the result of these suggestions, William Berry of Tayfield organised a protest meeting in Dundee Town Hall in April 1836, and in June Kerr wrote to Berry enclosing a copy of a pamphlet. The pamphlet did not directly mention stake nets, but Kerr noted that "the whole tenor

of our argument goes far on the abstract right of the proprietor of a salmon fishing to take as many salmon as he can [implying by what means he chose], provided only he does not hurt the national interest and does not interfere with private rights."[4] A letter to Berry in July 1836 from Sir Ronald C. Ferguson M.P. anticipated a Bill about stake nets to be introduced before the end of the parliamentary session, but no such Bill emerged[5].

Nothing daunted, William Berry was again active in the cause of the estuarial interests in 1838. At that time he was instrumental in having a further Bill promoted, and this initially involved the offices of Sir Robert Ferguson of Raith, M.P. (elder brother of Sir Ronald), and Campbell of Islay who jointly sponsored a Bill. However, Ferguson wrote to Berry on 11th April 1838 telling him that the clauses affecting stake nets had been omitted[6]. On 22nd October in the same year Berry wrote to the Hon. Fox Maule, M.P., who owned the Panmure fishings, seeking his help "in relieving the salmon fisheries in the estuaries and along the sea coasts of Scotland of the oppressive and degrading restrictions under which ... they have been placed."[7] Berry wrote on this occasion in the capacity of "Convener of the Owners of Salmon Fisheries in the Estuary of the Tay". The letter continued, "various Parliamentary measures have been agitated at the instance of those interested in river fisheries, which under pretence of regulating and improving the Scotch salmon fisheries were evidently devised for more effectually annihilating the fisheries on the sea coast and securing a monopoly to the river proprietors."[8] Berry sought Fox Maule's assistance in promoting a Bill to authorise the use of stake nets. However, Maule declined to help as "other parliamentary avocations will prevent my taking charge of any Bill."[9] Maule's political links with Perth and Perthshire (i.e. the river as opposed to

the estuary) would explain his reluctance to align himself with the estuarial group[10].

While the propaganda campaign was sustained by the proprietors, matters were more direct on the river. A letter from Christopher Kerr to William Berry on the 23rd April 1846 summarised an unsatisfactory situation. According to Kerr, the river proprietors had gone so far as to seek to limit the use of net & coble in the estuary (most likely to be a reference to toot nets rather than net & coble *per se*).

> It appears that the united body above make their attack on the tenants below, taking the several tenants singly, and that the tenants are undefended and allow interdict to pass and so the upper heritors are gradually securing through successive interdicts a most injurious and oppressive restraint on the coble fishing below, while they are at the same time year by year enlarging their own machinery in the upper fishings''

The purpose of Kerr's letter was seek to form (reform) an association of lower proprietors for the mutual defence of their interests. A meeting of the estuarial proprietors was held on the 9th June 1846. This meeting must have had some effect in stirring them to action, for on the 8th August William Berry wrote to Wedderburn of Birkhill seeking his support to have stake nets in the firth legalised. During the decade in which the anti-corn law agitation finally led to the repeal of the Corn Laws, and foreign salmon were being allowed into the country with only nominal duties (see table 8.1), Berry clearly considered the time for such a move to be propitious[12]. Table 8.1 shows that the principal sources of foreign salmon were Holland and Norway. Though the quantities imported from these sources increased as the century progressed, they remained a small proportion of the total coming to Billingsgate. In September Kerr was able to report to Berry that Dundee Town Council were to take the lead in "salmon fishery agitation" by circulating a paper on

Table 8.1

Number, Weight and Value of Boxes of Salmon Sent to Billingsgate - 1834-1900
(Average weight of each box 112lbs)

	Scotch	Irish	Dutch	Norwe-gian	English and Welsh	Total Boxes	Total Weight (tons)	Total Value (£s)
1834	30,650	350				31,000	1,550	217,000
1835	42,330	470				42,800	2,140	303,392
1836	24,570	430				25,000	1,250	148,936
1837	32,300	400				32,700	1,653	194,809
1838	21,400	900				22,300	1,115	134,280
1839	15,340	2,500				18,840	942	113,445
1840	15,160	4,570				19,734	986	122,789
1841	28,500	3,760				32,260	1,613	186,243
1842	39,417	4,490				43,907	2,180	261,573
1843	30,300	4,644	595	103	40	35,682	1,784	232,348
1844	28,178	4,248	269	269		32,964	1,648	212,182
1845	31,062	3,803	913	215	46	36,039	1,801	243,154
1846	25,510	5,214	849	100	41	31,714	1,585	211,426
1847	20,112	6,052	330	74	72	26,640	1,332	162,157
1848	22,525	4,373	1,148	67	48	28,161	1,408	173,298
1849	23,690	4,388	692		50	28,820	1,441	187,665
1850	13,940	2,135	105	54	72	16,306	815	112,732
1851	11,593	4,141	203	212	40	16,198	809	110,559
1852	13,044	3,602	176	306	20	17,149	857	120,043
1853	19,485	5,052	401	1,208	20	26,166	1,308	152,634
1854	23,194	6,333	345		128	30,000	1,500	154,128
1855	18,197	4,101	227		59	22,584	1,129	113,937
1856	15,438	6,568	68	5	200	22,279	1,113	114,461
1857	18,654	4,904	622		220	24,400	1,220	125,358
1858	21,564	6,429	913	19	499	29,481	1,474	166,778
1859	15,823*	4,839	922		86	21,670	1,083	117,817
1860	15,870	3,803	849	40	438	21,000	1,050	108,009
1861	12,337	4,582	849	60	442	18,270	913	95,619
1862	22,796	7,841	568	87	454	31,746	1,587	174,291
1863	24,297	8,183	1,227	180	663	34,550	1,727	195,434
1864	22,603	8,344	1,204	837	752	33,740	1,687	190,853
1865	19,009	6,858	1,479	1,069	868	29,283	1,464	174,583
1866	21,725	9,326	1,772	1,632	1,563	36,018	1,801	191,685
1867	23,006	5,411	1,203	1,296	2,405	33,321	1,666	201,701
1868	28,020	3,487	1,725	807	407	34,446	1,732	224,119
1869	20,474	8,800	1,843	637	696	32,450	1,622	210,324
1870	20,648	9,211	3,120	626	852	34,457	1,722	213,059
1871	23,390	7,379	2,953	516	1,037	35,275	1,764	207,480
1872	24,404**	5,298	1,380	952	1,316	33,350	1,667	
1873	30,181**	8,995	1,471	1,165	811	42,623	2,131	
1874	32,180**	6,041	1,602	1,491	652	41,966	2,098	
1875	20,375**	5,734	1,284	2,899	978	31,270	1,563	

Source: figures 1834-1875 from Archibald Young: *Salmon Fisheries*, London, 1877, pp 298-299.
The figures for 1834-1859 are also reproduced in the *Report from the Select Committee on Salmon Fisheries, Scotland; 1860*, p 126, from the evidence of George Ridpath of Forbes, Stewart & Co., fishmongers, London. These are identical to Young's figures, apart from (*) 1859 which is given by Ridpath as 15,630 boxes of Scotch salmon with total boxes 21,667.

The same figures are also given in the *Elgin Report* (*infra*) and are identical except for the years 1872-1875 (**) as follows: 1872 = 23,028; 1873 = 28,317; 1874 = 31,056; 1875 = 19,593.

Table 8.1 (continued)

	Scotch	Value of Scotch only (£)	Irish	Dutch	Norwegian	English	ƒTotal Boxes	Total Weight (tons)
1876	24,655							
1877	28,198							
1878	26,465							
1879	13,929							
1880	17,457							
1881	23,905							
1882	22,968							
1883	34,506							
1884	27,219							
1885	30,362							
1886	23,417	†222,923						
1887	26,907		†7,072	†2,060	†1,240	†2,324	†42,673	2,134
1888	22,859	†296,319						
1889	21,101	†133,470						
1890	18,931	†128,543						
1891	25,889	†173,646						
1892	21,889							
1893	18,903	†140,762						
1894	15,488	†140,113						
1895	25,364	†218,017	7,396	547	603	2,706	36,902	1,845
1896	22,435	†218,951	6,545	623	898	2,116	33,052	1,653
1897	16,284		4,132	911	2,047	1,904	25,794	1,290
1898	14,174		3,660	1,030	1,391	1,303	21,744	1,087
1899	15,410		4,265	584	1,251	1,692	23,435	1,172
1900	†15,151							

Source: figures 1876-1899 from, *Royal Commission on the Salmon Fisheries (Elgin Report), REPORT OF THE COMMISSIONERS ON SALMON FISHERIES, PART III, Appendix - Section I,* Cmnd. 1280, HMSO, London, 1902. Appendix VIII, "Documents handed in by Mr J. Wrench Towse, Clerk to the Fishmongers' Company."

Value columns indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913,* average of 1865 and 1885 = 100.

ƒTotal of boxes in certain years includes additional salmon from some of the following countries: Sweden, France, Germany, Denmark and Canada.

†Figures from the annual *Reports to the Fishery Board For Scotland,* 1886-1900.

the subject to the Burghs and Counties, and that the County of Forfar was expected to take the matter up'[13]. In a further letter to Berry, Kerr claimed "our salmon fishing case is now fairly launched", and if the lower heritors were prepared to "put their hands in their pockets and bear the cost of the works, and from their own personal exertions, I have considerable hope that the Government will be compelled to take up the case."'[14] Propaganda by the estuarial proprietors in favour of the legalisation of stake nets in the Firth of Tay reached its peak in January 1847 with the publication of a pamphlet by a Committee appointed by the County of Fife to consider communications received from the Provost of Dundee and the County of Forfar'[15]. The pamphlet quoted extensively from the evidence submitted to the 1824 Committee by the Rev. Dr John Fleming of Flisk on how the salmon catch in the Firth of Tay could be greatly increased by the use of stake nets'[16] and concluded by proposing action to have the law amended to legalise stake nets in estuaries. The pamphlet and the *Philodemos* letter reprinted within it are as significant for what they omit as for what they mention. The use of current issues like food shortages and the increase in free trade to enhance the much older arguments about the misapplication of the ancient statutes was good propaganda, but there was no mention of the effect which an additional and efficient mode of fishing would have on the salmon stock. Over-fishing had emerged as a distinct issue from the 1820s onwards, but the stake net proponents, like their adversaries the river proprietors, avoided any mention of this issue when it was embarrassing to their case.

The river proprietors were not unaware of activities in the firth. The Perth Town Council Minutes of 7th September 1846 record a complaint from Thomas Proudfoot, tacksman of the Burgh of Perth fishings, about the the use of fixed nets in the estuary. This pointed out one of the areas

of contention. Stake nets could not be prohibited on the sea coasts, but at the time the boundary between the sea and the estuary had not been legally defined, and not unnaturally the river and estuarial interests had different ideas as to where the estuary gave way to the sea[17]. The reaction of the Town Council to Proudfoot's complaint was to pass a motion agreeing to co-operate with other river proprietors in having an Act of Parliament passed to make *all* fixed nets illegal[18].

Although the estuarial proprietors appear to have made all the running in the propaganda battle, their printed sallies on occasion drew return fire from the river proprietors. One such is commented on by the estuarial interest in an ***Article for Insertion in the Dundee Newspapers regarding Stake Nets***, contained in the Tayfield papers.

> ... we were somewhat amused at the reasons, alleged by some of them [river proprietors] for a continuance of the present laws. The sum of their arguments seems to be that, as they have possessed a monopoly of the salmon under the existing law, the Legislature would be doing them a gross injustice to deprive them of what they have so long, in partnership with the seals and porpoises, exclusively enjoyed.

The article went on to forecast the downfall of the river proprietors' monopoly because of the introduction to the British market of cheaper salmon from other countries where the fisheries were "exercised with all the improvements of modern times."[19] In spite of these confident forecasts, the efforts of the lower proprietors to have the laws on stake nets in the estuaries changed were no more successful in the 1840s than in the 1830s.

The lack of success by the estuarial proprietors in having the law altered explains the continued illegal fishing in the estuary during the 1840s. Robert Buist's Superintendent's (of watchers) Report for 1848-49 gave a summary of events.

> The proprietors of the lower fishings after a most expensive law suit in the Stake Net Case gave up the principle of using fixed machinery. A respectable grade of tenants afterwards tried it and were put down. Another less respectable class afterwards attempted the use of fixed nets, and having nothing to lose, they got one to succeed another as fast as they were interdicted. This was most expensive and annoying, and as the last resource, it was thought expedient to interdict the fishers who worked the fishings for these people. This was attended with the best effects as then the so called tenants could get no one to fish for them, and the consequence was that not a bag or fixed net is to be found from the Buoy of Tay upward.

Clearly as each rank in the estuarial army was overcome by interdicts, they were replaced by those from the ranks below, and so on until the lowest ranks of all - the salmon fishers - were ultimately defeated. Buist's triumphant conclusion to his 1848-49 Report was that the use of illegal nets was "completely put down."[20]

Included within Buist's comprehensive boast was yet another form of illegal fishing which had also been dealt with in the courts at this time[21]. In addition to the salmon fisheries, there were also spirling (variously sparling or sperling) fisheries in the estuary of the Tay. The spirling, smelt or sprat is a small fish that had a limited local market. The spirling fisheries, which were not worked at the same season of the year as the salmon fishing, were let annually to local fishers who used a cone-shaped net of fine mesh to catch them. But in a case brought before the Sheriff by Robert Buist, two spirling fishermen had been found guilty of taking salmon at a known salmon station near Errol. The Sheriff found that "the net, first, by its size; second, by its construction; third, by its position in the water; and, fourth, at the season of the year when it was detected was imminently calculated to take, and could not avoid taking salmon."[22]

However, if Robert Buist thought that there would be no further trouble with netting in the firth after these successful prosecutions, he

was sadly mistaken. It took a year or two for new illegal modes of fishing to emerge, but in his Report for 1852-53 he noted briefly "no trouble with fixed nets in the estuary, but some use of drift nets in the narrow parts of the river[23]. The adoption of the drift or hang net was not initially in the estuary and its implications were not confined to that part of the river, though latterly it was used most widely in the firth. It was first complained of when used by tacksmen at river fisheries to augment their use of the sweep net. Subsequently it was taken up by legal tenants in the estuary, and thereafter by poachers on all parts of the river. In 1856 the Protection Committee of the Proprietors of Salmon Fisheries were told that the tenant at the Cally station had used a hang net in conjunction with a sweep net. The practice was to stretch the hang net across the breadth of the river, thus preventing fish from ascending further, and then use a sweep net immediately below where any salmon prevented from ascending would congregate. By 1859 Buist was reporting the use of hang nets below Newburgh and was authorised by the Protection Committee to employ extra watchers to stop this. By 1860 the situation had further deteriorated and the Protection Committee received complaints that there was a great deal of poaching about Mugdrum by means of hang nets. In 1862, which was the last year of the non-statutory "Association of The Proprietors of Salmon Fisheries in the River Tay", Robert Buist's successor as superintendent reported that for the latter part of the fishing season he had a crew of watchers "constantly cruising every tide up and down the river, from Inchyra to five miles below Newburgh."[24] The use of the hang net was to plague the river proprietors until the end of the century.

In the same way as the prominence of the issues of free trade and food shortages appeared to act as catalysts to action by the lower

proprietors in the 1840s, so the appointment of Fox Maule, by then second Lord Panmure, to the post of Secretary for War in Palmerston's Administration in 1855 seems to have had a similar effect in the 1850s. As John Kirk noted in a letter to John Berry of Tayfield, dated 20th April 1855, "it may be a long time before you find again a man in power so great, with a personal interest in the question so large as Lord Panmure has."[25] When approached, Panmure's response, expressed through his agent John Shiell on 31st May 1855, was to declare his readiness, "to support and promote any measure which may be brought into Parliament for repealing the law prohibiting stake nets in Scotch estuaries." But he did not wish to be involved in any other way than as a member of the legislature - a reply indicative of something less than wholehearted enthusiasm. He suggested that Berry and Admiral Maitland Dougall of Scotscraig, as two of the main proponents of the stake net case, go to London to lobby some of the other Scottish M.P.s[26]. This Berry and Maitland Dougall duly did in June 1855, when they lobbied 27 Scottish M.P.s all of whom had river estuaries within their constituencies, and most of whom had been in favour of a change in the law on stake nets[27]. Also, on the advice of the Lord Advocate and Lord Duncan of the Treasury, they prepared a Bill for submission to the Government[28]. If enterprise and energy had been sufficient to ensure success, the estuarial proprietors deserved to succeed. But their 1855 initiative was no more successful than any of their previous efforts and the Bill came to nought, though no doubt their sense of grievance was kept alive.

The next initiative for the estuarial cause again involved Admiral Maitland Dougall of Scotscraig, this time in his capacity as a witness before the 1860 Committee. The terms of reference of this Committee, in particular, required them to investigate the use of coastal nets and other fixed engines. Maitland Dougall explained that the coastal stake nets

were permanently in place, but because of the tidal variations fished for perhaps sixteen hours out of the twenty-four. Bag nets, which were set in deep water could fish for the full twenty-four hours. Those at Scotscraig, however, were set for two hours in the flood and then a further two hours in the ebb, being removed entirely from the water in the interim[29]. Unlike stake nets which were kept stretched and in place by the stakes embedded in the sand, the bag nets required no fixed wooden supports being suspended in the water from floats. The bag nets could be used on rocky coasts and other places unsuitable for stakes and were up to 120 yards in length. The bag or trap was at the seaward end with the remainder of the netting acting as leader. As they were set in deep water the fish remained alive and undamaged until removed by the fishers who rowed out to the bags in a coble. A further development was to attach bag nets to the seaward end of stake nets, thus greatly extending the barrier of netting presented to salmon swimming along the coast. The Scotscraig fishings consisted of six miles within the estuary fished by toot net and one mile on the coast fished by stake and bag nets. Maitland Dougall was a firm believer in the benefits of the stake net, but his arguments had not advanced beyond those put to the 1824 Committee. He thought that the most important part of the preservation of the species was to take care of the breeding fish and the "fry", but he did not equate fish caught in the estuary with "breeding fish" and thus believed that the use of bag and stake nets in the estuary would produce "an immense quantity more salmon for public food" with no harm to the young fish. In his view, banning coastal nets would result in a transfer of the Scotch salmon fishery to the Dutch and Norwegians (i.e. in the absence of the Scotch fishery the fish would be caught by others). Asked if it could be expected that upper river proprietors would protect breeding fish if the lower parts of the rivers were full of

"engines of destruction", he replied that "a large proportion" of the fish would pass through, though he did not explain how this would happen. Variations in the produce, he believed, were more to do with the natural cycles of the salmon than with variations in the intensity of netting[30]. Maitland Dougall's case to the 1860 Committee was anachronistic in that it argued for the re-introduction of stake nets to the estuary on the grounds of natural history. Such arguments were notably lacking from the propaganda put out by the various lobbyists of previous years. This is quite understandable, for they presumably understood that there was but one salmon stock for each river and if they were allowed to re-introduce the stake nets, then greater inroads would be made into that stock, not something they would draw attention to in their propaganda. Maitland Dougall, however, did not equate fish caught in the estuary with breeding fish, a convenient but by 1860, outdated belief. If Maitland Dougall was out of date in his understanding of the natural history of the salmon (perhaps he chose not to understand), he was quite clear about the adverse effects of net & coble as practised in the river at the time.

In sharp contrast to the evidence presented by Maitland Dougall was that given by Alexander Speedie who at the time had the tack of the Burgh of Perth fishings and also coastal nets near Montrose. His perhaps more impartial and practical opinion was that coastal nets were more expensive to operate than net & coble, and that they undoubtedly reduced the amount of salmon entering the Tay. Speedie was of the opinion that there were less salmon taken in the Tay because of the coastal nets, and he attributed the recovery in the price of salmon to the introduction of rail transport[31].

The findings of the 1860 Committee went against the re-introduction of stake nets to the estuaries, and their detailed findings are returned to in IV of this chapter. For the present it is necessary

to close this section by drawing the conclusion to which all the evidence points. There was no chance of reconciliation between the river and estuarial interests as long as they conducted themselves in the ways described. The river proprietors were not prepared to abandon an inch of their position and thought purely in terms of undeviating defence. The sense of deprivation among the estuarial proprietors was thus kept at a high degree of intensity so that a great deal of time and effort was expended by them in trying to breach the defences of the upper heritors. These were not circumstances propitious for the parties to recognise mutual interests, let alone act together upon them.

II - Poaching

The period prior to the *Home Drummond Act* of 1828 was, according to the evidence, characterised by almost unlimited poaching by all and sundry[32], and a considerable proportion of this unlawful activity had been fishing on into the close-time in August and September[33]. Thus the effect must have been similar to that created by the *Home Drummond Act* in 1828, i.e. fear that the salmon stock was under threat from netting the late summer runs. There was irony in this for the only favourable outcome of the *Home Drummond Act* had been to make prosecution for fishing offences worthwhile, but at the same time it legalised one of the more adverse fishing offences of the *status quo ante* by allowing the fishing season to continue until 15th September. But, in spite of the fears about the effect of the *Home Drummond Act* on the salmon stock, it did have a favourable effect on the nature and extent of poaching for some twenty years after its enactment. Because the Act implemented reasonable and therefore effective sanctions against poachers, proprietors could proceed with prosecutions thereafter, confident that the courts would award punishment. This had the effect of persuading tacksmen and other *legal* occupants of river fisheries to observe the law, especially as the time previously devoted to "washing the nets" was within the new netting season. There is more to this last change than is immediately apparent. When legitimate tacksmen were prepared to infringe the law themselves, they would not have been constrained in purchasing salmon poached by others who had no legitimate right to catch fish whatsoever[34]. But once they became law-abiding, then there would have been such constraints, and so with the withdrawal of tacksmen from illegal activities, the remaining poachers were denied an outlet for their booty. In particular, they were denied access to the boiling houses, ice houses and salmon smacks of the tacksmen which were the only means of

disposing of significant quantities of salmon. It may be concluded that the withdrawal of the "professionals" from infringing the law, and the denial of access to markets to the "amateurs" led to a decline in the quantity of fish poached on the river section of the Tay after 1828. This abeyance lasted only until the coming of the railways which allowed anyone to send salmon speedily wherever the wished. There was access to the national rail network from Perth from about 1850 onwards.

The proprietors on the Tay had had their own system of watchers since 1816[35], but after 1828 effective legal sanctions made the watchers' efforts more potent. Robert Buist had been appointed superintendent of the watchers immediately after the ***Home Drummond Act*** was passed, and in his evidence to the 1836 Committee he noted the beneficial effect of the Act in permitting "prompt and easy" convictions[36]. However, the case in the Firth of Tay was not so straightforward. Given the legal and topographical restrictions that applied there, and the continuing efforts by estuarial proprietors and tacksmen to surmount these restrictions, it was inevitable that many of the salmon and grilse taken in these waters would be taken by ***methods*** of doubtful, if not outright illegality[37]. In encouraging their tacksmen to devise methods of fishing that would be effective in the waters of the firth, the estuarial proprietors were clearly more concerned with efficacy than with legality, the more so when they regarded the law as an instrument of discrimination against themselves. Thus illegal methods of fishing were not unknown in the firth. Whether this amounted to poaching is another matter. However, there is no evidence to suggest that estuarial proprietors condoned fishing by anyone apart from their tacksmen, or allowed tacksmen to fish in close-time. Thus they did not allow poaching in these latter senses. That the estuarial proprietors continued to subscribe to the Association of Fishing Proprietors who financed the corps of watchers suggests that

their willingness to turn a blind eye to transgressions of the law was restricted to a narrow range of activities exclusively associated with methods of fishing.

The activities of the Association of Proprietors are recorded from 1843 onwards in their *Sederunt Books*[38]. The Association was run by a committee of proprietors[39] and its clerks were the firm of Peddie & Mackenzie. The Association was funded by an assessment on the rentals of all the proprietors of fisheries. In 1842-43, for example, total rentals were £10,235 and the assessment of 3% that year raised £307 1s. 6d., the cost of watching was £327 0s. 6d., including Robert Buist's salary of £40. The superintendent and his watchers were active only during close-time, which explains how it was possible for a tacksman such as Buist to devote time to such work. That part of the Tay from its confluence with the River Tummel down to Dunkeld was policed by the Duke of Atholl's own men, and the same applied to that part of the Tay flowing through the Earl of Breadalbane's estates, a service for which they were both paid a small sum by the Association[40].

Most of the work of the superintendent was concerned with protecting the spawning fish in the upper parts of the Tay basin, though Buist would deploy his men according to the location of the fish. His Report for 1845-46 gives a general idea of the work of the watchers. The Tay was, at the time, easiest and cheapest to protect as the only method of poaching was by nets, and they were easy to detect. The Isla was much less troubled by poachers than formerly because there were many fewer fish since a dam dyke had been built[41]. On the Ericht there was great difficulty with the lades leading to the works about Blairgowrie which made it easy for the workpeople to poach and Buist employed two watchers full-time in this area. There was little poaching on the Lyon at the time as the proprietors, Breadalbane and Menzies of Chesthill[42],

were active in suppressing it. Two years previously, some men from the area had been imprisoned for using leisters and this had acted as a discouragement. The Earn was the most difficult of all to protect. "Many of the people about Crieff and Auchterarder districts appear to be a loose and idle set and quite different from the Breadalbane highlanders." They operated in bands of eight or ten with blackened faces and had scouts to warn of the approach of the watchers[43]. The Almond also gave difficulty with the mill workers at the dam dykes. It is implicit in Buist's reports that, although of nuisance value, poaching in the country districts and by workmen at lades was not considered a serious threat to the salmon stock as "washing the nets" had been.

Buist's reports over the next few years are in a similar vein, with most of the poaching taking place on the Earn. However, in the 1850s disquiet again emerged with increased poaching activity on the Tay. The minutes of the proprietors' General Meeting on 9th October 1856 contain the copy of a petition received from some of the principal tacksmen on the Tay, indicating that they were not satisfied with the effectiveness of the watchers and suggesting that protection be provided during the fishing season in addition to the close-time. In particular, the petition noted that the breeding streams were not adequately protected and breeding fish and kelts were destroyed "in large quantities". During the fishing season there were no police or watchers to act against the use of illegal nets, nor the use of net & coble during the Saturday slap. Particular mention was made of the illegal use of hang nets. The extent of the tacksmens' concern may be judged by their offer to augment the system of police by paying for an extra full-time watcher to operate during the fishing season, provided that the proprietors would also appoint a full-time watcher to act in conjunction with the one paid for by the tacksmen. Both watchers were to concentrate their efforts in the

lower Tay and Earn "particularly during the summer months." This suggestion by the tacksmen was agreed to by the proprietors.

There was no further mention of the tacksmens' disquiet for a year or so, and in his Report for the years 1859-60 Buist's comments were distinctly self-congratulatory in tone[44]. He noted that "the men on all the [watchers'] stations concurred in stating that they never saw the country people more quiet." With regard to expenditure on the watchers, the expense was greater due to the extension of the close-time (voluntarily in 1853, statutorily in 1858), and also because the extent of the rivers to be watched had increased[45]. However, because of the increases in rentals, the rate per cent for assessment had remained the same[46]. Buist found this a "pleasing contrast" with the River Tweed which had cost £2,280 to protect at the same time[47].

Robert Buist's self-satisfaction almost immediately received a considerable rebuff. In his Report for 1860-61 he told of a matter "which has caused more vexation than anything that has happened during the 33 years I have had charge of the River Police." This was an incident in which Thomas Rutherford, one of Buist's trusted lieutenants, had been found with other watchers netting salmon at the mouth of the Almond during the close-time. What made it worse was that Buist had apparently only taken action on Rutherford's poaching when one of the tacksmen on the Tay, John Young, had publicly accused the watchers of the crime, and they had been forced to take him to court for defamation, a case which the watchers had lost. At the close of the court case Rutherford and two others had been immediately dismissed[48]. It appears that John Young in making his complaint against Rutherford had not been acting alone, but as a spokesman for other tacksmen, and their disquiet about the effectiveness of Buist and his watchers had been building up over a period of time[49]. The disquiet of the tacksmen also encompassed

the abilities of the Association of proprietors whom they thought ill-informed, "... the tenants have better means of ascertaining what is going on than the proprietors and often have information which may never reach the proprietors - indeed in the case referred to [Rutherford] the leading facts were verbally reported about eight months ago, altho' no action was taken on the report for what reason the undersigned are not aware." The letter concluded with the hope that "the river police may become a thoroughly efficient body, and better suited for the object of its appointment than it has been heretofore."[50]

A meeting of the Protection Committee on 18th November 1861 agreed to ask for Robert Buist's resignation, but he was to continue to receive £50 *per annum* as an advisor. George Gordon, who was Superintendent of the Perth County Police, was appointed his successor and was to combine the two posts for an initial period of one year. Gordon's first Report, presented on 15th October 1862, shows how hang nets were becoming more of a problem. Towards the end of the fishing season inspectors and watchers had been employed to prevent the use of hang nets in the lower river, then from the middle of August a boat with a crew had been employed in cruising between Inchyra and below Newburgh to watch for hang nets, and this was joined by a second boat and crew at the start of the close-time. These boats were continued until mid-October when the fish moved up from the estuary. At the start of the close-time 27 men were engaged as watchers, and this number was increased to 46 as the fish became more dispersed in the small spawning rivers[51].

There seems little doubt that towards the end of Robert Buist's *régime* as superintendent, watching had become rather lax and the extent of poaching greater than he cared to admit. Both Rutherford's blatant disregard for his position as a watcher, and the need to take greater measures to prevent the use of hang nets suggest that poaching had, with

the coming of the railways, again become a "commercial" proposition. There is, unfortunately, a dearth of evidence to confirm the connection between railways and the increase in poaching, and positive confirmation is not available until the end of the century. The (London) Fishmongers' Company had the right in England and Wales to seize salmon that had been illegally caught. This right did not extend to Scotland, though they could seize illegally caught Scotch salmon once it had been transported to England. In his evidence to the Elgin Commission in 1900, John Wrench Towse, Clerk to the Fishmongers' Company, in describing a case of poaching (no date given) explained that "the the greatest factor in its success was, as before, the co-operation, for a large portion of the profits, of the railway servants." The salmon had been packed in barrels consigned as "Scotch pickled herring". Sending poached salmon by rail was clearly a common practice that had been going on for some time, for Towse gave a long list of the false designations that had been used on various occasions[52]. A specifically local incident had occurred in October 1880 when George, John and James Dunn, tacksmen from Newburgh, were charged with being in possession of a box of sea trout (not salmon) at Newburgh Railways Station[53]. In spite of the dearth of evidence, it is difficult not to accept that poachers wishing to send a perishable item such as salmon to the urban areas of the United Kingdom in the second half of the nineteenth century would not use the rail network. There would certainly not have been any alternative means of transport at the time, apart from local carriers and the coastal shipping. Rail would have been the obvious way.

Another factor that probably assisted in keeping poaching in check prior to the coming of the railways was low prices. Poaching revived in the 1860s, and comments about higher prices were current at that time. One from 1869 is worth quoting. "Does it ever strike our river

proprietors that the high price of salmon may have something to do in the way of encouraging poaching? For our own part we have a strong suspicion that it has - in short that it acts as a sort of premium to it ... poaching is a thriving profitable trade because salmon fetch an artificial price."[64]

It may be concluded that poaching was not a major problem for the Tay salmon fisheries during the period from the passing of the ***Home Drummond Act*** until the coming of the railways in the 1850s. This was largely the result of two factors: a lack of any effective distribution network for poached fish and low prices. The lack of pre-occupation with poaching is confirmed by the 1860 Committee which made no reference to it in its conclusions, apart from a reference to "night poaching"[65]. ***The Salmon Fisheries (Scotland) Act, 1862*** made only one specific reference to poaching in clause 27 which made three or more persons fishing at night a criminal rather than a civil offence.

III - The Close-Time

The potentially damaging extension of the fishing season allowed by the *Home Drummond Act* has been referred to in Chapter Seven, II, and elsewhere. This was recognised as soon as the Act became operative, and gave rise to agitation to have the fishing season reduced by starting the close-time earlier. In his evidence to the 1836 Committee Robert Buist stated his belief that the close-time could begin a month earlier on the Tay[56]. However, the 1836 Committee did not produce any legislative change, and at a General meeting of the Association of Proprietors in 1845, Buist continued to report the ill effects of the extended netting season. The meeting resolved to approach Mr Home Drummond, then M.P. for Perthshire, to have the start of the close-time altered to the 26th August. Although nothing came of this resolution, the matter was still very much current in 1849, when in his Report for that year Buist noted the large number of fish in spawning condition (legally) killed between 26th August and 14th September[57]. Following discussions with James Wilson of the Fishery Board in Scotland, Buist made suggestions which might be incorporated in a new Bill: first, that the close-time to extend from 26th August to 15th January or 1st February: second, that the Saturday slap apply to all modes of fishing, a suggestion that was particularly directed at the coastal nets: and third, that the rod fishing season be extended for two or three weeks beyond the netting season as a *quid pro quo* to get the co-operation of the upper river proprietors over protection.

This last suggestion indicates that the upper proprietors were still very adversely affected by the nets in the throat of the river, and perhaps the "zeal" they had shown in protecting the spawning salmon immediately after the passing of the *Home Drummond Act* was wearing thin[58]. It also indicated that the commercial value of upper river

fishings was solely from rod fishing rentals. As things stood, there was no incentive for upper river proprietors co-operating to protect spawning fish when they had no opportunity to catch fish during the season - an extension of the rod fishing season would have been a means of securing this. A particular instance of the attitude of upper river proprietors concerned Butter of Faskally and Sandeman of Bonskeid, whose estates were on the Tummell near Pitlochry[59]. Their properties bordered the Falls of Tummell, a natural barrier to salmon which they could only ascend under exceptional conditions of spate. As a result, the very extensive system of rivers and lochs beyond the falls, including lochs Tummell, Rannoch, Ericht, Laidon and Baa, were little used for spawning[60]. It was thought that the Falls of Tummell could be made passable by a little judicious blasting of the rock, but the two proprietors sought to use the alteration to their property as a condition to have the intensity of the lower river netting reduced - a forlorn hope as it turned out. A similar attitude was displayed by the Duke of Atholl and the Earl of Breadalbane who still, in return for a modest some paid by the Association of Proprietors, allowed the use of their own men as watchers within their own extensive estates[61]. However, by the early 1850s Buist noted a decrease in their willingness to co-operate in this way because their fishings were worth very little as a result of the over-fishing by the lower river proprietors.

In spite of the many suggestions for legislation, by 1852 there still had been no action on altering the close-time. Table 5.2 (p 134) and figure 5.2a (facing p 134) show that rentals were about to reach their nadir, a mere half of what they had been 25 years before. This crisis was sufficient to bring the river proprietors to joint action, for in that year those on the Tay above the confluence with the Earn voluntarily agreed to take off the nets on the 26th of August, an

agreement in which they were joined unasked by Maitland Dougall of Scotscraig[62]. This was a notable agreement for it represented the river proprietors for once taking positive joint action, albeit that they were under considerable pressure to do something about the continuing fall in their rentals. Whether the subsequent rise in rentals was the result of this action, or whether it was merely one among other factors such as the coming of the railways and higher prices is a moot point[63].

However, The contentious nature of the river proprietors was too strong for any agreement that was only voluntary. In 1855 the Association of Proprietors received a letter from Sir John Richardson of Pitfour suggesting that his fishing stations opposite to the Carpow fishings (just below the mouth of the Earn) should be fished from 26th August to 4th September, and that any profit be devoted to the protection of the river. The reason for this was that, as the Carpow estate was not party to the agreement to close the netting season on the 26th of August, nothing was gained as the Carpow nets swept the waters in which the Pitfour nets would have operated. The Association successfully opposed this proposal, but they were less successful in persuading Perth Town Council to continue to be a party to the earlier closing. The Council had already come under pressure from its tacksman, Andrew Buist, to revert to the statutory netting season[64], and at its meeting on 24th October 1855 passed a motion that although it supported the idea of legislation to close the season earlier it would not do so voluntarily unless all proprietors did the same. The situation remained unresolved during the 1856 season when some smaller estates allowed their tacksmen to fish until the 14th of September. In 1857 matters became worse when the Elcho fishings reverted to the statutory close-time. Accordingly in October that year, recognising the impossibility of maintaining voluntary joint action, the Association agreed to promote a Private Bill to have the

netting season altered. Despite opposition from estuarial proprietors, the *Tay Fisheries Act* became law in 1858, changing the start of the close-time to the 27th of August, but leaving the start of the netting season unaltered at 1st February[65]. The close-time was thus extended from 158 days to 168 days[66].

When dealing with the close-time, it is appropriate to make brief mention of the other controversy in this area. From the introduction of stake nets on the coasts in the 1820s, those operating the coastal nets had ignored the Saturday slap. Asked by the 1836 Committee about the behaviour of the coastal netsmen with regard to the Saturday slap, Robert Buist had replied that "the stake net people never take Sunday into account."[67] To the river proprietors, the coastal netsmen ignoring the Saturday slap was an additional source of annoyance.

There can be no doubt that the *Home Drummond Act* by extending the netting season to mid-September added to contemporary fears about the erosion of the salmon stock. Thus *Venator* was convinced of its evil effects. "From 1828 to 1853 in which latter year a return was made to the 26th August by private agreement, the rental of the Tay underwent an alarming decline [see table 5.2, p 134] ... the lengthened fishing season and the stake nets combined must be held answerable for this."[68] Writing of the Scotch salmon fisheries in general, the editor of *The Field* similarly argued that after the 1828 Act "during the next 30 years the fisheries grew worse and worse. The export of salmon to London fell off greatly ..."[69] Whether in fact it had the adverse effects claimed cannot be proved either way - if it did then they were not lasting. The particular interest in the matter is the contrast it points between widespread disquiet and the time that elapsed before action was taken to remove the disquiet: twenty years for the Tay, slightly longer for the rest of the United Kingdom.

According to their terms of reference, the close-time was one of the matters that the 1860 Committee were required to investigate. They concluded that close-time should run from 20th August to 1st February for all rivers, that no salmon should be sold after 1st September, and that the Saturday slap should be from 18.00 hours on the Saturday until 06.00 hours on the Monday, to be observed by coastal as well as river tacksmen. These recommendations followed from the almost universally voiced opinion of the witnesses heard by the Committee. In 1862, with the passing of the *Salmon Fisheries (Scotland) Act*, the matter of close-time was resolved. The *1862 Act*, closely following the recommendations of the 1860 Committee and enacted that the annual close-time should last for 168 days and the Saturday slap for 36 hours. The starting and closing times for the Saturday slap could be varied by District Boards, provided it remained a full 36 hours. District Boards were also allowed to fix the beginning and end of the annual close-time in the best interests of their particular river, and the rod fishing was to be allowed an extension.

IV - Summary

The 1860 Committee turned out to be one of the more significant of those set to investigate the salmon fisheries during the nineteenth century, for its findings gave rise to the *Salmon Fisheries (Scotland) Act, 1862*[70], by far the most important piece of legislation to affect the Scotch salmon fisheries passed during that century. The Report of the 1860 Committee, therefore, marks a suitable juncture at which to review events that affected the Tay salmon fisheries over the period from 1828.

As remarked in Chapter Seven[71], contemporary unease about the manifest decline in the produce and rentals of individual fisheries was widespread, and this was the reason for the fishing season being reduced, for some estates after 1853, and for all estates after the Tay Act of 1858 (by some twenty days). Among other matters causing concern were continuing complaints about the adverse effect of the coastal nets on the river fisheries. That both river and coastal nets were depleting the same stock of salmon is quite correct, and the activities of the coastal nets increased pressure on the salmon stock. The 1860 Committee showed concern over stake nets, and in the interests of conservation they initially recommended the abolition of all cruives and fixed engines, whether the latter were in rivers or on the coast, "or at least no new ones allowed."[72] This was significant for it showed that they were convinced of the need to conserve, in spite of the lack of hard statistical information. Why they chose to curb stake nets only and exclude the river fisheries from restriction is not clear, though it suggests the work of lobbyists. It may be concluded, therefore, that there were three distinct forces seen as threatening to the produce of the Tay: first, the extension of the fishing season before and after 1828 which allowed more fish to be caught: second, the introduction of coastal nets which reduced the number of salmon coming to the rivers: third, a

greater intensity of fishing in the sense of more stations and more efficient use of existing methods which decreased the catches at the individual fisheries.

The 1860 Committee had much less to say about either poaching or the close-time. With regard to poaching, they recognised a situation that conformed to that on the Tay, where, apart from activities in the firth connected with variations of nets, poaching had not been a serious problem between 1828 and the 1850s. This was almost certainly because the *Home Drummond Act* had dissuaded tacksmen from transgressing the law in the ways which they had prior to 1828. Without access to the means of preservation or distribution, such poaching as remained was limited in extent until the advent of the railways solved these problems from the 1850s onwards. However, the form poaching was to take in the future had already revealed itself with the increasing use of the hang net from the 1850s. Though the matter of the start of the annual close-time had taken up a great deal of attention on the Tay, it had been "solved" by the Tay proprietors promoting their own legislation prior to 1860. It may also have been that the close-time was a less pressing matter on other rivers, whatever the case, the 1860 Committee were not greatly taken up with it, though their recommendations were enacted.

As a result of the recommendations of the 1860 Committee two Salmon Bills came before Parliament during 1861, one each for Scotland and England. Both were principally directed against the use of fixed engines. However, the Scottish Bill was thrown out "chiefly owing to the opposition of interested parties."[73] This may be taken to be the stake net proponents who were intent to maintain the *status quo* round the coasts[74]. Thus the *1862 Act* made no reference to stake nets. Herein lies the great omission from this Act, for, like the preceding *Home Drummond Act*, it failed to resolve the differences between estuarial and

river interests. Neither party had won the lobbying battles, and the entire fisheries lost by their continuing enmity. As a commentator on the Tay fisheries aptly observed in 1868:

> even to the most disinterested observer it must, I am sure, be very apparent that a great deal of blame rests on the shoulders of an influential section of the proprietors themselves, who have scarcely ever been content to "let well alone". The absurd jealousies, the utter want of harmony, between the proprietors, upper and lower, have unquestionably had much to do with the ruinous vicissitudes of the fisheries. Why should any section consider its interests essentially antagonistic to those of another, while in reality they are identical? ...
>
> ... But the old feeling of jealousy was not allayed by the decision of 1814 [1812?]. It was strong and active in 1828; and it still crops out wherever opportunity offers.[75]

Very similar sentiments were expressed by the editor of *The Field* in an editorial entitled "A plea for cheap salmon", published on 13th February 1869. Although not specifically about the Tay, the editorial did not foresee any reduction in the price of salmon until fishing proprietors ceased "splitting into antagonistic sections, each striving with all its might to win the game of 'beggar my neighbour'," and instead endeavoured "by a hearty mutual co-operation in improving their common property" to restore the fisheries to the condition in which they were formerly. This was the last occasion during the nineteenth century when attempts were made to alter the law affecting stake nets. They remained in use on the coasts, but were not allowed to return to the estuaries. Russel's description of the parliamentary manoeuvring does not suggest that there were any grounds for reconciliation between the river and estuarial interests at the time, and so the great schism remained[75].

There was one final matter which emerged during the hearings of the 1860 Committee. This came from Alexander Russel, though he was not the originator of the idea. It is an idea both striking in its simplicity and appealing in its apparent promise as a means to heal the

divisions among the participants in the Tay salmon fisheries. It was that the existing proprietors might fish the river jointly.

> The whole object of the law is to prevent the use of too effective an engine at any one point, and the consequence is there are great difficulties put in the way of each man fishing, in order that he may not injure his neighbour ... but when you have got now by long use to ascertain the proportion that each fishery bears to the whole fishery of the river, [....], you ought to fish the river effectively with as few engines as possible, of course taking security, either by limiting the time, or limiting the quantity, that a due proportion of fish get up to the upper waters. They might fish most rivers at a fifth or a tenth of the present expense.[77]

Russel set out this idea again in his book published in 1864, in which he specifically mentioned the idea of a joint-stock company using "engines" to fish the river in the most efficient way. Although he was not explicit on the matter, Russel implied that the legal insistence on net & coble to give all proprietors an equal chance of catching fish on their stretch of river might be relaxed if the river were fished jointly, as this requirement would then be irrelevant, and the most efficient engine could be employed. "No more machinery should be used than is *necessary*, or would be used if one man owned the whole river." According to Russel such an idea had been proposed for the Aberdeen River Dee in 1839[78].

As well as being sensible in purely commercial terms (the reduction in costs of having to operate fewer stations would have been considerable), such a scheme would have allowed the Tay, or significant parts of it, to be run on an integrated basis, thus making it possible to take an overview of the extent of the exploitation. A situation much more likely to lead to proper conservation policies being employed. Russel had observed the benefits of single ownership in other rivers:

> We may state generally that, ... the decline in the Scottish fisheries was, ... universal and alarming ...; although in one or two cases, such as the Spey and the rivers of Sutherland, where the fisheries are in the hands of one great

> proprietor, who has resorted to a wise moderation, a great difference for the better was discernible,[79]

But a return to a single company managing the Tay as in the days of John Richardson & Company was still some forty years in the future[80].

REFERENCES

1. See, for example, the legal case between Miss Hay of Seggieden and Perth Town Council, pp 222-226, and that between the Glover Incorporation and the Earl of Zetland, see Appendix VI.

2. Tayfield, box 39.

   In 1836 a Bill was introduced in the House of Commons by P.M. Stewart and James Loch proposing to divide Scotland into twelve districts, each with powers to vary the beginning and end of the close-time, and giving a further fourteen day extension to the rod fishing season. This was no doubt the primary purpose of the Bill referred to by Kerr. It did not reach the statute book.

   A. Russel: *The Salmon*, Edinburgh, 1864, p 145.

3. Tayfield, box 39.

4. Tayfield, box 54, bundle 4.

5. *ibid.*

   Sir Ronald Craufurd Ferguson, M.P., after a distinguished military career became M.P. for Kirkcaldy Burghs 1806-30 and for Nottingham from 1830 until his death in 1841.

   D.N.B.

6. Sir Robert Ferguson of Raith, for many years a radical M.P., is mentioned under his brother's entry in the *D.N.B.*

   Campbell of Islay had argued that to retain the clauses about stake nets would be to put the entire Bill to risk (the other matters included in the Bill are not known).

   In the letter Ferguson also reported a conversation he had had with (Sir John?) Richardson (of Pitfour?). Richardson of Pitfour, if it were he, surprisingly for a river proprietor, had apparently regarded the clauses permitting stake nets as "quite equitable", but had considered that they would never be passed with all the river

interests against them. "He mentioned a very great difficulty - that the Perth Fishery by contract, pays a compensation to the upper proprietors, upon the understanding that the rights and manner of fishing are to remain *status quo* - but if your clauses were introduced, they would at once cry out that their fishing was injured by the stationary [i.e. stake] nets down the river, and that their contract with the upper proprietors must cease." Who exactly the "Perth Fishery" amounted to is not clear, but it is clear that they could not afford to deviate from the *status quo* without creating even more dissension on the Tay.

7. Tayfield, box 39.

Fox Maule had been a member of the 1836 Select Committee on Salmon Fisheries and it is not clear why Berry had not contacted him before on this subject.

Fox Maule, 11th Earl of Dalhousie, 2nd Baron Panmure (1801-1874), eldest son of William Maule, 1st Baron Panmure.. M.P. (Liberal) for Perthshire, 1835-1837; for Elgin Burghs, 1838-1841; and for Perth 1841-1852 when he succeeded his father. Under-Secretary of State in Lord Melbourne's ministry, 1835-1841; Vice-President of the Board of Trade, 1841; Secretary at War in Lord John Russell's administration, 1846-1852; and again under Lord Palmerston's administration, 1855-1858. In 1860 he succeeded his cousin to the Earldom of Dalhousie.

BPB, DNB.

8. Tayfield, box 39.

9. *ibid.*

10. It would have been in Maule's personal interest to do so as it would have increased his rental income.

11. Tayfield, box 39.

12. a letter to William Berry from Thomas Buchan of Haddingtonshire dated 27th October 1846, states "I am glad to see you standing up as a free trader, for I think there can be no doubt that the true policy of (?) is to aim at abolishing all monopolies together now that the agricultural interest is subject to open competition."
ibid.

13. *ibid.*

14. *ibid.*

15. *ibid.*

One Part of the pamphlet consisted of a letter from *Philodemos* to the *Morning Chronicle* dated November 1846, the draft of which is in the Tayfield papers (see Appendix V). A letter from an indecipherable correspondent in Glasgow of 17th December 1846 promises to have the (same?) article published in the *Glasgow Herald*[1]. *Philodemos'* letter is interesting in that it seeks to take emotive advantage of current concerns over the potato blight and the consequent famines, though quite how salmon could become such an abundant and cheap food source as the potato was not explained.

The pamphlet was published in January 1847, and was entitled *Report by the Committee appointed by the County of Fife regarding the communications made by the Provost of Dundee and County of Forfar on the subject of an alteration of the laws regulating the mode of catching salmon in the estuaries of rivers in Scotland*[2]. In addition it made mention of the recent reduction in tariff barriers.

> The great disadvantages under which Scotland lies in the restriction of the supply from her estuary fisheries have become more fully apparent of late years, in consequence of the competition which she has to support with the unrestricted produce of fisheries in foreign countries, from which, by a

> late tariff regulation, salmon are introduced at a nominal duty.

1. Tayfield, box 39.

2. *ibid.*

The pamphlet was written by William Berry of Tayfield, see letter of thanks to Berry from Wedderburn of Birkhill, 16th November 1846.

16. See Chapter Six, I, ***passim***.

17. In his evidence to the 1860 Committee, Admiral Maitland Dougall of Scotscraig defined the boundary between the Firth of Tay and the North Sea as a line from Budden Ness (NO 55 30) to Tentsmuir Point (NO 49 28), as his fishings were both on the coast and on the south shore about Tentsmuir, this was no doubt the boundary adhered to by the estuarial group.

18. PE 1/1/12, p 584.

19. Tayfield, box 39

A draft in pencil that may well be the original of that quoted is also contained in the Tayfield Papers. It is even more stringent in its comments upon the river proprietors.

> It was with no small amusement that we read an account of the treatment which the Memorial alluded to received at the Perth County Meeting [on] 29th *ult*, the members of which seemed wavering between high indignation at the insolence displayed in laying before them proposals for any measure so adverse in their opinion to their private emolument, and a fond hope that the present reign of ignorance and prejudice might be continued. The arguments also brought forward were eminently characteristic of the antiquated [?] and rottenness of those proprietors with which they strive to prevent the downfall of their tottering fabric. Truly their ingenuity in devising such arguments only equals their assurance in bringing them forward. In order that a few dozen fishermen may enjoy their *otium cum dignitate* [dignified leisure] [for apparently according to the present coble and net method there is abundance of both these commodities with a destitution of every other] an immense supply of most wholesome and excellent food is to be destroyed. But even should these [?] agree to sacrifice their *otium* at the altar of public food we are met

> by a clencher from the Perth proprietors. Not so fast they say, "long ago bargains have been entered into and valuations made in the faith of the existing laws" and can you really lend your countenance to such injustice as a proposal for a measure "so injurious to us upper proprietors, without [?] or any compensation whatsoever?" It matters not to us that these laws were made in times of comparative ignorance, it matters not that what our worthy forefathers held to be an enactment made expressly for the public good has now been found an incubus on improvement and loss to the community. Such reasons however weighty and cogent must at once give way to insupportable annoyance and inconceivable inconvenience which an amendment of these laws would occasion. Our bargains would require to be readjusted, our valuations to be reconsidered; in short unless Lord John [Russell?] agrees to compensate us for our trouble and indemnify us for our clerk's fees we must [?] our decided veto on the measure and decree that like those of the Medes and the Persians, the Salmon Fishery Laws must be unchangeable.
>
> It seems to be on the principles therefore of monopoly and class legislation that our Perth friends rest their opposition to the proposed public measure. Alas! they have yet to learn that views like those are numbered now amongst the things that were.

20. This was the action complained of by Kerr, see p 265.

Sederunt Book no. 2.

21. This was the subject matter of a pamphlet *Illegal Fishing, - important decision by the Sheriff-Substitute of Perthshire,* dated 24th October 1849

TBP, bundle 26.

22. The pamphlet continued by setting this transgression of the law in the context of the various attempts to frustrate the ban on fixed nets in the firth.

> It appears that of late years, amidst the recorded and notorious warfare upon the Tay against the salmon, a departure has been made from the ordinary and accustomed mode of fishing by net and coble, and nets of every varied description have been introduced, and as soon as the arm of the law has put down one kind of net, another has been invented in its stead. It appears from the evidence, that of late years the sparling net has been thus diverted from its primitive purpose; instead of being, as they were, seven feet in depth, seven or eight feet wide, and eight or twelve yards in length, the one in question is of the enormous length of ninety-six feet, with the width and depth at the front of about twenty-one feet, and gradually decreasing until it reaches a point at the tail.

> ... Such a net is neither more nor less than the interdicted bag-net, but greatly increased in dimensions, ...

The salmon station at which the ostensible spirling fishers were operating was called "Sure as Death", well known as a place at which there was almost certain to be salmon.

23. The drift or hang net was a much lighter net than the sweep net and was shot across the river at slack water where it hung from a line of corks and gilled any salmon that swam into it. As it was not propelled through the water, it was strictly speaking a "fixed engine".

The hang net was described in the evidence to the 1836 Committee.

> It is a net that is made of a very soft twine, and of a wide mesh; the fish run their heads into it; ...
> Large fish and small?
> Yes; they are made of a different size of mesh, according to the season; during the grilse season the meshes are smaller than during the salmon season.
> The fish run into it?
> They run their heads into it, and are caught by the gills.

1836 Committee, p 44.

24. *Sederunt Book no. 2*, George Gordon's Report, 15th October 1862.

See also p 281.

25. Tayfield, box 16, bundle 6.

26. *ibid.*

27. *ibid.*

The deputation might have seen more M.P.s, but one had suggested that they widen the appeal of their Bill to include the angling and upper river interests, and so the deputation had returned to Scotland to canvas their supporters on these additional ideas.

Berry and Maitland Dougall's subsequent Report concluded by suggesting the following additional matters for consideration:

i a 48 hour weekly slap;

ii how to get the support of fishing proprietors on rivers other than the Tay;

iii whether a move should be made in Parliament to have the produce of the various salmon fisheries reported;

iv how public opinion might be mobilised.

28. The Bill contained six main proposals:

i it should be lawful to fish for salmon with fixed nets;

ii no net was to extend beyond the low-water mark of spring tides, and there was to be never less than three-quarters of a mile between the outer ends of nets on opposite shores;

iii the legislation was not to affect the Solway or the Tweed;

iv meshes of fixed nets to be no smaller than those on existing nets;

v there to be a Saturday slap on all fixed nets;

vi close-time on the Tay to start on the 26th August.

The fifth and sixth proposals can be seen as "sweeteners" to make the Bill more acceptable. Proprietors of river fisheries objected to the coastal stake nets not recognising the Saturday slap, the extension of the fishing season introduced by the ***Home Drummond Act*** was universally unpopular.

Adam Duncan-Haldane, 2nd Earl of Camperdown (1812-1867), grandson of Admiral Duncan, 1st Viscount Camperdown. Liberal M.P. for Southampton, 1837-1841; for Bath, 1841-1852; for Forfarshire 1854-1859; Lord of the Treasury 1855-1858. Cousin to Adam Alexander Morison Duncan of Naughton (see p 29).

Complete Peerage, BPB.

29. Three fishers were required to set a bag net and thereafter one was needed to watch it. Bag nets had first been introduced in 1819 by John Halliday who employed them on the coast near the mouth of the Tay. In the 1820s and 1830s variations of the bag net, e.g. sole net, pock net, etc. were also tried within the estuary, but were all interdicted.

See also Chapter Five, III, ***passim.***

30. 1860 Committee, pp 191-205.

Maitland Dougall did not regard the toot net as used in the estuary as a distinct mode of fishing, but merely a variation of the net & coble (see p 231). He thought the sweep net as used in the river a "most scourging" method of fishing and the remedy to it a "perpetual slap" (i.e. gap) in mid-river to be achieved by no sweep net being longer than half the breadth of the river at the place where it was used. He admitted that those parts of his fishings where he was not allowed to use stake or bag nets, i.e. those fished by toot nets, were "almost worthless". He also believed that rentals reflected the size of the catch. In contradiction to all the evidence Maitland Dougall considered that "a good understanding" existed between the river and coastal proprietors, and he cited his seconding Sir John Richardson's motion to amend the close-time on the Tay as an example of this (see pp 285-286).

31. ***ibid.*** p 144 ***ff.***

32. See Chapter Five, IV, ***passim.***

33. ***ibid.***

34. See the evidence of James Gillies, p 149.

35. See Chapter Five, note 50.

36. 1836 Committee, p 239.

Buist noted, in particular, that the upper river proprietors, the ill-served group within whose waters lay the spawning beds, were "zealous" in protecting the river during close-time, and Buist was of the opinion that "it is the countenance and assistance of those gentlemen in the upper parts of the river, more than the small police force we have on the river, that has tended to put it [poaching] down."

37. See Chapter Five, III, *passim* and I of this chapter.

38. *Sederunt Book no. 2* commenced in 1843, *no. 1* is missing.
The Association was officially called the "Proprietors of Salmon Fisheries in the River Tay".

39. In 1843 these were: 4th Earl of Mansfield, 15th Lord Gray (Kinfauns), 10th Earl of Kinnoull, 21st Lord Willoughby D'Eresby (Stobhall), Sir John Stewart Richardson of Pitfour, the Lord Provost of Perth and Sir Thomas Moncrieffe of Moncrieffe.
Sir Thomas Moncrieffe, 7th Bart., of Moncrieffe (1822-1879). Sir Thomas married (in 1843) Lady Louisa Hay, eldest daughter of the 10th Earl of Kinnoull and they had no less than sixteen children. Of the eight daughters, four married into families which were connected with the Tay fisheries: Louisa married the 7th Duke of Atholl; Blanche married Charles Archibald Murray of Taymount, nephew of the Earl of Mansfield; Frances Rose married Sir Alexander Muir Mackenzie, 3rd Bart., of Delvine; and Mary Katherine married Sir Basil Templer Graham-Montgomery, 5th Bart., who became a shareholder in the Tay Salmon Fisheries Company.
BPB.

40. One disadvantage of the new legislation was that poachers sent to gaol were treated as prisoners under the civil law and thus had to be alimented (have their food provided) by those who prosecuted

them. This was an additional expense which increased the more successful the watchers were in getting poachers convicted.

1836 Committee, p 236.

John Campbell, 2nd Marquess and 5th Earl of Breadalbane (1796-1862). Whig M.P. for Okehampton, 1820-1826; for Perthshire 1832-1834; Lord Chamberlain of the Household, 1848-1852; Governor of the Bank of Scotland.

Complete Peerage, BPB.

41. There were dam dykes on the Isla at Milton of Ruthven (NO 293487) and Dullavaird (NO 296506).

TBMB, *Sederunt Book, no 2.*

42. John Stewart-Menzies of Chesthill and Foss (1804-1867). His father, Joseph Stewart of Foss (1768-1835) had married Elizabeth, only daughter and heiress of Alexander Menzies of Chesthill.

BLG.

43. Buist gave the following account of an escapade on the Earn.

> On the night between the 2nd and 3rd of January [1846] seven of the water keepers followed bands during the whole night but repeatedly failed to get near them. They at last lay in ambush near to the bridge at Crieff and between four and five in the morning a party of three men lighted a blaze and killed a fish just below them and after a desperate scuffle secured one of them who had struck and wounded one of the keepers. The other two men escaped by dashing across the river. The man who was taken was brought to Crieff and as no officer could be got to bring him to Perth, ... two of the keepers proceeded with him to Perth. At Methven he asked leave to go into a friend's house, and while the men stood at the door he bolted out of a back window and escaped. A warrant was taken out against him at the instance of the Fiscal for the assault on the keeper, and another warrant against him for poaching both of which were put into the hands of an officer for execution. He however fled from that part of the country ...

Ibid.

44. Buist reported that when watching first began "the cottagers on the banks of the Earn and other small rivers had salmon spears or leisters as common as spades or hoes ... and in winter you could almost trace the course of the river by blazes; now a blaze is rarely seen and leisters are comparatively scarce." Continuing in the same tone "it is with a feeling of gratification that the superintendent [Buist] reflects that the plan he made up for the protection of the river has with a few improvements ... wrought so well. He has been applied to by the owners of fishings in Ireland and Scotland to recommend men trained on the Tay ..." However, the final paragraph of the Report mentions a significant potential threat to the fisheries. Buist seeks the instructions of the proprietors on what to do about the discharge of manganese and chloride of lime into the Almond from the bleachworks at Cromwell Park (NO 05 26), chemicals which could both do great damage to the salmon stock, especially the immature fish.

TBMB, *Sederunt Book, no. 2.*

45. The dam dykes at Ruthven on the Isla had been removed allowing the fish to ascend as far as Airley Castle and also allowing the salmon to ascend a small spawning river called the Melgun (Melgam). The Almond at Buchanty Spout (NN 934284) had also been opened up allowing the fish to get up the Sma' Glen.

46. The assessment was at 7%, which in 1860 raised £968 on a total rental of £13,828 (see table 5.2, p 134).

47. Buist gives the figures for the River Tweed as follows:

	£	s.	d.
assessment on the rents @ 20%	1,318	5	2
additional [voluntary] assessment	437	1	10
donations	442	9	4
fines	135	8	6
	2,333	4	10
less debt repayment	52	12	1
cost of protecting the Tweed	2,280	12	9

ibid.

48. According to Buist's Report, "Rutherford was inspector for the district from Perth to Dunkeld and was confidentially employed during the fishing season. He is a clever, shrewd fellow, has had great experience and knew every sort of net in the river and sea ... the late Lord President [of the Court of Session] Boyle had more than once complimented him for the way in which he proceeded in detecting the offender." Rutherford had been one of the witnesses from the Tay who had given evidence to the 1860 Committee (see Minutes of Evidence, p 148 *ff*).

ibid.

49. Their opinion on the matter was conveyed to the Association of Proprietors in a letter of 29th October 1861, in which they asked that the following points be considered:

i a review of all the present watchers to "ascertain that they are all persons who can be relied on ...";

ii that those watchers retained and any new ones appointed be deployed in areas "with which they are not locally connected, so as they may be able to act with more independence";

iii that the person appointed in place of Buist be equivalent in ability and probity to "such a person as is usually appointed as superintendent of an efficient police force";

iv that the principal tacksmen be involved in engaging the watchers to avoid appointing men of unsuitable character.

50. The letter was signed by Charles Powrie, George Pitcaithly, James Miller, Thomas Miller and John Young.

51. Gordon noted a particular problem that year in that he thought he would need more watchers on those rivers adjacent to the Inverness

and Perth Junction Railway which was then under construction, and the workmen were "likely to be adepts in fish poaching."

ibid.

52. Elgin, p 6.

> ... Speaking generally with regard to prosecutions, notice should be taken of the various ways adopted by parties dealing in illegal salmon, namely declarations that the fish were: butter [in boxes and firkins], game, poultry, groceries, provisions, rabbits, margarine [in firkins], coarse fish, etc. They have been consigned under mark of "fine", "mild", and "margarine", and the delivery notes forwarded by post to the station of destination. They have been put into packages of various descriptions particularly calculated to elude detection and avoid suspicion, such as carpet bags, tin hat, bonnet and travelling boxes, grocery boxes bearing various brands, boxes branded tinned salmon, poultry hampers, etc. They have been packed and concealed among 4 and 5 cwt. packages of poultry, rabbits, game and other fish, in boxes in the centre of bags of mussels, and in some cases that came to the knowledge of the Fishmongers' Company's inspectors, have been concealed in the centre of bundles of rags and various kinds of produce. They have been dealt in false names, both by letter and wire, so as to avoid detection, among which may be named pheasants, peacocks, or other words by arrangement so as to render the correspondence useless for evidence.

ibid.

53. TBMB, vol. 2, p 119.

54. "A Plea for Cheap Salmon", *The Field,* 13th February 1869.

55. 1860 Committee, p xi *ff.*

56. 1836 Committee, p 239.

Buist was also of the opinion that there should be different close-times for different rivers, a suggestion that he had previously made to the 1824 Committee, but which had been rejected by them[1]. The objection in 1824 was that poached salmon from a river that was closed might be passed off as being from a river still in season. Cross-examined about this, Buist argued that damage done to breeding fish by an inappropriate close-time was greater than possible damage caused by the easier sale of poached fish, adding

that poachers were always apprehended catching fish, not selling them[2].

1. See p 177.

2. 1836 Committee, p 243.

57. In support of his case Buist quoted from a letter he had received from a London fishmonger to the effect that the quality of the Tay fish was very poor at the end of the season, "it is truly lamentable to think that fish are allowed by Act of Parliament to be taken in such a state."

TBMB, ***Sederunt Book, no. 2.***

58. See *supra* note 36.

59. Archibald Butter of Faskally (1805-1885), first son of Lieut.-Col. Archibald Butter (1769-1805) and his wife Vere, daughter of Sir Robert Menzies of Menzies, 5th Bart. Married (in 1834) Jemima, youngest daughter of James Richardson of Pitfour. He was a descendant of Henry Butter, factor to the Commission for the Annexed Forfeited Estates.

60. See pp 9-10.

61. In 1852/53, £12 to Atholl and £8 to Breadalbane.

62. See also Admiral Maitland Dougall's evidence to the 1860 Committee, *supra* note 30.

63. See Chapter 10, II, *passim*..

64. Buist claimed he had not allowed for the shortened season when he offered the rent.

65. ***Tay Fisheries Act, 1858*** (21 & 22 Vict. c. 26).

66. The ***Tay Fisheries Act, 1858*** cost £537 14s. 2½d. and was paid for by a special assessment on the proprietors of 5%.

67. 1836 Committee, p 238.

68. ***The Field,*** 17th October 1868.

69. *The Field*, 13th February 1869. This article goes on to reproduce, by way of evidence, the figures shown in the "Scotch" column of table 8.1 (pp 266-267) from 1834 to 1859.

70. *The Salmon Fisheries (Scotland) Act, 1862*, (25 & 25 Vict. cap. 97)

71. See Chapter Seven, II, *passim*.

72. 1860 Committee, p xi.

During the proceedings of previous committees of inquiry, much time and many witnesses' evidence had been devoted to the natural history of the salmon, but this was much less so for the 1860 Committee. There were, however, two eminent scientists who appeared before the Committee whose observations showed that serious misunderstanding of the life-cycle and habits of the salmon still remained. Professor John Quekett[1] believed that those salmon seen in the Arctic did not return to Scotland, and that the smolts remained in the sea for six weeks or more before returning as grilse[2]. Professor Thomas Henry Huxley[3] thought the grilse was a fish some twelve or twenty months from the time the ova were deposited[4]. William Joshua ffennell[5], one of the Commissioners of Fisheries in Ireland, provided an answer to Maitland Dougall's assertions about salmon caught in the estuary not affecting the breeding stock with this accurate and enlightened observation:

> With respect to the spawning operations, it appears strange at first that some fish should seek to make the fresh water their habitation for the whole of the summer, while other fish remain in the estuaries and the sea until within a few weeks of spawning, and come out of the sea quite ready to spawn. It presents itself to my mind as one of the wonderful arrangements of nature, that it is for the purpose of causing the fish to distribute themselves through the whole of the waters; that is their tendency, ... I think it is as clear as possible, that the object of the law that governs them, is to cause the fish to distribute themselves throughout the whole length and breadth of the water,[6]

1. John Thomas Quekett (1815-1861), histologist, showed an early interest in studying various natural history specimens under a microscope constructed by himself. He entered King's College, London and the London Hospital medical school, qualifying in 1840.

> He formed a most extensive and valuable collection of microscopic preparations, injected by himself, illustrating the tissues of plants and animals in health and in disease, ... In November 1843 he was appointed by the College of Surgeons assistant conservator of the Hunterian Museum, under Professor (afterwards Sir) Richard Owen. ... Quekett's work as an histologist was remarkable for its originality and for its influence upon the anatomical studies of the medical profession in this country.

DNB.

2. 1860 Committee, pp 341-343.

3. Thomas Henry Huxley (1825-1895) was one of the most eminent scientists of the nineteenth century, and also one of the principal advocates of Darwin's theories.

> Huxley produced over 150 research papers, dealing with an immensely wide range of subjects, mainly zoological and palaeontological, but also geological, anthropological, and botanical. He also produced ten scientific textbooks, each quite novel in approach, as well as several books of essays and innumerable controversial articles on education, religion, etc. ... member of ten Royal and other Commissions;

Biographical Dictionary of Scientists, London, 1974.

4. 1860 Committee, pp 347-351.

5. William Joshua ffennell (1799-1867), fishery reformer.

> He had a desultory education, and spent much time in hunting, shooting, and fishing. He became especially expert in angling for salmon; and his attention was drawn to the decay of the fishing in the Suir and other [Irish] rivers. In 1824 he took a lease of Carrigataha, which adjoins Ballybrado on the Suir. After carefully studying the habits of the fish and making himself acquainted with the old Acts of Parliament, he endeavoured to rouse public attention, with a view to legislative reform. He had difficulties with the poachers in

> the upper waters, and with the proprietors of 'stake weirs' in the tideway, ... In 1837 a petition upon the Irish fisheries was presented to Parliament by the Earl of Glengall, a friend and neighbour of ffennell, who spoke upon the subject in the House of Lords, ... It was due to their exertions that an Act was passed in 1842, embodying many of ffennell's proposals, but unfortunately giving privileges to the stake weirs, which long hindered the development of the fishery, ... [in 1845] ffennell was appointed fishery inspector under the Board of Works. His office included the inspection of sea fisheries, and during the potato famine he visited Scotland, examining the process of fish-curing, and tried to introduce it among the starving population of the west coast of Ireland. In 1848 the Act commonly called 'ffennell's Act' was passed. This is the initial Act of modern salmon legislation, which provides funds and machinery for carrying the law into practice, by making the local administration of the salmon Acts self-supporting. ... In 1853 he exhibited working models of salmon passes at the Dublin exhibition of that year, which attracted general attention. His advice was frequently sought in England and Scotland; and in 1860 he was appointed one of the Royal Commissioners to examine the salmon fisheries of England and Wales. ... In 1862 he was appointed Commissioner of Fisheries for Scotland. ... In 1866 he started *Land and Water*, in conjunction with his friend Francis T. Buckland, with a special eye to the fisheries.
>
> ***DNB***

6. 1860 Committee, p 252.

73. J.M. Leith: "Salmon Legislation in Scotland", p 131. From D Herbert (ed.): ***Fish and Fisheries***, Edinburgh, 1883.

74. Russel, who was not in favour of stake nets, tells how the clauses abolishing the stake nets were removed because "the stake net owners showed themselves united and energetic, and the river owners divided, apathetic and captious."

In more detail: the Lord Advocate had brought in a law for Scotland based on the recommendations of the 1860 Committee.

> This excellent measure, however, met a sad fate by an unusual process. In an evil hour, and perhaps because the sons of Zeruiah* were too hard for him, the Lord Advocate consented to refer his Bill to a Select Committee of the House of Commons the selection of which proceeded on a principle quite different from, or rather opposite to, that usually acted on in the appointment of tribunals ... The members were selected, not because they had any knowledge of the matter, but because one or more of their constituents had special interests in the

> matter; and the tribunal thus strangely selected opened its door only once, to hear a single witness on one of the sides, and then sat down in private to tear the Bill to bits ...
>
> ‡And I am this day weak, though anointed king; and these men the sons of Zeruiah be too hard for me: the LORD shall reward the doer of evil according to his wickedness,
>
> *2 Sam. 3;39.*

A. Russel, ***op. cit.*** pp 166, 168.

75. ***Venator,*** "The Field", 21st November 1868.

76. Other matters dealt with by the 1862 Act were recommendations for a central Scottish Board and District Boards to administer the salmon fisheries. The 1860 Committee had quite specifically recommended a Central Board or Commission to regulate the Scottish salmon fisheries, and the 1861 Bill proposed to set up such an authority. This was to be the existing Board of White Fisheries for Scotland to whose number an additional two surveyors would be added. However, after the failure of the 1861 Bill, the proposal for a Central Authority was dropped from the 1862 Bill. What was contained in the 1862 legislation was the appointment of three Commissioners with powers to make rulings for all Scottish Districts on the boundaries between rivers and estuaries, observance of the weekly close-time, the use of cruives, slaps in mill dams etc., and mesh sizes. These Commissioners were only appointed for a set time and the period over which they actually operated was relatively brief (1862-1865), though they were kept in existence from 1865-1882 by the ***Expiring Laws Continuance Act***[1]. There had been an Association of Fishing Proprietors on the Tay since 1816 and so setting up a District Board did not make much change.

In fuller detail the Act covered the following matters[2]:

i Constituted each river, with its tributaries, lakes and estuary, and adjoining sea coast, into a district.

ii Appointed Commissioners to fix boundaries between estuaries and sea, and between upper and lower proprietors on rivers, limits of districts, and of annual close-time, and to make general regulations regarding cruives and obstructions, meshes of nets, and due observance of weekly close-time.

iii Fixed an annual close-time of 168 days for every district, and a weekly close-time of 36 hours, with qualifications as to rod and line, - the the annual close-time being applicable to every mode of fishing in river, lake, estuary, and sea, except rod and line, during extension to be fixed by Commissioners.

iv Imposed penalties, with forfeitures of articles used, for fishing during close-time, or with illegal mesh of net; for obstructing or impeding passage of fish; for selling fresh fish taken during annual close-time; for taking possession of foul or unseasonable salmon at any time; for fishing with lights; for setting nets or traps to catch fish leaping at a fall; for using or selling salmon-roe for purpose of fishing; and for polluting waters.

v Enjoined the Commissioners to make bye-laws on matters committed to them, which (after certain steps) should have all the force of law.

vi Provided as to election, constitution, and powers of District Boards.

vii Declared illegal fishing by three or more persons at night to be a criminal offence punishable by fine or imprisonment.

viii Provided for persecutions, and recovery and application of penalties and expenses.

The main provisions of the *1862 Act* very largely reflected the recommendations of the 1860 Committee, the exception being the ban on stake nets which was not taken up. This Act was to remain the principal piece of legislation affecting the Scottish salmon fisheries for over 100 years.

1. *Elgin Report*, p 416.
2. J.M. Leith: "Salmon Legislation in Scotland", pp 131-132. From Herbert, *op. cit.*

77. 1860 Committee, pp 85-98.

78. A. Russel, *op. cit.* pp 229-234.

A similar scheme had been proposed for the Tay in 1846 involving the principal fishing estates, this was at the instigation of Forbes, Stewart & Company, a firm of London fish salesmen who dealt extensively in Tay salmon.

> We beg to observe that this is an important crisis to most of the principal landlords in the Tay and that they should remain unanimous taking advantage of the principal leases being out, in the mutual protection of their property, and the only way of keeping up the value of the Tay fishings is to amalgamate the properties and the whole be fished by the one joint company or by one joint management, and the savings thereby of expense would produce a very handsome profit rent. If something is not done to prevent the Tay being so much divided into small holdings, the whole of that valuable property will gradually become of little value. The more the fishings are divided the greater the expense incurred in taking the same quantity of fish and which will proportionably increase to such a degree as to leave nothing for rent'.

The method of operating was to be:

i ascertain the cost of fishing each proprietor's fishings if each were let the next year.

ii Ascertain the value of fish caught according to the [Navigation] Commissioners averages.

iii Ascertain the total expense of fishing under the new system of amalgamation. If the same quantity of fish be caught, then with less expensive methods of catching, there will be an increased profit divisible among the proprietors.

iv Let each proprietor receive as before the value of fish caught during the last 5 years according to the averages, deducting the estimated expense of fishing, were each let separately.

v The profit to be divided in proportion to the value of fish caught according to the Commissioners' tables.

It was estimated at the time that the saving in the costs of operating the fishings would be in the region of £3,550 or 44% of the existing costs. However, at the time the full £3,550 would not in practice have been available for distribution to proprietors as the tacksmen at the time had an aggregate loss of £600 *per annum* which would have reduced the surplus to £2,950. The matter was not proceeded with at the time, partly because Forbes, Stewart & Co. offered a total rental of £9,100 for four years, but inserted a clause into the agreement allowing for a reduction in this amount in any year if the produce fell "by any unforeseen or considerable amount", and partly because some proprietors put in rentals at too high a level. As Grant commented "the failure was to be regretted."[2]

A less extensive scheme had been suggested for the Tay in 1849 by Richardson of Pitfour who had written to Perth Town Council suggesting that all the fishings affected by the work of the Navigation Commissioners be operated on a joint basis with each proprietor holding shares in proportion to the the produce of their fishings as shown in "the states made out for the five seasons subsequent to the late dredging operations", [i.e. 1841-1845]. The letter continued, "the value of the fishing property would be materially enhanced by diminishing the amount of labour if the whole reach of the river were to be fished for one interest, either by a company or for behoof of the proprietors."[3] The principle was identical to that suggested by Russel, though Richardson did not go so far as to suggest the substitution of an efficient "engine" to replace the sweep nets.

1. TBP, bundle 19. Letter from Messr. Wm. Forbes Stewart & Co. to Messrs. Peddie & Mackenzie, 12th September 1846.

2.

Cost of fishing by separate tenants	£8,100
Estimated cost under amalgamation	4,550
Leaving a surplus of	£3,550

Memorandum by John Grant, Esquire of Kilgraston, Commissioner for the Rt. Hon. Margaret Baroness Gray, as to Amalgamation of Certain Salmon Fisheries in the Tay; and Alteration of the Annual and Weekly Close times in the Tay District, 31st January 1871.

PE 16, bundle 105.

3. PE 1/1/13, p 157.

The matter was raised again in 1871 by Buckland & Young. The Tay District Board was against the idea, but it was favoured by some of the proprietors. One suggested that, rather than involve all

proprietors, the scheme should be restricted to the lower river which represented seven-eighths of total rentals, but a relatively small number of proprietors. Shares could be allotted in proportion to the average rentals for the three years previous to the start of the scheme and these would be marketable in the same way as equities. A Board would represent the shareholders and the fisheries could either be leased or run by a manager.

Buckland & Young Report, Query XXXI.

See Chapter Nine, I, ***passim***.

79. A. Russel, ***op. cit.*** p 99.

80. ***The Second Report by the Committee Appointed by the Secretary of State for Scotland to inquire into Scottish Salmon and Trout Fisheries*** (The Hunter Committee), (Cmnd. 2691) was published in 1965. Among its recommendations were:

(17) The commercial catch of a river should be made at a single point, preferably by a trap, or failing that, by a concentrated net fishery associated wherever possible with a counting device.

(20) Concentrated net fisheries should be regulated, at least initially, by some form of catch quota based on catches of previous seasons.

The recommendations of the Hunter Committee have not been implemented.

CHAPTER NINE

ENDS AGAINST THE MIDDLE

I - The Upper River *versus* the River

What the Tay salmon fisheries lacked above all prior to the 1862 legislation had been a sense of common purpose among those who could influence the wellbeing of the river. This lack of common purpose came about because the preoccupation of the participants was with their own interests in the face of the perceived over-exploitation of the salmon stock - a situation which precluded anyone taking a wider or more long-term overview of the fisheries. Unfortunately it soon became apparent that the ***Salmon Fisheries (Scotland) Act, 1862*** was not the vehicle to bring about any reconciliation between the parties, indeed the Act provided yet more reasons for discord between the groups and reinforced the tripartition of the participants.

One of the divisive aspects of the ***1862 Act*** stemmed from the composition of the statutory District Salmon Fishery Board[1]. Under the legislation a Board was to be responsible for a district based upon a river basin, though as the Tay already had such an organisation this was not a radical change. The new Board consisted of a chairman, automatically the proprietor with the largest rental in the ***Valuation Rolls***, and three members each from the upper and lower river elected by their fellow upper or lower proprietors. The chairman had a deliberative as well as a casting vote. The problem for the Tay, inherent in the composition of the Board, was that it did not adequately represent the different interest groups on the river and gave a permanent majority to one group. At mid-century there were three groups on the Tay: the river and estuarial groups, both concerned with net fisheries though their interests were not identical, and the upper river group, by then almost exclusively concerned with rod fishing.

There were two ways in which the composition of the Tay District Board was inappropriate to the requirements of the river: first, the legislation assumed a bipartite division of interests, whereas the Tay had a tripartite division and, second, the composition of board members was such that the river interest had a built-in majority. As the fishings with the highest rentals were in the throat of the river, it was inevitable that one of the river proprietors would be chairman. This meant, on the basis of the two-way division, that five out of the maximum eight votes were held by those concerned with netting (chairman two votes, plus lower Proprietors three votes). The netting interest could, however, count on at least one additional vote if a proprietor elected to represent the upper river, such as the Earl of Mansfield[2], had an estate situated just above Perth Bridge, for on such estates netting was as important as below Perth Bridge. Thus the *1862 Act* arbitrarily divided the proprietors into two groups with the netting interest enjoying six votes out of a possible eight. As was apparent at the time, the cause of this disproportion was Perth Bridge not being an appropriate dividing line between the netting and rod parts of the river, for netting remained significant up to Cargill railway bridge some twelve miles above Perth Bridge. Similarly, on the basis of a three-way division, the boundaries between the different parts of the river were Cargill railway bridge and Newburgh, which meant that proprietors above the former had two representatives and those below the latter one representative. Thus the proprietors of the river net fishings, who had dominated the Tay salmon fisheries since the Stake Net Cause, were confirmed in this dominance by the composition of the statutory Board, four or five out of seven members and five or six out of eight votes. Although the personnel of the Board changed from time to time, the river interest remained dominant for the rest of the nineteenth century.

The Tay District Salmon Fishery Board met for the first time on 10th August 1863, with Lord Gray's nominee in the chair[3]. Representing the (lower) river were the Lord Provost of Perth, Sir John Richardson of Pitfour and Admiral Maitland Dougall of Scotscraig, and representing the upper river were the Earl of Mansfield[4], Sir Robert Menzies[5], and Butter of Faskally[6]. The firm of Mackenzie & Dickson continued to act as clerks to the Board[7]. In terms of conflict of interest, there was none between the estuarial and upper river groups sufficient to bring them into direct confrontation, but both these groups were in conflict with the third group, the river proprietors. There were two issues dividing the river and upper river groups: the dates for beginning and ending the annual close-time and the claim of the upper group that insufficient fish were allowed to pass through the netted section of the river and reach upper waters. With regard to the first of these, it was in the interests of the river group that the close-time not start until towards the end of August so that they could have access to some of the late summer runs of salmon[8]. Given that the *1862 Act* laid down a statutory 168 day close-time, a later start meant a later finish in February, but as there were few fish in the lower river in February this was no disadvantage to the river fisheries. On the other hand, an earlier start to the (netting) close-time allowed a greater proportion of the summer runs to ascend to upper waters, either to spawn in due season, or be caught by the rod fishers who were allowed an extension of their season to 10th October under the *1862 Act.* An earlier start to the fishing season in February also favoured the upper river interest as this gave them access to the high quality "spring run" fish which were in the upper river at that time. It can thus be seen how, in connection with the start to the annual close-time, the interests of the two groups were opposed: the river group

favoured a "late" start and the upper river group favoured an "early" start.

Dispute on the matter of the annual close-time arose as soon as the *1862 Act* became law. It was proposed that for the Tay the close-time should run from 16th August to 1st February (since the *Tay Act, 1858* it had been 27th August to 1st February, 158 days), dates favourable to the upper river group. The river proprietors objected to the proposal and made representations for 26th August to 10th February instead. The matter was ultimately arbitrated on by the Home Secretary who split the difference and decided upon 21st August to 4th February, a decision not agreeable to the river interest[9]. There was no further mention of the matter of the close-time during the 1860s, but matters remained unsatisfactory as was revealed in the 1871 *Report of the Special Commissioners appointed to Enquire into the Effect of Recent Legislation on the Salmon Fisheries in Scotland* (the *Buckland & Young Report*)[10]. The river proprietors complained to Buckland & Young that by terminating the fishing season on the 20th August "far too many fish get to the spawning grounds". This statement had to be reconciled with the widely claimed and manifest scarcity of fish in the upper river. This involved claims that an excessive number of males killed each other as they fought over females, while an excessive number of females disturbed the gravel in the redds to the extent that the eggs once buried were dug up again, "so that the amount of reproduction is virtually less than with a much smaller number of spawners." Further, "the multitude of kelts thus produced causes the destruction of a large proportion of the parr and smolts which they devour on their way to the sea."[11] There was no justification for these statements, which smack of very dubious propaganda, kelts do not eat anything, let alone "fry", until and if they return to salt water. The idea of cock salmon fighting each other to

the death was equally mythical. It cannot be doubted that freshly deposited *ova* would be easily dislodged from the gravel, but if one lot were dislodged in the process of being replaced by another, this cannot be seen as particularly damaging. The arguments had no apparent effect on Buckland & Young.

Though the upper river proprietors were satisfied with the dates of the annual close-time, they took the opportunity provided by the *Buckland & Young Report* to raise the second issue between them and the river proprietors - that insufficient fish were allowed to reach upper waters. Sir Robert Menzies wrote complaining that the nets below Perth Bridge presented an impassable barrier to the salmon and, apart from fish that ascended the river during the annual close-time, "an angler might as well fish in the Serpentine for salmon as Loch Tay." Menzies believed that the intention of the *1862 Act* to give the upper river proprietors a greater share of the produce had been frustrated by the introduction of additional nets above Perth. The extended Saturday slap (from 24 hours to 36 hours) had been to allow salmon sufficient time to pass unhindered through the netted section of the river so that each week there would be a proportion of salmon which reached the upper river. But these fish were in reality caught by additional nets introduced above the point where the salmon could be expected to reach during the 36 hour weekly slap - roughly from above Perth Bridge. Menzies suggested that, rather than further lengthening the Saturday slap, which would merely have resulted in the nets being introduced yet further up the river, the upper and lower fisheries should fish week or fortnight about and thus distribute the produce of the river equitably between them. He based this suggestion on the legal premiss that if salmon were common property to which all riparian proprietors had access, and if the efficiency of the nets below Perth Bridge allowed no salmon to pass beyond Perth, then the

period of access should be divided equally between the two. This was no doubt a valid legal point, though the principle of equal access had never operated in practice in terms of the river as compared to the upper river. Menzies identified an additional matter in which he saw the effect of the nets being detrimental to the upper river fisheries. He believed, quite correctly, that salmon returning to the Tay at different times of the year colonised different parts of the river system, and fish heading for the rivers Lyon and Garry did not enter the Tay until May when the nets were in full ply which meant that these rivers were not fully stocked[12]. Another upper river proprietor to submit evidence to Buckland & Young, J. Stewart Robertson of Edradynate (NN 885522)[13], suggested a different solution to the same problem. This was to ban all netting above the tideway (roughly above Perth Bridge), allow rod fishing each day of the week apart from the Saturday slap, but allow net fishing for only three days per week. Robertson also proposed that stake nets be allowed back into the estuary, though they, like sweep nets, should be limited in number, size and distance from each other. Robertson's point, like that of Menzies, was that *all* proprietors, including upper and estuarial, should have access to the salmon.

Some idea of the extent of the antagonism between the parties, and the underlying cause, is provided in John Grant of Kilgraston's submission to Buckland & Young[14]. "In the enquiry you have undertaken, the information, as far as this river [the Tay] is concerned, that is likely to be offered you by the proprietors of salmon fishings will be strongly embued (*sic*) with self-interest." Grant argued that the Highland proprietors were seeking to deprive the river proprietors of the netting rights which they had held for hundreds of years. With commendable frankness, he made it quite plain that rental income was his concern. He observed that the differential in rentals between the upper

and lower proprietors, prior to 1862, had been a ratio of 8:170, "it is therefore reasonable to hope that if Parliament takes into consideration any change of the law on this subject, these pecuniary interests will be carefully attended to, ... the sole purpose of legislation must be the protection of salmon and *not* the redistribution of property. ... the Tay is a mercantile and not a sporting river"[15]. Other evidence confirms the impression that preservation of rental income was at the heart of the river proprietors' case, though not all were as frank as Grant.

The *Buckland & Young Report* gave rise to no legislation, and so its value in the context of of the rivalries of the Tay salmon fisheries is as a record of the uncompromising attitudes displayed by the participants. However, it may have acted as a catalyst to action, for within two years of its issue the upper proprietors were sufficiently exercised by their lack of access to salmon to issue a document, the *Report of the Committee of* Bona Fide *Upper Proprietors of Salmon Fishings in the Tay*[16]. This *Report* observed that, though the intention of the *1862 Act* had been to improve the upper river fishings, the produce of the upper waters had fallen off very considerably since 1862[17]. The explanation given, as with Sir Robert Menzies, was that the legislation contained no clause which banned the use of nets in upper waters. As a result, fish allowed to pass the river nets and get beyond Perth Bridge during the extended Saturday slap were caught at new or reinstated netting stations between Perth Bridge and the Cargill railway bridge. The effect had been "to transfer benefits which were intended for the general advantage of all, by taking them from one set of Proprietors, below Perth Bridge, and conferring them on another set of Proprietors, only a small distance higher up the River."[18] The tenor of the *Report* was that rather than making adjustment to the length of the Saturday

slap, the remedy suggested by the river proprietors, all nets should be taken off above Perth Bridge, with restitution made to those proprietors affected (for details see table 9.1, column II, p 383)[19]. Publication of the *Report* coincided with a meeting between the upper and lower proprietors held on 17th May 1873. At this meeting the Duke of Atholl, representing the upper proprietors, proposed that a Bill be promoted, but although Minutes of this meeting state that further meetings between the parties were to be arranged, no further action is recorded[20].

Neither side made any move for the rest of the 1870s, but in 1881 there was an initiative by John Dickson, W.S., joint clerk to the Tay District Salmon Fishery Board. Dickson's suggestions were set out in three *Memoranda* which were successively circulated among all the Tay proprietors[21]. *Memorandum No. 1* printed in 1881, objected to the starting date of the annual close-time (21st August) on the grounds that it led to "an excess of old fish" in the river during the spawning season. Using statistics produced during the Stake Net Cause and by the Navigation Commissioners for 1836-1845, Dickson sought to show that during the earlier of the two periods, when the close-time began in August, there had been a preponderance of (older) salmon over grilse (11:2), while in the second instance when the close-time started in September, there had been a preponderance of (younger) grilse over salmon (1:3). This led him to the conclusion that since 1862 the aggregate produce of the river had been reduced by an "excess of old fish in it [the river] during the close-time.", the "extravagant multiplication" of which "utterly ruined the produce of grilse and young salmon ...". He thought the excess of "old" fish undesirable to the extent of commending poaching in the autumn as a means of "thinning out" the excess quantities. Although he thought the 21st August too early to start the close-time, Dickson did not recommend a return to the 15th September date

set by the *Home Drummond Act* in 1828, as that too, in his opinion, had been disastrous[22]. Dickson's interpretation led him to suggest that the close-time should be started somewhere between 21st August and 15th September. There is some merit in Dickson's argument, fish returning to the river at different times of the year may be distinguished in terms of "year classes" (see table 1.3, p 16) and are distinct in the sense that their progeny will also return at that time of year and breed in the same part of the river system - the point made by Sir Robert Menzies (*supra* p 322). Thus if such a sub-group were subject to excessive exploitation, their particular "slot" in terms of year class and location would suffer disproportionately, whether there might be too many of them is another matter[23].

Dickson also argued that the attempt by the *1862 Act* to improve rod fishing by extending its season to 10th October had produced undesirable results, since the "older" fish entering the river at such times were "not in a condition at that season to run smartly forward (i.e. ascend the river to the rod fishing stretches), or take a fly or any other bait if they have gone forward." Dickson regarded such autumn fish as "part of the harvest" of the commercial fisheries which they had been denied by the earlier start to the close-time. His conclusion was that there was no advantage in the system implemented by the *1862 Act*: while there was no gain to the upper river proprietors as the rod fishers caught no extra salmon, there was loss to the river proprietors who were unable to net the autumn arrival of older fish that lingered below Perth. Getting to the heart of the matter, Dickson believed that the problem of allowing fish to get to the upper parts of the river could be solved by an extension of the weekly close-time, rather than abridging the netting season in the autumn - an argument directly contrary to that of the upper river proprietors themselves. Dickson added the *caveat* that additional

nets should not be introduced in upper waters to take advantage of the increased numbers of salmon (but *not* the withdrawal of *existing* nets from these locations). Dickson thought the Saturday slap should be extended to 48 hours for the benefit of the rod fishing, and the netting season extended to 31st August, an extra ten days (ending 15th January) by way of compensation to the river proprietors for the loss of a further 12 hours each week. He concluded by suggesting a private Bill for this purpose[24].

Nothing positive resulted from Dickson's first initiative and he made a further attempt in 1882 to to reach some accommodation between the two parties. This time there was no attempt to dress up the arguments in terms of natural history, it was a straightforward commercial deal: if the upper river proprietors wished nets taken off above Perth Bridge and the Saturday slap extended[25], then the lower proprietors demanded in return an extension of the netting season by no less than 34 days (see table 9.1, column V). This was no more attractive than Dickson's previous proposals and the parties stuck to their entrenched positions, and so in 1883 Dickson issued his ***Memorandum No. 3.*** Though still basically a case for the river proprietors, it was more placatory. Dickson acknowledged that the upper proprietors' interests had been adversely affected: first, because they got few fish due to the intensity of the fishing below: and, second, because they were deprived by the *1862 Act* of the best part of the season for catching the best quality salmon, i.e. the first ten days of February. However, his suggested remedies - to extend artificial propagation by which the progeny would be fed artificially[26], to extend the spawning areas of the Tay basin by removing all obstructions, and to *extend* the netting season so that more of the mature fish were killed off before the close-time - were no more appealing to the upper proprietors than those which had

preceded them. As joint clerk to the Tay Board, Dickson no doubt wished to appear impartial between the rival upper and river factions, but he ignored the arguments of the upper river proprietors about the adverse effect of reinstated nets above Perth Bridge[27] and their protestations that extending the Saturday slap merely put more fish into these nets. While the rod fishing proprietors would have benefited from an earlier close to the netting season in August[28], he actually proposed a later close to restore the "autumn harvest" to the river fisheries, which implied that in reality he was acting for the majority interest on the Board.

In 1884 the clerks to the Tay District Board presented further proposals in an attempt to extract concessions from the upper river proprietors (for details see table 9.1, column VI). In return for the introduction of a 48 hour Saturday slap and banning nets above the Innernytie east march (about one mile below Cargill railway bridge, but a full eleven miles above Perth Bridge), the upper proprietors were required to agree to a two week extension of the netting season. These proposals too were rejected[29]. Two years later the efforts by the Tay proprietors to alter the salmon legislation were upstaged by the Marquis of Huntly who introduced a Bill in the House of Lords intended to affect all the Scotch salmon fisheries. Its proposals were similar to those put forward for the Tay (see table 9.1, column VII) which suggested that the problems requiring remedy were widespread[30]. Huntly's Bill was wide-ranging and comprehensive, and would have served many of the requirements of the Tay fisheries, but it failed to reach the statute book[31].

In 1887 for reasons which are not recorded, the interest of the river proprietors at last prevailed and the Secretary of State for Scotland agreed to have the close-time for nets altered to run from 27th

August to 10th February. This came into force in 1888, the rod fishing season was extended to 31st October (from 10th October), but there was no other concession to the upper river proprietors[32]. Agreement about taking off the nets in the upper waters did not come until 1893 (see table 9.1, column IX) when Campsie Linn was fixed on as the point above which nets would not be used[33]. It was estimated that in a normal season about 1,200 additional fish would reach the upper waters as a result of withdrawing the nets[34]. In 1898 it was agreed to extend this arrangement for another five years[35]

It is clear that the *1862 Act*, rather than bringing accord between the upper river and river proprietors, made their divisions yet more acrimonious. The first error in the legislation had been in fixing the boundary between the upper and lower proprietors too far down the river at Perth Bridge. This was not of itself a serious error, provided that the designation of the point at which the upper river started had been accompanied by a ban on netting above that point. But this was not done, and as Perth Bridge coincided with the point which salmon could reach during the 36 hour Saturday slap, the proprietors between Perth Bridge and the Cargill railway bridge, nominally upper proprietors, gained access by net to considerable quantities of salmon, which the *1862 Act* had intended for rods and spawning in upper waters. Thus the number of fish reaching the upper waters remained as before. The proprietors above Perth Bridge who gained from this windfall were quite content to maintain the *status quo* and did not involve themselves in any of the agitation for change, making themselves distinct from the *bona fide* upper proprietors. The second error in the *1862 Act* followed from the first and was the belief that the problem of allowing sufficient salmon to reach the upper waters could be solved exclusively by extending the Saturday slap. It soon became obvious that this was a necessary but not

a sufficient condition, and that in addition, there had to be a point on the river above which all nets were removed. Both interests came eventually to admit this, but the river proprietors would only give way on the point in return for an extension of the netting season in August. Dickson's ***Memoranda*** were justifications for this latter demand, couched initially in terms of the natural history of the salmon. It was the river proprietors who got their way first (1888), with very little by way of concession to the upper river interest, and when it was the turn of the upper river proprietors (1893) their gain was relatively modest.

II - The River *versus* the Estuary

By mid-century the attempts by estuarial proprietors and their tacksmen to have the law on stake nets altered and to devise new modes of fishing in order to ensure a share of of the salmon which passed through estuarial waters had begun to flag in the face of unremitting opposition from the river proprietors. Their efforts were revived, however, by the adoption of hang nets. One of the advantage of the hang net was that its legality was uncertain and certain users were not always prosecuted, though others were. This inconsistency was particularly marked prior to 1879. The criteria for freedom from prosecution was whether or not the hang net was used by a tacksman, though this was not invariably the case[345]. All other users, if caught, were liable to be prosecuted for poaching. This was a change of legal approach, for it implied that legality of the "engine" depended on the status of the person using it, which had not been the case in all the previous instances of new forms of net being introduced in the estuary, where it was the "engine" itself which was illegal. Certainly the hang net proved very popular in the estuary, and after mid-century it was widely adopted by legal and illegal users. Its particular attraction was that its efficiency as a means of catching salmon, compared favourably with the toot net and even with the sweep net, which was restricted in the estuary to certain states of the tide.

Illegal use of hang nets was the principal form of poaching and during the 1860s various measures were introduced to discourage its use. For example, the District Board fixed the maximum size of mesh at twelve inches (3"x3") in an attempt to ban large-mesh nets which hang nets were required to be (in order to gill the fish). Then in 1864 the assessment on fishing rentals which, among other things, covered the cost of watching was increased to 10% to raise £1,550 *per annum* in an attempt to

increase combative action against poaching[37]. It was also decided to seek the assistance of the County Police, both to look out for poaching and to assist the watchers when necessary, this was agreed to by the Police Commissioners[38]. In spite of these efforts, the extent of poaching in all its forms and the violence used by poachers increased, so that by 1870 the District Board was noting with concern that on the Tay and the Earn poaching was being undertaken by large gangs of men from Perth and Newburgh. In particular, they cited an encounter at the Legman station in which a poacher had lost his life, and three of the watchers had been indicted for trial on a charge of culpable homicide. About the same time it was decided to increase the permanent force of watchers from ten to twelve men, five of whom were financed by the tacksmen[39]. The violent incident in 1870 was not unique, for in December 1877 two watchers were tried for an assault perpetrated while apprehending a poacher, and one was found guilty. The District Board deplored this verdict, arguing "that when Winton [the watcher] was seized by the poacher with his teeth, he was perfectly justified, after having duly warned him, in using his baton to cause the poacher [Fleming] to release his hold." The fine of 20s. imposed upon Winton was paid by the Board and a gratuity of £2 given to him[40]. The poachers too were prepared to wage legal battle, for in 1878 two watchers were charged with perjury during the trial of two poachers. The Board paid for their defence and agreed to "resist these repeated attempts to bring discredit upon the force."[41]

A new superintendent of watchers, Alexander Lumsden, who had previously worked on the River Tweed was appointed in 1878. During his first season on the Tay Lumsden employed a maximum of 36 watchers during the close-time who were paid from 12s. to 20s. per week[42]. The extent and degree of organisation among the poaching fraternity,

particularly those about Newburgh, had become a considerable problem by the 1880s. The illegal use of hang nets, i.e. by non-tacksmen, and fishing during the Saturday slap was facilitated by using spirling smacks to collect the poached fish from various locations and land them at Newburgh, where attempts by the watchers to board the spirling smacks had been frustrated by crowds of men up to 30 in number. The spirling smacks were also used to collect fish poached by the same methods during the annual close-time and the Tay Board decided to petition the Home Secretary on this latter transgression with the suggestion that a gunboat be employed on the Tay to check their activities[43]. The Home Secretary concurred with the petition and the Admiralty sent a gunboat to the Tay at the close of the 1881 fishing season. Admiral Maitland Dougall of Scotscraig commented that during the presence of the gunboat there had been no poaching in the firth and recommended that, in future years, the Admiralty be petitioned to station a gunboat on the Tay from the 18th August to the 10th October[44]. However, the gunboat did not stop the poaching in other parts of the river, nor in the firth when it was not present, and a gunboat was sent to the Tay on only two occasions.

Any dubiety about the use of the hang net by tacksmen was removed after 1879 when it was pronounced legal during a court case, the so called *Forth Case*[45], and this further encouraged the use of hang nets. During the 1883 season the Tay District Board received a letter of complaint from the river tacksmen about the increase in hang netting below the mouth of the Earn. It was claimed that because of hang nets the river was being virtually closed off for three or four hours each tide. In a rather forlorn attempt to take action against their use by tacksmen, the Tay District Board requested the estuarial proprietors to insert a clause in their tacks prohibiting the use of hang nets as a

condition of the tack. This was apparently accepted by the estuarial proprietors, but does not seem to have had much effect[46].

The increasing use of hang nets and, in particular, their illegal use by those other than tacksmen, is brought out in a series of letters, beginning in 1884, from Lord Zetland's (Balmbreich) law agents to the Tay District Board[47]. They complained that since 1872 the watchers had done nothing about the use of hang nets. When questioned about this, Lumsden pointed out that tacksmen had had the right to use hang nets since the *Forth Case* (1879), implying, though he did not say so, that the clause in tacks prohibiting the use of hang nets was useless[48]. However, the main problem complained of was the use of hang nets by non-tacksmen. For example, Zetland's tacksman in 1884 was Alexander Speedie of Perth, and he subset to "the Newburgh people", but, as Lumsden explained, these sub-tacksmen had been joined by other fishers of no legal status who also used hang nets. Lumsden told that this last group were not complained of by the sub-tacksmen "as they got their boats smashed and their nets cut if they did." He further explained:

> the fact is that the subtenants such as Dunn and Melville of Newburgh, who are fish salesmen, are so terrified of damage in retaliation for interference by information or otherwise from these poachers, that they tolerate their proceedings on condition of getting the fish caught by them [the poachers] at a moderate price, and it is impossible to get any assistance either by way of information against such unauthorised, parties or personal co-operation to seize their material or persons, and the tenants and poachers make common cause of the business[49].

When the state of affairs was fully explained to them the District Board were nonplussed and thought in the circumstances they could do very little as long as the legitimate tacksmen were terrorised: "... until the local tenants of the fishings take courage to throw off the yoke under which they have been contented to suffer and groan, and range themselves

on the side of law and order, the Board can do little to help them ..."[50] Lumsden's account explained how the poachers disposed of their fish by selling them to the local fish salesmen (e.g. Dunn and Melville) - showing again that commercially viable poaching depended upon *legitimate* outlets to the market. However, in 1885 matters began to improve when the law was directed against the illegitimate fishers, first four and then a further seven men from Newburgh were successfully prosecuted by the Tay Board for using hang nets *without the leave of the proprietors*, a process which avoided involving the tacksmen.

A legal setback of another kind occurred in 1885 when the District Board prosecuted John McGlashan of Newburgh for having salmon in his possession on the 12th September (i.e. during the close-time on the Tay). McGlashan appealed on the grounds that the Tweed fisheries were still operating at that time (they closed on 14th September). He won his case and the Board had to pay ten guineas expenses and £4 15s. to McGlashan for the value of the fish confiscated[51]. The distinctly odd legal situation that this revealed was that until the close-time began on *all* Scottish rivers, possession of salmon - even when thought to be from a river that had started its close-time - was not illegal. This legal loophole was widely taken advantage of: in October 1886 Lumsden reported to the Tay District Board that at the beginning of September some 40 spirling smacks had been active in the estuary and they could only have been poaching salmon or carrying poached salmon, as the spirling fishing season did not start until the middle of September. The ultimate proof of this was that all but four of the spirling smacks had ceased operating on the 14th September, the start of the close-time on the river Tweed, the last of the Scottish rivers to close. Lumsden pointed out that the law did not allow him to prosecute for possession before the Tweed closed and all attempts "at a prosecution by searching the vessels, intercepting

the fish coming ashore or by observation have failed."[52] In 1887, on the advice of the Solicitor General, the District Board decided to interdict the owners of spirling smacks. As the result of a test case, the owner of a spirling smack was successfully interdicted after landing 32 salmon at the Jock's Hole station. What proved to be the culminating encounter in this particular campaign between the Newburgh fishers and the District Board came in September 1888 when there occurred the "Battle of the Gutter Hole". The record in the District Board Minute Books is as follows:

> The clerks [to the District Board] stated that information had been received by them on Tuesday morning 4th September and also by Mr Lumsden that a fleet of spirling boats had started to work and they immediately instructed Mr Lumsden to proceed down the river to investigate. When he and his men were proceeding on this errand they were involved in an encounter with poachers at Gutter Hole in which watcher McCurrach was seriously injured and two poachers are reported to have been drowned in endeavouring to escape by swimming. Four poachers were captured and handed over to the criminal authorities at Cupar who are investigating the matter."[53]

This tragic event, coming in addition to the successful interdiction of the skippers of the spirling smacks, appears to have removed for some time the initiative for outright poaching in the estuary.

However, if the problems of non-tacksmen using hang nets and the use of spirling smacks as vehicles for poaching and collecting poached salmon had been solved by 1888, there remained the fact that legitimate tacksmen were legally entitled to use hang nets, a matter of continuing disquiet to the river proprietors. The extent of the use of hang nets is shown in table 9.2 (p 385). According to the figures quoted, there were no less than 244 hang nets, 24 toot nets and 75 sweep nets being used on the Tay between Mugdrum Island and Ferry-Port-on-Tay (Tayport), though it is probable that not all were simultaneously in use. Though these methods of fishing were not as productive as stake nets had been,

the river proprietors appeared to see in them a threat to the river fisheries of stake net proportions.

In the years prior to 1897/98 various suggestions had been made to go to court in an attempt to have the decision in *Forth Case* reversed, but nothing had come of them. A joint petition in 1896 by proprietors from the Tay and the Forth to the Secretary of State for Scotland requesting that legislation be brought in to ban the use of hang nets was told that such legislation would be impossible that session[54]. The Tay District Board then resolved to bring a test case against the Glover Incorporation for allowing the use of hang nets at their Seaside estate. This was to be a joint action on behalf of the river proprietors, rather than an action by the District Board which was not a legal entity for that purpose. A parallel action was to be taken against the use of toot nets[55]. At a special meeting of the Tay District Fishery Board on 7th March 1899 it was conveyed to the meeting that the First Division of the Court of Session had found against the legality of toot nets, but affirmed the legality of hang nets. The District Board agreed to appeal to the House of Lords against the decision in the Hang Net Case, and the decision was reversed in 1900[56]. Table 9.2 demonstrates the effect of the decision, for in 1903 there were no hang nets or toot nets being used in the Firth of Tay.

Thus the century ended with the river proprietors triumphant, not only had organised poaching been dealt a severe rebuff, but hang nets had been finally declared illegal and, as a bonus, the dubious but ineffective toot nets had also been pronounced illegal. In regard to the upper river, they had been successful in having the netting season extended at no cost in terms of the weekly slap, and very little cost in terms of nets being taken off. Their dominance over both extremities of the river appeared unassailable after almost 100 years of confrontation.

The irony in the situation was that, unbeknown to the various parties, the artificial tripartite division of the river was about to be made irrelevant by the emergence of a single dominant tacksman in the form of the Tay Salmon Fisheries Company.

III - The Tacksmen

Before looking at the events surrounding the formation of the Tay Salmon Fisheries Company it is appropriate to look at the tacksmen on the Tay in general, for their influence on matters connected with the Tay fisheries increased as the nineteenth century progressed. The institution of the *Valuation Rolls* in 1856 makes it possible to identify the activities of individual tacksmen to a greater extent than was possible before that date[57]. Three categories of tacksmen may be distinguished. First, there were those who combined salmon fishing as a summer occupation with a trade such as weaving carried on throughout the rest of the year. Such men would most often take employment as salmon fishers, but they would also at times take a small tack or sub-set from another tacksman. Second, there were entrepreneurs from outwith the Tay district, often fishmongers, who took tacks on the Tay as a form of business speculation or to ensure supplies of Tay salmon for their firms. Third, there were a number of local tacksmen who were "professionals" in the sense that their salmon businesses continued over considerable periods of time and were their main form of activity; they were usually also wholesalers of salmon, selling to the urban markets, principally London.

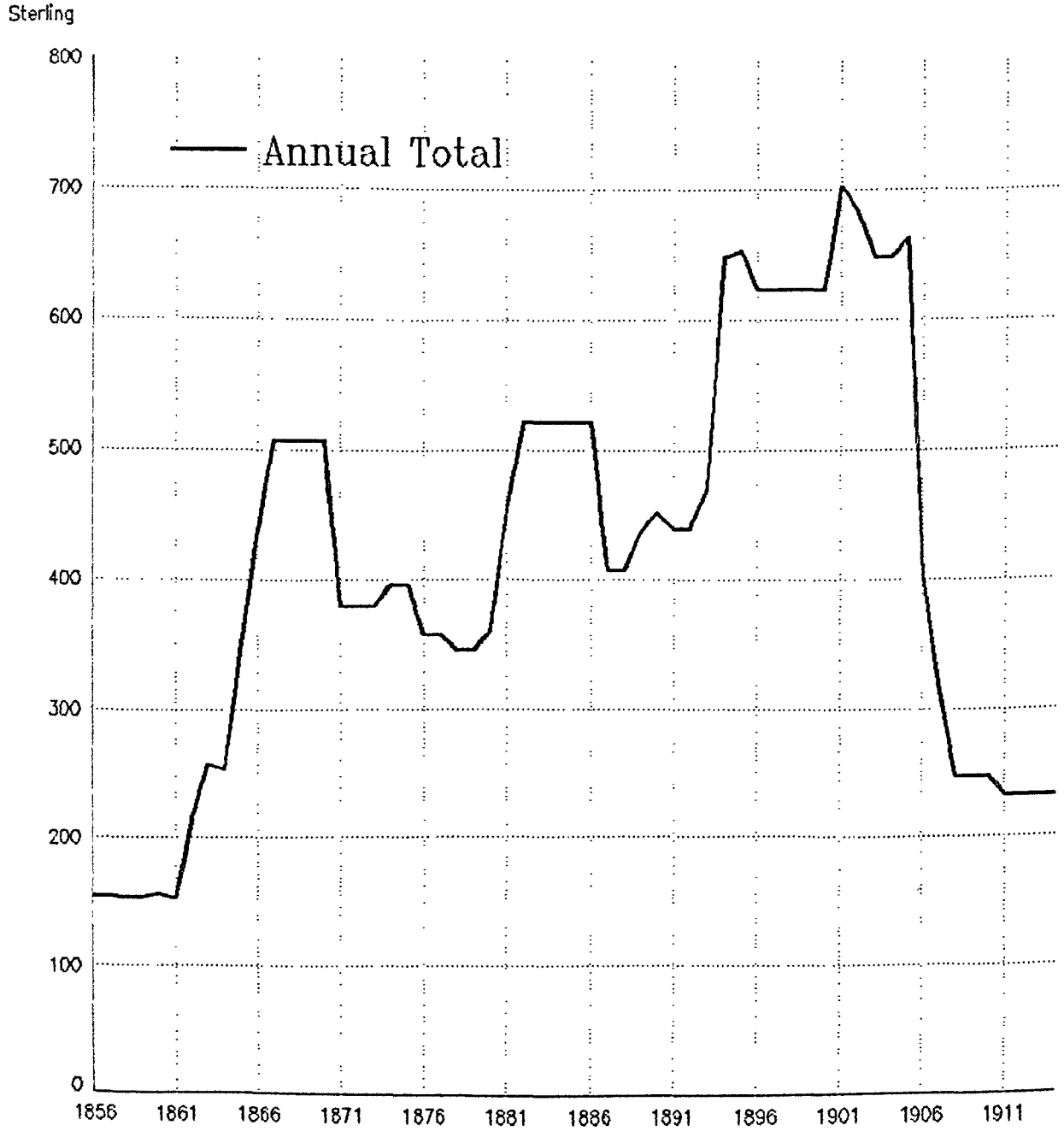
Within the first group there was a very high turnover, some names appearing but once or for a very few seasons. As their activities were largely confined to the summer months, the tacks they took were usually on the banks below Newburgh, which were not fished until June[58]. The practice of sub-setting tacks disguised the true extent of the involvement of this type of tacksman, for a subset tack would be entered in the *Valuation Rolls* in the name of the principal tacksman. The other occupations of such tacksmen were seldom mentioned in the *Valuation Rolls*, but when they were, that most frequently mentioned was salmon

fisher, implying that this was a man who had previously been an employee. The next most common designation was weaver - particularly those coming from Newburgh - but there were also cobblers, farmers, bakers, etc. The relative ease with which a man could become a tacksman has been referred to[59]. There was apparently little capital outlay required as gear could be hired and rents were not paid in advance. The payment of wages could be avoided if a crew formed a partnership with some mutually acceptable formula for sharing out the profits. These small tacksmen and partnerships, like the poachers, sold their produce to the larger tacksmen who had access to the southern markets[60]. Thus becoming a tacksman was not something debarred to men who had no capital, but it brought drawbacks for the preservation of the salmon stock as it meant that there were always men looking for tacks, which in turn ensured that the river was always netted to the fullest extent[61]. Table 10.2 (p 414) and Figure 10.5 (facing p 414) show how the number of active tenants doubled from the middle to the end of the nineteenth century.

The second category consisted of entrepreneurs such as Beattie from Annan, Pearce from Cardiff, Tansley from Birmingham, Stanley from Manchester and both the Andersons from Edinburgh[62]. For those who were fishmongers or gamedealers the reason for taking tacks on the Tay is obvious. It is more difficult to explain the motives of a printer from London, drapers, a joiner, a miller, two bakers, a millowner and a seedsman except in terms of entrepreneurial instincts, or a desire for some form of risk-spreading diversification. None of the firms in this category involved themselves with the Tay fisheries for longer than sixteen successive years, and participation in terms of rentals paid was usually modest, though A.G. Anderson paid out over £3,500 in rentals for three successive years in the late 1880s.

J Johnston & Sons, Value of Tacks

Figure 9.1a 1856–1914



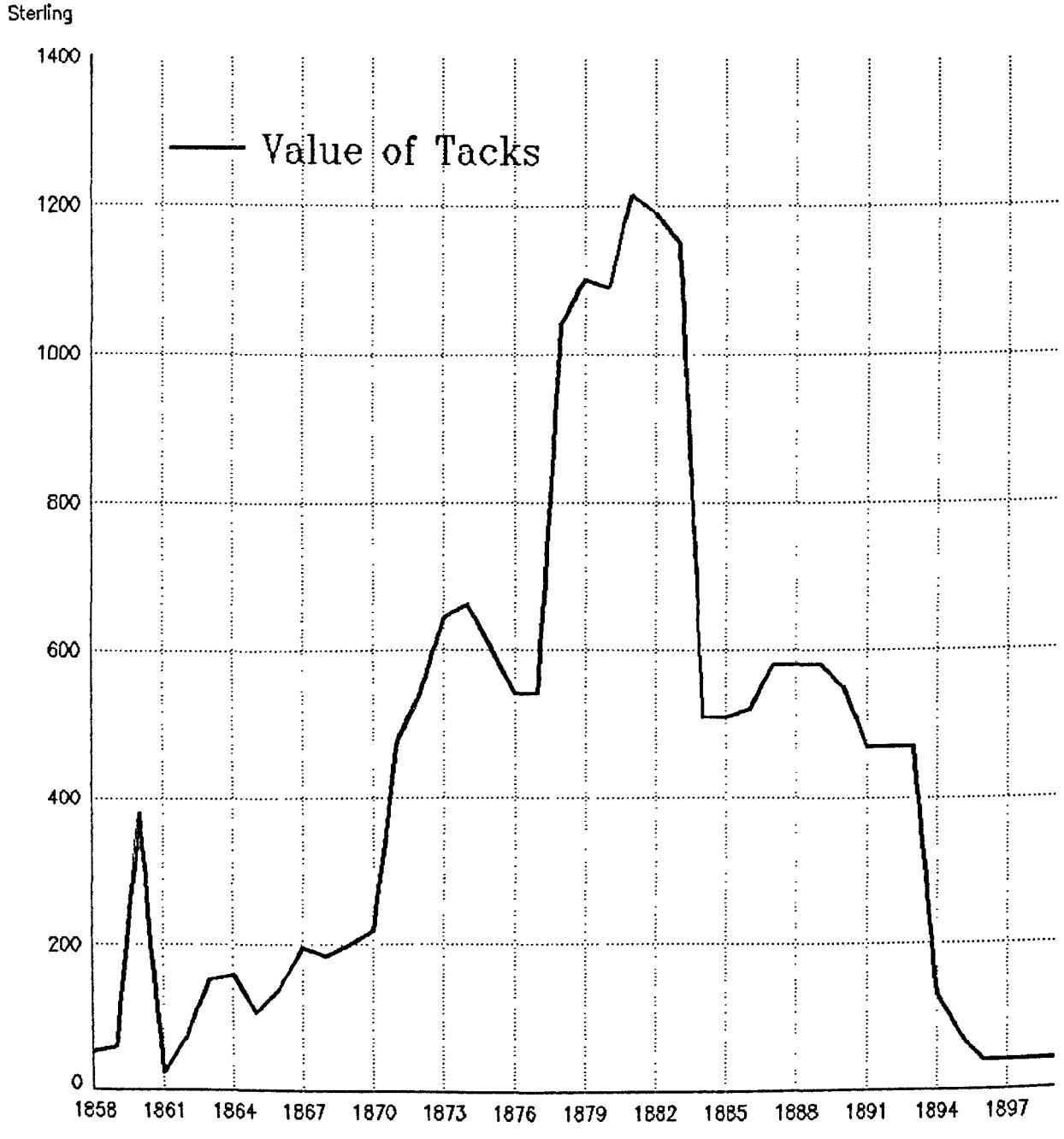
Source: Table 9.3

The third category of tacksman was the most significant, partly because it rented the biggest proportion of the fishings and partly because it comprised wholly of local men whose interest in the fisheries continued over a long period. The firm of tacksmen with the longest continuous association with the Tay was Joseph Johnston & Sons of Montrose which had tacks over the entire period recorded in table 9.3 (see also figure 9.1a). Johnston & Sons, however, was not typical as it took tacks only in the estuary adjacent to the coastal nets which was (and is) the firm's speciality[63]. Figure 9.1a shows that Johnston & Sons gradually increased the value of its tacks from 1856 onwards. The firm tended to take the same estuarial fishings on long tacks, which explains the more regular appearance of the figure. Apparently Johnston & Sons did not involve itself directly with hang nets, for according to one of the witnesses in the Hang Net Case, the firm allowed its fishermen to use hang nets provided that the fish were sold exclusively to the firm. This right to fish with the hang net was apparently in lieu of wages[64]. The fall in the rentals paid by Johnston & Sons after 1905 would be accounted for by the banning of hang nets which would have reduced the produce of their fishings, and also the Tay Salmon Fisheries Company taking over some of its tacks, e.g. Barry Links and Broughty Castle.

More typical tacksmen were the local dynasties drawn from the Dunn, Foote and Powrie families, together with individuals like George Pitcaithly and Alexander Speedie. The way in which the different tacksmen approached the matter of acquiring tacks is reflected in the tables and figures. The Foot Family and Alexander Speedie (table 9.3 and figures 9.1b and 9.1c respectively) both held much the same group of fishings over long periods of time. The Foote Family concentrated on fishings above Perth, such as those at Kinclaven, and only infrequently

Foote Family & Others, Tacks 1858–1899

Figure 9.1b



Source: Table 9.3

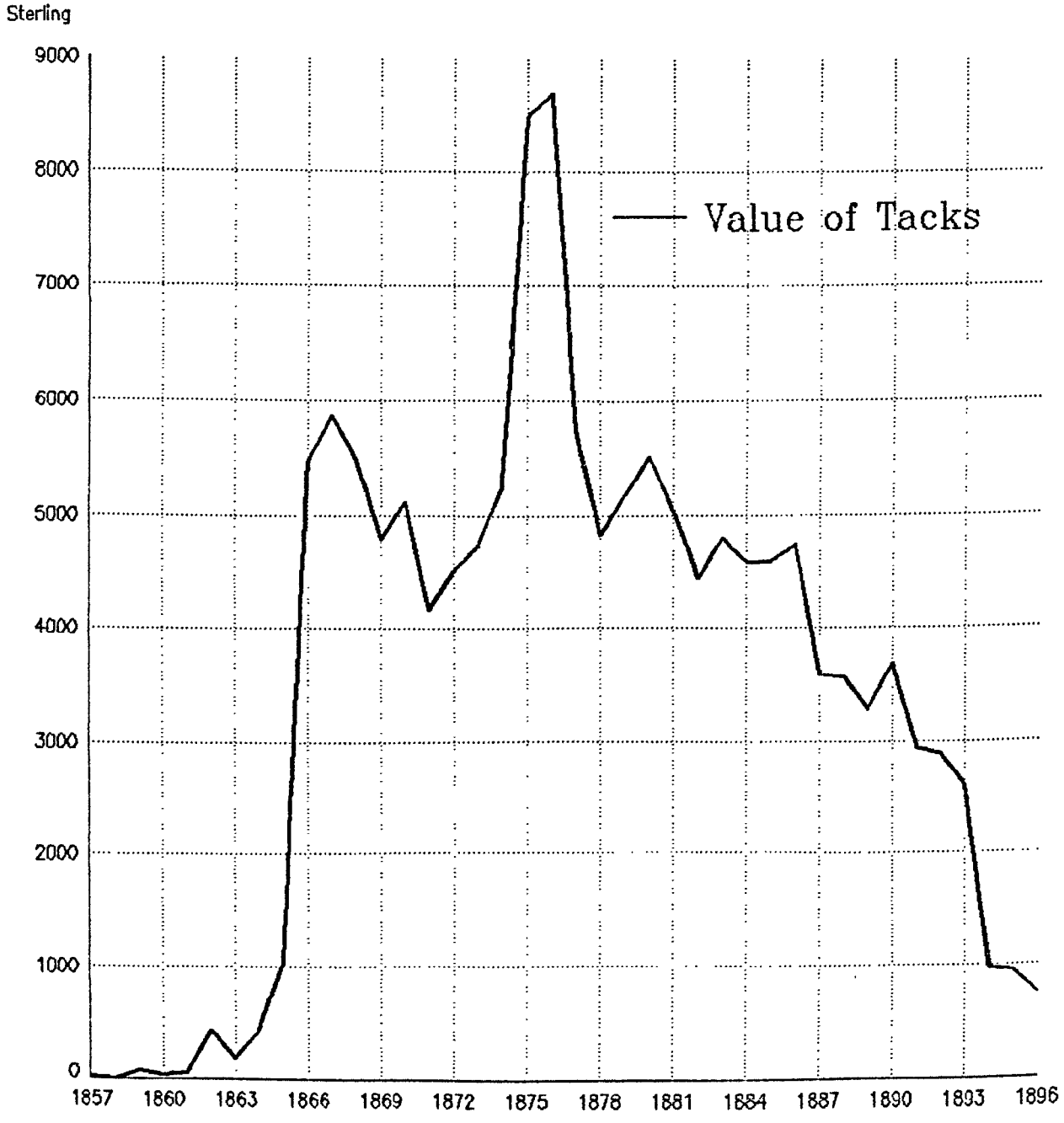
Table 9.3

Total Annual Value of Tacks Paid by Selected Tacksmen 1856-1914

	A.G. Anderson	Corson & Currie	Dunn & McVean	Foote	Joseph Johnston & Son
	(£)	(£)	(£)	(£)	(£)
1856					155
1857					155
1858				53	154
1859				60	154
1860				379	157
1861				23	153
1862				72	213
1863				152	258
1864				160	254
1865				106	350
1866				140	439
1867				196	507
1868				185	507
1869				200	507
1870				220	507
1871				477	379
1872				545	379
1873				645	379
1874				661	396
1875				602	396
1876				542	357
1877				542	357
1878				1,040	345
1879		370		1,101[1]	345
1880		691		1,090[1]	360
1881		700		1,215[1]	455
1882		390		1,191[1]	522
1883	502[2]	417		1,151[1]	522
1884	881[2]	363		510	522
1885	806	537		510	522
1886	572	580	700	520	522
1887	3,608	544	850	580	407
1888	3,629	160	850	580	407
1889	3,752	120	807	580	437
1890	429	265	755	550	452
1891	383	340	796	470	440
1892		255	1,246	470	440
1893		100	2,244	470	470
1894		100	1,432	130	648
1895			500	74	653
1896				40	623
1897				40	623
1898				40	623
1899				40	623
1900					623
1901					703
1902					683
1903					648
1904					648
1905					663

Alexander Speedie, Tacks 1857–1896

Figure 9.1c



Source: Table 9.3

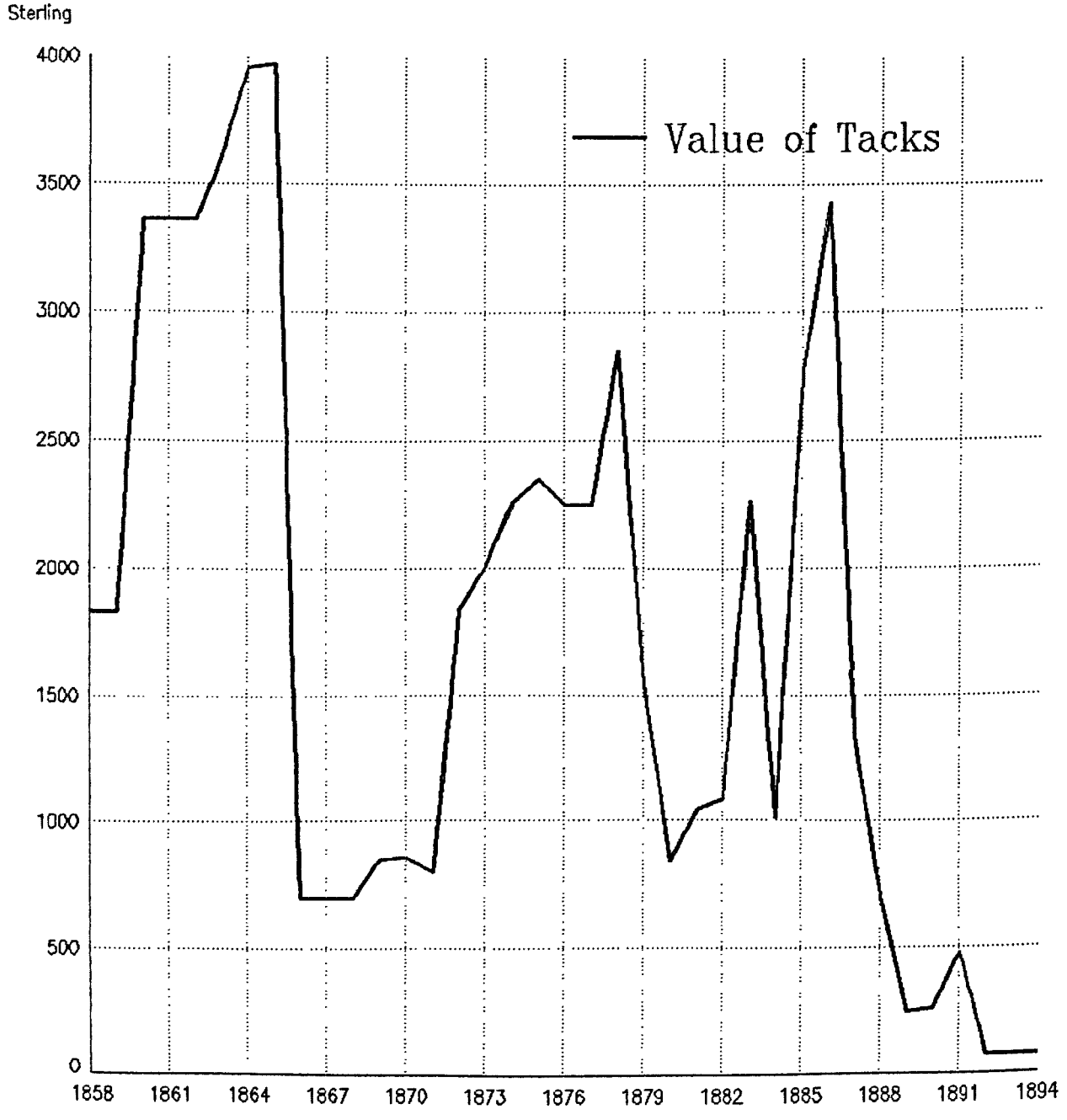
Table 9.3 (continued)

	Joseph Johnston & Son (£)
1906	402
1907	313
1908	248
1909	248
1910	248
1911	233
1912	233
1913	233
1914	233

1. with Lawrence Christie. 2. with Greenhill.

Powrie & Pitcaithly, Tacks 1858–1894

Figure 9.1d



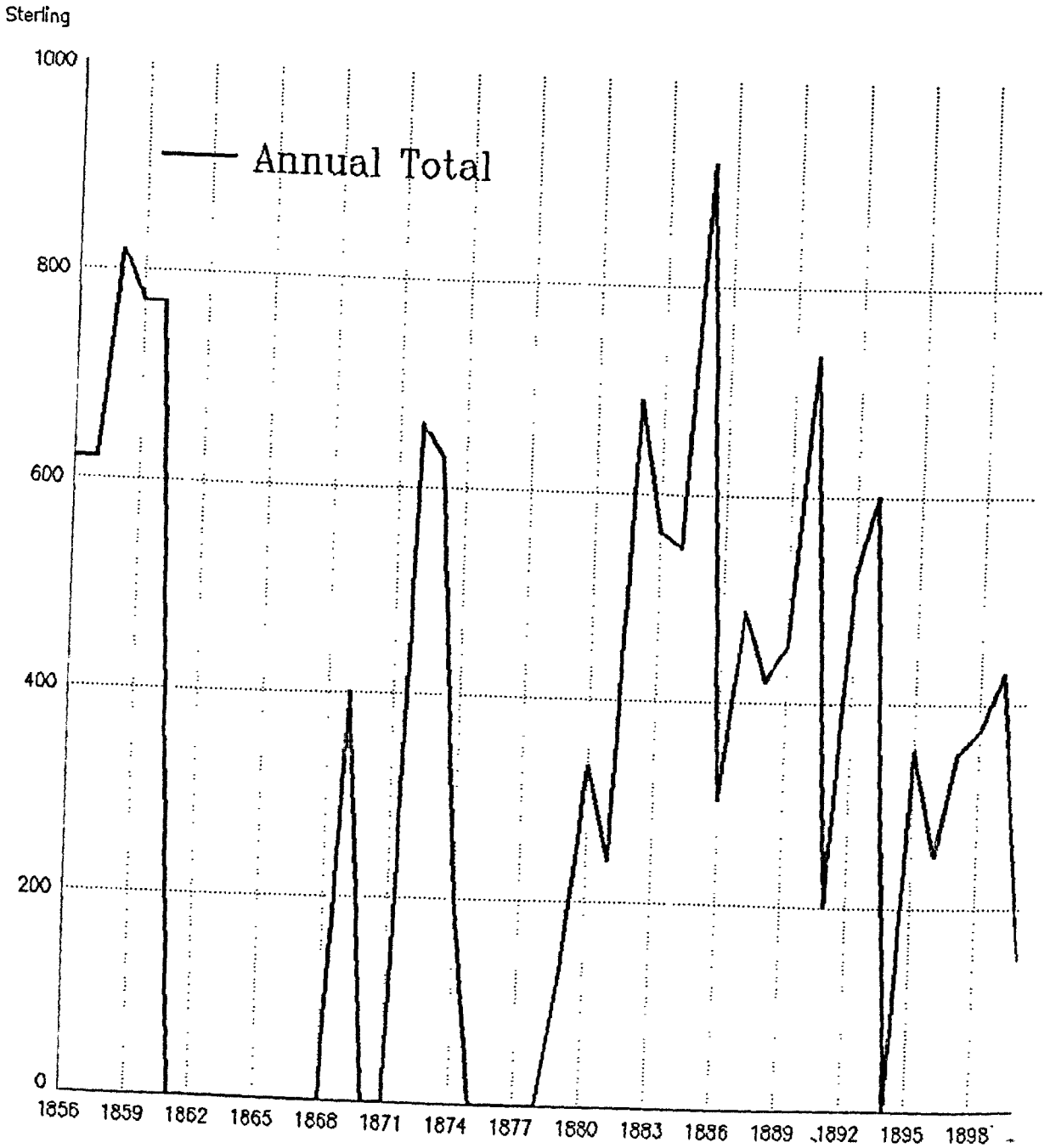
Source: Table 9.3

Table 9.3 (continued)

	George Pitcaithly (£)	Powrie & Pitcaithly (£)	A & D Powrie (£)	Charles Powrie (£)	James Powrie (£)	Robert Powrie (£)
1856			620			
1857			620		440	
1858		1,830	819		670	
1859		1,830	770		670	
1860	35	3,360	770	40	140	
1861	661	3,360			275	83
1862	860	3,360			404	450
1863	491	3,607		24	447[7]	400
1864	671	3,955				260
1865	723	3,969				310
1866	52	700			583	
1867	135	700				
1868	115	700			785	
1869	345	850	400		309	
1870	435	856				
1871	396	800			241	
1872	926	1,831	661			201
1873	883	2,005	629			
1874	925	2,254	200	28	22	
1875	472	2,349		167	295	766
1876	636	2,249				200
1877	230	2,249			962	216
1878	311	2,849			1,290	202
1879	1,360	1,550	141		367	170
1880	928	840	335	155		170
1881	962	1,040	240	190		20
1882	764	1,084	690			851[6]
1883	180	2,266	564	51	320	35
1884	220	1,010	548		320	
1885		2,777	920		320	
1886		3,426	302		320	
1887	1,359	1,350	488			
1888	1,685	698	419[3]			
1889	1,136	240	455[3]			
1890	1,056[5]	255	736[3]			140
1891	671	477	200[4]			
1892	880	75	520[4]			
1893	1,307	75	600[4]			
1894	1,164	75				
1895	755		355			
1896	160		251			
1897	242		353			
1898	120		374			
1899			429			
1900			150			

3. with Robert Powrie. 4. D Powrie and others. 5. sub-set from Corson & Currie. 6. Robert, Charles and David Powrie. 7. with John Young, Perth.

A & D Powrie, Value of Tacks 1856–1900
Figure 9.1e



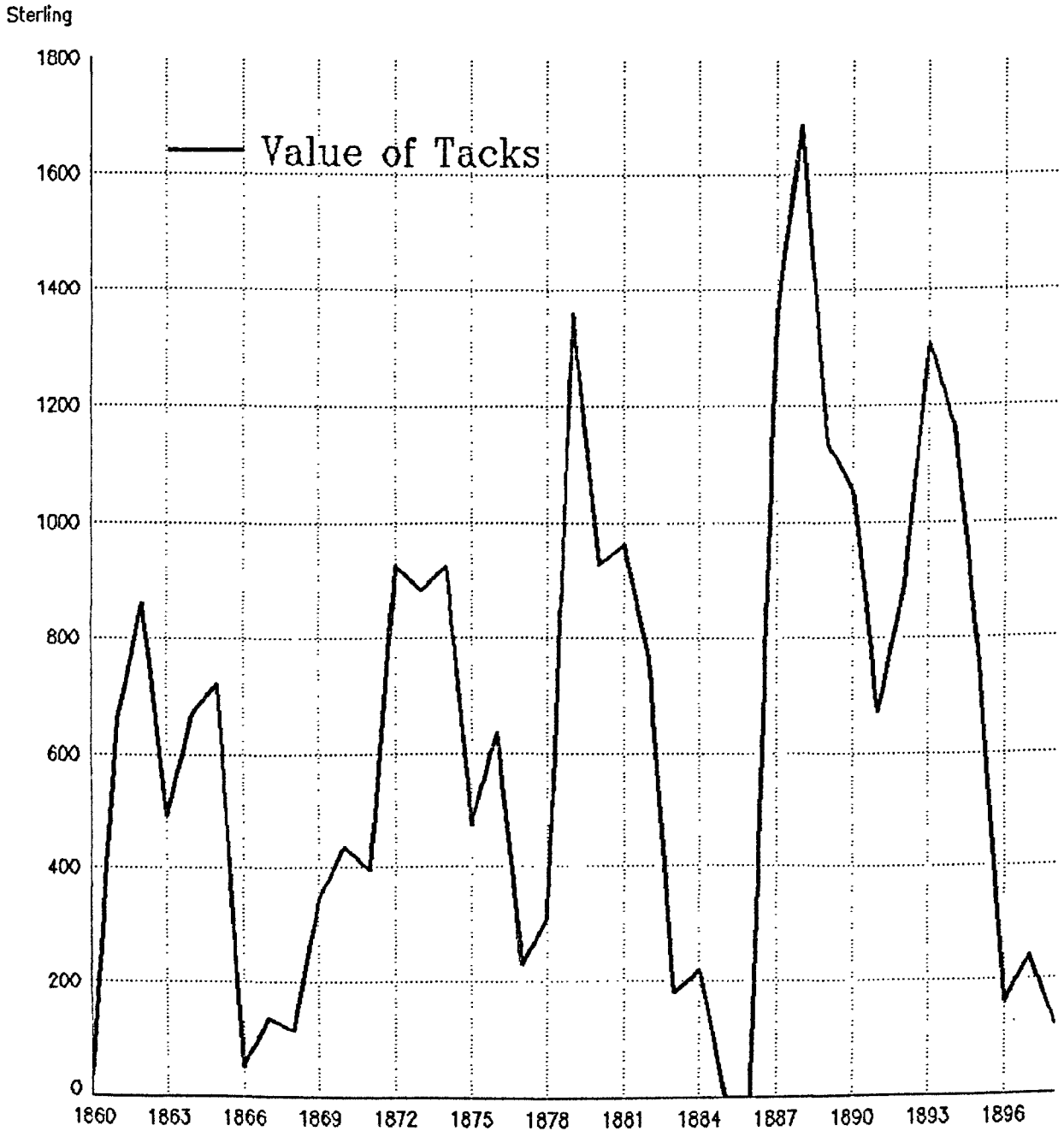
Source: Table 9.3

Table 9.3 (continued)

	Alexander Speedie (£)	Tay Salmon Fisheries Company Ltd. (£)	George Dunn (£)
1856			
1857	16		
1858			
1859	68		
1860	34		
1861	50		
1862	432		
1863	185		
1864	440		
1865	1,020		
1866	5,466		
1867	5,877[8]		
1868	5,476[8]		
1869	4,786[8]		
1870	5,111[8]		
1871	4,166[8]		
1872	4,513[8]		
1873	4,741[8]		
1874	5,248		
1875	8,477		915
1876	8,685		1,870
1877	5,750		2,414
1878	4,825		1,963
1879	5,175		36
1880	5,511		36
1881	5,035[9]		
1882	4,439		
1883	4,799[9]		37
1884	4,592[10]		318
1885	4,602		372
1886	4,745		386
1887	3,591		225
1888	3,566		453[12]
1889	3,284		444
1890	3,680		470
1891	2,945		1,378[13]
1892	2,889		758
1893	2,592[11]		766
1894	976[11]		2,507
1895	950[11]		1,713
1896	754		1,990
1897	680		465
1898	680		
1899	680	110	
1900	680	11,198	
1901	680	12,711	
1902	680	13,076	
1903	680	13,682	
1904	680	14,263	
1905	680	14,167	
1906	680	13,344	
1907	680	14,133	

George Pitcaithly, Tacks 1860–1898.

Figure 9.1f



Source: Table 9.3

Table 9.3 (continued)

	Alexander Speedie	Tay Salmon Fisheries Company Ltd.
	(£)	(£)
1908	680	14,280
1909	680	14,280
1910	680	14,807
1911	680	14,733
1912	680	14,733
1913	680	14,768
1914	680	14,768

8. with William Semple. 9. with Alex Ramsay. 10. with Lawrence Christie.
11. Alex Speedie's representatives. 12. with D Wallace.
13. with Andrew Robertson.
Source: *Valuation Rolls.* I am indebted to John Rogers Esq. for his generous assistance in preparing these figures.

took tacks below Perth Bridge. Alexander Speedie held a good proportion of the Pitfour fishings from 1866 to 1893[65] and the coastal fishings at Tentsmuir and Earlshall from mid-century until he bought them outright in 1869. These three fishings provided an irreducible minimum to which others were added on a more irregular basis. In the peak years of 1875 and 1876 Speedie was paying out almost £9,000 *per annum* in rentals. The policy of taking longer tacks explains the apparent regularity of figures 9.1a/b/c as compared to figures 9.1d/e/f.

Powrie & Pitcaithly, A & D Powrie, and George Pitcaithly (table 9.3 and figures 9.1d, 9.1e and 9.1f respectively) were much more irregular in the value of their tacks in any one year. This was because they were much less consistent in the tacks they held, in some years apparently taking none at all[66]. A & D (Archibald & David) Powrie were father and son and were not simultaneously involved over the entire period 1856-1900 (table 9.3 and figure 9.1e). The various permutations of tacks held is partly explained by fishing proprietors sometimes letting their fishings as a whole and sometimes as separate stations[67]. Thus the peak years for Powrie & Pitcaithly's rentals were 1858-65, 1872-78 and 1885-86, when they had the majority of the Kinfauns, Mugdrum and Inchyra fishings. The same applied to Archibald Powrie in 1856-60 when he had the Mugdrum fishings. With the exception of Pitfour and Seggieden (the latter had only one station), the significant estates bordering the throat of the river, Kinfauns, Elcho, Inchyra and Burgh of Perth were all prepared to let their fishings as separate stations, though whether this was deliberate policy or a lack of tacksmen with the resources or confidence to take on large commitments is not known.

The point has been made above that the Tay salmon fisheries were, from the beginning of the nineteenth century, dispersed among an ever-increasing number of competing tacksmen, and that these tacksmen were

under more and more pressure to exploit their tacks to the maximum[69]. It is implicit in these circumstances that tacksmen would not see themselves as having any direct control over or responsibility for the long-term conservation of the salmon stock. The description of the activities of the tacksmen identified above adds significance to this conclusion. If the majority of "professional" tacksmen were constantly moving between fishings, and this were combined with a high turnover among the "amateurs", then there would be little reason for either of these categories of tacksmen to have much regard for the fishings they held at any time. This effect would have been aggravated by the system whereby the tack went to the highest bidder who would then be intent on maximising his return in any one year.

Of the prosperity of the tacksmen in the second half of the nineteenth century there can be little doubt. In his evidence to the 1860 Committee, Alexander Speedie reported that in the previous year he had sent £6,000 worth of salmon to the London market, of which half had been from fishings other than his own[69]. "There is a great demand now that the railways take the salmon off. We scarcely ever get less than one shilling per pound..."[70] He was equally sanguine in his evidence to the Elgin Committee in 1900 to which he reported that "at present there is a boom in fishings, ..."[71] Other evidence of Speedie's prosperity was his purchase outright of the Tentsmuir and Earlshall coastal fishings, one of the very few instances of a tacksman becoming a fishing proprietor[72].

The history of the Powrie Family also demonstrates that dealing in salmon was a profitable business. John, Archibald, Charles, James and Robert Powrie were born between 1806 and 1817, the sons of Robert Powrie, weaver of Dyke of Lornie, Errol. From this modest background, Archibald, Charles and James all became prosperous, owned substantial

houses and had their own farms. Robert was also active as a tacksman, but he emigrated to North America about 1855. Only John, the eldest brother was less active in the fisheries, though his son Robert was a tacksman. Archibald is recorded trading as A Powrie & Company, Errol in 1843, and in 1847 he was appointed to the Committee of Tacksmen formed under the auspices of the Association of Proprietors[73]. Archibald, Charles and James Powrie with James Jack (brother-in-law), John Fisher (baker) and George Pitcaithly were partners in the Kinfauns Fishing Company which traded during 1842-48[74]. Charles Powrie was thereafter partner with George Pitcaithly in Powrie & Pitcaithly and other partnerships of a more temporary nature followed (see table 9.3)[75].

As the prosperity and economic influence of the "professional" tacksmen increased during the course of the second half of the century so their authority also grew. The first concrete evidence of recognition of their importance was the formation of the Committee of Tacksmen in 1847 which acted as an advisory body to the Committee of Proprietors. The tacksmen also played a decisive role during 1860-1861 in bringing Thomas Rutherford to trial and in the subsequent reorganisation of the watchers[76]. The Committee of Tacksmen did not survive the formation of the Tay District Salmon Fisheries Board in 1863, but their influence on the efficiency of the watchers remained significant, especially as they were willing to fund the employment of some of the full-time watchers. In 1899, the case put forward by a group of tacksmen (not all from the Tay) appears to have been the most influential factor in leading the Elgin Commission to conclude in favour of coastal nets[77].

IV - Formation of the Tay Salmon Fisheries Company

The final event to affect the Tay salmon fisheries before the nineteenth century ended - an event as significant in its way as any that had preceded it - was the reversion of control over the commercial fisheries to a single company. The Tay Salmon Fisheries Company was incorporated on 15th May 1899, though the process of its inception had begun sometime before[78]. There is much about the formation of the Tay Salmon fisheries company that remains unknown. P.D. Malloch claimed that he had taken the initiative[79], but John Moncrieff and David and Henry Robb, three of the other shareholders, had also been taking joint tacks on the Tay during the 1890s[80]. A loose grouping, referred to as the Tay Syndicate[81], had emerged towards the end of the decade which involved, among others, Moncrieff and the Robbs[82]. The idea was certainly not a new one, going back at least to the time of John Richardson & Company, and the benefits that would follow from some form of joint ownership had been canvassed at various times during the nineteenth century[83]. Given that the strategy of the Tay Salmon Fisheries Company was to take all the tacks on the river by offering higher rentals than anyone else, then such a company would require considerable financial backing. The acquisition of the Lynedoch estate about this time by the Coats family of Paisley, perhaps brought to the Tay the financial resources necessary for Malloch's ideas to become practical. According to the information given in note 77, the three Coats shareholders had between them 51% of the shares. Whatever the precise table of events may have been, within a short period the company became a virtual monopolist of the Tay salmon fisheries. There can be little doubt that "buying out" the opposition was the most effective strategy for the company to follow. Given the divisive nature of the participants in the Tay salmon fisheries throughout the nineteenth

century, any attempt at alliance or any other joint approach was doomed to failure. But as price had always been the sole factor in allocating tacks, then provided that the price was right and the company had sufficient resources, offering higher rentals was the most effective strategy.

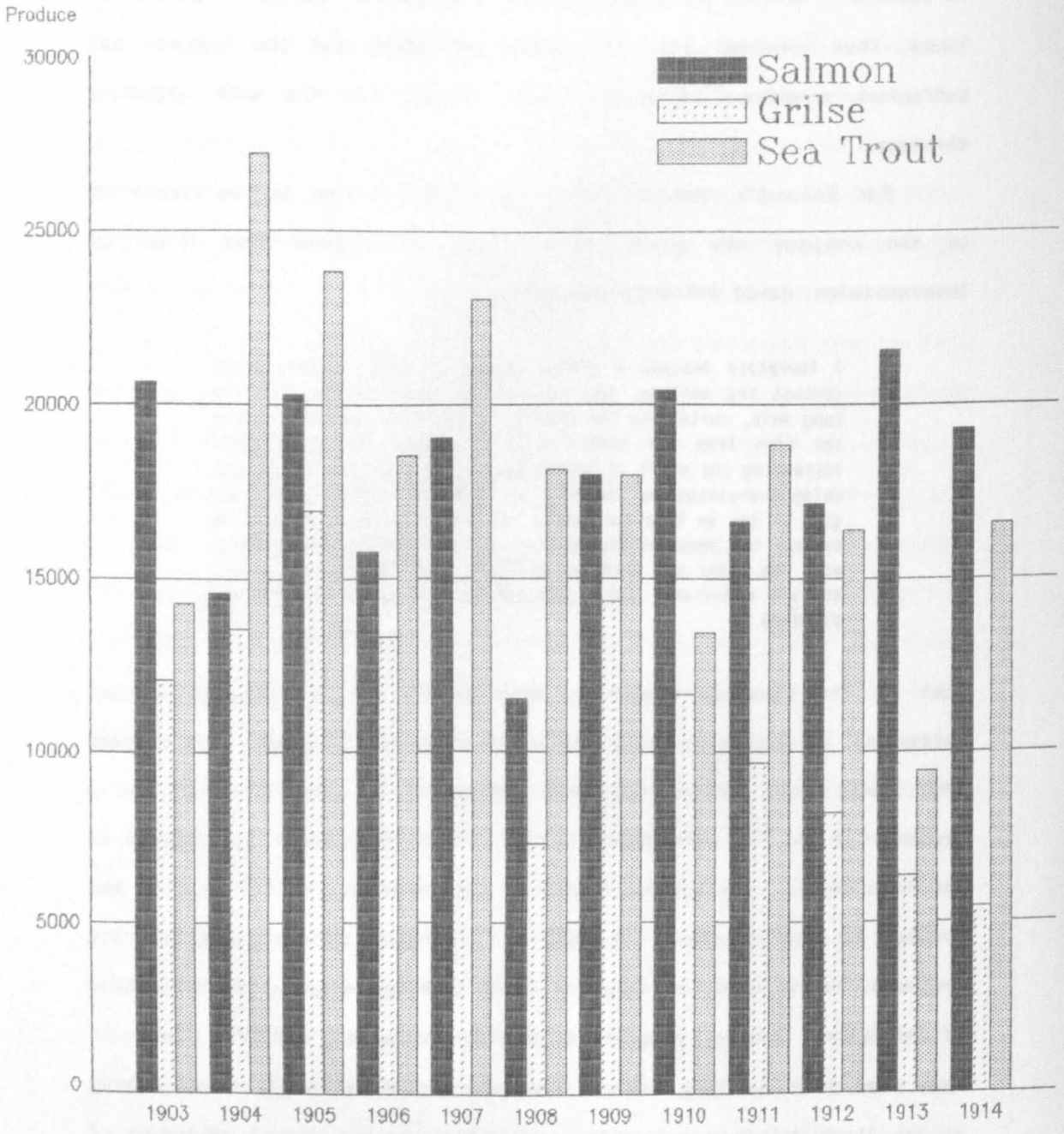
P.D. Malloch's description of the events leading to the foundation of the company are given in a letter to Captain Ewan Grant of Invermoriston, dated 9th September 1905.

> I therefore devised a scheme whereby a small company could control the netting, and improve the river by removing the hang nets, curtailing the netting to the 20th August, allowing the fish from the weekly slap to escape the upper nets; increasing the staff of watchers, killing pike and seals, and doing everything we could to increase the supply, and I am glad to say we have succeeded. With one or two exceptions we control the whole of the netting, and are working harmoniously with the upper and lower proprietors, the Tay District Board, and all concerned, and I may add we are satisfied with our dividend.[84]

Most of the fishings appear to have passed to the Company without difficulty, an exception being the Burgh of Perth fishings. In October 1897 Perth Town Council had been approached by John Moncrieff, as a promoter of the Tay Syndicate, to find out if they would be prepared to let their entire fishings for a tack of ten years at a rental equal to the average of the previous ten years. Nothing further came of this proposal, but in 1898 the Burgh of Perth fishings were let to David Robb of Balhepburn, another promoter of the Syndicate, for £750[85]. Later in that same year the Town Council were approached by the Syndicate asking to let their fishings privately, rather than by the normal procedure of public roup, for the 1899 season and beyond for an extended tack at the previous year's rent (£750). This was an apparently generous offer, for the total rental in 1897 had been £516, and in 1896 only £440[86]. However, perhaps because of a concern about the effect on employment,

Tay Salmon Fisheries Co. Produce 1903–14

Figure 9.2a



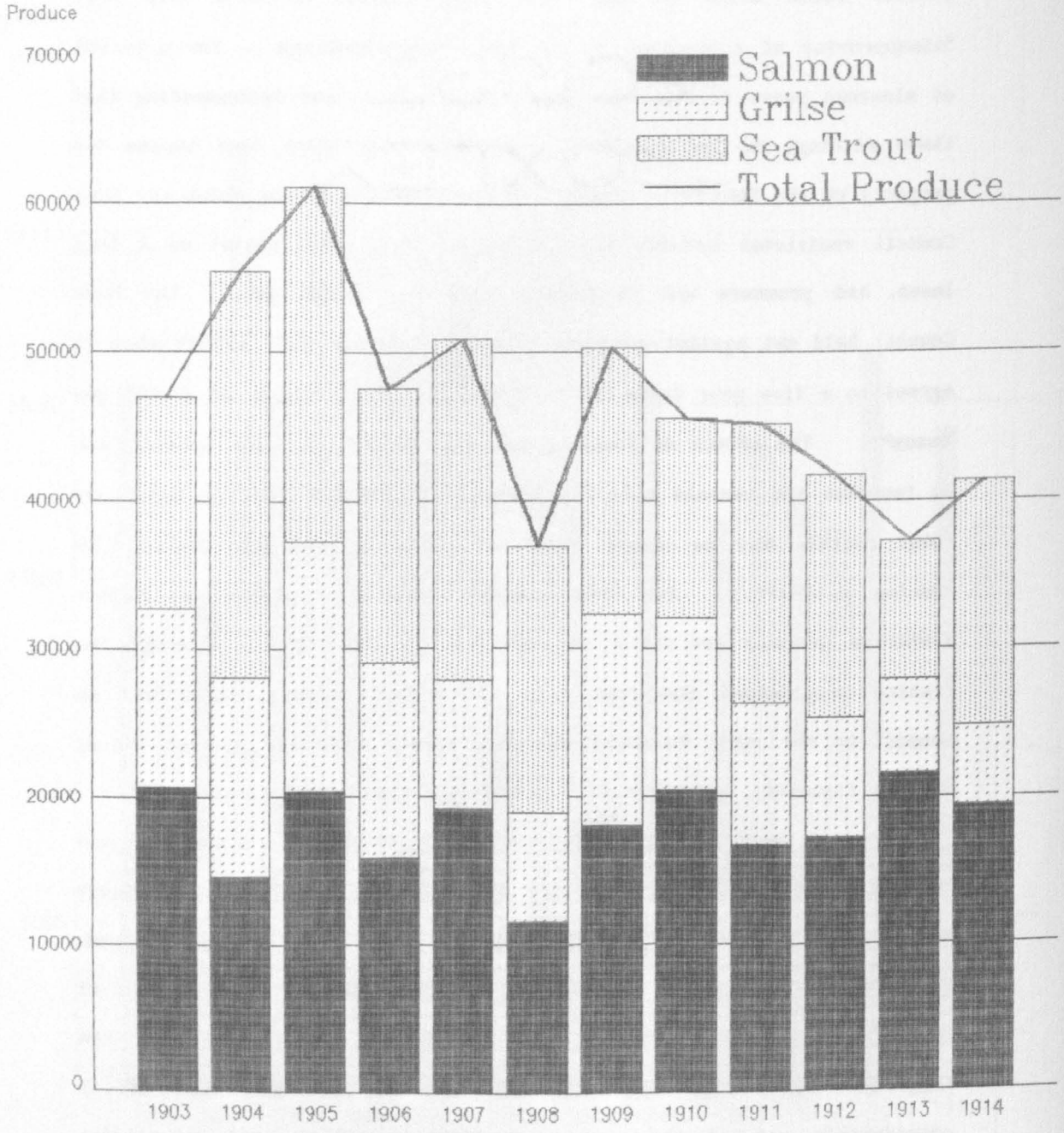
Source: Table 9.4

this approach was opposed by the Perth and District Trades and Labour Council which wrote to the Perth Town Council on 18th July 1898 "disapproving of a proposal to let the [Burgh] fishings ... for a period of nineteen years to the Tay Fishing Syndicate ... and recommending that these fishings be let yearly as they have been since they became the property of the Town."[887]. There followed a period during which the Town Council vacillated between the attractions of a high rental on a long lease, and pressure not to deviate from the *status quo.* The Town Council held out against pressure from the Company until 1905[888] when it agreed to a five year lease of the Burgh of Perth fishings at £1,000 *per annum*[889]. The effect of founding the Tay Salmon Fisheries Company was to increase the rentals paid for commercial fishings, and the impact on total rentals may be judged from table 5.2 (p 134) and figure 5.2b (facing p 135)[890]. The total rentals paid out by the Tay Salmon Fisheries Company are shown in table 9.3 (pp 344-345). Although the fishing proprietors benefited from the higher rentals, there was no benefit to the other tacksmen who were almost entirely squeezed out of the Tay fisheries, see table 10.2 (p 414) and figure 10.5 (facing p 414).

Having gained control of the fisheries, the Company's strategy was to *manage* the Tay salmon fisheries as an entity. For example, though they held a majority of the tacks, they did not work all the stations, deliberately reducing the fishing effort in any season[891]. The result of outbidding the other tacksmen and taking long leases was that the Company made a loss in its first year, and so the next year it considerably reduced the number of fishing stations and voluntarily curtailed the fishing season in the autumn by eight full days[892]. No record of the number of stations operated by the Company exists before 1903, but in that year they operated 42 stations and fishings[893]. This contrasted with no less than 105 stations and fishings being operated in

Tay Salmon Fisheries Co. Produce 1903–14

Figure 9.2b

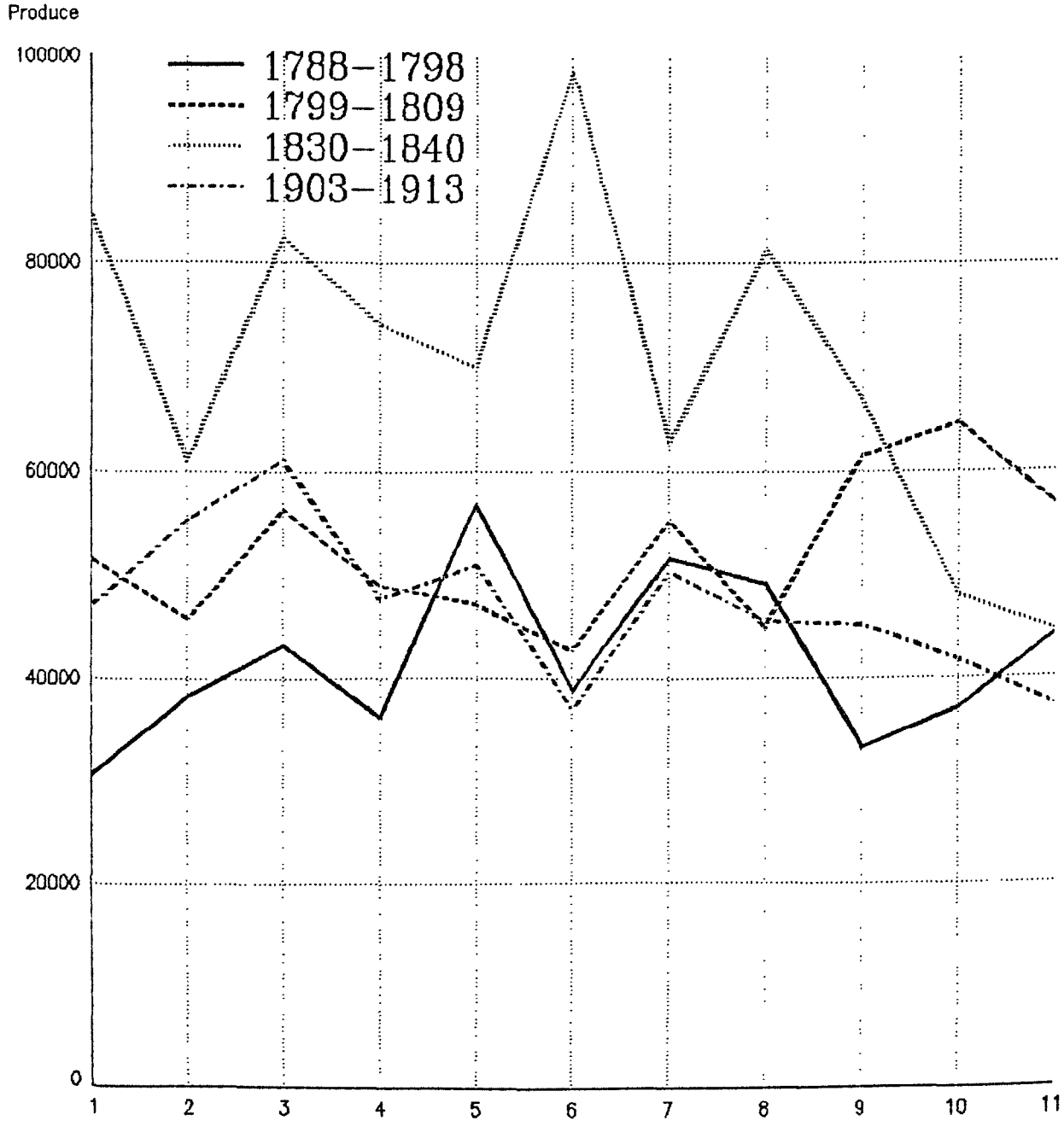


Source: Table 9.4

1897/98, though the latter figure involved stations using hang and toot nets which were illegal by 1903[94]. Table 9.2 shows that in 1903 the Mansfield fishings were the only ones not in the hands of the Company, apart from those operated by Johnston & Sons in the estuary[95]. The curtailment of the number of stations operated cost the Company £5,000 in revenue, but the result was that many more fish reached the redds and the Company claimed to have almost made up the £5,000 by the following year. "The result of all this has been a great increase of fish during every month of the season, and I have no hesitation in stating there are 20 fish in the river now for every 1 there was when we started."[96] The produce of the Tay Salmon Fisheries Company from 1903-1914 is shown in table 9.4 (pp 389-396) and figures 9.2a/b (pp 351-352). Malloch in his letter of 1905[97] noted a recovery in the produce of the company after the first year of trading, but this does not appear to have been sustained after 1905. Catches of sea trout were not recorded in any of the previous produce figures, but they were clearly significant for the Company over the period shown. The effect of this was to keep the *numbers* of fish within the range 40,000-60,000, and thus similar to the figures for 1788-1798 and 1799-1809 (see figure 9.3, facing p 353). But as the average weight of a sea trout is only two pounds, the produce by *weight* would almost certainly be less. Table 9.4 records "purchases" which would indicate that the remaining independent tacksmen on the Tay (e.g. those who had tacks of the Mansfield fishings) mostly sold their fish to the Tay Salmon Fisheries Company. In a further letter to Captain Grant, Malloch explained that the company had no special arrangements with proprietors who were not shareholders in the company, but they had been sufficiently pleased with the results of the Company's policy to send a joint letter of thanks[98].

Tay Fisheries Produce – Four Periods

Figure 9.3



Sources: Tables 3.2, 7.4 and 9.4

Proprietors of River Tay fishings harbouring thoughts of gratitude and sending letters of thanks was a novel development. Setting aside any exaggeration on Malloch's part, the effect of a single (generous) tacksman controlling the Tay fisheries appears to have been quickly and widely accepted (except by ousted tacksmen). The Company was formed at a fortuitous time: the Hang and Toot Net Cases had just been concluded with decisions favourable to a company principally interested in the river fisheries, and the upper proprietors had fairly recently been mollified by nets being removed from above Campsie Linn. If peace had not broken out on the river, at least there was a truce. However, the Company improved further the relations among the participants by its policies. The strategy of paying high rentals, even to proprietors whose fishings were not worked, or were only partially worked, was one that was mutually acceptable and beneficial. The high rental policy, moreover, was quite justified on commercial grounds as, according to Malloch, the reduction in the number of stations worked, permitted the produce to revive, though this conclusion is perhaps a little optimistic in view of figure 9.2b. However, at the time of its inception, the combination of high rentals and the Company's manifest intent to manage the river as an entity must have struck a sympathetic chord with the proprietors in general.

REFERENCES

1. The District Salmon Fisheries Boards were financed by an assessment on proprietors based upon the value of their fisheries as entered in the *Valuation Rolls*[1] and were subject to election every three years[2]. The boundary between the upper and lower proprietors on the Tay was fixed at Perth Bridge and on the Earn at the "North British Railway Bridge" (NO 117194). The eastern boundary of the District was extended to a line from Red Head (NO 704473) north-east from Arbroath to Fife Ness (NO 638097) in the south. This extension brought in the coastal fishings about Carnoustie and Arbroath as well as those at Tentsmuir, though not the River Eden[3].

   1. This had always been the method of assessment on the Tay.

   2. See further, Charles Stewart: *A Treatise on the Law of Scotland Relating to Rights of Fishing*, Edinburgh, 1869, pp 235-240.

   3. The additional proprietors were:

The Earl of Northesk	Burgh of Arbroath
Fraser of Hospitalfield	The Crown
Burgh of St Andrews	Burgh of Carnoustie

2. More so after the Mansfield estates acquired the Kinnoull fishings in 1874.

3. Lord Gray's Kinfauns rentals were the largest on the river at that time.

   John Gray, 15th Lord Gray, (1798-1867), see further p 26.

4. William David Murray (1806-1898), fourth and third Earl of Mansfield and Viscount Stormont, son of David William Murray (1777-1840), 3rd Earl of Mansfield (County of Middlesex) and Frederica Markham, daughter of Rev. William Markham, Archbishop of York. Tory MP for Aldborough, 1830-1831; for Woodstock, 1831-32;

for Norwich, 1832-37; and for Perthshire, 1837-40; a Lord of the Treasury, 1834-35 (Sir Robert Peel's Administration). Succeeded his father as 4th Earl of Mansfield (County of Middlesex) in 1840, and his grandmother as 3rd Earl of Mansfield (County of Nottingham) in 1843. Lord High Commissioner to the Church of Scotland, 1852, 1858 and 1859; Lord Lieutenant of Clackmannan from 1852 to his death.

In 1883 the Mansfield family estates consisted of 31,197 acres in Perthshire, 14,342 in Dumfriesshire, 1,704 in Clackmannan, 795 in Fife, 539 in Middlesex, 250 in Derbyshire, 224 in Cheshire and 22 in Cumberland. Total 49,074 acres worth £42,968 *per annum*, "exclusive of coals rented at £1,886." Principal residences: Scone Palace, Perth; Comlongan Castle, Dumfriesshire; and Caen Wood (formerly Kenwood), Hampstead, Middlesex.

Complete Peerage,

5. Sir Robert Menzies, 7th Bart., (1817-1903), succeeded his father, Sir Neil Menzies, 6th Bart., in 1844. Sir Robert had about 98,300 acres including Castle Menzies (NN 837497) near Aberfeldy which had fishing rights on the Tay, and at Rannoch Lodge (NN 506573) at the west end of Loch Rannoch. He was a cousin by marriage to Archibald Butter of Faskally (1805-1885) as his aunt Vere had married Archibald Butter of Faskally (1769-1805), see note 6.

BPB, Who Was Who, 1897-1916.

6. Archibald Butter, J.P. of Faskally, (1805-1885), he was a cousin by marriage to Sir Robert Menzies, 7th Baronet as his mother, Vere Menzies, was an aunt of said Sir Robert Menzies. See also Chapter Eight, note 59.

BLG.

7. The same firm have acted as clerks to the Board in its different forms since its inception as the Association of Proprietors in 1816. They were originally called Peddie & Mackenzie, then Mackenzie & Dickson and latterly Condie, Mackenzie & Co.

8. It may seem surprising that the river proprietors were concerned to ensure access to the late summer runs of salmon when they had made such strenuous efforts prior to 1853 to have the beginning of the close-time brought back to avoid the excessive capture of such runs. However, they saw a precise balance to be struck in this matter: a September closing date allowed too many fish to be taken, but a date before (say) 27th August allowed too few. To get the balance wrong in either direction would be to adversely affect their rental income - hence their preoccupation with the starting date of the close-time.

9. Dickson: ***Memorandum No. 1***, Leys, bundle 191.

10. Cmnd. 419, 1871.

"Recent Legislation" was the Acts of 1862 and 1868.

The ***1868 Act*** was ***An Act to amend the Law relating to Salmon Fisheries in Scotland***, 31 & 32 Vict. c. 123, and it was intended to make the provisions of the ***1862 Act*** more specific.

Francis Trevelyan Buckland, 1826-1880, was the son of William Buckland, sometime dean of Westminster. He graduated B.A. from Oxford in 1848 after which he devoted himself to medicine, especially anatomy. In 1854 he became assistant-surgeon to the 2nd Life Guards which necessitated his staying London and allowed him to study "curious specimens of natural history" as described in his ***Curiosities of Natural History***. He contributed to ***The Field*** after it was founded in 1856, and in 1865 he founded his a weekly

journal called *Land and Water* in conjunction with his friend W.J. ffennell, see Chapter Eight, note 72.

> With much zeal he applied himself to the many economical questions affecting the artificial supply of salmon, the length of the close season, the condition of the different salmon rivers of the kingdom, and similar investigations, gradually becoming the highest authority on the subjects of pisciculture. In 1867 he was appointed an inspector of salmon fisheries. No more congenial post could have been offered him, and thenceforth he devoted all his energies not merely to the duties of his office, but to the elucidation of every point connected with the history of salmon, and endeavoured in every way to improve the condition of the British fisheries and of fisher-folk in general.

His publications included: *Curiosities of Natural History*, 4 vols., 1857-1872; *Logbook of a Fisherman and Zoologist*, 1875; an edition of White's *Natural History of Selborne*, with original notes, 1876; *Natural History of British Fishes*, 1881; and *Notes and Jottings from Animal Life*, 1882.

D.N.B.

Archibald Young, sometime Inspector of Fisheries for Scotland, Published *Salmon Fisheries*, London, 1877.

11. *Buckland & Young Report*, pp 57-58.

12. *cf.* Dickson's ideas about salmon of different ages entering the river at different seasons of the year pp 324-325. See also p 18; ffennell, Chapter Eight, note 72; and Malloch *et al.* in Chapter Ten, note 26.

13. This branch of the Stewart family had owned land in Atholl since the fifteenth century. James Stewart Robertson of Edradynate, 1823-1896, inherited the estate from his father, also James Stewart Robertson of Edradynate, born 1783, who had assumed by direction the additional surname of Robertson. The family have since changed their name to Stewart-Meiklejohn of Edradynate.

BLG.

14. At the time of writing, November 1869, Grant was Chairman of the Tay District Fishery Board as mandatory for his daughter, Margaret, Baroness Gray of Kinfauns.

Margaret Grant, *suo jure* Baroness Gray (17th holder of the title), 1821-1878, inherited the title in 1869 from her aunt, Madelina Gray (16th holder of the title), *suo jure* Baroness Gray. Margaret Grant married Hon. David Henry Murray, 3rd son of William, 3rd Earl of Mansfield in 1840.

Scots Peerage; Complete Peerage.

John Grant of Kilgraston and Pitkeathly, 1798-1873, son of Francis Grant of Kilgraston and Pitkeathly. Grant's uncle, also John Grant (died 1793) had been Chief Justice of Jamaica 1783-1790, and it was he who had bought the estates of Kilgraston and Pitkeathly on his return to the United Kingdom, he had been succeeded by his brother Francis. In 1820 John Grant married Margaret, second daughter of Francis Lord Gray. Their only child was Margaret, Baroness Gray of Gray.

BLG.

15. *Buckland & Young Report*, Appendix VI, pp 96-97.

16. TBP, box 1, bundle 26.

The use of the phrase ***bona fide*** in the title was to distinguish those proprietors whose fishings were above Cargill railway bridge (NO 149373) from the "upper proprietors" designated by the *1862 Act* (i.e. all those above Perth Bridge). This distinction was necessary as the proprietors between Perth Bridge and Cargill railway bridge were those whose nets had benefited from the extended weekly slap and who were quite content with the *status quo.*

17. The upper river proprietors had supported the Act in the belief that it would improve their fishings. In particular the clauses which added twelve hours to the Saturday slap and extended the rod fishing season.

18. *Report*, p 4.

19. It was suggested that this charge be borne by all proprietors, both upper and lower, for although the upper proprietors would get the immediate benefit, the lower proprietors would ultimately gain by the greater number of breeding fish getting to the redds.

The *Report* suggested a number of ways in which the sum of £1,500 could be met.

i The netting stations above Perth Bridge could be let for rod fishing "for as large a rent as they do at present", or the stations could be rented from the proprietors at their present rent and sub-let for rod fishing.

ii The netting season could be extended for a further three days which would produce a further £2,000 in rents for the lower proprietors from which they could pay those to be compensated. This would have been contradictory to the statement in the *Report* that the annual close-time should not be extended.

iii The upper proprietors could undertake the watching in the upper river with their own men, and if the assessment were kept at the same level, the money saved could be used to pay the compensation.

iv An assessment might be made on the upper waters only.

20. TBP, box 1, bundle 1.

21. ***Memorandum to the Proprietors of Salmon Fisheries, in the Tay District, Nos. 1, 2, and 3.*** Leys, bundle 191.

22. Dickson: ***Memorandum, No. 1.***

23.

> I referred to the strong presumption that the fish that enter our rivers in spring, as compared to those that enter later in the year, are of distinct race, and that the offspring of each class respond to the same habits as their parents.
>
> The point has considerable value in the economy of our salmon fisheries, since any regulative treatment which tells upon the stock of one seasonal class then necessarily affects the progeny of that class. If in any river we persistently net out the spring fish by, say, allowing the open season to commence unduly early, we are preventing the upkeep of that class. If, on the other hand, we confine our netting to the late fish, we are benefiting the early fish.

And again:

> Now by the eleven years of marking work carried out by Dr Rich and Dr Homes [in North America], it has been ascertained that the progeny of a run of fish which have a definite seasonal character keep to the same season in their return from the sea. In other words, that spring fish breed spring fish, and autumn fish breed autumn fish.

W.L. Calderwood*: ***Salmon and Sea Trout,*** London, 1930, pp 39, 54.

> Salmon returning to their river of origin in the early months of the year after spending two or more years at sea are referred to as 'spring fish'. ... By late May the run of summer fish begins with fish that have dwelt for more than two or three years at sea,.. Some rivers ... have a run of 'late' or 'autumn', fish in October and November. These tend to be large [older], weighing well into double figures,..

Derek Mills: ***Scotland's King of Fish,*** Edinburgh, 1980, pp 10-11.

*William Leadbetter Calderwood, 1865-1950, son of Henry Calderwood, Professor of Moral Philosophy at the University of Edinburgh. Studied at University of Edinburgh and in Naples and Germany; appointed Naturalist on the staff of the Fishery Board for Scotland; Director of the Marine Biological Association's Laboratory, Plymouth, 1889-1898; Inspector of Salmon Fisheries for Scotland, 1898-1930; Fisheries Adviser to the North of Scotland and

Hydro-Electric Board, 1943-1950. Prepared reports on salmon fisheries in Canada and Newfoundland; was also a portrait painter. Publications include: ***Salmon Rivers and Lochs of Scotland***, 1909, 2nd edition 1921; ***Salmon and Sea Trout***, 1930.

Who Was Who, 1941-1950.

24 ***Memorandum, No. 1***, p 2.

In 1881 the river proprietors petitioned the Home Secretary to have the start of the annual close-time altered from 21st August to 27th August, but the upper river proprietors requested that it remain the same. The Home Secretary offered a compromise date of 24th August, but the offer was not taken up (see table 9.1, col. IV).

TBMB, Vol. 2, pp 122, 144, 145.

25. There is no evidence to suggest that the upper proprietors actually wanted a Saturday slap of 48 hours, but this was included in the deal.

Dickson's ***Memorandum, No. 2.***, expanded on his ideas about the age of salmon in relation to their return to the rivers. In this he set down his theory of the "double" or "divided migration" of salmon. This observed that some smolts returned from the sea as grilse in the year following their migration from the river, while others did not return for two (or more) years, by which time they were salmon. Dickson was quite accurate in this observation, whether he was the first to make it is not clear, but in ***Memorandum, No. 3.***, he gives the names of various eminent persons who had commended his "divided migration theory", e.g. Professor William C. McIntosh of the University of St Andrews' and Archibald Young of the Fishery Board for Scotland. Though quite sound on the divided migration theory, Dickson was less so when he failed to recognise that all salmon returned to the rivers to spawn, and

posed the question "what is the natural instinct that sends the clean 'non-breeding' fish into the river in spring and early summer?"

1. William Carmichael McIntosh, M.D., F.R.S, F.R.S.E., LL.D., D.Sc., etc., 1838-1931. Professor of Natural History in University of St Andrews, 1882-1917; Director of the University Museum; Director of the Gatty Marine Laboratory; Scientific Member Fishery Board for Scotland; Member of the Commission on Irish Inland Fisheries, 1890. ***Who Was Who, 1929-1940.***

26. See further Appendix VII

27. Dickson did not suggest their reduction, merely that they should not be increased.

28. Dickson's comment about such fish not being in condition to take a fly may be discounted.

29. TBP, box 1, bundles 20 and 26.

In more detail:

> 25th September 1884
> ... I *most strongly* object to the proposed Bill in its present form and shall do all in my power to throw it out. I object to the nets beginning before the 5th February, though I should like to see the rod fishing open on 1st February. Secondly, I see no reason why I should be taxed for salmon ladders, etc., and the taking off of nets, unless I was given the right to fish for salmon from my lands on the banks of the Tummel. I have more spawning ground than any other proprietor upon the Tay, and I think the lower proprietors should remember that it is us upper proprietors that breed the fish they catch. The lower and middle proprietors seem to wish to get all they can out of the upper, without giving them anything in return. In the long run this can only have but one result, *viz*, the ruin of the fishing to all, and I fear the lower proprietors may find when too late that the upper proprietors have become tired of the expense and trouble of preserving the salmon fishing when they get no return for their exertions.

30. In addition to the clauses summarised in column VII of table 9.1, the Huntly Bill contained the following:

i power to have the annual close-time *extended* by the Secretary of State on application by a District Fishery Board;

ii tacksmen to be eligible for election to District Fishery Boards in addition to proprietors;

iii proprietors and tacksmen to provide annual statistical returns of their catches and District Fishery Boards to pass these to the Fishery Board for Scotland;

iv District Fishery Boards to have powers to prosecute those causing pollution and erecting illegal obstructions;

v the only legal coastal nets to be the stake and bag nets, it to be laid down where these might be situated;

vi District Fishery Boards to regulate mesh sizes and net sizes;

vii it to be illegal to sell salmon after the end of the net season.

TBP, box 1, bundle 2.

31. An anonymous comment thereon among the Tay Board Papers noted that while the Huntly Bill allowed for two groups of proprietors, there were three groups on the Tay. More important, the Huntly Bill made no mention of banning sweep nets in the upper river, though licensing nets might have been a way of limiting nets to specific parts of the river. The commentator did not think that the Huntly's Bill would work, as it was his opinion that any extension of the weekly close-time

> would only give a value to a few additional miles of the river for net fishing, as the Act of 1862 gave that value to ten miles of the river above Perth. Without a limitation as to netting above the point of the river at present fished with nets, the additional twelve hours would be of not the slightest avail to the upper anglers.

The comment suggested additional matters that might be dealt with by legislation, such as a 60 yard gap between sweep nets. Apparently on the Tay up to three nets were being used from the same shot head, each being rowed within a short interval of the other. Tacksmen thought this more effective for catching fish than having more stations. The omission of any mention of bang nets in the Huntly Bill was also a lost opportunity as they were most injurious. With regard to net size and mesh size, nets on the Tay were up to 169 yards long, but if limited to 144 yards they would be unable to sweep the entire breadth of the river. Apparently over-fishing was to the same degree in 1886 as it had been prior to 1862.

TBP, box 1, bundle 2.

32. TBMB, vol. 2, pp 501, 520.

In 1890, by order of the Secretary of State for Scotland, the start of the close-time for the rod fishing was brought back to 15th October (opening on 15th January).

33. Campsie Linn is about one mile below the Innernytie march, the highest suggested point in table 9.1, but about ten miles further up the river than the Perth Bridge, the lowest suggested point, and only one estate's (Stobhall) net fishings were affected.

34. Included in the agreement was the withdrawal of the nets from Lochs Dochart and Tay, Mr Place and the Marquis of Breadalbane respectively.

TBMB, vol. 3 p 191, also TBP, box 1, bundle 20.

Minutes of the meetings held by the upper proprietors on this subject are inserted in the Tay Board Minute Books. The first five year agreement ran from the 1894 season and the compensation was paid as follows:

Lord Ancaster, Stobhall	£165
Col. Richardson, Ballathie	160
Lady Lansdowne, Meikleour	85
Sir Alexander Muir Mackenzie, Delvine	40
Mr Guthrie Lornie, Kercock	10
	£460
A further £30 for two seasons to Andrew Foote, tacksman at Stobhall for loss of profit	30
	£490

The *Valuation Rolls* show that there was no significant netting on any of these estates, apart from Stobhall.

35. At the same time it was suggested that attempts should be made to have all nets removed as far down as the Perth Bridge, but the Earl of Mansfield intimated that he would not consider this for at least a further five years, though he would continue to cease netting at 18.00 hours on Fridays.

> The Scone nets, the only commercial salmon nets operating on the Tay above Perth, and owned by Viscount Stormont, son of Lord Mansfield, are to be removed for an initial five-year period starting next season.
>
> ....
>
> It's understood that annual compensation of £8,000 will be paid to the Trustees of Viscount Stormont during the initial five-year period by the [Tay District] board, and that there may be an option to buy them out.

The Courier and Advertiser, 23rd April 1987.

36. In 1856 the tacksman at the Cally station had been interdicted for using a hang net.

TBMB, 5th September 1856.

37. The cost of watching in 1842-1843 had been only £327, see p 278.

38. TBMB, Vol. 1, p 30.

At the time, George Gordon, superintendent of the watchers was also superintendent of the Perthshire County Police. In 1866 it was

suggested that the two forces be combined, but the idea was not taken up.

ibid.

39. *ibid.* p 238.

> FATAL ENCOUNTER BETWEEN
> RIVER WATCHERS AND POACHERS
>
> We know that poaching, both by land and water, is carried on to some extent in this neighbourhood, as elsewhere, ... But it is seldom or never that we have to record a scene of fighting or bloodshed in connection with these cases, ... a most disgraceful affair took place a short distance below Perth, at Legman fishing station, ... A little after twelve o'clock a party of watchers came upon a party of poachers, about equal in numbers, and a fatal fight ensued.
>
> ...
>
> It was while the men were drawing their second shot that the watchers came upon them. After this point the case is all contradiction. The watchers say they acted in self-defence, and that when the poachers were beaten and made off, they then to their astonishment found a man lying dead ... The poachers ... affirm that they were attacked suddenly by the watchers, and, being quite defenceless, were pelted with large stones, and beaten with sticks unmercifully ...
> The greatest excitement prevailed in Perth on Friday on account of this disgraceful onset ... During the day the six watchers were apprehended, but one of them was liberated in the evening. Next day, two others ... were set at liberty, and the remaining three ... were committed for trial on a charge of culpable homicide, but released on bail of £25 each.
> The deceased, Alexander Lamont, who belonged to Newburgh, was about 24 years of age, and left a widow and one child. ...
> Deceased was inclined to follow after poaching, which has resulted in a premature death.

Perthshire Advertiser, 14th April 1870.

40. TBMB, Vol. 2, p 45.

41. *ibid.* pp 68, 79.

42. Free accommodation for the watchers was provided in bothies located at Crieff, Ruthven Bridge, Airlie, Inchyra and Flisk, and a lodging allowance of 1s. 6d. to 2s. per week was paid. Lumsden thought some of the watchers too old and suggested that the younger ones could be encouraged by a higher wage of 21s. per week. He also suggested two sergeants at 25s. or 26s. per week, one at

Perth and the other at Newburgh during the fishing season, the latter to move to Crieff during the close-time. He further suggested a pair of handcuffs and signal lamps for each watchers station.

43. The possibility of arming Lumsden and his men was also discussed at this time, but nothing resulted from this proposal.

ibid. p 122.

A similar suggestion that Lumsden and his men might carry revolvers was put to Sheriff Gloag in 1885, but he strongly disapproved.

ibid. p 394.

William Ellis Gloag, Lord Kincairney, 1828-1909. Called to the Scottish bar, 1853; Advocate Depute, 1874; Sheriff of Perthshire, 1885; raised to the bench as Lord Kincairney, 1889.

Concise D.N.B.

44. TBMB, Vol. 2, p 153.

45. ***Masters of Allan's Mortification v. Bernard Thomson*** in which Thomson's use of a hang net on the Forth near Tulliallan was found to be legal.

46. TBMB, Vol. 2, p 252.

47. Zetland's law agents were H.G. & S. Dickson, Edinburgh.

48. TBMB, Vol. 2, p 260.

49. ***ibid.***

50. ***ibid.*** see also TBP, bundle 28.

This conclusion did nothing to placate Zetland's agents who wrote further in the following terms:

8th February 1884, letter from H.G. & S. Dickson, Edinburgh to Mackenzie & Dickson, Perth.

> Instead of indulging in high flown language about groaning under the yoke of village ruffians of the Irish type, and such like, it would have been more satisfactory if the Board had given some answer to the repeated inquiry in our letters of October and November last, namely, whether on complaints being made to the watchers that people were fishing without leave in Lord Zetland's waters, the watchers would take the requisite steps with a view to having the offenders prosecuted by the Board under the Acts of 1844 and 1868. To that inquiry no answer whatever is made in the Minute by the Board. You say in your letter that you will see that the Board are quite ready to co-operate thro' such force as they have. We are unable, however, to see anything of the kind. So far from anything being said about co-operation by the Board, they resolve *"that it is the duty and business of the tenants and proprietors of fishings to protect themselves* during the fishing season." We are further reminded that the Police Force [watchers] at Flisk Point is only an auxiliary to the tenants of the fishings. Our complaint, however, was that they were of no assistance whatsoever. In our letter of 23rd October we mentioned that the watchers had told our Mr S. Dickson "that they had orders from the superintendent not to interfere with the parties in question, provided that they were not using nets with an illegal mesh, and *that tenants would have to protect themselves* against anyone fishing without permission. Lumsden does not appear to have denied that these were his instructions to the watchers. We should like to know how the watchers can be considered as even an auxiliary force, when they had orders to do nothing. The Minute bears that Lumsden stated that no complaint had ever been made to him or his men by any of the sub-tenants of Lord Zetland's fishings, but what was the use of making complaints, when the watchers had made it known that they had orders not to interfere?

TBP, bundle 28.

51. TBMB, Vol. 2, p 402.

52. *ibid.* p 423.

53. *ibid.* p 526.

A more extended account is given by Calderwood:

> A battle of modern times took place one dark night a short distance above Newburgh. It is still spoken of as the battle of the Gutter Hole, and it may be mentioned here because it was of great moment, I believe in bringing about the end of estuary poaching on anything like an extensive scale. The Gutter Hole is the name of a fishing station, and was the scene of the encounter. Gangs of men had for some time been working nets in spite of the watchers, and emboldened by success, and with steady additions to their numbers, were beginning to openly defy the river watchers even in daylight. The watchers finding themselves in a powerless minority

> quickly sought help from Mr Lumsden's force up the river, and, on a night appointed, two boat crews, floated silently down the river. A large body of poachers were discovered with two boats busily at work. A skirmish, or perhaps more properly a reconnaissance, accompanied by a deal of stone throwing on the poachers' part, enabled the party of water bailiffs to estimate the force they had to deal with. Mr Lumsden then drew off his men, landed, and deployed till he was able, unseen to approach from the land within striking distance. After waiting till the law-breakers were busily engaged in hauling their nets the signal for attack was given, and a determined little battle ensued. Many crowns were cracked, and a good deal of damage was done on both sides, but the discomfiture of the poachers was complete, and many prisoners were secured. Two men who tried to swim to Mugdrum Island were drowned. Feeling ran high in Newburgh, and the police scented manslaughter to follow. Fortunately, however, the well-planned attack at the Gutter Hole had produced sufficient impression, and the Courts wound up the proceedings without any additional charges. The result in all conscience was serious enough. Doctors were busy as well as lawyers; but open poaching was crushed.

W.L. Calderwood: ***The Salmon Rivers and Lochs of Scotland***, London, 1909, pp 56-57.

54. TBMB, Vol. 2, p 269.

55. *ibid.* pp 276, 321.

Details of the Hang Net Case are as follows. The development of the hang net was part of the many and varied attempts by the estuarial proprietors to devise nets which were both legal and effective in the estuary, which had been going on since the conclusion of the Stake Net Cause in 1812. Hang nets (also called drift nets) had been in use since at least the 1860s, but before 1880 their use had been largely clandestine. The great breakthrough had been ***The Forth Case*** of 1879. The pursuers described the hang nets as being 200 to 280 yards in length, twelve to fifteen feet in depth, weighted along the bottom, corks at the top, and a mesh three inches square. They were employed at slack water, i.e. at the turn of the tide, when they would be run across the river and remain in position for up to three-quarters of

an hour. The net was designed to trap salmon by the gills, though sometimes they were caught by the teeth. The salmon fishers would watch the net while it was in the water looking for the bobbing corks that indicated when a fish had swum into the net. They would then row to the spot and remove the fish by means of a long cleek or gaff. It was claimed by the pursuers that the hang nets effectively blocked the river when they were in position "at a time (slack water) specially favourable for the run of the fish"[1] It was also claimed that the hang nets acted as leaders to divert the fish towards toot nets at the shore. This last point was disputed as, strictly speaking, toot nets could not be operated at slack water for they required a current to keep them stretched open. However, evidence was produced which suggested that at such times the toot nets could be kept stretched by use of a "back guy" from the centre of the net to the shore.

The defendants had to demonstrate that the hang net was not a fixed engine, and they argued that it could not be such as it did not remain motionless in the water, but moved with the currents and was not fixed to any post or anchor. They claimed that the hang net was a form of sweep net. The most favourable part of the their case was that the hang net had been found to be legal, both in the Forth Case and more recently in another case regarding their use on the Tay, ***Earl of Wemyss and others v. Earl of Zetland***, 18th November 1890, 28 S.L.R., 105.

At one point in their case the defendants went beyond the legal to the (real) economic basis of the dispute when they stated: "the present action is not raised in the interests of the public or of the breed of fish. It is truly a competition for the fish themselves between the heritors above and below Newburgh."[2] All

the witnesses agreed that the use of hang nets had greatly increased since 1880, and evidence was produced to show that at the time of the case there were no less than 244 hang nets in use between Mugdrum Island and Ferry-Port-on-Craig. The hang nets were particularly used on north shore fishings where other forms of net were impossible. The Mylnefield fishings were a particular example, there had been no fishing rentals at all until the 1880s and nothing but those for hang nets thereafter. Like all other forms of fishing in the Firth, the hang nets were only employed later in the season, mainly in July and August.

1. Condescendence for Pursuers.
2. Respondents's Case.

The Toot Net Case of 1898 was part of the same initiative by the Tay District Board against "illegal" netting in the estuary. Although the toot net had always been of doubtful legality its use had been tolerated by the river proprietors as the number of fish caught was negligible. In his evidence to the Court, Alexander Lumsden the superintendent of the watchers, quoted John Dickson, one of the clerks to the Tay Board, as having said that what the toot nets caught "are just what I call the crumbs from the rich men's tables; it is not legal, but we have always allowed it."[1] The decision to cease this charity came about because the toot nets were "undoubted fixtures, which had become much more serious factors in injuring the regular Salmon Fishings, by so many fish being driven into them by the obstruction of the Hang Nets in the middle of the Estuary."[2]

The toot net (also called the toot and haul net or stell net) was described as being from 108 to 110 yards in length. The custom

at the time was to have a post or anchor some 60 or 70 yards out from the shore, so that when the toot net was to be set, rather than rowing from the bank, the fisher merely hauled himself to the stake by a fixed rope in the manner of a Bermony boat with the net paying out over the stern of the coble. The inefficiency of the method is illustrated by the fact that the net was drawn in and then reset each time fish were observed to enter it. An even more telling comment was that by George Melville "I have been out for eight weeks (fishing with the toot net) and have never seen (caught) a fish."[3] The average number of times a toot net might be hauled in during a six hour tide might be three or four, the greatest number of fish Melville had ever seen in the one haul was eleven.[4] According to Melville there was a difference between the toot net and the stell net. The mode of operation was identical, but the stell net was a sweep net not in any way adapted to the purpose of tooting[5].

1. Pursuers' Proof.

2. Printed document, ***Private and Confidential.*** Perth, 10th January, 1898. TBP, bundle 19.

3. Pursuers' Proof.

4. ***ibid.***

5. Stell: to halt, bring to a standstill, make immobile, *Concise Scots Dictionary.*

56. The combined costs of the two court cases amounted £1,100 which were paid for by a special assessment on proprietors, although those below Newburgh were not expected to contribute.

TBMB, Vol. 3, pp 471, 478.

57. All rentals, including those for salmon fishings, were required to be entered in the annual ***Valuation Rolls.*** This requirement

followed from the *Lands Valuation Act, 1854.* "The fundamental idea of this statute ... is that the rent or lettable value shall form the basis of valuation for rating purposes."

S.B. Armour: *The Valuation of Property for Rating in Scotland,* Edinburgh, 1892, p 205.

58. See p 230.

59. See p 140.

60. See p 347 where half the fish sent by Alexander Speedie to the London market were from fishings other than his own.

61. See, for example, Chapter Seven, III, *passim.*

62. Addresses of some Tacksmen:

Andrew Greig Anderson
106 George Street
Edinburgh

Corson & Currie
Howard Street
Glasgow

George Dunn
Newburgh

John McVean
Gamedealer
Perth

The Foote Family were:

Andrew Foote
Stanley

Peter Foote
Burnside
Cargill

Alexander Foote
West Tofts
Stanley

David Foote
Craigend
Perth

Joseph Johnston & Sons
America Street
Montrose

George Pitcaithly
Elcho Cottage
Rhynd

Robert Powrie
Orchardneuk
(also at Jamesfield
and Ferryfield)

Archibald Powrie
Old Manse
Rhynd
(also at Lairwell
and Dealfield, Abernethy)

David Powrie
62 Methven Street
Perth
(also at Orchardneuk
and Lairwell)

Charles Powrie
Ross
Glencarse

Tay Salmon Fisheries Co.
Cornhill Street
Newburgh
and
St Leonard's Bank
Perth

Peter & John Haggart
Drapers
Stanley

John A Beattie
Salmon Fisher
Newbie House
Annan

Harry T Pearce
Charlton House
Llandaff Road
Cardiff

William Matthewson
Joiner
Newport-on-Tay

George Gordon
Fish Dealer
St Andrews

Thomas Taylor
Miller
Balmerino Mill
Balmerino

David Young
Baker
40 North Methven Street
Perth

John Shields
Millowner
Perth

John Donaldson
Vintner
Newburgh

William & Robert Goodall
Builders
Errol

Robert Shaw
Baker
Perth

Alexander Speedie
3 Water Vennel
Perth

William Tansley
Dale End
Birmingham

David Lyell
Gamedealer
Ladybank
Fife

George Thorp Stanley
Fishmonger
Oakleigh
Higher Crumpsall
Manchester

John Anderson & Son
Royal Fish Emporium
29 Castle Street
Edinburgh

James Greenhill
Abbey Road
Stirling

Alexander Robertson
Gamedealer
30 Union Street
Dundee

Robert Laurie
Fruit Dealer
Newburgh

George Thomson Drummond
Seedsman
Stanley

John Moir
Spirit Dealer
7 Balhousie Street
Perth

James Watson Lyall
Printer & Publisher
15 Pall Mall
London

Robert Lawrence
Innkeeper
Perth

63. Mr Joseph Johnston, manager of salmon fishings, Montrose had given evidence to the 1836 Committee as one of the proponents of coastal fishings. The firm of Joseph Johnston & Sons, America Street, Montrose is still concerned with coastal nets at the present time (1989).

64. HNC, evidence of James Gordon.

65. 1866-1873 in partnership with William Semple.

66. The ***Valuation Rolls*** cannot be taken as absolutely accurate in recording which tacksmen took which tacks, for there were many informal partnerships which lasted no longer than the duration of a tack, with the name of only one partner appearing in the ***Valuation Rolls***. Both Charles Powrie and George Pitcaithly continued to take tacks as individuals during the course of their partnership.

67. The method was by public roup, usually with the fishings as a whole on offer in the first instance, but auctioned off as separate stations if an offer for the whole did not meet the reserve price.

68. See, for example, Chapter Seven, III, ***passim***.

69. 1860 Committee, p 147.

70. ***ibid.***

71. ***Elgin,*** II, p 520.
By 1900 Speedie's interest in the Tay fisheries was academic, as there were no tacks under his name in the Valuation Rolls (apart from his own fishings) after 1895 (see figure 9.1c).

72. John Richardson had bought the fishings of ¾ Ships and Poldrait as well as those of the Pitfour estate in the eighteenth century.
Speedie lived at "Gowrie House", 42-52 Tay Street, Perth, a substantial property built between 1867-70. This was designed by

Andrew Heiton in the French Gothic style. The fish house and ice house were adjacent to this building in Water Vennel.

"Know Your Perth", *Perthshire Advertiser* 4th November 1986.

73. PE 25, bundle 39, and TBMB, September 1847.

74. PE 25, bundle 87.

75. TBMB, April 1870.

I am indebted to Mrs Ann Powrie, Barry Powrie Esq. and Mrs June Robertson for additional information regarding the Powrie Family.

76. See pp 280-281.

77. See p 401.

78. The following is from an (unidentified) newspaper cutting.

> ... the Tay Salmon Fishing (*sic*) Company, Limited, was incorporated on May 15th 1899, with a total nominal capital of £70,000 in shares of £1 each. All the shares were issued, but only 6s. was paid on each.
> The Directors were:-
> Archibald Coats, Woodside, Paisley.
> Peter M. Coats, Woodside, Paisley.
> P.D. Malloch, New Scott Street, Perth.
> Earl of Ancaster, Drummond Castle, Crieff.
> The shareholders were:-
>
> | | |
> |---|---|
> | Archibald Coats[1], Woodside, Paisley. | £26,000 |
> | Peter M. Coats, Woodside, Paisley. | 5,001 |
> | W.H. Coats[2], Woodside, Paisley. | 5,000 |
> | P.D. Malloch[3], fishing tackle maker, Perth. | 12,100 |
> | J.S. Malloch, fishing tackle maker, Perth. | 400 |
> | Andrew Anderson, clerk, New Scott Street, Perth. | 498 |
> | J.M. Malloch, teacher, Stormonth Cottage, Perth. | 1,000 |
> | David Robb, manager, Kincarrathie Crescent, Perth. | 3,000 |
> | Henry Robb, Secretary, Kincarrathie Crescent, Perth. | 1,001 |
> | John Moncrieff, glass manufacturer, Rio, Perth. | 1,000 |
> | Hon. Stuart Morton Gray[4] of Kinfauns Castle, Perth. | 800 |
> | Earl of Ancaster[5], Crieff, Peer. | 10,000 |
> | Lord Blythswood[6], Renfrew, Peer. | 300 |
> | Earl Cairns[7], Sherborne, Peer. | 300 |
> | Sir Basil Montgomery[8], stockbroker, London. | 600 |
> | Executors of John Moncrieff, Perth. | 3,000 |
> | | £70,000 |

I am obliged to J. Bradley Thomas Esq. of Stanley for drawing my attention to this cutting.

1. Archibald Coats (1840-1912), "Known as the Napoleon of the thread trade; immense profits were generated, making no less than 11 members of the family millionaires."
S. & O. Checkland: *Industry and Ethos*, London, 1984, p 29.

2. William Hodge Coats (1868-1928), son of Archibald Coats and sometime chairman of J. & P. Coats Ltd. of Paisley.
Who Was Who, 1916-1928,

3. P.D.Malloch was the first managing director of the Tay Salmon Fisheries Company. He also owned a fishing tackle shop in Perth and rented various rod fishings which he let to anglers. He had a reputation as an amateur naturalist, his opinions were quoted in the *Reports of the Fishery Board for Scotland* and he gave evidence before the Elgin Commission. His book: *Life-History and Habits of the Salmon, Sea-Trout, Trout, and Other Freshwater Fish*, was published in 1910.

4. Morton Gray Stuart Gray (1855-1930), third son of 10th Earl of Moray. Succeeded to the Kinfauns estate, but not to the Earldom of Moray which went to his next eldest brother (16th Earl), on his eldest brother, 15th Earl's death in 1901.

5. Gilbert Henry Heathcote-Drummond-Willoughby, Lord Willoughby de Eresby, Baron Aveland, 1830-1910, was created 1st Earl of Ancaster in 1892. Ancaster had been MP for Boston 1852-1856, and for Rutland 1856-1867; he succeeded his father as Baron Aveland in 1867 and was Deputy (to his mother and her sister) in the office of Lord Great Chamberlain 1871-1888, then Joint Lord Great Chamberlain 1888-1901. His wife was Evelyn Elizabeth, second

daughter of the 10th Marquis of Huntly.

> The Heathcote estates, belonging to Lord Aveland in 1883, consisted of 17,637 acres on co. Lincoln; 13,633 in Rutland, and 5 in cos. Derby and Huntingdon. *Total,* 31,275 acres, worth £46,894 a year. Those at that date belonging to the Baroness Willoughby de Eresby, which, since 1888, have become united with the above, were 24,696 acres in co. Lincoln [derived from the family of Willoughby]; 30,391 in co. Carnarvon, and 296 in co. Denbigh [both derived from the family of Wynn and estimated at £8,521 a year], besides 76,837 in co. Perth [derived from the family of Drummond, and estimated at £28,965 a year]. *Total,* 132,230 acres, worth £74,006 a year. The two totals together making 163,230 acres, worth £120,900 a year. ...
>
> The Earl of Ancaster is one of the few noblemen who possess above 100,000 acres in the United Kingdom.

The Complete Peerage.

6. Archibald Campbell, 1st Baron Blythswood (1835-1908), scientist. Conservative M.P. for Renfrewshire 1873-1874, and for West Renfrewshire 1885-1892; made valuable researches in astronomical and physical science.

Concise DNB.

7. Herbert John Cairns, 3rd Earl Cairns (1763-1905). Partner in Elswick Ordnance Company.

8. Sir Basil Templer Graham-Montgomery of Kinross, 5th Bart. (1852-1928). His first wife was youngest daughter of Sir Thomas Moncrieffe of Moncrieffe, 7th Bart.

79. See quotation, p 350.

80. e.g. Balmbreich and Carpow.

81.

> Is there a syndicate on the Tay for taking fishings?
> You may call it what you like, but there is a pretty strong body for that purpose. Some of the tacksmen thought these people were to put them out altogether, and the result was that there was great competition and the rents ran up.

HNC, Pursuers' Proof (1897/98), evidence of David Powrie (of A & D Powrie), p 38.

82. David and Henry Robb were salmon tacksmen, as were the Moncrieffs (both John, father and son?), though the latter owned the North British Glassworks at Perth, and so were probably financially rather than practically involved. Harry Robb continued to take an active part in the management of the fisheries as on occasions entries in the *Valuation Rolls* read "Tay Salmon Fisheries Company, per Harry Robb, Newburgh".

83. See. Chapter Eight, note 78.

84. Malloch, box 2, bundle 12.

85. PE 1/1/23, p 160.

This is at variance with the figure given in the *Valuation Rolls* (£878), partly, but not wholly because the these latter figures have been indexed.

86. Indexed figures.

87. PE 1/1/24, p 104.

The effect on employment was significant, see *infra* note 95.

88. With the Company getting the majority of the stations in the interim.

89. PE 1/1/24, vol. 1, pp 122, 130, 141, 145, 152, 160, 171, vol. 2, 148, 151, 186, PE 1/1/29, pp 736, 816.

90. The nominal totals rose from 1895 to 1904, though there is a decline in the indexed figures after 1899.

91. See table 9.2, pp 385-388.

92.

> In 1899 the Tay Salmon Fisheries Company was formed for the better control of netting. Its first and perhaps most important change was to voluntarily petition the Secretary of State for Scotland to alter the closing day of the netting season on the Tay from 26th August to 20th August, a reduction of six [working] days. The sacrifice of six of the most prolific days of the season was undoubtedly a most venturesome speculation, but it is fitting to record that the policy has been justified,

William Malloch: "The Development of Freshwater Fisheries", (read 3rd April 1925) from *Transactions of the Perthshire Society of Natural Science*, vol. VIII, Part II. pp 1-11.

93. See also table 9.2, pp 385-388.

94. *ibid.*

95. According to the Tay Board Papers, in or about 1884 there were 101 fishing stations on the Tay, 14 on the coast and 10 on the Earn (total 125). These employed 576 men on the Tay, 86 on the coast and 29 on the Earn, and an additional 64 on the banks in the summer with 23 at Perth on Monday mornings (total 778). The average wage was 21s. 9d. per week. In 1904, however, there were only 277 men in 43 crews between Campsie Linn and the sea.

> Different parts of the river are fished at different times. All netting is now between the Linn of Campsie and the sea. ... The lower part of the estuary is not now much fished. The Linn of Campsie fishings are regularly worked. Those immediately below are fished only in the spring. The extensive fishings of the TSF Co, in the neighbourhood of Newburgh yielded their maximum in July.

TBP, bundle 19.

96. Malloch, box 2, bundle 12.

In full:

P.D. Malloch to Captain Ewan Grant of Invermoriston, 9th September 1905.

> You asked me the advantages of having the control of the fishings on the Tay, and also the advantages that would take place if the same was done in your district.
>
> Six years ago I saw that if something was not done in the Tay District that it would be fished out and ruined. During the netting season the fish were all cleaned out and none left to spawn; miles of the best ground in winter had no fish. The rent was down to its lowest, although rentals of rod fishings had gone up.
>
> We started by taking as many fishings as we could for one year with the option of continuing for a 19 year lease. The first year we had a big loss. The second year we got most of the fishings reduced, the stations saved expense and made

up our loss. We then curtailed the netting season 8 days in the autumn, which was another loss to us of £5,000 a year. The result of this was that a much greater number of fish got up, the greater number grilse. These went up, spawned, became kelts, returned to the sea, came up as 18 and 20 lb salmon, and almost made up the £5,000 loss the next year, besides leaving a large number of fry in the river. By curtailing the number of nets more fish got up at all times during the netting season.

The result of all this has been a great increase of fish during every month of the season, and I have no hesitation in stating there are 20 fish in the river for 1 there was when we started.

Besides all this we put on a crew to shoot seals, kill pike, a larger staff of watchers completely stopping poachers. We are continually reducing our nets; this season we took off £600 of stake and bag nets from the coast, about £500 above Perth, and every Friday night above Perth all the nets are removed by arrangement with Lord Mansfield and ourselves, and still our income increases. The rental of the Tay is much higher than it has ever been, and the value of the rod fishing to us and other people has been 100% [increased?].

97. See *supra* note 96.

98. *ibid.*

No date as the first page is indecipherable. In greater detail:

To answer your first question, we have no arrangement with proprietors or leasees who are not members of the Syndicate. Those that have retained their own or let their fishings are not willing to pay for any improvement. Their fishings increase in value the same as the ones we rent, but I must not forget to tell you that all those that let or retain their fishings met last year for the purpose of drawing up a letter thanking the company for what they had done. This letter I have got which is very nice. Before the company was formed I rented about £3,000 worth of rod fishing, the leases [of which] I handed over to the company. When we formed the company we tried to get other rod fishings that were let from year to year and offered much higher rents for a lease, but did not get a single addition to what we had already got. The proprietors and their agents saw that we would improve their fishing and they would soon get the increased rent themselves which they have done, some to the tune of 150%, which I have let for them, and those that have retained their own fishings, their sport has increased from 100% to 200%.

You put it as it should have been:

<u>But who are willing to pay towards the improvement of their rod fishing?</u>

The only proprietor who is a member of our syndicate that lets his rod fishing to us is Lord Ancaster. He gets part of the increased(?) value of his rod fishings(?) in the shape of a larger dividend on his shares. In forming your scheme this is a most important point for consideration. If we had got

control of the whole net and rod, by this time we could have increased the rod rental at least 150% and another 30% to our dividends beside on the nets.

Malloch, box 2, bundle 12.

Table 9.1

Various Proposals to Alter the Conditions Affecting the Tay Fisheries

	I Under the *1862 Act*	II *Bona Fide* Upper River Proprietors Pamphlet 1873	III Meeting of Proprietors May 1873 Upper Props. Proposals	IV Compromise by Home Secretary 1881	V Lower Proprietors Proposals 1882
Annual close-time					
Nets from	21st Aug.		26th Aug	24th Aug.	31st Aug
to	4th Feb.		21st Jan.	7th Feb.	16th Jan.
total	168 days		140 days	166 days	137 days
Rod from	10th Oct		1st Oct.	10th Oct.	
to	10th Feb		21st Jan.	20th Jan.	
extra	44 days		35 days	66 days	
Weekly close-time	18.00 Sat. to 06.00 Mon.				
total	36 hours	42 or 48			
Chairman of District Members	largest rental 3 upper 3 lower elected				
Upper/ Lower Divide	Perth Bridge	Perth Bridge	Perth Bridge		
Netting Ban		Upper Waters	Upper Waters		
Compensation for those losing nets		£1500 p.a.			
Source		various suggestions	assessment on all		
Restriction on net & coble		yes			
Powers to remove artificial obstructions		yes	yes		
Powers to build stairs at natural obstructions			yes		

Table 9.1 (continued)

	VI Heads of Proposed Bill 1884	VII Marquis of Huntly's Bill 1886	VIII Secretary of State 1888	IX Upper Proprietors Proposals 1893
Annual close-time				
Nets from	28th Aug.	not less	27th Aug.	
to	27th Jan.	than	10th Feb.	
total	153 days	168 days	151 days	
Rod from	10th Oct.		31st October	
to	28th Jan.		10th Feb.	
extra	42 days		65 days	
Weekly close-time	06.00 Sat. to 06.00 Mon.*	not less than 48 hours		
total	48 hours			
Chairman of District		elected		
Members		3 upper 3 lower elected		
Upper/ Lower Divide	Innernytie east march			Campsie Linn
Netting Ban	Upper Waters			Upper Waters
Compensation for those losing nets	£1800 p.a.			£490 for 5 years (renewed)
Source	annual assessment			½ from assessment ½ from upper props.
Restriction on net & coble	by agreement below	nets to be licenced, 60 yards apart		
Powers to remove artificial obstructions		yes		
Powers to build stairs at natural obstructions	yes	yes		

*suggested option 18.00 hours Saturday to 18.00 hours Monday above Perth Bridge.

Table 9.2

Number of Fishing Stations in use on the River Tay 1897/98 with number and type of net used (where known), and 1903 with tacksman and stations worked

	1897/98	1903 Tacksman	
Stobhall		TSF	
Campsie Linn	NC		W
West Shot	NC		W
Others	NC		
Atholl		TSF	
Burnmouth	NC		W
Stanley		TSF	
	NC		W
Lynedoch		TSF	
Hatton and Nether Benchil	NC		W
Bertha	NC		
Almondmouth			W
Mansfield			
Above Woody Island	NC	Proprietor	W
Below Woody Island	NC	Banks	W
Parish of St Martins	NC	Banks	W
Bellymore	NC	Banks	W
Muirton	NC	Grieve	W
Willowgate	NC	Grieve	W
Burgh of Perth		TSF	
Incherrat	2NC		W
Millhurst			
Vennels§	NC		
Veal of the West§	NC		W
Sleepless§	NC		
Girdom	2NC		W
¼ Ships			
Cally B.	2NC		W
Bells Point*§	NC		
Friarton Sands*§	NC		
Moncrieffe		TSF	
Willowgate	NC		
Kinfauns		TSF	
Glove	2NC		
Ribney and Dubslaw	2NC		
Tappie	3NC		W
Pyeroad	2NC		W
Stockgreen	3NC		W
Limehaugh	2NC		W
Fancy§	NC		
Blacklug§	NC		
Upper Legman's§	NC		
Lower Legman's§	NC		

	1897/98	1903 Tacksman
Langlaw	3NC	W
Elcho		TSF
Carfud		
Upper Mary		
Lower Mary	2NC	W
Balhepburn	2NC	
Muirhead Crn.B.	2NC	
Rhynd Sands Crn.B.	2NC	
Cock B.	2NC	W
Rhynd Cairn Crn.B.	2NC	
Girnal Crn.B.	2NC	W
Inchyra		TSF
Hen[2]		
Middle Pow	2NC	
Hurlcurl[2] B.	2NC	
Ford[2]	2NC	
Venture and Ladyhole[2]	2NC	W
Seggieden		TSF
Flukie	3NC	W
Pitfour		TSF
North Inch (Poldrait)[3]	NC	W
Chinglehead Crn.B.	2NC	
Rashbush	3NC	W
Cairnie	2NC	
Dadhead B.	2NC	
¾ Ships		
Mugdrum		TSF
Reekit Lady Crn.B.	2NC	W
Lady	3NC	W
Carwhip Crn.B.	2NC,2HN	
Abernethy Crn.B.	2NC	W
Isle of Peat B.	2NC	
Wonder Crn.B.	2NC,3HN	
Gutterhole	3NC	W
Bickerton	3HN	
Crombie Point	2HN	
Little Bank	2HN	
Carpow Crn.B.	2NC	
Errol Estate		TSF
Beagle	2HN	
Gutter		
Jenny Lind	2HN	
Kerwhip	2HN	
McInnes' Bank		
Slerrips	7HN	W
Sure-as-Death	4HN	
Finderlie Estate		
Clay Braes	2HN	
Gilderoy	3HN	

	1897/98	1903 Tacksman	
Pottie	2HN		
Balmbreich		TSF	
Back Beach	6HN,1TN		
Bell's Bank	2HN		
California	3HN		
Corbieden	6HN,1TN		W
Deil-may-Care	6HN		W
Dispute	3HN		
Dominie's Den	3HN,1TN		
Dovecot	6HN		W
Durward's Scalp	7HN,1TN		W
Flisk	5HN,2TN		W
Haggis	3HN		
Hobby Horse	6HN		W
Jock's Hole	6HN,1TN		
Peter's Gutter	7HN		W
Powmouth	3HN		
Balmerino Estate		TSF	
Balmerino	6HN,1TN		
Horn	3HN,1TN		
Naughton Estate		TSF	
Jock's Hole	4HN,1TN		W
Naughton Bank	12HN		W
Peasehills	4HN,1TN		
Birkhill Estate		TSF	
Birkhill	6HN,1TN		W
Scroggie (Lang Craig)	2HN,1TN		
Wormit Bay	3HN,1TN		
Seaside Estate		TSF	
Lower Carthagena	6HN		
Lower Needle	5HN		
Upper Carthagena	6HN		
Upper Needle	6HN		W
Eppie's Taes			W
Castle Huntly		TSF	
Channel Bank	4HN		W
Mylnefield Estate		TSF	
Kingoodie	12HN		
Dundee, Burgh of		TSF	
Craig (Harecraigs)	10HN[4],1TN		
Stanners	10HN[4],1TN		
Broughty Ferry, Burgh Police Commissioners of		TSF	
Broughty Castle	10HN[4],1TN		
St Fort (Woodhaven) Estate		TSF	
Woodhaven	6HN,1TN		

	1897/98	1903 Tacksman	
Tayfield		TSF	
Tayfield	TN		
Scotscraig Estate		TSF	
Scotscraig	20HN,6TN		W
Estate not known			
Pate	3HN		
Skin the Goat		TSF	W

Totals for 1897/98: 90 sweep nets, 244 bang nets and 24 toot nets.

Abbreviations

Crn: fishing cairn
B: Bermony boat
NC: net & coble
HN: hang net
TN: toot net
TSF: all estate fishings let to Tay Salmon Fisheries Co.
W: worked by tacksmen or proprietors.

*Formerly belonging to Moncrieffe, but purchased by Perth Town Council after Sir Thomas Moncrieffe had taken them to court over the effluent from Perth sewers damaging his fishings (see Chapter Ten, note 16).
§"The fishings ... were wrought about 4 hours on Monday mornings from about the middle of April to the end of the season. I consider this equivalent to 2 nets wrought for the entire week by 7 men." Comment by George Maxwell, senior.

Sources 1897/98 column: *Valuation Rolls*, for the estates and stations above Perth. The Hang Net Case, No. 528 of Process, II "Names of Fishing Stations from Mugdrum Island to Ferry-Port-on-Tay - with numbers of *Hang-Nets* and *Toot-and-Haul-Nets* used at each." The Hang Net Case, No. 540 of Process, III "Table of Fishing Stations on the Tay between Newburgh and Perth, produced by George Maxwell, senior." Maxwell's table involves the number of stations for summer 1897 and spring 1898. There are eleven stations which are on the summer 1897 list and not on the spring 1898 list, and one station (Ford) which is on the spring 1898 list and not on the summer 1897 list. As some stations habitually did not "go out" until the summer, there is no discrepancy between the two years apart from the Ford station, which has been included.
1903 column: the *Valuation Rolls*, and table 9.4

1. Let jointly by Kinfauns and Elcho.
2. Let jointly by Inchyra and Kinfauns.
3. Almost certainly only worked on Monday morning similarly to Vennels, etc.
4. The Stanners, the Craig and Broughty Castle are shown as having a combined total of 30 hang nets.

Table 9.4

Produce of the Tay Salmon Fisheries Company, 1903-1914

	1903			1904			1905		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Lynn[1]	336		3						
Westy[2]	963	342	40						
Burnmouth	204	2	1						
Stanley	194			1,101		5	890	1	12
Benchil	339		5						
Hatton	26	22	22						
Almondmouth	272	184	246	84		109	69		129
(North) Inch	322	86	367	¥181	¥80	¥388	151		59
Vennels							103	73	394
Weal[3]	223	20	1,159	73	192	2,236	160	202	1,824
Lymie[4]	29	10	56	26	17	49	8	4	10
Stockgreen	1,065	530	162	578	696	381	932	715	986
Pyerod[5]	2,702	1,612	1,471	1,152	1,604	1,785	2,286	2,121	2,192
Girdom	73	57	1	31	15	4	41	41	5
Tappie	19	5	1	338	331	304	13	21	23
Fuddie[6]				6	1				
Incherrat	1,398	876	27	1,074	439	91	977	384	207
Mary	26	22	2	90	163	269	506	611	950
Flukie	2,860	1,526	148	1,825	1,304	914	2,330	1,580	1,340
Venture	2,852	1,697	174	2,131	1,908	1,010	2,444	1,531	2,143
Langlaw	31	19	2	343	527	141	32	29	6
Balhepburn				5					
Cock	521	382	139	449	898	849	637	789	1,045
Girnal	354	310	49				1		19
Bush[7]	1,785	1,370	174	1,756	1,891	348	2,424	1,925	526
Earnmouth	234	181	571	177	226	922	285	430	810
Careyhole	34	50	282	44	78	363	55	118	328
Abernethy (Bank)	242	387	236	287	515	570	390	599	400
Gutterhole	261	365	723	217	304	1,361	334	438	849
Reekit Lady	361	279	311	259	328	730	401	535	638
Lady	14	6	1						
Skin[8]	214	236	709	251	254	1,307	339	342	859
Jockshole	185	199	707	177	180	1,292	298	368	612
Sleerips	165	76	1,217	125	142	1,377			
Dovecot	190	132	897	206	238	2,064	365	478	1,168
Deil[9]	186	107	513	221	227	1,249	421	447	521
Death[10]							21	23	19
Scaup[11]	188	111	948	191	174	1,208	346	429	568
Taes Bank[12]	179	121	348	284	182	510	433	363	266
Needle	101	64	373	110	74	377	396	391	240
Flisk Point	81	58	727	95	88	1,058	170	166	593
Corbie Den	219	113	777	183	108	917	336	228	462
Birkhill	434	192	404	318	180	617	392	252	287
Birkhill (lower)			53	40	22	37	27	6	
Scotscraig	501	233	119				372	395	64
Barry	242	104	97						
Channel Bank	11	3	43						
Naughton (Bank)	9	7	8				2		
Hobbie[13]				29	19	22	90	104	109
Peter's Gutter							93	80	60
Wonder							3		
Haggis							3	1	2

Table 9.4 (continued)

	1903			1904			1905		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Flukie & Venture Lower Crew							2	4	5
Trouting Crew(s)			91	94	2,197	587	635	3,030	
Fish Boat Crew				33	26	152	116	96	35
Totals	20,645			14,594			20,291		
		12,076			13,543			16,976	
			14,260			27,195			23,801
Salmon + Grilse	32,721			28,137			37,267		
Aggregate		46,981			55,332			61,068	
Number of fishings/stations	43			39			41		

*with Vennels.

Table 9.4 (continued)

	1906			1907			1908		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Stanley	1,303	2	6	974		2	704		14
Almondmouth	76		74	52		11	159		552
(North) Inch	198		38	201	1	64			
Vennels	42	49	215	53	22	115	35	12	26
Veal	148	337	1,482	72	18	1,481	80	83	1,321
Lymie	60	11	158	100	62	502	162	230	427
Stockgreen	781	635	429	842	400	265	637	357	517
Pyerod	1,743	2,047	1,146	1,981	1,045	261	1,185	923	962
Girdom	69	87	8	44	36	5	23	11	8
Tappie	64	176	21	17		2	14	9	5
Incherrat	1,275	703	163	1,495	352	541	687	196	430
Mary	152	323	446	123	169	33	37	72	79
Flukie	2,273	1,623	734	2,946	987	565	1,684	695	878
Venture	1,991	1,376	1,047	2,662	985	956	1,388	626	1,158
Langlaw	10	48	17	30	20	9	11	14	12
Hurly[14]	30	29	12						
Cock	415	565	1,063	431	393	650	342	417	587
Girnal	209	402	133	496	423	493	296	368	150
Bush	1,616	1,487	342	2,098	1,122	377	1,112	819	593
Earnmouth	321	338	415	296	231	978	133	138	380
Careyhole	49	46	406	79	79	203	34	49	164
Abernethy (Bank)	229		422	234	346	290	295	177	285	226
Wonder	17	31	60	144	104	1,946			
Gutterhole	272	328	965	96	105	327			
Reekit Lady	285	363	504	299	226	461	198	228	434
Skin	250	230	663	226	191	1,045	160	146	1,202
Jockshole	193	141	621	97	101	208	36	42	26
Sleerips	1		17	103	47	1,722	171	124	1,035
Dovecot	82	66	1,343	238	154	1,468	192	217	517
Haggis	26	16	352	34	25	325			
Deil	74	79	297	355	215	1,052	309	265	445
Death	46	43	321	39	18	759			
Scaup	101	68	557	331	177	1,155	201	184	359
Taes Bank	262	200	278	294	149	756	188	122	211
Carthie[15]				166	92	108	49	31	19
Needle	202	151	276	283	110	1,068	240	120	673
Little Needle				16	10	16	13	10	10
Flisk Point	38	37	535	8	6	229			
Corbie Den	170	132	715	292	110	882	197	112	420
Birkhill	339	244	500	524	151	829	413	168	445
Birkhill (lower)						47	14	2	
Slashie	3	5	6						
Millhurst	3	7	2						
Carpow	6	14	5						
Scotscraig	364	270	84	123	136	79	34	27	11
Channel Bank	1		2						
Hobbie				39	24	345			
Legman	13	25							
Trouting Crew(s)	98		96	1,835			136	146	3,838
Fish Boat Crew	45	20	19	36	25		32	10	10

Table 9.4 (continued)

	1906			1907			1908		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Totals	15,776			19,054			11,516		
		13,272			8,764			7,270	
			18,546			23,028			18,138
Salmon + Grilse	29,048			27,818			18,786		
Aggregate		47,594			50,846			36,924	
Number of fishings/stations	45			41			36		

Table 9.4 (continued)

	1909			1910			1911		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Lynn	113	12	183	1		139			
Ballymore	202	15		293	42	3	178	3	4
Burnmouth	5			1			38		
Westshot	939	206	52	759	208	34	745	113	52
Stanley	3								
Benchil	7		20						
Horsey	335	154	64	97	17	3	16	45	35
Almondmouth	101	13	252	210	57	335	124	28	277
Cleekum	535	190	802	355	129	22	243	68	240
Vennels	6	21	53						
Weal	244	297	1,198						
Weal & Lymie				200	47	530	554	364	1,365
Stockgreen				1,160	681	509	533	43	328
Pyerod	2,240	2,219	1,216	2,500	1,654	679	1,740	1,295	1,402
Girdom	35	87	1	27	32	5	4	19	5
Tappie	96	30	1	67	40		10	36	3
Incherrat	551	292	168	1,292	365	285	627		99
Mary	198	329	296	169	157	179	342	339	777
Flukie	2,494	1,458	645	3,597	1,716	527	2,231	838	751
Venture	2,478	1,607	1,033	3,584	1,583	906	2,086	720	1,474
Langlaw	16	22	21	26	42	4	5	13	15
Cock	608	1,044	484	549	587	597	539	483	484
Girnal	61	98	14				139	229	202
Bush	893	1,351	293	860	999	180	358	645	143
Earnmouth	342	381	543	252	243	516	239	217	593
Careyhole	94	133	199	62	76	127	42	43	257
Carpow				214	160	70	147	201	785
Abernethy (Bank)	357		593	351	356	526	148	205	314	291
Wonder				99	75	25			
Gutterhole				178	134	34	162	191	831
Reekit Lady	452	550	740	395	467	285	253	345	518
Skin	278	298	1,551						
Sleerips									12
Dovecot	41	297	734	163	130	563	328	309	683
Haggis				392	323	721	274	286	1,039
Deil	622	426	679	145	92	467	378	276	361
Death	34	38	50				85	86	258
Dominie's Den	2	3							
Scaup	689	587	674	121	122	487	356	377	290
Taes Bank	344	232	359	245	191	230	261	207	334
Carthie	113	85	58	17	9	95	90	98	140
Needle				130	96	219	276	195	228
Little Needle							50	38	9
Flisk Point	300	156	926	6	8	740	41	40	383
Lower Flisk	27	17	3						
Corbie Den	299	154	555	170	120	575	418	249	300
Birkhill	675	313	261	359	251	363	854	358	213
Birkhill (lower)	187	129	217				175	94	23
Lowershot							17	17	18
Unthank							49	48	64
Trouting Crew(s)	561	464	3,478	263	263	2,673	416	299	2,584
Fish Boat Crew				85	21	14	140	34	17
Purchases				808	51	80	751	66	26

Table 9.4 (continued)

	1909			1910			1911		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Totals	17,969			20,387			16,642		
		14,301			11,664			9,669	
			17,991			13,430			18,836
Salmon + Grilse	32,270			32,051			26,311		
Aggregate		50,261			45,481			45,147	
Number of fishings/stations	39			37			42		

Table 9.4 (continued)

	1912			1913			1914		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Lynn	263		1				237		1
Ballymore	441	11	2	370			327		1
Burnmouth	18			177			16		
Westshot	668	230	74	1,130	48	12	494	122	35
Stanley	40			30					
Benchil			15						
Horsey	251		1						
Almondmouth	163	59	522	106	14	321	60	6	145
Cleekum	344	95	248	132	25	67	220	86	467
Vennels				3	26	56	10	12	41
Weal				4	4	33	86	49	187
Lymie	715	406	932	358	246	426	544	223	661
Stockgreen	441	5	158	523	10	86	890	8	362
Pyerod	2,145	1,279	930	1,788	911	445	2,322	940	1,142
Millhurst				16	12	91			
Incherrat	629	102	76	1,307	110	110	890	9	107
Mary	331	210	317	145	165	66	338	268	357
Flukie	2,581	996	549	3,324	497	200	2,325	486	585
Venture	2,540	811	763	3,266	540	391	2,269	482	967
Cock	521	515	485	288	322	211	474	298	603
Girnal	176	299	95	191	256	117	309	289	245
Bush	460	633	151	1,179	506	141	770	571	307
Cairnie					2				
Earnmouth	263	113	432	146	80	338	195	127	454
Careyhole	49	39	224	45	34	106	53	23	147
Carpow	247	220	299	181	147	270	224	125	542
Abernethy (Bank)	173	262	164	182	163	112	174	147	123
Wonder				3	4				
Gutterhole	181	151	223	147	104	179			
Reekit Lady	303	354	311	510	321	682	320	205	438
Sleerips	53	32	135	401	193	860	188	62	950
Dovecot	188	93	694	533	188	457	260	86	610
Haggis	199	147	730	471	218	623	309	86	1,038
Jockshole				15	22	124	26	24	184
Deil	170	92	524	355	184	320	226	64	539
Death				206	106	176	97	27	342
Scaup	179	110	470	331	162	266	213	72	551
Scaup II				60	30	13			
Taes Bank	147	96	294	238	89	247	108	33	278
Carthie	2		6	29	15	23			
Needle	251	149	138						
Flisk Point	12	16	761	98	32	539	50	12	793
Lower Flisk				51	10	11			
Corbie Den	228	104	452	346	75	274	251	48	562
Birkhill	606	260	432	577	91	234	668	89	317
Birkhill (lower)			97	19	32	132	16	83	
Unthank				129	36	112	153	37	174
Back Beath				84	55	49			
Crown[16]	137		1,409	746	268	202	1,815	256	395
Trouting Crew(s)	241	160	3,276	23	1	223	108	38	1,652
Fish Boat Crew	124	55	32	71	9	13	58	5	12
Purchases	665	88	70	1,145	11	241	1,098	18	180

Table 9.4 (continued)

	1912			1913			1914		
	Salmon	Grilse	Trout	Salmon	Grilse	Trout	Salmon	Grilse	Trout
Totals	17,146			21,559			19,307		
		8,192			6,359			5,449	
			16,395			9,409			16,571
Salmon + Grilse	25,338			27,918			24,756		
Aggregate		41,733			37,327			41,327	
Number of fishings/stations	37			45			37		

1. Campsie Linn. 2. West Shot. 3. Weal of the West. 4. Limehaugh. 5. Pyeroad. 6. Carfud. 7. Deil-ma-Care. 8. Eppie's Taes. 9. Rashbush. 10. Sure as Death. 11. Durward's Scalp. 12. Skin the Goat. 13. Hobby Horse Bank. 14. Hurlcairn or Hurlcurle. 15. Carthagena Bank. 16. TSF shared the tacks of the War Department's fishings at Broughty Castle and Buddon with Joseph Johnston & Sons, these are probably the fishings refered to. The Crown also owned the fishings of Powgavie and Unthank (see *Valuation Rolls*).

N.B. "Trout" refers to sea trout.

Source: Tay Salmon Fisheries Company's records, per Ian Mitchell, Esq.

CHAPTER TEN

FULL CIRCLE

I - The Elgin Commission

The Elgin Commission was appointed on 17th March 1900 to consider the causes affecting the yield of the salmon fisheries in England, Wales and Scotland, the operation and influence of the present methods of fishing, the extent to which the fish had access to the upper waters, the protection of spawning fish and fry, the cultivation and protection of the stock, and whether any changes in the current laws relating to salmon fishing were desirable. The Commission's remit covered all of mainland Britain, but many of the matters it was concerned with were present on the Tay. The resulting *Elgin Report* is timed very conveniently for any study concerned with salmon fishing during the nineteenth century, coming as it does at the very end of that period, and its contents give an insight into the then current views regarding the salmon fisheries - both the problems and the perceived remedies[1]. As the Tay was one of the most important salmon rivers, a proportion of the evidence applied specifically to it.

In his evidence to the Commission, W.L. Calderwood made it clear that disharmony within District Boards was not confined to the Tay.

> The history of some Boards seems even to show that because a proposal for the improvement of the fisheries emanates from one section of proprietors, the other section at once opposes the proposal, believing it in some way to be adverse to their own interests.[2]

Calderwood saw the differences between groups of proprietors as being essentially artificial, emerging and becoming accentuated when the rentals of one group rose disproportionately above those of another. His solution was one in which the entire fisheries of a river were in the hands of one proprietor (or co-ordinated group).

> In cases such as these the interests of the fisheries can be completely, or almost completely guarded. One method of fishing need not be carried on to the detriment of another method; ... the amount of fishing can be regulated; ... It is worthy of remark, although not perhaps surprising, that rivers which are controlled by individual interests in this way are all maintained in a high state of efficiency.[3]

In terms of the Tay, Calderwood's observations were remarkably prescient. According to Sir Robert Moncrieffe of Moncrieffe, dissension within District Salmon Fishery Boards was caused chiefly by the methods adopted for the election of members.

> Instead of having upper and lower proprietors, whose interests must be antagonistic, it would be far better if the Boards were elected by the Secretary of State for Scotland, or in some other way - any way but the upper and lower proprietors, so that the river could be treated for the fish and not for the different interests as it is done now. It is all a question very much of upper and lower interests. You never get them to see eye to eye.[4]

As a further illustration of the unsatisfactory nature of the *status quo*, Moncrieffe pointed out that from 1890 to 1899 the Chairman of the Tay District Board had been Edmund Paterson Balfour Hay of Mugdrum, who by virtue of owning both the Carpow and Mugdrum estates was then the proprietor with the largest rental. However, throughout that time Balfour Hay had been confined in a lunatic asylum[5].

The Commission's conclusion on the matter of the diversity of interest between upper and lower proprietors was that this arose when the line between the two was inappropriately drawn, as it was on the Tay.

> ... the separate election of the two parts of the Boards divides into two districts, and it may be, hostile camps, and increases the difficulty of taking any steps to improve the condition of the river, from the suspicion with which one side regards proposals emanating from the other.[6]

To blame dissension among the fishing proprietors solely on, for example, the composition of the Tay District Board is, however, to oversimplify. While the composition of the Board certainly perpetuated dissension, it did not originate it. The origins of dissension on the Tay predated the formation of the Board and can be traced back to the time of the Stake Net Cause, which created two groups with opposed interests. The history of the Tay fisheries during the nineteenth century suggests that it mattered not that the *1862 Act* divided river proprietors into two groups when there were three groups on the Tay, nor that the line between upper and lower was inappropriate, but rather that the Elgin Commission were seeking a chimera in thinking a forum could be devised wherein the conflicting interests would be reconciled. Reconciliation implies compromise, and compromise was not given consideration by any of the participants in the Tay salmon fisheries. In the light of these implacable attitudes, the differences between the participants were too great to be solved by any *representative* body, which would either have been dominated by one group, as was the case on the Tay, or have been in permanent stalemate if the groups had been evenly balanced.

The solution to the discord was to make the differences that separated the groups irrelevant, which is what the syndication of the fisheries achieved. The key to the Tay Salmon Fisheries Company's acceptance by proprietors was rentals, it became established because it offered rentals that were roughly double those offered previously[7]. For the Company, the high rentals had two purposes: to ensure that the tacks came into its hands, but also to persuade proprietors to accept long leases - nineteen years appears to have been the normal period. Once the Company was established on these terms, then its virtual monopoly allowed decisive and effective *unilateral* action. Its policies to deal

with the widely perceived threat of over-fishing by reducing the length of the netting season and the number of stations fished, further enhanced its acceptance by the proprietors, because the proprietors too had been concerned over these matters. The Company's acceptance was no less because the shorter season and fewer fishing stations were introduced with no reduction in rentals. Within the commercial *milieu* of the times this was turning convention on its head for it meant substituting monopoly for competition. But the experience of the Tay salmon fisheries pointed to competitive exploitation of a renewable resource as being unsatisfactory for all concerned. The actions of a monopolist company, at least at its inception, appeared to have been much more satisfactory for the prospects of that resource.

Although the conservational policies adopted by the Tay Salmon Fisheries Company were consonent with those advocated by the *Elgin Report*, the Company was operating for two years before the *Report* was published. Thus the *Elgin Report* may be seen as endorsing the Company's policies rather than being their source. However, although the policies followed by the Company must be assumed to have been acceptable to the Elgin Commission, the *Elgin Report* did not find in favour of river net fisheries. Previous Commissions and Reports had been unable to resolve the relative merits of net & coble and coastal nets. The *Elgin Report*, however, grasped the nettle. It noted that on rivers such as the Forth and the Tay, net & coble fishing, particularly on the non-tidal stretches of the rivers, had been regarded as the principal cause of a decline in produce. Indeed, they were of the opinion that the damage done by the river nets could not be overstated and that the main catch of fish for the market came from the coastal nets. While admitting that a large catch by river nets was not necessarily a sign of over-netting, the *Report* observed that if a proportion of each run of salmon were to be

allowed to ascend the river, and if the rod fishers were to be adequately provided for, then there would have to be a reduction in the river net fisheries[9]. The Report summarised the case as follows:

> We think that there are undoubtedly rivers where the netting is carried on in the manner at present pursued [which] is injurious to the fisheries as a whole. There are four points on which we base this conclusion, *viz.*:
> 1. A falling off in upper waters. In the absence of reliable statistics on which we have already commented, exact proof is impossible, but the very positive statements found throughout the evidence, English and Scottish, cannot all be explained away and justify the claim to consideration.
> 2. A falling off in net fisheries, especially as evidenced by the decrease in the number of licences issued by certain boards in England and Wales.
> 3. Evidence that fish have not access to the upper waters until after the nets are off.
> 4. Evidence of the improvement which has occurred in the fisheries where regulations have allowed of a portion of every run of fish to have access to the upper waters.[9]

This pronouncement suggests that views such as those of W.L. Calderwood carried weight with the Commission. He thought "the practice in Scotland of catching salmon in the sea by means of fixed nets is without doubt the method of all others for supplying the market."[10] Nor did he think the "reductions" adopted on, for example, the Tay above Campsie Linn, where groups of proprietors undertook not to let their net fishings in return for agreed compensation, satisfactory as it took but one proprietor not complying to nullify the desired effect. Instead, he suggested that powers be vested in District Boards to buy off nets[11]. The Commission were also influenced by the arguments in favour of the coastal nets provided in a ***Memorandum*** submitted by nine "principal tacksmen"[12]. The gist of which was that not only did the coastal nets supply salmon in the best condition, but allowed salmon to reach the rivers in "large quantities", though they did not explain how this last desirable result came about.[13]

On the matter of natural obstructions, Calderwood in his evidence to the Elgin Commission considered that the Fishery Board for Scotland or District Boards should have the power to remove these. He mentioned in particular the Falls of Tummel, which if altered to allow fish to pass would permit access to a further 30 miles of river and 20,000 acres of lochs'[14]. The Tay District Board had been notably unsuccessful in dealing with obstructions to the passage of salmon, either natural or artificial. The Falls of Tummel remained unaltered and the Dupplin cruive was still in existence, though it had been made passable for fish. In regard to the former, the *Elgin Report* recommended that powers be vested in District Boards to have natural obstructions removed if the landowners involved were not prepared to take action, and in the latter case the construction of a fish pass should be mandatory.

Other suggestions made in the *Elgin Report*'[15] included the creation of a central authority for salmon fisheries to cover the United Kingdom, which, among other matters, would have had powers to collect statistics and initiate research into the natural history of the salmon: the adoption of a uniform annual close-time throughout the United Kingdom from 27th August to 10th February (the dates then applying on the Tay) and a 48 hour weekly slap from noon on Saturday until noon on Monday: and endorsement of a recommendation by the recent *Sewage Disposal Commission* in favour of separate bodies under the aegis of a "Supreme Rivers Authority" to deal with the problems of pollution'[16].

Apart from the innately controversial recommendation about reducing netting in rivers, most of the proposals of the *Elgin Report* would have been acceptable to the various interests on the Tay, especially as they coincided to such an extent with the spirit of the policies being followed by the Tay Salmon Fisheries Company. However, it did not give rise to any legislation and its significance is as a record of opinions

and proposals about the salmon fisheries at the end of the nineteenth century. The reason for there being no legislation remains obscure. Those concerned with river net fisheries would be aware of the proposals by such influential persons as W.L. Calderwood which were contrary to their interests. Forewarned, it is not too difficult to imagine that a river lobby was mobilised to prevent legislation emerging, just as the coastal net interest had prevented legislation affecting them being incorporated in the *1862 Act*. However, although it may have been river interests that frustrated legislation, it was a particular river interest in the form of the Tay Salmon Fisheries Company which initiated a *regime* more beneficial to the interests of the salmon fisheries than any which had preceded it during the previous 100 years.

II - The Salmon Stock

The view that the salmon stock of the River Tay was under threat from over-fishing had been widespread for over one hundred years when the *Elgin Report* was issued. This opinion was still widely, though not unanimously held, as the evidence made plain. As it had been such a consistent theme throughout the nineteenth century, it is necessary to return to it once more. Various witnesses from the Tay gave their opinions on the matter. A relatively independent view was that of Alexander Lumsden, superintendent of the watchers. He explained that he had no statistics about catches as tacksmen were frightened to let anyone know the size of their catches, "because they were afraid their rent might be put up." Each tacksman pretended that he got less than he actually caught "so that he might get his fishings cheaper the following season." Lumsden's own opinion was that the fall off in catches was more claimed than actual.

> ... every year except 1885 has been said to be the worst year there has been. To hear the tacksmen speak you would think that every year was worse than all preceding years. If they have a good take they will say they had nothing the week before. ... you cannot believe one word these fellows say.
> I understand that you say that in your opinion the fishing has fallen off?
> That is just based on this, that everyone is telling me so. There is any amount of salmon in the River Tay at the present moment. No one need say that it is understocked. Some seasons are better than others, but I think that as a general average there is very little change.[17]

Commander Maitland Dougall, RN, of Scotscraig also thought that the supply of fish from the Tay was much as it had always been, though there was less from *individual* fisheries[18]. He went on to observe that compared to fifty years before, the number of coastal nets had increased twelve-fold, and if the fish were caught on the coast "they probably won't be caught in the river."[19] Maitland Dougall was quite convinced

that there was nothing preventing sufficient salmon reaching the redds to spawn, and he quoted the evidence of Lumsden to the effect that "there are as many smolts in the upper river now as there ever had been."[20] Alexander Speedie, who had operated both coastal and river fishings[21], argued that for the Scotch salmon fisheries overall, there had been no decline in the catch of salmon.

> That fishermen [both rod fishers and net fishers] complain of the season being bad is well known, but they have always done that since ever I knew what a rod or net was. ... Angling rents are about double what they were on the Tay 20 years ago, which proves at any rate that the fishing has not fallen off. The City of Perth fishings were let last week [November 1900] at an increased rent. I believe at present there is a boom in fishings, and those interested want the net fishing industry to look as bad as possible. The year before last the rod fishing on the Tay was one of the best that have been for years.[22]

A directly contrary view was put to the Elgin Commission by P.D. Malloch, managing director of the Tay Salmon Fisheries Company, though his attention was particularly directed at events since 1888. He believed that there had been a great decrease of salmon in the Tay for three reasons: (i) disease (unspecified), which had been virulent in 1882 and 1883; (ii) the increased number of hang nets (these had been declared illegal just prior to the Elgin Commission beginning its work); and in particular, (iii) the extension of the netting season in 1888 from 20th to 26th August. Malloch believed that the hang nets had increased in number until 1898, so that any fish in the estuary waiting for a spate to lead them up the river were caught before they could get further. Such fish as did avoid capture by the hang nets and ascended during the weekly slap could get no higher than the middle reaches of the river where they were caught on the Monday - this is recognisable as the opinion of someone connected with the upper river, as Malloch had been through his business of letting of rod fishings. However, the extension

of the netting season to 26th August in 1888 had, in Malloch's opinion, been the most damaging factor.

> This need not be wondered at. About the 20th August the great run of fish takes place; I am under the mark when I say during the last six days of the season 8,000 fish have been caught each year. This has been the means of decreasing the number of spawning fish, and also curtailing the extent of spawning ground.[23]

Malloch provided some rental evidence to the Elgin Commission to back up his assertions.

> Since 1888 the open season for net fishing has been from 11th February to 26th August. What has been the result of this extension on the rental? In 1887 it was £22,143, in 1888 £19,655. With the exception of 1893 it has gone down, in 1897 to £17,869, in 1895 to £17,090. This falling off is the result of going back to the old time. The rental of 1897, £17,869 cannot be compared with the 1887 rental of £22,143, because the rod rental during that time had greatly increased, in some cases two or three hundred per cent., besides numbers of uniet fishings are now entered in the *Valuation Roll* at a higher rent, which would bring the rental down to £14,000 instead of £17,869 3s. 4d. - practically the same as 1861 when the nets fished till the 26th August.[24]

Malloch's conviction about the ill effects of the extension of the netting season was quite genuine, for he was instrumental in the Tay Salmon Fisheries Company's decision voluntarily to take six days off the netting season to preserve the salmon stock after it had gained control of the river[25]. Malloch claimed that he had observed a great falling off in the number of fish on the redds, in the number of kelts, and in the number of fish caught, "more especially in spring and summer; up till the end of July the decrease has been enormous."[26] He noted further contributory factors in improvements in the methods of fishing, increased pollution, and the abstraction of water by commercial firms.

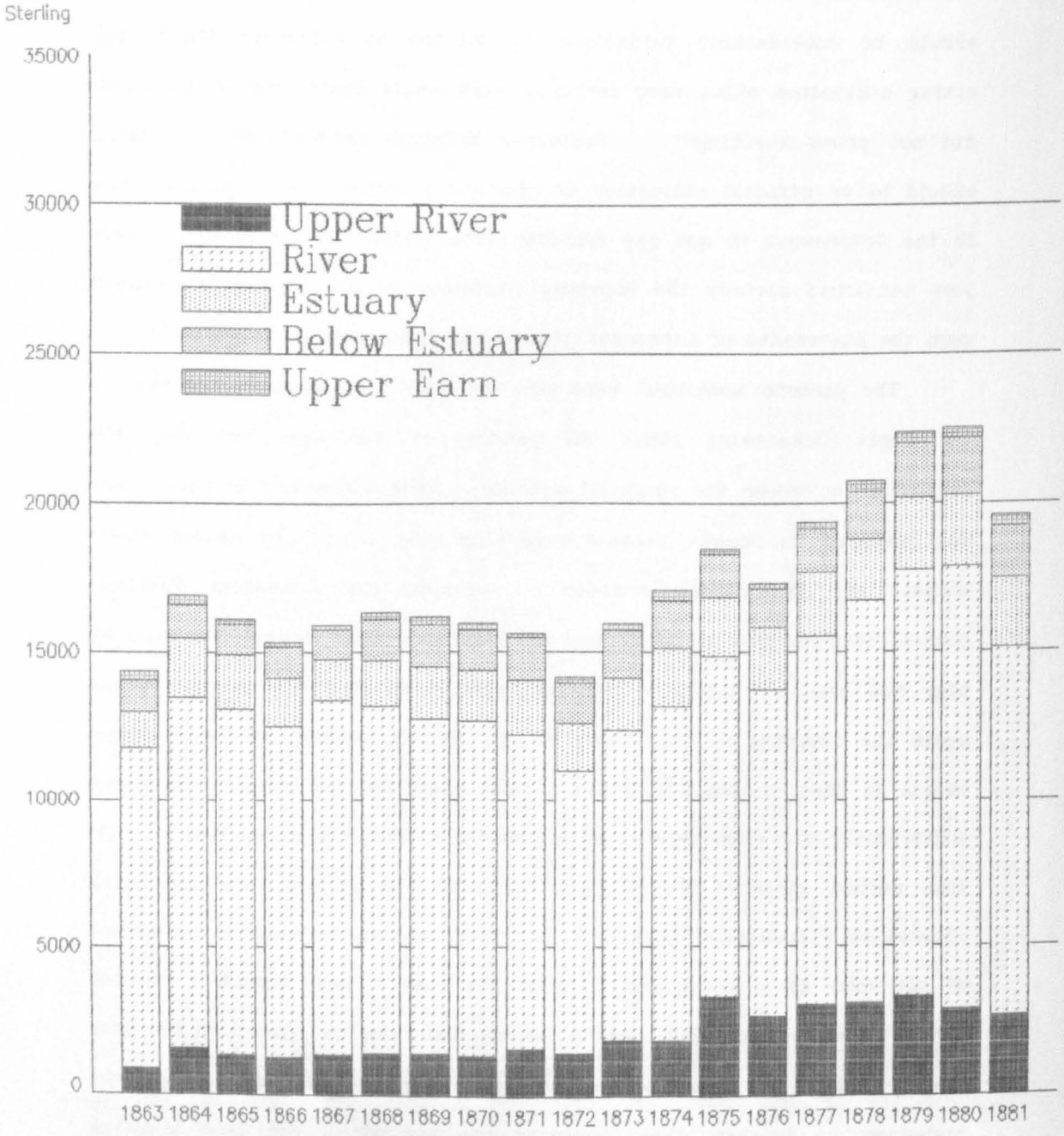
A scientific view was put by Professor William McIntosh of the University of St Andrews. He said that he was very sceptical of the

various assertions that had been made about the salmon since the Committee of 1827, because it was in the nature of things that there should be considerable variations in catches at different times, and citing statistics about very large or very small quantities in isolation did not prove anything[27]. Professor McIntosh recommended that there should be an official collection of statistics about salmon catches: "how is the Government to get any reliable data without statistics? I have just mentioned already the hopeless confusion we are in when we depend upon the statements of witnesses concerning diminution or increase."[28]

The persons mentioned were not the only ones to give evidence to the Elgin Commission about the produce of the Tay, but they are sufficient to cover the range of opinion. The scientist, McIntosh, was not prepared to commit himself regarding changes in the salmon stock without any statistical evidence. Lumsden and Commander Maitland Dougall took matters at face value and concluded that things were much as they had been. Malloch's case is more interesting because he raised again the question of the length of the netting season, an issue almost unique in that, during the 1850s, it had exercised the river proprietors sufficiently for them take joint action to extend the close-time. On this second occasion the concern was that the salmon were not being allowed to disseminate throughout the river system because of the effect of the nets at a particular time of the year - late August. In the 1850s, when the extended netting season had been in operation for over twenty years, the concern was with the fall off in catches at the fisheries. However, these concerns are sequential, for less breeding salmon ultimately leads to less salmon being caught. A concern about the erosion of the salmon stock was clearly still present, although not so universally held as it had been in the past. The question of whether this concern was justified will be returned to in the next chapter.

Tay Rentals by Proportion 1863–1881

Figure 10.1a



Source: Table 10.1

Table 10.1

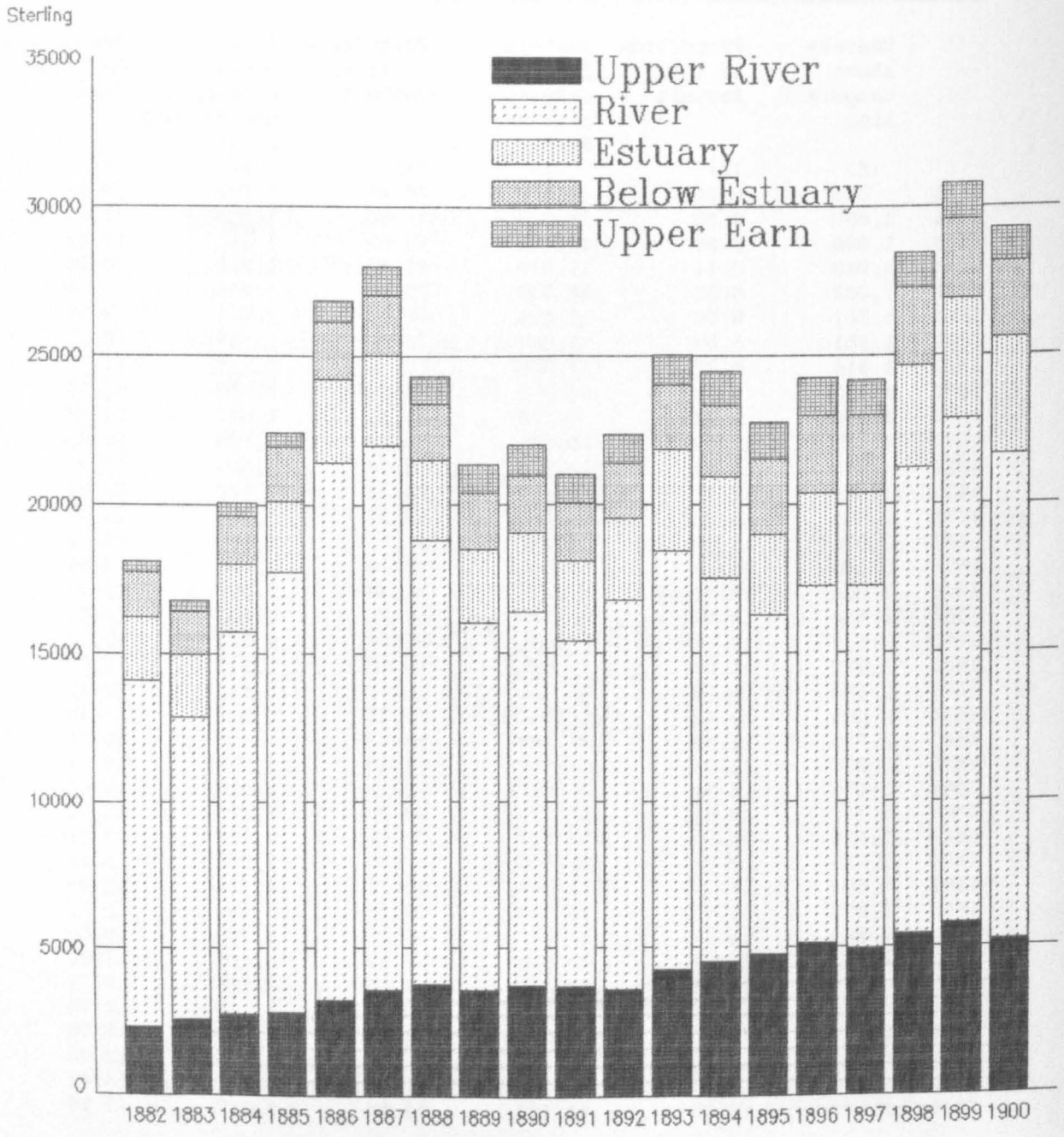
Indexed Rentals of the River Tay Fisheries 1863 to 1900 - Some Proportions

	Rentals above Campsie Linn	Proportion of Total Rentals	Rentals between Campsie Linn and Newburgh	Proportion of Total Rentals	Rentals between Newburgh and Estuary Limit	Proportion of Total Rentals
	(£)	(%)	(£)	(%)	(£)	(%)
1863	863	6.00	10,938	76.08	1,212	8.43
1864	1,530	9.05	11,983	70.86	1,930	11.41
1865	1,326	8.20	11,770	72,82	1,844	11.41
1866	1,243	8.11	11,275	73.60	1,632	10.66
1867	1,332	8.38	12,058	75.84	1,346	8.46
1868	1,387	8.50	11,809	72.39	1,531	9.38
1869	1,381	8.55	11,344	70.23	1,746	10.81
1870	1,318	8.27	11,338	71.18	1,716	10.77
1871	1,543	9.95	10,650	68.70	1,845	11.90
1872	1,414	9.98	9,576	67.57	1,587	11.20
1873	1,835	11.52	10,556	66.28	1,736	10.90
1874	1,814	10.63	11,378	66.67	1,923	11.27
1875	3,278	17.73	11,591	62.68	1,981	10.71
1876	2,608	15.05	11,136	64.25	2,084	12.03
1877	3,008	15.52	12,517	64.58	2,169	11.19
1878	3,046	14.66	13,683	65.87	2,048	9.86
1879	3,264	14.59	14,501	64.83	2,406	10.76
1880	2,833	12.58	15,035	66.77	2,431	10.80
1881	2,610	13.33	12,480	63.74	2,373	12.12
1882	2,277	12.56	11,839	65.29	2,114	11.66
1883	2,530	15.09	10,373	61.87	2,041	12.17
1884	2,694	13.43	13,060	65.11	2,304	11.49
1885	2,770	12.35	14,960	66.68	2,418	10.78
1886	3,220	12.00	18,207	67.85	2,811	10.47
1887	3,559	12.70	18,432	65.76	3,029	10.81
1888	3,747	15.44	15,075	62.13	2,670	11.01
1889	3,560	16.66	12,446	58.26	2,502	11.71
1890	3,722	16.92	12,657	57.53	2,694	12.24
1891	3,694	17.57	11,696	55.64	2,724	12.96
1892	3,575	15.98	13,240	59.18	2,754	12.31
1893	4,240	16.95	14,217	56.83	3,391	13.56
1894	4,525	18.49	12,999	53.12	3,406	13.92
1895	4,757	20.88	11,512	50.52	2,763	12.12
1896	5,132	21.21	12,111	50.23	3,134	12.95
1897	4,919	20.37	12,349	51.14	3,139	13.00
1898	5,419	19.05	15,789	55.51	3,423	12.03
1899	5,796	18.82	17,063	55.40	4,014	13.03
1900	5,227	17.85	16,409	56.03	3,917	13.38

[over

Tay Rentals by Proportion 1882–1900.

Figure 10.1b



Source: Table 10.1

Table 10.1 (continued)

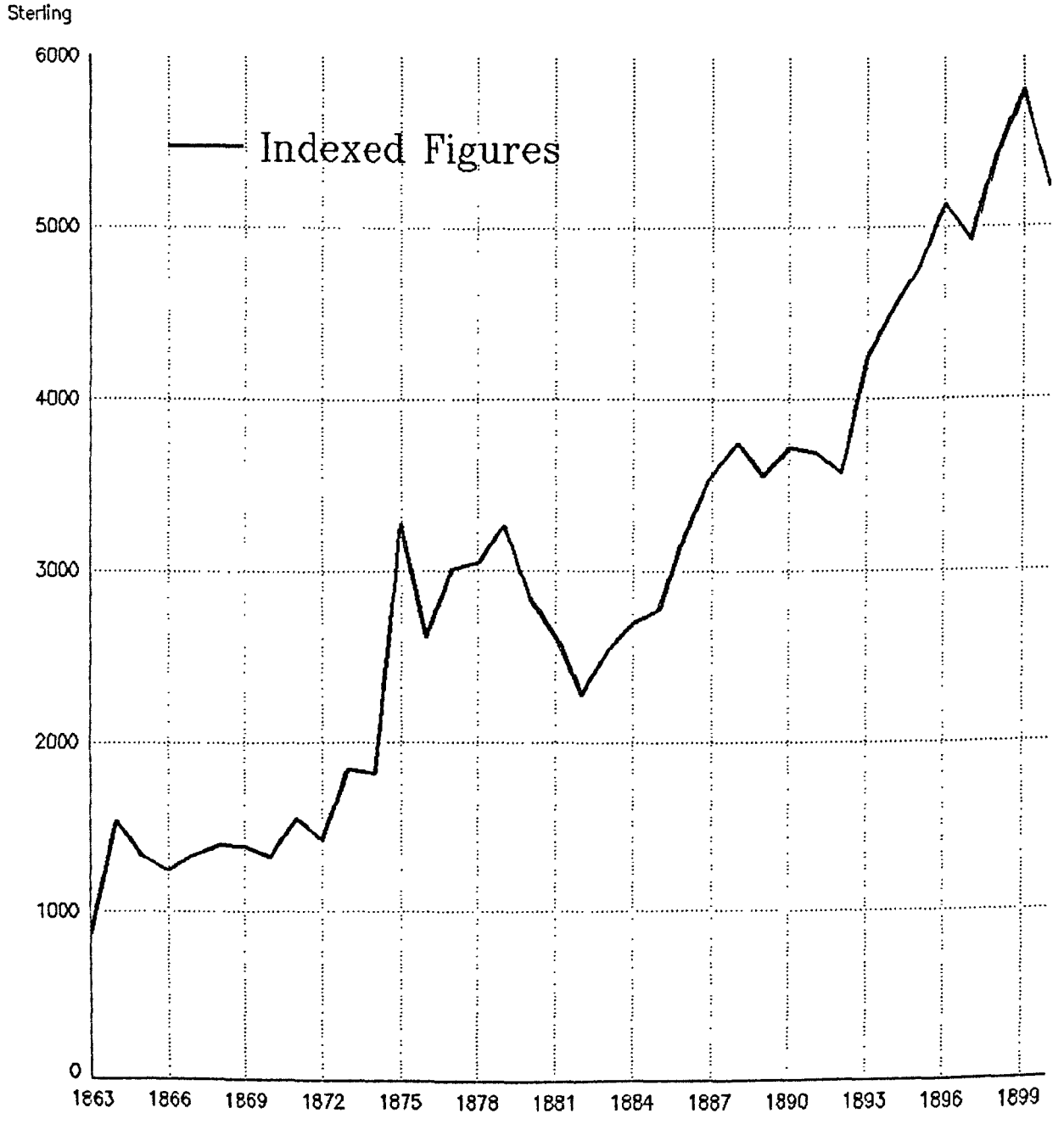
	Rentals below Estuary Limit (£)	Proportion of Total Rentals (%)	Rentals of Upper Earn (£)	Proportion of Total Rentals (%)
1863	1,089	7.57	275	1.91
1864	1,121	6.63	347	2.05
1865	992	6.14	186	1.15
1866	1,029	6.72	141	0.92
1867	1,026	6.46	138	0.87
1868	1,356	8.31	232	1.42
1869	1,444	8.94	235	1.46
1870	1,349	8.47	208	1.31
1871	1,391	8.98	173	1.12
1872	1,368	9.66	226	1.60
1873	1,587	9.97	213	1.34
1874	1,573	9.22	378	2.22
1875	1,452	7.85	188	1.02
1876	1,303	7.52	210	1.21
1877	1,468	7.57	220	1.14
1878	1,620	7.80	375	1.81
1879	1,832	8.20	366	1.64
1880	1,854	8.23	365	1.62
1881	1,744	8.91	372	1.90
1882	1,520	8.38	384	2.12
1883	1,468	8.75	396	2.36
1884	1,601	7.98	400	1.99
1885	1,803	8.04	486	2.16
1886	1,894	7.06	705	2.63
1887	1,970	7.03	989	3.53
1888	1,907	7.86	921	3.80
1889	1,872	8.76	983	4.60
1890	1,919	8.72	1,007	4.58
1891	1,911	9.09	995	4.73
1892	1,845	8.24	960	4.29
1893	2,205	8.81	962	3.85
1894	2,396	9.79	1,146	4.68
1895	2,509	11.01	1.206	5.30
1896	2,608	10.78	1,255	5.19
1897	2,585	10.71	1,204	4.99
1898	2,608	9.16	1,204	4.23
1899	2,704	8.78	1,221	3.96
1900	2,584	8.83	1,145	3.91

Source: *Royal Commission on Salmon Fisheries (Elgin Report), REPORT OF THE COMMISSIONERS ON SALMON FISHERIES, Part III, Appendix - Section II*, Cmnd. 1281, HMSO, London 1902. Appendix XXI, Rental of Salmon Fishings in Tay District fro 1863 to 1900 inclusive.

Indexed using the "animal products" column of the *Rousseaux Price Indices, 1800-1913*, average of 1865 and 1885 = 100.

Upper River Rentals 1863–1900

Figure 10.2



Source: Table 10.1

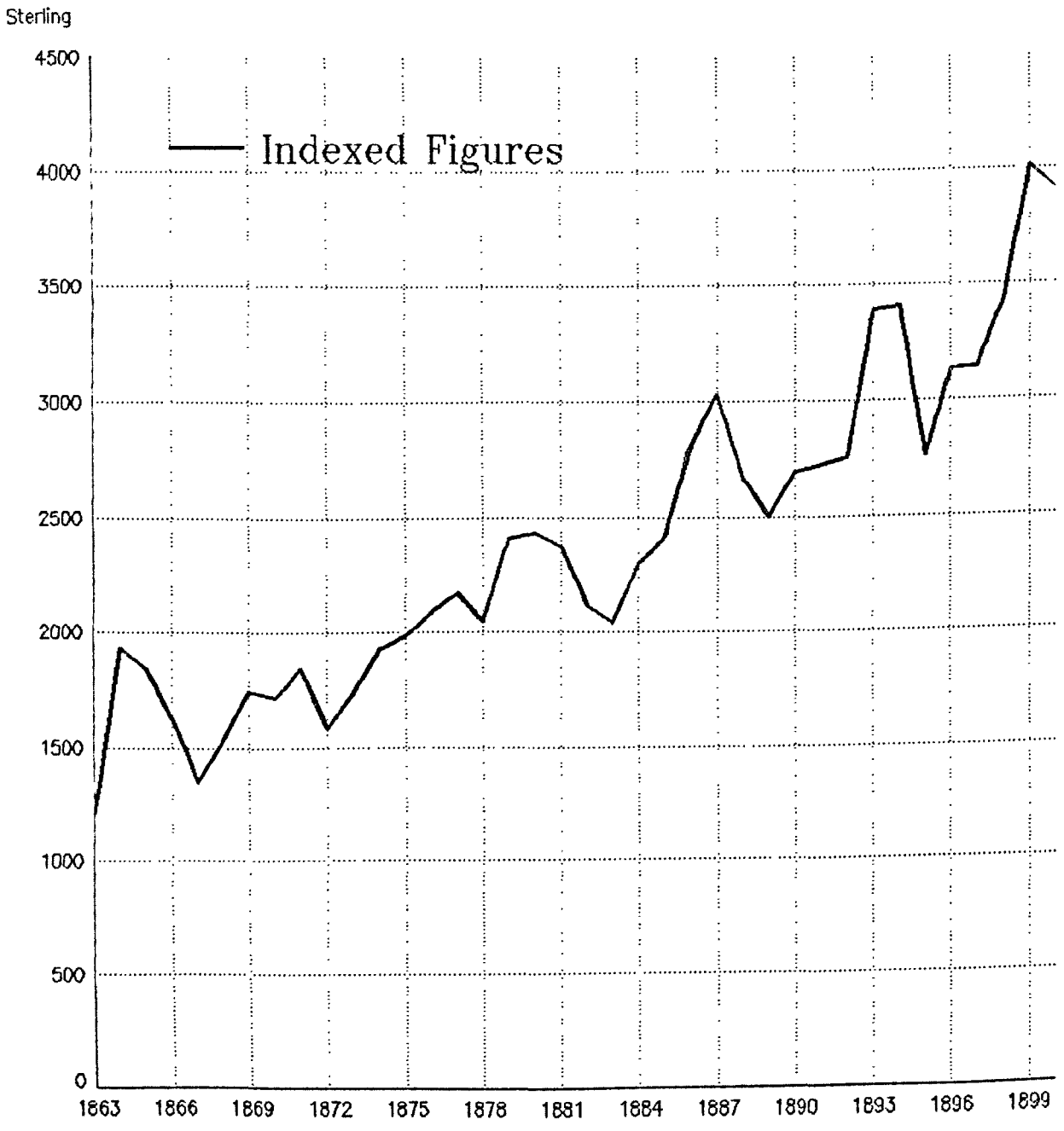
Professor McIntosh's observations about the dearth of statistics are of fundamental importance, and all comments on the produce or over-fishing can be no more than comments in the absence of statistics. The longest statistical series are the rentals, which in Chapter Seven, II, were taken to be indicative of movements in the produce of the fisheries up to the 1850s. They remain the principal statistical source to the end of the century. The rentals for the Tay Basin as a whole are shown in table 5.2 (p 134) and figures 5.2a and 5.2b (facing pp 134-135). They reached their nadir sometime about mid-century, but then had an irregular recovery peaking in the late-70s and late-80s, followed by the decline identified by Malloch (*supra* pp 405-406), which in turn was reversed by the upturn caused by the Tay Syndicate bidding up the tacks. If the correlation between rentals and produce suggested in Chapter Seven[29] continued into the second half of the century, then the general trend of rentals would suggest a revival of catches and perhaps of the salmon stock until the late 1880s.

As table 10.1 shows, however, trends in rentals differed considerably in different parts of the river[30]. On upper river fishings rentals rose substantially, but these were rod fishing rentals[31] (see figure 10.2). Since the number of fish caught by the rod was much less than that caught by the net, the increased rod fishing rentals cannot be associated with an increase in the produce[32].

In the estuary rentals also increased, though less dramatically than in the upper river (figure 10.3). The estuarial fishings were commercial net fisheries and, particularly after 1879 when hang nets were declared legal as a result of the *Forth Case*, the rise in rentals would have been an indication of more fish being caught[33]. There is, however, nothing in these figures to suggest that there were more salmon available for catching. Rather they suggest that the use of hang nets allowed

Estuarial Rentals 1863–1900

Figure 10.3



Source: Table 10.1

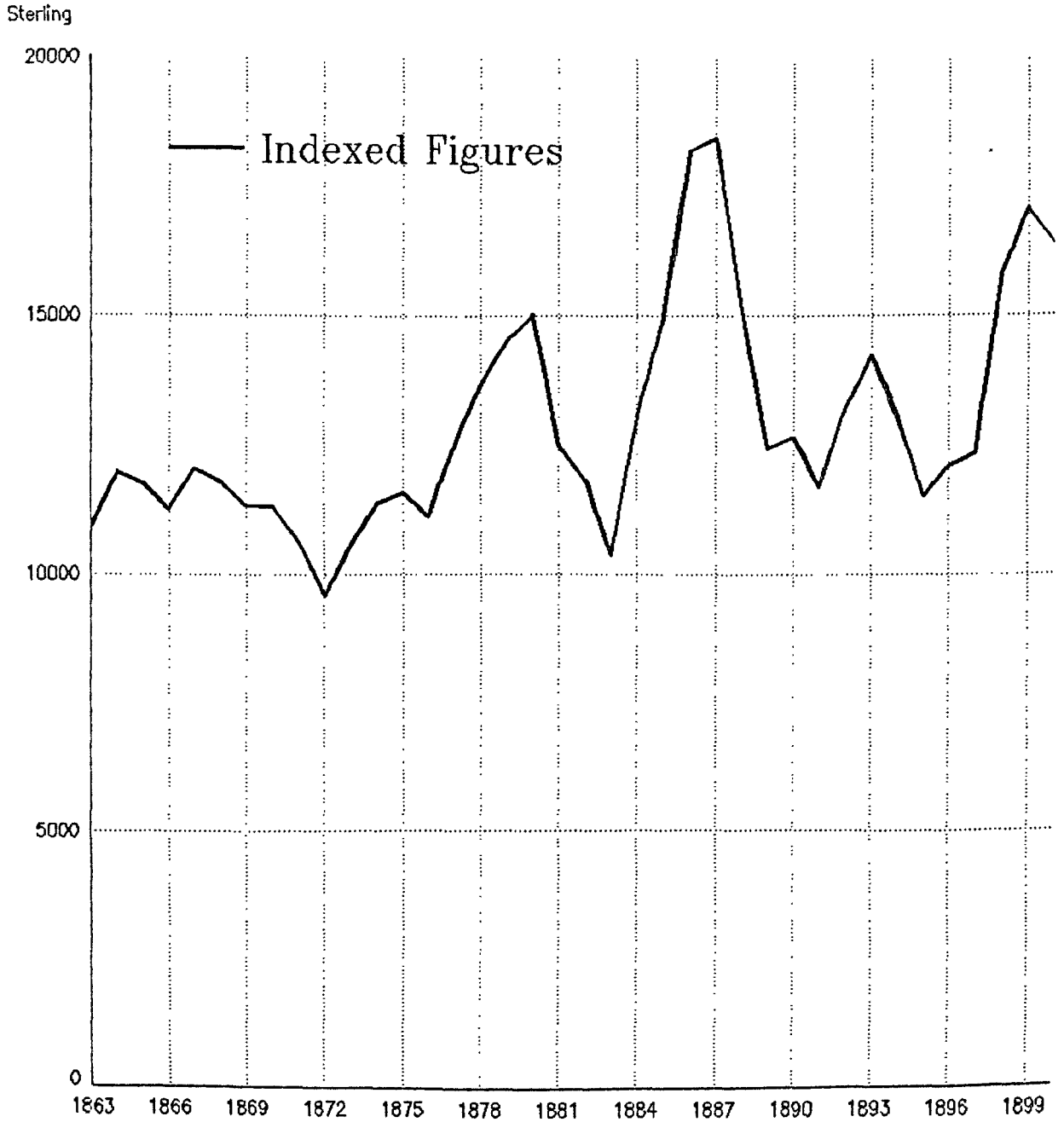
more of the returning salmon to be caught in that part of the river, instead of further up. It may be concluded that neither the five-fold increase in upper river rentals nor the three-fold increase in estuarial rentals were associated with any increase in catches, beyond that arising from a restoration of effective modes of fishing in the estuary and increased popularity of angling. There are thus no grounds in terms of the upper river or the estuary for believing that the aggregate produce of the river was increasing because of an increase in the salmon stock, though that is what the rental evidence might suggest at first glance.

The river between Campsie Linn and Newburgh contained the principal net fisheries. Although there were two periods during which rentals increased, in real terms, in 1897 the rentals of these fisheries were virtually the same as they had been thirty years previously, though they had fallen relative to total rentals from something over 70% to just over 50% (see figure 10.4). This suggests that the aggregate produce of the river fisheries was static over this time and the rise in rentals in the late-70s and mid-80s were aberrations. No explanation is available for the first of these rises, but it was probably the same as that for the late-80s, explained in the *Seventh Annual Report to the Fishery Board for Scotland, 1888,* as being caused by "speculative bidding" during the previous few years[34]. Thus, as with the upper river and estuary, the rental evidence for the river does not suggest any increase in the salmon stock, at best a static situation with the possibility of a decline after the *Forth Case* in 1879 and the lengthening of the netting season in 1888.

Thus closer investigation of the individual sections of the river suggest a conclusion contrary to the first impression given from studying figure 5.2b in isolation. In none of the three sections of the river do the rental data give cause to assume an increase in the salmon stock in the sense of increased ***availability*** of salmon. The rise in

River Rentals, 1863–1900

Figure 10.4



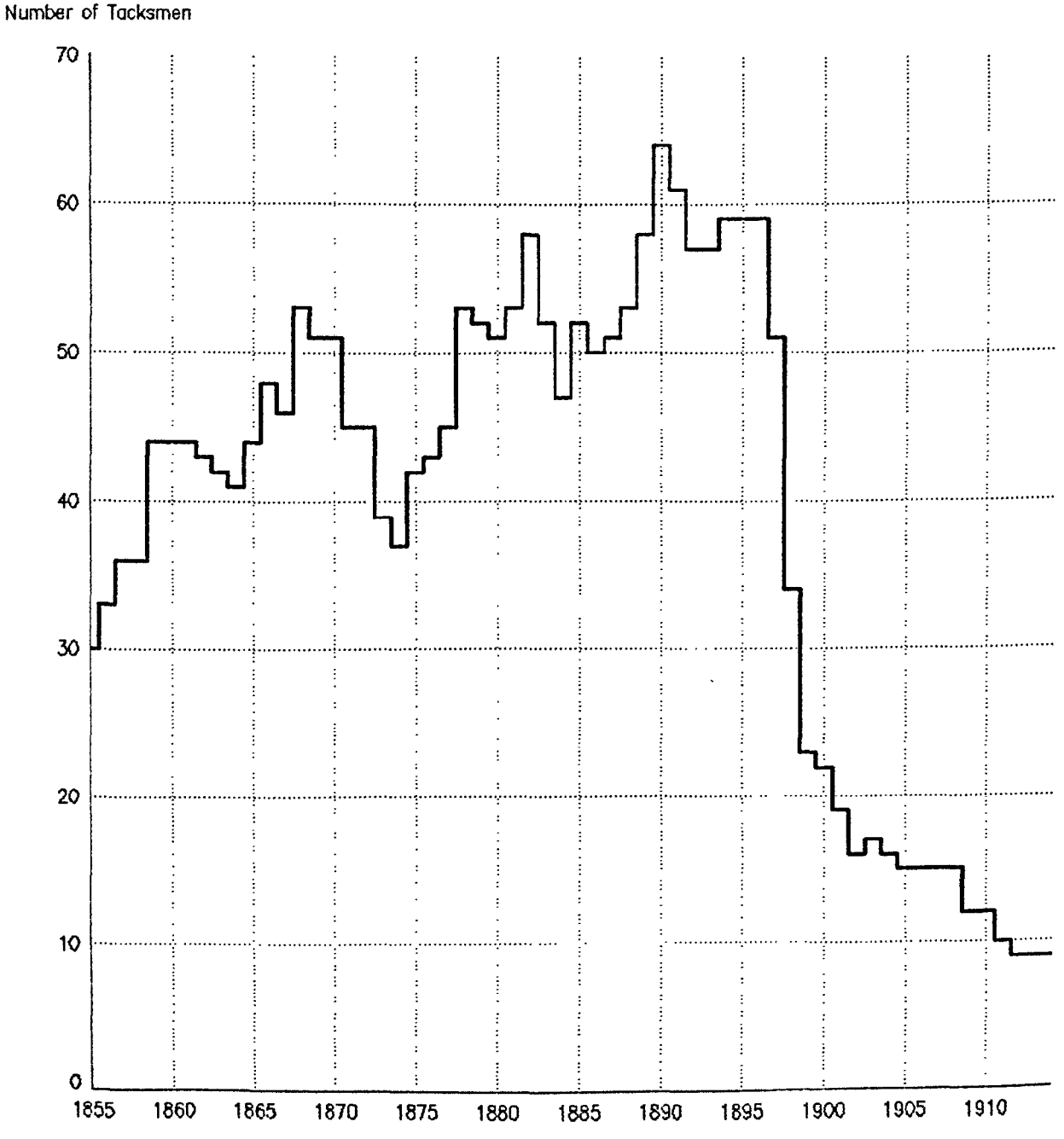
Source: Table 10.1

rentals was apparently the result of three factors: an increased demand for rod fishings - not in any way connected with the size of catches, more effective methods of netting in the firth (hang nets), and "speculative bidding" for river fishings. This last factor would in turn be the consequence of the increased prosperity noted in Chapter Nine, III.

If the salmon stock was relatively stable during the second half of the nineteenth century, and there is insufficient evidence to do more than suggest that this might have been so, then this raises the question why there was during this time a continuing belief that it was being eroded[365]. Part of the answer is, as during the first half of the century, that the intensity of fishing continued to increase. The potential to develop additional fishing stations had been exhausted by mid-century, and so the number of stations in use in any year thereafter did not vary much. However, the number of tacksmen and sub-tacksmen who shared the stations between them continued to increase as the century progressed. The ***Valuation Rolls*** record the names of the tacksmen in any year which makes it possible to count their number. Table 10.2 and figure 10.5 show the number of tacksmen ***per annum*** over the period 1855-1914. Although the upward trend is not always consistent, the number of tacksmen almost exactly doubled from 1855 to 1896, which is a strong indication that the maximum number of stations was in use during any season. More and more competing tacksmen suggests also the greatest intensity of fishing effort, for example, up to three nets operating from a single shot head[366]. It may be concluded that the pre-occupation with over-fishing continued because most of the participants in the Tay salmon fisheries thought their collective behaviour amounted to just that. More efficient gear, more tacksmen, hang nets in the estuary, the evidence was all about them and they drew what they took to be the obvious conclusion. In the absence of a person or body to gather

Number of Tacksmen per annum 1855–1914

Figure 10.5



Source: Table 10.2

Table 10.2
Number of Tacksmen on the Tay *per annum* 1855-1914

1855	30	1885	52
1856	33	1886	50
1857	36	1887	51
1858	36	1888	53
1859	44	1889	58
1860	44	1890	64
1861	44	1891	61
1862	43	1892	57
1863	42	1893	57
1864	41	1894	59
1865	44	1895	59
1866	48	1896	59
1867	46	1897	51
1868	53	1898	34
1869	51	1899	23
1870	51	1900	22
1871	45	1901	19
1872	45	1902	16
1873	39	1903	17
1874	37	1904	16
1875	42	1905	15
1876	43	1906	15
1877	45	1907	15
1878	53	1908	15
1879	52	1909	12
1880	51	1910	12
1881	53	1911	10
1882	58	1912	9
1883	52	1913	9
1884	47	1914	9

Source: ***Valuation Rolls.***

I am obliged to John Rogers Esq. for his generous assistance in preparing these figures.

accurate statistics, there was no way of coming to an accurate assessment of the situation.

One final comment involves the four lines in figure 9.3 (facing p 353), which represent the total produce of the Tay during four separate periods of eleven years each: 1788-1798 when John Richardson & Company had the majority of the tacks and there were no stake nets, 1799-1809 when the stake nets were present, 1830-1840 during the operations of the Navigation Commissioners and, finally 1903-1913. Of these "snapshots", that for 1830-1840 shows the highest level of produce[37]. Thus, apart from 1830-1845, when the netting season was appreciably longer, table 9.3 suggests that there was no great difference between the produce of the Tay fisheries at the end of the eighteenth and at the beginning of the twentieth centuries - both times during which the Tay salmon fisheries were controlled by one firm.

REFERENCES

1. Royal Commission on Salmon Fisheries.

   Report of the Commissioners; 1902 Cmnd. 1188 xiii. 1.

   Part II. *Evidence and Indices;* 1902 Cmnd. 1269 xiii 75.

   Part III. *Appendix, Section II (Scotland);* Cmnd. 1281 xiv. 263.

2. *Elgin,* II, p 295.

3. *ibid.* p 296.

4. *ibid.* pp 324-325.

5. *ibid.* p 330.

   Sir Robert Drummond Moncrieffe, 8th Bart. (1856-1931), second son of Sir Thomas Moncrieffe, 7th Bart. and Lady Louisa Hay, eldest daughter of Thomas Robert, 10th Earl of Kinnoull, succeeded his father in 1879. Sir Robert married Elizabeth Vane, eldest daughter of Colonel the Hon. Charles Rowley Hay-Drummond, neice of the 11th Earl of Kinnoull. Lieutenant Scots Guards, retired 1881; colonel 6th battalion Black Watch, 1893-1911, rejoined 1914 and saw active service (dispatches); director of a number of companies.

   BPB, Who Was Who, 1929-1940.

6. *Elgin,* I, p 13.

7. This reinforces the impression that underlying all the controversies among fishing proprietors was the pursuit of rental income.

   For the Tay Salmon Fishery Company's acceptance by proprietors, see further P.D. Malloch's letter on this subject, Chapter Nine, note 98.

8. See evidence of Malloch, *et al. infra* note 26.

9. *ibid.* p 27.

   The *Report* tried to make clear that its attitude was "disinterested".

> At the same time while we are willing to recognise the difficulties arising out of conflicting interests, and to meet them as far as possible, we are bound to add that the primary purpose of the salmon laws is the development of the productiveness of the fisheries, and not the regulation of the rights of proprietors *inter se,* and in framing our report on this broad principle, we do so for the reason given over and over again in the Scotch Statutes four hundred years ago, for putting down unseasonable fishing and fixed engines - such practices "destroy the breed of fish, and hurt the common profits of the realme."

Ibid. p 38.

10. *Ibid.* p 301.

Calderwood had already made his position on river and coastal netting clear in the *Twelfth Report to the Fishery Board for Scotland, 1893.*

> The value of these (coastal) fishings affords positive evidence that salmon not only can be, but are taken in large numbers while moving along the open sea coast, and shows further that the markets already draw a great part of their supplies from waters situated outside the limits of the estuaries, and gives, therefore, additional force to the recommendation I ventured to submit in my *Report on Crown Unchartered Inland Waters, viz.*:- 'that the principal object to be aimed at in the public interest is to confine the commercial fisheries, as far as possible, to the tidal waters, and to afford the fish every possible protection when once they have reached the fresh waters.' The evidence I have already put forward in previous reports seems to leave me no reasonable doubt but that the salmon fishing industry would be very much developed, and would afford employment to many more persons, if confined as far as possible to tidal waters. In addition to the evidence already given, I would beg leave to point out that fishing in the open sea not only affords space for a greater number of fishers, but is capable of greater control. For in the sea salmon are constantly moving along the coast; there are no obstructions to delay their progress, or to cause them to collect in the same locality for days and weeks; indeed, the only hindrances to their free passage are the nets used for their capture. If, therefore, such nets were removed for a certain time during each week, it would ensure the protection of a proportion of every run of fish, provided that fishing in fresh waters was restricted to fair and legitimate angling for recreative purposes only. The question of the development of the sea coast salmon fisheries acquires greater importance at the present time, ... in addition there was a large extent of coast where fishing was not at present carried on. It was said, however, by one of the Commissioners, that it might be assumed that all the sea

> fishings of the Crown which could be profitably fished had been sold or let, and that the other places, either from their rocky character or otherwise, were unsuited for fishing. This may be the case, but, in the face of the experience I have had during the last ten years, I should hesitate to assume that it is so. A similar statement was made to me when I first took up the salmon fisheries in Norway, referred to in my last annual report. I was informed, both by fishermen and others, that every place where fishing could be carried on had been tried, and that it was not found profitable to fish except at the places then in use. Indeed, it was further said that the fishing, even at many of these places, would be abandoned as soon as the nets were worn out, as three days' weekly close time, which had come in force the previous year, had rendered fishing unremunerative. It will be seen, however, by reference to Note 9, appended to this Report, how completely these forecasts were falsified. The provisions (1) of a weekly close time, which enabled a proportion of every run of fish to reach the fresh waters, and (2) of their protection when there, were followed by an increased number of fish being caught. These fish, however, were not only caught at existing stations, but new fishing stations were started, and many of them in places which had previously been found unprofitable. It will be seen, in the Note above referred to, that whereas only 76 nets were being fished on the sea coast in 1883, they numbered 229 in 1892. There is further evidence to show that fishing need not be restricted to the places at present in use, from the fact that many in Scotland, formerly fished with profit, have since been abandoned. Such evidence, taken collectively, shows that the conditions favourable to the development of the sea coast salmon fisheries are not so much the want of suitable fishing places as of a sufficient stock of fish; while evidence given in my last annual report and in my *Report on Crown Unchartered Inland Waters* tends to show that the stock of fish may be increased by prohibiting fishing in the confined waters where fish collect.
>
> I venture, therefore, to submit that, in considering the best method of dealing with the Crown sea fisheries, the question of devising some means for compensating the owners of fishings in confined waters and suppressing their nets should first be carefully considered."

pp 6-7.

11. *Elgin*, I, p 28.

12. They were: A.G. Anderson (see table 9.3, p 341); George Davidson of George & William Davidson, salmon tacksmen, Aberdeen; Adam Gillan, Alec Hector, A.P. Hogarth of Aberdeen(?); James Johnston of Joseph Johnston & Sons (see table 9.3 and figure 9.1a), chairman of the South Esk District Salmon Fishery Board; David Powrie of A & D

Powrie, Perth (see table 9.3 and figure 9.1e); and Alex Speedie of Perth (see table 9.3 and figure 9.1c).

13. *Elgin*, I, p 27.

14. *ibid.* p 302

15. The following is a summary of the recommendations made by the Elgin Report:

1. **Central Authority.** - Preferably for Great Britain ... and in charge of all fishery matters; but if this is not practicable, some rearrangement and strengthening of the existing machinery as will create in each Department concerned an independent and efficient branch charged with fishery matters only, including the collection of statistics and the carrying out of investigations and experiments, and capable of exercising the increased power of control which we propose.

Local Fishery Boards. - ... In Scotland we do not consider it necessary to introduce large changes, but we propose to modify and simplify the election of Boards, ...

Finance. - ... In Scotland we see no reason to alter the present system.

2. **Regulation of fishings:-**

(a) Close Time. - Subject to certain modifications by bye-law to meet special cases, we recommend uniform close-times for Great Britain:

the dates suggested for general application being as follows:-

Annual Close Time - for nets, August 27 to February 10; ...

Annual Close Time - for rods, November 1 to February 1.

Weekly Close Time - 48 hours, from noon on Saturday to noon on Monday.

We think that salmon should not be offered for sale after the netting season ends, and recommend its prohibition from September 3 to February 10 inclusive.

(b) Netting. - We are strongly in favour of a restriction of netting in narrow waters, considering it absolutely necessary for the preservation of the fisheries. We recommend that a small Executive Commission should determine the point in each river or district above which netting should be prohibited.

(c) Sea Coast Fishing. - We are of opinion that we look to fishing in the sea for a substantial increase in the supply of fish, and that for the development of commercial fishing in England and Wales it is necessary to remove the prohibition on fixed engines on the sea coast outside estuary lines. ...

(d) Protection of Fisheries. - In addition to our recommendations for increasing the financial resources of the Local Fishery Boards, we submit for consideration their claim to be assisted by forces, under the control of Government or of Local Authorities, to put down violent or organised resistance to the law, and certain suggestions relating to the powers of bailiffs and other matters.

We recommend the empowering of Local Fishery Boards to adopt bye-laws prohibiting the taking of fish of the salmon kind, ... under seven inches in length; prohibiting or restricting the use of the gaff, and regulating the use of lures other than the artificial fly.

3. Pollution. - We are satisfied that much injury is done to the fisheries by pollution of rivers, which might be prevented; and although some amendments of the law might be advisable, ... that a better administration of the law is all-important. We therefore concur in the recommendation of the Sewage Disposal Commission for

the creation of a Watersheds Board under a Supreme Rivers Authority in those waters, on the understanding that the recommendations of the Sewage Commission on the methods to be adopted for the purification of rivers and estuaries will cover the requirements of the fisheries, and that provision will be made for the protection of fishery interests by Watershed Boards.

4. **Volume of Water in Rivers.** - We consider it of primary importance to maintain the volume of water in rivers, ...

5. **Obstruction.** - We recommend that the removal of obstructions should be facilitated: in the first place by improving the financial resources of Boards, and in the second place by so amending the law that in the case of all artificial obstructions the formation of an approved fish-pass should be compulsory, and in the case of natural obstructions Local Fishery Boards should have power to take action if the owners decline to do so. ... We also recommend that no fishing should be allowed within a reasonable distance of any obstruction.

6. **Artificial Cultivation.** - After a careful review of the evidence we recommend further investigation of the questions bearing on the natural and artificial propagation of salmon before there is any public expenditure upon the establishment of hatcheries for supplying *ova* or young fish to the rivers of Great Britain.

7. **Experiment and Research.** - ... We recommend, therefore, that a scheme of experiment and research, for the further investigation of the natural history of the salmon and the problems connected therewith, be instituted and carried on under the guidance and control of the Central Authority for Salmon Fisheries supported by a grant of public money.

8. We further recommend that the existing Salmon Fishery Acts of England and Scotland should be respectively consolidated and amended.

10th July, 1902.

Elgin, I, pp 61-64.

16. In 1874 Sir Thomas Moncrieffe and his tacksman had complained to the Tay District Board about the sewage from Perth damaging the Moncrieffe fishings. The Board was doubtful of its authority to intervene and consulted Archibald Young, then Inspector of Fisheries for Scotland, who also doubted its authority. In 1886 Moncrieffe raised an action in the Court of Session to protect his fishings from further pollution and his case was successful. The Court found that it was not a sufficient defence for Perth Town Council to declare that they had been discharging sewage for many years previously, and they allowed interdict against any *increase* in pollution. However, the matter came to an unsatisfactory conclusion when Perth Town Council bought outright the fishings affected (Bells Point and Friarton Sands) and nothing further was done.

Evidence of George Alexander Mackenzie, ***Elgin***, II, p 311.

The same problem was described by another witness, Alexander Ramsay, foreman at the the Pyeroad and Stockgreen stations, who gave evidence before the Elgin Commission.

> You think that the river is more polluted than it used to be?
> A great deal. ...
> You have what is called dirty tide water?
> Yes.
> What do you mean by that?
> At that [past] time at the Pyeroad we never saw dirty water. Now, after a spate we will have clear water with the tide, and in a month after there will be dirty water up from Newburgh if there is any tide at all. That is a thing that never happened before.
> What is the nature of the dirt in the water?

> It is a floating yellow substance, and you do not get many fish at that time,
> They won't come into dirty water?
> No,
> ....
> The dirty water is carried up and down by the tide?
> Yes,
> Do you think that the fish turn back when they meet it?
> I am sure they do,
> The dirt is so bad that it sticks on the nets?
> Yes, There is a slimy stuff that sticks on them, and there are great complaints about it sticking on the nets,
> What do you do? Do you wash the nets?
> No, we just work away and put them in the river again. There are great complaints about it,
> You think that all this pollution injures the fishing?
> Yes,
> And are you afraid that it might increase so much as to shut the fish out of the river, as on the Clyde?
> Yes,

ibid. pp 322-323. *cf.* the letter about pollution in the Clyde from McGregor, Murray & McGregor, Glasgow, Chapter Seven, note 16.

Ramsay's evidence also gives a clue as to what happened to the smaller tacksmen after the advent of the Tay Salmon Fisheries Company. He told the Commission that he had worked on the Tay for forty years, thirty of them as a tacksman, but he had since been employed by the company.

17. *ibid.* p 317.

18.

> I think that there is a diminished catch everywhere, and I put that down to the fact that fishing has become very much more general of late years, I have no doubt that at the time [there were] large individual catches of fish many years ago [when] there were not so many stations fished, either inside the river or on the coast. Individually the catches have decreased, but the total catch of fish or the supply to the market today is as good as it ever has been,

ibid. p 328.

Commander William Maitland Dougall, R.N. of Scotscraig (born 1852). Eldest son of Admiral William Maitland Dougall, R.N. of Scotscraig, succeeded his father in 1890.

19. *ibid.*

Maitland Dougall produced six year averages for the Scotscraig fishings demonstrating that their produce had not fallen off:

1880-1885	1886-1893*	1894-1899
1,178	903	1,361

*no records for 1888 or 1889.

20. *ibid.*

21. See pp 346.

22. ***Elgin,*** II, p 520.

23. ***Elgin,*** II, p 466.

The so called ***Lammas Floods*** were traditionally associated with large runs of salmon in the rivers. Lammas, 1st of August, one of the Scottish Quarter Days. According to ***The Concise Scots Dictionary*** a ***Lammasman*** was a young salmon trout (*sic*) which began its journey up-river from the sea for the first time about the beginning of August.

24. ***Elgin,*** II, p 467.

See also table 5.2, p 134.

25. See Chapter Nine, note 92.

Colonel Richardson of Ballathie agreed with P.D. Malloch's point that the close-time should start on 20th August rather than the 26th as the Lammas Floods very often occurred between the 18th and 22nd of August giving rise to a large run of salmon, of which too many were caught. "The nets will be accountable for 5,000 or 6,000 fish during these six days, and I think that that is putting it rather mildly." He thought that this made a great difference to the breeding stock of the river.

Elgin, II, pp 324-325

Edmund Robert Stewart Richardson, 1848-1917, 4th son of Sir John Stewart Richardson, 13th Bart., of Pitfour. Also of Dauntsey, Chippenham, Wiltshire; lieutenant-colonel North Stafford Regiment, hon. colonel 4th battalion Sherwood Foresters.

BPB.

26. In more detail, Malloch's case with regard to the latter point was not connected with the effect of the hang nets as they were not in widespread use until the end of the season, but the ***length of time*** over which the sweep nets operated. He explained this by giving his account of how the salmon distributed themselves throughout the river system. From the end of October there were clean fish entering the river and these were destined for the highest parts of the river and would not spawn for a full twelve months, they travelled very slowly reaching Loch Tay and other pools, but not going any further until the water warmed after the winter, in May they would make their way to the headwaters. From the end of March until June, fish entering the river from the sea travelled very fast in the fresh water, but in July they travelled more slowly and "have neither the power nor the time to get to the higher reaches." Thus according to Malloch's scheme the winter fish ascended to the headwaters, the summer fish to the upper and middle reaches, and the autumn fish to the lower reaches. But these runs were interfered with by the intensity of the netting from the 11th February to the 26th August, particularly those fish that got up the river beyond Perth during the Saturday slap, but which were caught in the upper nets. His solution was to remove the upper nets so that fish could pass through during the weekly slap and get to the upper waters, i.e. remove them to a greater extent than that accomplished in 1893. Malloch pointed out that

this had been done on the Aberdeenshire Dee and the lower rentals had increased by 30% as a result. He was in no doubt that the most crucial factor for the salmon stock of the Tay was the start of the close-time in Autumn - the earlier it began the better - but he also considered it would be beneficial for all the nets to be removed above Perth, in conjunction with a 48 hour slap. "It would be a very much greater benefit than removing the nets in autumn, the fish would get distributed all over the Tay and its tributaries; this proposal would please both upper and lower proprietors."

ibid. p 466.

Malloch's thesis was supported by Dr James Dunlop who stressed the importance of preserving a proportion of every run of fish as each of these was destined for a different part of the river. Thus if an entire run were netted, then a part of the river system would have no breeding stock. Dunlop considered that netting in the river was the most destructive in this context.

ibid. p 749.

> To sum up the evidence you have given, it would seem that where a proportion of every run of salmon has been protected, it has been followed first by the fisheries yielding more fish; secondly, by the employment of a greater number of persons; thirdly by an increase in the value of existing fisheries, both of the upper and lower waters; and fourthly, by the places in which fishing can be exercised becoming more numerous?
> All those results have been recorded, as resulting from a change in the mode of fishing from river netting to sea netting.

ibid. p 752.

James Craufurd Dunlop, M.D., F.R.C.P., (died 1944), sometime Registrar-General for Scotland; Assistant Medical Adviser to Prison Commissioners, Scotland; Inspector Inebriate (Scotland) Acts;

Member, Royal Commission on Care and Control of Feebleminded; Director of Statistics in Department of Surveyor General of Supply, War Office.

Who Was Who, 1941-1950.

See also Sir Robert Menzies and John Dickson on the same subject, pp 324-325.

27.

> For instance, to take a case in Scotland, *viz*, the Tay in 1885 - I think in June or July no less than about 80 tons of salmon were caught daily during 11 days following each other in succession. Eighty tons of salmon were sent off each day from the river.
>
> That being much in excess of the ordinary?
>
> Yes, very much in excess - a very extraordinary capture.
>
> ...
>
> Moreover it does not follow that a river in which salmon will not take the hook, or it may escape capture by the nets - it does not follow that the river is devoid of salmon.

Elgin, II, p 782.

28. ***ibid.*** p 782.

29. See p 217.

30. The geographical division of the river used in table 10.1 is taken directly from the original in the ***Elgin Report***. "Rentals above Campsie Linn" is equivalent to the upper river, that part exclusively devoted to rod fishing; "rentals between Campsie Linn and Newburgh" is equivalent to the river, the principal net & coble fisheries including the lower Earn; and "rentals between Newburgh and Estuary limit" is the estuarial fishings. "Rentals below Estuary limit" is the coastal netting within the Tay District Board area.

31. From the 1860s there was only one significant net fishing (Stobhall) above Campsie Linn, which means that the rise in rentals shown in table 10.1 and figure 10.2 must have been largely the result of an increase in rod fishing rentals. The increase was

considerable, almost five-fold in real terms (from less than £1,000 *p.a.* to over £5,000 *p.a.*) and three-fold in relative terms (from 6% of total rentals to over 18%). Angling at the time was a fashionable pastime and beats on the Tay, one of the premier sporting rivers, were much sought after.

Col. Edmund R. Stewart Richardson of Ballathie in his appearance before the Elgin Commission was asked why the value of rentals of upper proprietors had increased "of late years", and whether the increase was due to the increased value of the rod fishings or to a greater number of fish being taken. He thought that it was due to the higher rentals paid by rod tenants and that fewer fish were taken. He also noted that; "the upper proprietors' water is coming very near to the value of the lower proprietors' water, simply from the mania that there is for salmon fishing with the rod at the present time."

Elgin, II, pp 326-327

32.

> You don't think that the rental is a fair standard by which to compare the productiveness of the fishings at different times. It is liable to be influenced by other causes besides that of the quantity of fish taken?
> Yes.
> I suppose one of these causes would be the improvement or falling off in the value of the rod fishing?
> Yes.

Evidence of George Alexander Mackenzie, joint clerk to the Tay District Board, *Elgin*, II, p 316.

Data on rod fishing catches were submitted to the Elgin Commission by Mr Fotheringham of Murthly. These concerned the Murthly beats:

1883	112	salmon	1889	229	salmon	1895	96	salmon
1884	113	"	1890	166	"	1896	109	"
1885	121	"	1891	116	"	1897	69	"
1886	135	"	1892	131	"	1898	68	"
1887	111	"	1893	114	"	1899	110	"
1888	80	"	1894	63	"	1900	100	"

Elgin, III, Appendix XXII, p 39.

There is no correlation between these figures for rod catches and the movement of the upper river rentals as shown in figure 10.2.

33. Estuarial rentals rose three-fold in real terms and one-and-a-half times in relative terms.

34. *Seventh Annual Report to the Fishery Board for Scotland, 1888*, p viii.

It was during this period that A.G. Anderson was most involved with tacks on the Tay, see table 9.3, p 341.

35. See Chapter Nine, I and II, *passim*.

36. See Chapter Nine, note 31.

37. The averages of the four periods are as follows:

	average
1784-1798	40,565
1799-1810	51,302
1830-1845*	73,246
1903-1914	46,668

*not including 1841.

Sources: tables 3.2, 7.4 and 9.4.

CHAPTER ELEVEN

CONCLUSION

The greatest and most consistent pre-occupation among the participants in the Tay salmon fisheries during the nineteenth century was that the salmon stock was being eroded to a point where the fisheries would cease to be viable. This fear was not based on any systematic investigation, but grew from the participants' own subjective impressions which, in the absence of evidence to the contrary, gradually assumed the dimensions of a collective *idée fixe*. Over-fishing had clearly been a problem in previous times, for the ancient Scottish salmon laws were largely designed to prevent it. However, it was not seen as a problem during the half century preceding 1800. This was because of two circumstances: first, during most of this time the Tay fisheries were controlled by John Richardson & Company, which firm husbanded the fisheries as an entity and, second, the net & coble mode of netting employed at the fishings was by its nature restricted to a relatively small portion of the river.

The re-emergence of fears about over-fishing was caused by the introduction of stake nets in 1797. These were in addition to net & coble and extended the commercial fisheries over a further twenty mile stretch of the estuary. Stake nets were an efficient form of netting in estuaries and, from the outset, their produce was considerable. This raised a debate as to whether the increased catch was additional to that of the river fisheries, a view expressed by the estuarial interest, or whether, as in the view of the river interest, it was deducted from their catch. The increased catch raised the spectre of over-fishing which was quite correctly seen as the ultimate threat to the fisheries. In spite of frequent public expressions of concern about a threat to the wellbeing of the salmon as a species, there can be little doubt that it was the

threat to salmon as a commercial product that principally concerned the practitioners in the fisheries - for if the salmon stock were eroded to extinction, then the proprietors' fishing rentals and the tacksmens' livelihoods would have disappeared.

Stake nets were initially operated on the Tay by fishermen from the Solway which effectively removed John Richardson & Company's monopoly. This commercial set back, in addition to the dearth of salmon in the river caused by the stake nets in the firth, was apparently sufficient by 1806 to cause Richardson & Company to withdraw completely from the Tay. The vacuum created in the river fisheries was quickly filled by an increasing number of competing tacksmen. Thus the immediate and direct effect of the introduction of stake nets was to increase the scope and efficiency of commercial netting, but in addition, within a decade, it had ended unified control of the Tay fisheries and substituted a competitive system in which all tacksmen sought to maximise their catches.

Considerable expansion in the output of a commercial fishery within a brief space of time implies a market for its fish that is capable of absorbing larger catches. In order to fully appreciate how the Tay salmon fisheries were accommodated in this respect, it is necessary to look back to two developments that preceded the introduction of stake nets. These were the introduction of the kitting process, and the use of ice as a preservative, both of which allowed Tay salmon access to the southern English market for the entire fishing season instead of merely for the early part of the season. With both developments, it was the fact that salmon so preserved were acceptable to the English taste which allowed the Tay tacksmen to switch from their traditional "precarious" Continental markets to the burgeoning and increasingly affluent metropolitan population which took its supplies of fish through

Billingsgate. Kitting proved to be only an interim process, for although it solved the problem of preserving salmon in an edible condition throughout the summer months, kitted salmon were regarded as inferior to "fresh" salmon and did not command the same price or market segment. However, the use of ice kept the fish in a condition which, to the consumer, was indistinguishable from "fresh" salmon, enabling prices equivalent to those for new-caught fish to be charged. The buoyant domestic market ensured that the produce of the Tay fisheries was absorbed without any need to seek out additional markets, a circumstance that would have done nothing to allay fears about over-fishing.

The perceived threat to the Tay fisheries from over-fishing was a sufficient problem in itself, but the possibility of remedial joint action became increasingly remote as antagonism grew between the river and estuarial interests. From the outset, the introduction of stake nets in the estuary had been resented by river proprietors who saw them taking fish that otherwise would have found their way to the river. Their public protestations were directed at the dangers posed to the species, but there is little doubt that their principal concern was for salmon as a commercial product and, most immediately, the transfer of rental income from river to estuary that stake nets gave rise to. It was an attempt to restore the *status quo ante* in rentals that led the river proprietors to initiate the Stake Net Cause, and in so doing formalise the controversy between the two groups. The ultimate verdict of the courts was favourable to the river interest and stake nets were banned from the estuary. The verdict left the estuarial proprietors considerably aggrieved and determined either to have the ban on stake nets reversed or to devise some alternative legal mode of netting which would be effective in the firth, demonstrating that rental income was more important to them than preservation of the salmon stock. The river proprietors, on the

other hand, were equally determined to defend the verdict. The size of rental income in contention was sufficient for both parties to spend much of the rest of the nineteenth century expending considerable time and effort in pursuing their opposed objectives.

Banning stake nets from the estuary removed the most obvious reason for the fears about over-fishing. However, a version of the stake net was introduced on the sea coast in 1819 and within a short time they were in widespread use both north and south of the Firth of Tay. In spite of attempts by river proprietors to have coastal nets banned, they remained in extensive use for the rest of the nineteenth century. Thus fears about stake nets being a threat to the salmon stock were alleviated for only a short time. Moreover, the estuarial proprietors and their tacksmen continued to devise forms of net which they hoped the courts would find acceptable. The most successful of these was the hang net which was increasingly used by poachers and legitimate tacksmen from mid-century onwards, especially after the *Forth Case* of 1879. The suppression of poaching in the estuary after the "Battle of the Gutter Hole" in 1888 meant that the use of hang nets was thereafter confined to tacksmen, but this was still objected to by river proprietors who had hang nets legally suppressed in 1899. Thus although the amount of netting in the estuary varied over time, it remained a contentious issue between river and estuarial proprietors and, additionally, was in the eyes of the former a considerable contributory factor to over-fishing.

Although both proprietors and tacksmen were involved in the controversies, the interests of the tacksmen were not fundamentally tied to any single part of the river for they could and did take tacks on all parts of the Tay and beyond. Thus the river/estuary and later upper river/river controversies were basically between proprietors. In many

instances, the landowning families along the banks of the Tay, and on other salmon rivers, had long traditions of service at Westminster. Thus, though the nineteenth century is generally regarded as a time of *laissez-faire* and minimal government, it was not uncharacteristic for such a group to see legislation as the solution to their disputes, especially so given the long history of the laws regulating the salmon fisheries and protecting the interests of fishing proprietors. The Select Committee of 1824 and similar bodies appointed during the rest of the century were generally formed with legislation in mind, though in practice legislation did not always follow. It was the custom of such committees to take evidence from both scientists and those practically involved with the fisheries. The positive results were an increasingly accurate description of the life-cycle of the salmon and the methods by which the fisheries operated, allowing a better understanding of the threats to the species and how best it could be preserved. On the negative side, the various committees were subject to extensive propaganda and lobbying so that proposals contrary to the interests of one group were likely to be sabotaged by another to the point where no legislation or only ineffective legislation was enacted. This had the additional effect of prolonging antagonism between parties.

Another matter which was seen as a threat to the fisheries was poaching. This was a problem of long-standing which, prior to 1828, was exacerbated by the derisory legal sanctions against poachers. As a result attitudes towards poaching and "non-observance of the close-time" were very lax. The situation worsened after the withdrawal of John Richardson & Company from the Tay, when increasing numbers of tacksmen and intensifying competition between them created yet more pressure to fish on into close-time and employ illegal modes of fishing. In addition, tacksmen augmented their catches by purchasing fish from

outright poachers, thus providing them with a "legitimate" outlet to commercial markets. However, the concern about over-fishing created by stake nets focused attention on other perceived threats to the salmon stock, not least poaching. Poaching and stake nets were the main concerns that led to the appointment of the Select Committees of 1824 and 1827, and the consequent *Home Drummond Act* of 1828 which, although ineffective in most respects, provided viable sanctions against poaching to the extent that legitimate tacksmen ceased "washing their nets" and no longer involved themselves with poached fish. However, this reduction in the extent of poaching lasted only until the coming of hang nets and railways about mid-century.

Yet another reason for concern about over-fishing was tacksmen working their fishings more intensively. Although the Stake Net Cause resulted in a restoration of produce to the river fisheries, until mid-century trading conditions were such that tacksmen frequently made losses, further reinforcing the tendency to work tacks more intensively, with, it must be said, the implicit consent of the proprietors. This took three forms: the introduction of 24 hour shifts during which stations were worked for as many hours in the day as the tide would permit - the full 24 on non-tidal parts of the river: an increase in the number of stations, particularly above Newburgh: and, below Newburgh, an increase in bank fishing. At the same time, in the 1840s, the work of the Navigation Commissioners in deepening the river, quite fortuitously, resulted in many fishings becoming more efficient as the bed of the river was cleared of impediments allowing the sweep net to operate more effectively. In addition, throughout the course of the nineteenth century there were a series of small but cumulatively significant improvements in the efficiency of the gear used for net & coble operations, though there were no attempts to develop alternative forms of

net, except in the estuary. This was partly because net & coble remained the only legal mode, and partly because maintenance of the *status quo* ensured the existing proportionate distribution of produce and rentals among the river proprietors. Practical evidence of over-fishing may well have been accompanied by unease caused by the concept of "diminishing returns" which emerged during the first half of the nineteenth century. This was initially developed in terms of the reduced yields that resulted from bringing less fertile soil into cultivation causing decreased agricultural rents. However, it would not have required a great stretch of imagination to apply the concept to the effect of working fishings more intensively[1].

By mid-century, as a result of these changes, the produce of *individual* fishings had certainly fallen. The 1830-1845 produce figures show, however, that this is not necessarily inconsistent with an *increase* in the aggregate produce of the Tay fisheries[2]. Nonetheless, at the time it was believed that the reduction in catches at individual fisheries applied to the fisheries as a whole. As rentals were seen to be a function of catches, fears about what was happening to the salmon stock were reinforced by rentals also falling. After much prevarication, action was initiated in 1853 to remove what was seen to be the principal cause of falling catches - the extension in 1828 of the end to the netting season from 26th August to 15th September. The voluntary curtailment of the netting season was at first unilaterally undertaken by the river proprietors who did not attempt to impose the restriction on their opponents in the estuary, but their own cohesion was not sufficient for the voluntary agreement to last and they had to promote the ***Tay Act, 1858*** to ensure universal compliance.

In spite of the many protestations by proprietors about the threat to the salmon stock posed by over-fishing, it is of considerable

significance that their concern was *not* sufficient to induce them to modify in any way the practices they employed in connection with the salmon fisheries. For example, net fishings continued to be let by public roup, a procedure designed to bid up rentals as high as possible and thus maximise proprietors' rental income. But the tacksman who secured a tack by this method would be intent on working the fishing to the greatest extent in order that he too could maximise his revenues. There was in principle nothing to prevent proprietors taking joint or unilateral action to alter the method of letting their fishings, or to reduce the number of stations operated, or in some other way restrict fishing effort, except that in so doing they would have reduced rental income, which is no doubt why there is no record of any having done so.

The fears about over-fishing among the participants in the Tay salmon fisheries were thus founded upon a number of factors: stake nets in the estuary and on the coast, the development of stake net substitutes, poaching, increasing numbers of tacksmen maximising the return on their tacks by fishing them as intensively and efficiently as the law would allow, the effects of "diminishing returns", a market which was apparently capable of absorbing any volume of output the Tay fisheries attained and divisions among the participants which prevented joint action being taken. These factors which derived immediately from events on the Tay, were reinforced by the findings of the various Select Committees which invariably reported that the salmon fisheries were under threat from over-fishing. That the Select Committees' findings were usually concerned with salmon fisheries in general, rather than the Tay in particular did not prevent those associated with the Tay taking this as confirmation of their beliefs.

The last attempt during the nineteenth century to resolve the problems of the fisheries was the *Salmon Fisheries (Scotland) Act, 1862.*

This was notably unsuccessful as far as the River Tay was concerned. Measures intended to protect the salmon stock as a whole and allow more fish to ascend to the upper river were frustrated by proprietors abiding by the letter, but not the spirit of the law. The result was that the post-1862 situation was, if anything, more fraught with dissension than before, with river proprietors at odds with estuarial proprietors over hang nets and with upper river proprietors over the date for the start of the annual close-time. All parties continued to pay lip service to the necessity to preserve the salmon stock, but their actions belied their words.

What finally "solved" the problem of over-fishing and made the attitudes of proprietors and tacksmen irrelevant was a return to the situation that had pertained during the latter half of the eighteenth century when the Tay fisheries had been in the hands of John Richardson & Company. On its formation in 1899, the Tay Salmon Fisheries Company took virtually all the commercial fishings into its own hands on long leases, thus simultaneously achieving the previously incompatible goals of carrying out conservational policies and making such policies acceptable to proprietors. The key to its acceptability and success was the capacity to offer rents at a considerable premium (double) over those previously paid. It is impossible to do more than speculate why a firm such as the Tay Salmon Fisheries Company emerged at the time it did. No doubt such a company could have emerged earlier in the century had the necessary conditions been met. In the event, the first managing director, P.D. Malloch had been involved on the Tay for some time before 1899 and was a person possessed of sufficient entrepreneurial flair and understanding of the natural history of salmon to recognise the benefits that would follow from unified control of the Tay fisheries. However, Malloch's ideas were a necessary but not a sufficient condition, the other

concomitant was financial resources sufficient to double rental payments. The purchase of the Balgowan estate sometime in the late 1890s by a member of the Coats family from Paisley apparently allowed access to that family's considerable fortunes, for just over half of the company's capital came from three members of that family.

Having reviewed what happened to the Tay salmon fisheries during the nineteenth century, it is necessary to suggest why it happened. A number of possible contributory factors may be distinguished, but only those seen to be of particular significance to the Tay will be mentioned. There was clearly a predominantly insular attitude among the participants characterised by an unwillingness to co-operate with others. Those associated with the fisheries during the nineteenth century represented a spectrum of social classes from peers to salmon fishers. Though attitudes to class changed throughout the nineteenth century, it may be assumed that within that particular cross-section, stratification remained pronounced with little inter-class communication beyond that necessary for everyday instruction and information. Such a state of affairs would have considerably reduced any scope for co-operation[a]. Thus, although joint action by those belonging to a single class was acceptable, joint action on an inter-class basis was (apparently) unacceptable. For example, during the second quarter of the nineteenth century, though both groups were specifically concerned with the protection of the Tay fisheries, the Protection Committee, representing proprietors, and the Committee of Tacksmen remained quite separate and distinct in pursuit of their common aim. Division within a single class as was the case with the tripartition of proprietors into estuarial, river and upper river groups further reduced the scope for co-operation.

In a more general way there were other ideas current at the time about the role of the individual in society which enjoyed widespread

currency. Adam Smith's *Wealth of Nations*, published in 1776, effectively broke with the previous mercantilist tradition which put the needs of the state at the centre of economic decision-making. This was replaced by an emphasis on the individual and on self-interest as the principal economic motivator. Later in the nineteenth century, the radicals of the Manchester School campaigned for free trade as one element among others which they regarded as a precondition for freedom of the individual. The estuarial interest during the 1840s adopted such a "Reformist" stance in their arguments to have the stake net legalised[4]. It was influences such as these which created the ethos of *laissez-faire* and justified the primacy of the individual. The combination of a stratified society with a strong sense of individualism within each strata goes some way to explain the behaviour patterns characteristic of those connected with the Tay fisheries - most of all the proprietors.

Another development that particularly focused the attention of proprietors on their personal interests was change in the objectives of estate management. There had been a time when an estate was a social unit kept in cohesion by various interlinked duties and obligations. However, during the course of the eighteenth century this had become less and less so as landowners came to regard their estates as sources of money income for their own and their immediate family's use. R.H. Campbell identifies the period 1760-1830 as being particularly significant in this respect for Scottish landowners[5]. In Chapter One, III, *supra* the Tay proprietors are divided between those whose interests and activities were national or London-based, and those whose interests and activities were local or Edinburgh-based. It was the titled proprietors with the greatest landholdings who were active in national affairs and this would have involved them in maintaining a life-style appropriate to such a station. Thus rental (i.e. money) income would

have been important to them and any opportunity to increase rentals welcome. For example, the Earl of Wemyss created no less than five additional fishing stations on his Elcho estate prior to 1850 which, it was claimed, increased the annual rental from £800 to £1,800[6]. Among those proprietors more usually resident on their estates, all appeared to aspire to the "gentleman's life" which did not require them to follow any form of employment apart perhaps from military or naval service, both of which would normally require income in addition to the service salary. Thus the life-style of all proprietors was based on money income, which made important the *maximisation* of all forms of rental.

On the other hand, to proprietors with these characteristics, the intrusion of some body to collect statistics for a proper scientific investigation of the levels of exploitation of the salmon stock would be seen as unwarranted in terms of the ethos of *laissez-faire*, particularly so when such an investigation would also have represented a threat to unrestricted exploitation, with inevitable consequences for rental income. In spite of an accompanying pre-occupation with over-fishing, it appears that proprietors preferred to worry in ignorance, but enjoy their rentals, rather than countenance a proper investigation of the matter. Thus individualism in the sense of economic self-interest is quite apparent in the behaviour of proprietors.

With regard to the strata in society occupied by tacksmen,[7] most appear to have been self-made men in that they ended their careers owning property and having other signs of wealth rather than starting out with these advantages. An individualistic approach to affairs is not inconsistent with the conduct of self-made men and in this case individualism seems to have been characteristic. This was perhaps inevitable for tacksmen, even successful ones, conducted a precarious business in terms of continuity. Tacks were on a year-to-year basis

with no guarantee that the number of tacks held would remain constant[e]. Furthermore, letting tacks by public roup meant that tacksmen were rivals prior to tacks being allocated and the necessity to work fishings as intensively as possible meant that rivalry continued throughout the season. Complaints by tacksmen that others of their number were in some way encroaching on fishings were quite common. The evidence suggests that, for a number of reasons, all those concerned with the Tay fisheries looked first to those matters concerning themselves, rather than to matters affecting their collective interests.

Another matter which would have affected attitudes to over-fishing and preservation of the salmon stock was opinion regarding natural resources which, coincidently, were changing during the nineteenth century[a]. This is of itself a large subject which will be mentioned only to the extent that it can be seen as influencing attitudes towards the salmon fisheries. It is not assumed that participants in the Tay fisheries had developed their own personal philosophy in this regard, but it may be assumed that they were not impervious to attitudes displayed by society as a whole. At the beginning of the nineteenth century within Scottish provincial society, one of the important influences would have been the Christian religion and *The Bible.* At that time, the account of "The Creation" given in the *Book of Genesis* was widely and unquestioningly accepted. This was to the effect that all species had been simultaneously created and had survived since in a "balance of nature" maintained by a constantly supervising God. *Genesis* also puts man in a unique position *vis-à-vis* the rest of the animal kingdom and justifies a remarkably arrogant attitude towards it.

> And the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hands are they delivered,

> Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things.
> *Genesis* 9:3-4.

The message is quite unambiguous. The fruits of nature are for the benefit of man and there is no suggestion that he should be restrained in their consumption. Though there were other traditions, such as that of the ancient Greeks who believed that nature was constant and harmonious, these were not influential in the place or at the time.

The balance of nature concept had been subject to refinement over time. One of the more influential eighteenth century interpreters was Linnaeus who identified "propagation, preservation and destruction as the phenomena which maintained the economy of nature."[10] The manner in which the evidence was presented during the Stake Net Cause suggests that some of those involved were aware of Linnaean ideas. In particular, the pro-stake net witnesses laid great stress on the abundance of the food which stake nets could supply. This accords with Worster's interpretation of the Linnaean concept.

> The divine economy guarantees a full abundance to all; there are no scarcities in nature. ... It is the very charge of many species to strive to multiply beyond their present numbers ... Thus the Creator arranges a system of differential reproduction rates by which the 'harmless and esculent animals' will safely reproduce more than the predators, thereby maintaining their own numbers while providing a livelihood for their neighbours. ...
>
> According to Linnaeus, man must vigorously pursue his assigned work of utilising his fellow species to his own advantage.[11]

Worster further notes that the Linnaean naturalists were at one with the Anglo-American culture of the time in their attitude towards nature. "Almost everyone was sure that God intended for all His creation, and for man above all, to be happy on earth; and happiness, in this period, meant material comfort if it meant anything."[12] It was recognised that

conservation was part of God's design, but "conservation was conveniently left to providence."[13] Thus at the beginning of the nineteenth century there was little in the Christian tradition or its interpretation suggesting that a natural resource, such as the salmon stock of the Tay, should be regarded as anything but a God-given gift to be exploited to the full.

However, the Stake Net Cause also marks the time from which concern about over-fishing began, and the onset of such concern must have created a certain unease about received ideas. In the wider sphere, the way in which man had reduced the number of species, both *flora* and *fauna*, raised doubts about the "plenitude principle", and suggested that man might be an offender against God's order. Within scientific circles unease about the balance of nature concept became apparent as the century progressed. The discovery of the fossil remains of extinct animals was another factor which raised fundamental questions about the balance of nature. If the number of species within the animal kingdom had been fixed since The Creation and their numbers were kept in balance by a "natural economy", how could animals have become extinct? One solution was put forward in 1830 by Sir Charles Lyell[14], who was a geologist, but whose work on fossils had caused him to seek explanations for animals becoming extinct. He "placed his emphasis upon competition (between species) as a leading cause of extinction."[15] which raised the possibility that competition between (say) seals, porpoises, grampuses and man could bring about the extinction of salmon. Then in 1844 Robert Chambers'[16] anonymously published his *Vestiges of the Natural History of Creation* which added the idea of evolution to other possible reasons for extinction. The concept of evolution is most widely associated with Charles Darwin's *The Origin of Species*, published in 1859, in which Darwin introduced his ideas of natural selection and competition between

the species due to population pressure. Darwin "came to realise that no one species can hold a particular place in the economy of nature forever."[17] He sought to show that the survival of all species is socially determined, for if none are independent, then all must to some degree be interdependent and vulnerable[18]. As the nineteenth century passed, the development of ideas was generally favourable to recognising that species could be vulnerable to over-exploitation, even to the point where they might require protection. It is not suggested that any of the participants in the Tay fisheries were students of this subject, though some might have been. But those involved did not exist in a vacuum and, in the course of events, they would to some extent have become aware of changes in the climate of opinion - hence the necessity to be aware of how that climate changed. Having noted a general tendency for attitudes more sympathetic to conservation to emerge among the men of science and ideas, and assuming that these attitudes were not unknown on the banks of the Tay, it must be admitted that practices in the fisheries remained remarkably resistant to these changes in ideas. Over-fishing and the need to conserve were much talked of but little acted on, which further confirms the impression that rentals were regarded as more important than conservation.

The final factor selected for comment as being contributory to the state of the Tay fisheries is the one that most pervades this study: the fishing proprietors and their acolytes were a body divided against itself. The trait of individualism described above implies singularity of attitude, but behaviour on the Tay went beyond that. Proprietors, in particular, actively distrusted each other and were constant in their determination that no one of their number should gain any position more favourable than another. River proprietors regularly took their neighbours in the estuary to court to prevent them exploiting their

fishings, and on other occasions river proprietors took each other to court[19]. They all lobbied Parliament in pursuit of their own interests and to the deliberate detriment of those who opposed them. They wrote pamphlets and articles in the press denigrating each other and testified against other proprietors before committees of inquiry. As Calderwood noted in his evidence to the Elgin Commission, a proposal emanating from one group was invariably sufficient for another to assume it was contrary to its interests[20]. In general, if there was an advantage that might fall to one, then there was always another intent to prevent it being enjoyed. The result was a mire of misunderstanding, misinformation and mismanagement into which the fisheries inexorably settled as the century progressed. Rescue when it came was in the crudest form: proprietors were virtually bribed with high rents to pass control of the fisheries over to a commercial company, yet again confirming that income was the primary consideration. This showed that, given the right price, proprietors were prepared to relinquish the rights of interference and control they had hitherto so jealously guarded. It was the relinquishment of control to the Tay Salmon Fisheries Company which created the breathing space during which conservational action was at last instituted.

It is now known that the problem of over-fishing was not the threat it was considered to be during the nineteenth century (see Appendix VIII) and the internecine strife was thus the result of of self-perpetuated ignorance and mistrust. A precondition for proper conservation of a species is an understanding of its natural history through rigorous scientific study. At the beginning of the nineteenth century scientists were still getting to grips with the basic features of the salmon's life-cycle. By the end of the century, they were rather better informed, certainly about the freshwater stages, though much

remained and still remains to be understood. However, had the prescriptions of such as Calderwood or Dunlop been followed in the early 1900s, then salmon conservation would have been set on a scientific footing[2]. As it was, the opportunity offered by the *Elgin Report* was not taken up and no legislation was forthcoming. By default, conservation was left to market forces. This being the case, then a tacksman's monopoly was probably as effective a means for preserving the species in the early twentieth century as it had been in the eighteenth century. But the long haul through the nineteenth century has little to recommend it.

REFERENCES

1. During the Napoleonic Wars attempts to increase agricultural output had required the utilisation of less and less fertile land leading to decreasing yields per acre. It was observation of this phenomena that led Malthus, Ricardo and other of the "Classical Economists" to formulate the "Law of Diminishing Returns".

   M. Blaug: *Economic Theory in Retrospect*, second edition, London, 1970, p 81.

2. See table 7.4, p 211.

3. An explanation of the pronounced stratification of Scottish society is contained in the writings of the *literati* of the "Scottish Enlightenment" during the the second half of the eighteenth century. They identified property-ownership as the ultimate source of power and influence in society and thus it was from the ranks of the landowners that statesmen and legislators were drawn, with wealth and privilege being seen as being their natural prerogative.

   See A.C. Chitnis: *The Scottish Enlightenment*,, London, 1976, chapter 5, IV, *passim*.

4. See, for example, Appendix V.

5. R.H. Campbell, "The Landed Classes", in T.M. Devine & R. Mitchison: *People and Society in Scotland*, Volume I, 1760-1830, Edinburgh, 1988, pp 100-102.

6. See p 225, and Chapter Seven, notes 58 and 72.

7. Some of the more notable among them are mentioned in Chapter Nine, III, *passim*.

8. See figures 9.1d, 9.1e and 9.1f.

9. This section is largely based upon:

F.N. Egerton, "Changing Concepts of the Balance of Nature", *The Quarterly Review of Biology*, Vol. 48, No. 2, June 1972.

John Passmore: *Man's Responsibility for Nature*, London, 1974.

Donald Worster: *Nature's Economy, A History of Ecological Ideas*, Cambridge, 1985.

I am obliged to Malcolm Nicolson Esq. of the Wellcome Institute for the History of Medicine for drawing my attention to these sources.

10. Egerton, *op. cit.* p 336.

Egerton quotes from Linnaeus:

> To perpetuate the established course of nature in a continued series, the divine wisdom has thought fit, that all living creatures should constantly be employed in producing individuals, that all natural things should contribute and lend a helping hand towards preserving every species, and lastly that death and destruction of one thing should always be subservient to the restitution of another.

ibid.

Carl Linnaeus (1707-1778), the son of a clergyman born at Rashult, Sweden, introduced the binomial system of naming species of plants and animals.

Biographical Dictionary of Scientists, London, 1974.

11. Worster, *op. cit.* pp 35-36.

12. *ibid.* p 52.

13. *ibid.*

14. Sir Charles Lyell (1797-1875), born at Kinnordy, near Kirriemuir, established and interpreted the principles of geology. His *Principles of Geology* was published in three volumes 1830-1833. *Biographical Dictionary of Scientists.* He was acquainted with Sir George Mackenzie of Coul (Chapter Six, note 6). See Mackenzie's entry in *DNB.*

15. Egerton, *op. cit.* p 339.

16. Robert Chambers (1802-1871). His *Vestiges of the Natural History of Creation* was published anonymously. "For fear of charges of heterodoxy from the church, his authorship was kept secret until the twelfth edition of 1884: his instinct was sound, for his book created a huge fuss. But the church did not by this time have the strength or the procedures to attempt to contain the new ideas. ... The Kirk could thus exert no restraining hand on Scottish science."

O. & S. Checkland: *Industry and Ethos, Scotland 1832-1914*, London, 1984, pp 145-146.

17. Worster, *op. cit.* pp 157-158.

18. Charles Robert Darwin (1809-1882). His mother was a daughter of Josiah Wedgwood and his grandfather was Erasmus Darwin (1731-1802), physician, philosopher and poet. Naturalist on H.M.S. *Beagle* 1831-1836, Darwin first made his reputation as a geologist, but is best known for his *The Origin of Species*, 1859, in which he set out the ideas on evolution he had been working since his voyage on the *Beagle*.

Biographical Dictionary of Scientists.

19. For example, the Bermony Boat Case.

20. See p 397.

21. See Chapter Ten, I, *passim*.

APPENDIX I

BURGH OF PERTH FISHINGS TACKSMEN AND RENTALS - 1697/8 to 1848/9

Season	Station	Tacksman	Cautioner	Rental
1697/8 to 1705/6	All stations	David Walker, Deacon of Bakers		3,870 merks (£210)[1]
1706/7 to 1708/9	All stations	Patrick Reoch Deacon of Shoemakers		1,135 merks (£63)
1709/10 to 1711/12	All stations	Mark Woods		1,650 merks (£92)
1712/13 to 1714/15	All stations	Patrick Reoch	William Ferguson	1,260 merks (£70)
1715/16	All stations	Willian Duncan Maltsman		1,160 merks (£64)
1716/17	All stations	Thomas Boreland		1,100 merks (£61)
1717/18 to 1718/19	All stations	Patrick Smith Flesher		1,405 merks (£78)
1719/20 to 1721/22	All stations	Patrick Schioch	William Duncan	1,600 merks (£89)
1722/23 to 1724/25	All stations	Willian Duncan Vintner	Robert Ross	1,340 merks (£74)
1725/26 to 1727/28	All stations	Robert Robertson Maltman	William Duncan	1,605 merks (£89)
1728/29 to 1730/31	All stations	Robert Robertson Maltman	William Duncan	2,000 merks (£111)
1731/32 to 1733/34	All stations	Charles Adair	Robert Ross	1,800 merks (£100)
1734/35 to 1736/37	All stations	Willian Duncan Vintner	Thomas Young	1,360 merks (£76)
1737/38 to 1739/40	All stations	Willian Duncan Vintner	Provost Robert Robertson	1,900 merks (£106)
1740/41	All stations	Thomas Richardson	James Faichney	2,560 merks (£142)
1741/42 to 1743/44	Weel Backshot Girdom Loch			
	¼ Ships	David Imbrie Craigencott		£2
	Sleepless Incherrat Balhepburn			
	Remainder	Thomas Richardson	James Faichney	3,000 merks (£167)
1744/45 to 1746/47[2]	Weel Backshot Girdom Loch			
	¼ Ships Sleepless Incherrat Balhepburn	John Robertson	Willian Stewart	£4
	Remainder	James Duncan Snr.	John Robertson	4,400 merks (£248)
1747/48 to 1749/50	Weel Backshot Girdoms Loch	Willian Gray	David Buchan	£5
	¼ Ships Sleepless Incherrat Balhepburn	Robert Robertson	John Stewart	£12
	Remainder	Thomas Young	Willian Gray	£220 10s.

Season	Station	Tacksman	Cautioner	Rental
1750/51 to 1752/53	Weel			
	Backshot			
	Girdom			
	Loch	David Cameron	William Crie	£103 10s,
	¼ Ships	Thomas Young	Andrew Kippen Jnr,	£19 5s,
	Sleepless	Thomas Young	Patrick Coupar	£106
	Incherrat South	Robert Robertson	John Stewart	£51 10s,
	Incherrat North			
	Balhepburn	Willian Gray	Robert Vallange(?)	£81 10s,
	Remainder	Thomas Young	William Gray	£220 10s,
1753/54 to 1755/56	Weel			
	Backshot			
	Girdom			
	Loch	David Buchan	Robert Robertson	£154
	¼ Ships	Thomas Young	Andrew Kippen	£40
	Sleepless			
	Incherrat North			
	Balhepburn	John Ross	Walter Keir	£246
	Incherrat South	Robert Robertson	John Stewart	£60
1756/57 to 1758/59	Weel			
	Backshot			
	¼ Ships	James Duncan Snr,	Thomas Marshall	£350
	Girdom	unlet		
	Loch	unlet		
	Sleepless	James Walker	Patrick Johnston	£181
	Incherrat South	Walter Keir	John Ross	£100
	Incherrat North			
	Balhepburn	John Ross	James Marshall	£150
1759/60 to 1761/62	Weel			
	Backshot	Thomas Marshall	Henry Fyffe	£203 10s,
	Girdom	unlet		
	Loch	unlet		
	¼ Ships			
	Incherrat North			
	Balhepburn	John Richardson	James Richardson	£129
	Sleepless	James Duncan Snr,	John Ross	£111
	Incherrat South	James Duncan Snr,	Thomas Marshall	£92
1762/63 to 1764/65	Weel			
	Backshot			
	¼ Ships			
	Incherrat South	John Richardson	David Young	£262
	Sleepless	John Richardson	John Stewart	£100
	Girdom			
	Loch	James Duncan Snr,	Henry Fyffe	£32
	Incherrat North	James Duncan Snr,	Thomas Marshall	£36
	Balhepburn	unlet		
1765/66 to 1767/68	Weel			
	Backshot	John Richardson	David Young	£134
	Girdom			
	Loch	James Duncan Snr,	Henry Fyffe	£32
	¼ Ships			
	Sleepless			
	Incherrat			
	Balhepburn	John Richardson	Patrick Rintoul	£332
1768/69 to 1770/71	Weel			
	Backshot	John Richardson	David Young	£134

Season	Station	Tacksman	Cautioner	Rental
	Girdom			
	Loch			
	¼ Ships			
	Incherrat			
	Balhepburn	John Richardson	Patrick Rintoul	£445 10s.
	Sleepless	John Richardson	John Stewart	£140
1771/72 to 1773/74	Weel			
	Backshot			
	Incherrat South			
	Balhepburn	Alex Lawrie	David Henderson	£537
	Girdom			
	Loch			
	¼ Ships			
	Sleepless			
	Incherrat North	John Richardson	Patrick Rintoul	£374 10s.
1774/75	Weel	John Campbell	Souter/Taylor	£190
	Backshot	Willian Gibson	George Craigie	£1 6s.
	Girdom			
	Loch			
	Sleepless			
	Incherrat South	John Souter	Campbell/Taylor	£436
	¼ Ships	John Richardson	William Stewart	£30
	Incherrat North			
	Balhepburn	James Balmain	George Faichney	£135
1775/76 to 1777/78	Weel			
	Backshot			
	Girdom			
	Loch			
	¼ Ships			
	Sleepless			
	Incherrat South	John Richardson	William Stewart Jnr	£415
	Incherrat North			
	Balhepburn	James Balmain	John Stewart	£70
1778/79 to 1780/81	All stations	John Richardson	William Stewart Jnr	£778
1781/82 to 1783/84	Weel			
	Backshot	John Campbell	James Keith	£160
	Girdom			
	Loch	George Rutherford	James Rintoul	£135
	¼ Ships	John Ross	John Young	£31
	Sleepless			
	Incherrat South	John Campbell	James Keith	£206
	Incherrat North			
	Balhepburn	John Richardson	William Stewart Jnr	£72
1784/85 to 1786/87	Weel			
	Backshot			
	Girdom			
	Loch			
	¼ Ships			
	Sleepless			
	Incherrat North			
	Balhepburn	John Richardson	William Stewart Jnr	£527
	Incherrat South	David Halket	David Robertson	£56
1787/88 to 1805/06	All stations	John Richardson		£1,010
1806/07[a]	All stations	John Stevenson of Berwick		£1,500
1807/08	All stations	Baillie Blair		£1,500
1808/09 to 1809/10	All stations	Gray, Richardson & Co.		£724

Season	Station	Tacksman	Cautioner	Rental
1810/11 to 1812/13	All stations	Gray, Richardson & Company		£501
1813/14	All stations	Gray, Richardson & Company		£501(?)
1814,15 to 1818/19		Not known		Not known
1819/20 to 1823/24	All stations	James Bell[4]		Not known
1824/25	All stations	Bell & Davis[5]		£1,228
1825/26	All stations	Bell & Davis		£1,231
1826/27 to 1829/30	All stations	Bell & Davis		£1,300
1830/31 to 1834/35	All stations	Alex Bell of Aberdeen		£1,305
1835/36	All stations	Thomas Jamieson & Company		£779
1836/37 to 1837/38	All stations	Thomas Jamieson & Company		£824
1838/39 to 1840/41	All stations	Robert Buist		£1,000
1841/42 to 1845/46	All stations	Thomas Proudfoot	William Forbes Stuart & Company London	£1,000
1846/47 to 1848/49	All stations	Andrew Swann	William Forbes Stuart & Company	£1,055

1. Merks converted to sterling at the rates:
   1 merk = 13s. 4d. Scots and £12 Scots = £1 Sterling
2. In November 1747 Perth Town Council allowed a rebate of 30 guineas to the tacksmen for the interruption at the fisheries caused by the Rebellion.
3. In December 1807 John Stevenson paid £750 to Baillie Blair to be relieved of the tack.
4. James Bell's firm, Berry & Bell were sequestrated in 1824, see Chapter Five, II, *passim*.
5. Mathew Bell and Hesketh Davis.

Sources: *Perth Town Council Minutes*, B59/16/11-14 and PE 1/1/1-13.

APPENDIX II

RIVER TAY FISHINGS HELD BY JOHN RICHARDSON & COMPANY

Duke of Atholl's Fishings
(Stanley, Burnmouth and Middle Benchill)
1786/87 @ £87
1787/88 to 1805/06 @ £150

Ballathie Fishings
1780/81 to 1789/90 @ £30

Balmbreich Fishings
No details of years or rentals given.

Bellymore Fishings
1786/87 to 1804/05 @ £80

Byres
1785/86 @ £5

Carpow Fishings
1785/86 to 1789/90 @ £90
1790/91 to 1797/98 @ £120

Colinshaugh
1785/86 @ £25

Elcho (Wemyss) Fishings
1793/94 to 1798/99 rental not known.
1799/1800 to 1800/01 @ £325
1801/02 to 1804/05 @ £345

Errol Fishings
1787/88 to 1801/02 @ £90 (reduced to £81 after 1794)

Fordel
1785/86 @ £12

Friarton (Moncrieffe) Fishings
1775/76 to 1796/97 @ £220
1805/06 rental not known.

Inchtuthel
1785/86 @ £5

Inchyra Fishings
1781/82 to 1792/93 @ £140
1804/05 to 1805/06 rental not known.

Kinclaven Fishings
1787/88 to 1805/06 @ £47

Kinfauns Fishings
1781/82 to 1792/93 @ £1400
1793/94 to 1805/06 rental not known

Kinnoull Fishings
1787/88 to 1793/94 rental not known.
1794/95 to 1805/06 @ £300

Lynedoch (Balgowan) Fishings
1782/83 to 1785/86 @ £65
1786/87 to 1799/1800 @ £100
1802/03 to 1805/06 rental not known.

Mansfield Fishings
1787/88 to 1799/1800 rental not known.
1800/011 to 1806/07 @ £350

Mugdrum Fishings
1789/90 to 1799/1800 @ £195
1800/01 to 1802/03 @ £260

Murthly
1785/86 @ £25

Panmure
1785/86 @ £100

Burgh of Perth Fishings
See Appendix I

Poldrait (John Richardson)
1780/81 to 1785/86 @ £250

John Richardson's own fishings
(Pitfour, and 3/4ths Ships)
1780/81 £700

Rone(?) of Dunderran(?)
1786/87 @ £5 5s.

Seggieden Fishings
1785/86 to 1787/88 @ £135

Stobhall Fishings
1787/88 to 1802/03 @ £170
1803/04 to 1809/10 @ £271

Upper Aird
1785/86 @ £8

Sources: *State of Process of Declarator, Duke of Atholl & Others v. William Maule & Others*, 2nd Division, 11th October 1810.
Memorial for Maule v. Duke of Atholl, 2nd Division, 2nd January 1812.
MS 20976, *Sederunt Book of the Partners in the Tay fishing business, 1781-91.*

APPENDIX III

John Richardson's "Thoughts upon a Monopoly of the Salmon Trade"

As the word monopoly sounds harsh, let it be observed that I am of opinion [that] all monopolies are iniquitous whereby one man gets gain upon the distress and ruin of his fellow citizens or subjects - But if there is in a state any particular article of commerce which that state does not make use of itself, but sends to foreigners - A few merchants engrossing that article by giving to their fellow subjects at home a good price out of a view of raising the commodity upon foreigners, this monopoly I apprehend is very commendable in politics and allowable in morals, and thereby by how much more money is brought into the State from what was returned formerly by the article by so much more is that State enriched and the engrossing merchants deserve the thanks of their fellow subjects - Such and no other would be a monopoly of salmon, I mean salted salmon - Just now, as that trade is carried on by a number of adventurers of separate interest and generally having the same advices from the several markets, all crowd where there is a good appearance of sale - by which means the market is overdone, the sale ruined, and the adventurer hurt - But the article being in the one company, each market would be supplied with its proper quantity, whereby it is apprehended more salmon could be consumed and a better price obtained. It frequently happens that when a market is overstocked that the merchant finds it his interest to send them elsewhere, now this great charge of transporting would be saved - Again before the merchant buys his cargo and procures shipping for the distant market, the season is often spent before the cargo arrives so that they must lie over [a] year. But this could be prevented by sending off early to the places at greatest

distance. Further, the exporter, if this cargo arrives in time, is glad to accept this first moderate offer, lest others should arrive to hurt his sale. But in a monopoly, the quantity to each market being fixed, they fix their price also, and are not afraid of being disappointed - In short, the advantage accruing to the nation from a monopoly of this article are so many and the reasons so numerous, that it would be endless to repeat them - For carrying on the monopoly it will be necessary

1. That it be undertaken by a company of men of extensive and undoubted credit.

2. That [if] all or as many of the salmon as possible be secured under tack [then] the others would follow of course, because if they would not accept of reasonable terms from the monopolising merchants, it would be easy for them to hurt the separate adventure by sending largely and selling low to that market to which his go, and this tho' an immediate loss, they could bear because other markets would be the scrimper served and consequently give a better price, and it would deter separate adventurers for the future.

3. It will be necessary to get information from every market of the quantity they could annually consume, and here it must be adverted not to reckon what they send to other seaports, but only what that place and its inland consumpt uses independent of other markets to avoid reckoning twice. Also what is the produce of the whole fishings, both in Scotland and Ireland, and then making allowance for the N Fland[ers?] salmon, it could be seen whether the consumpt exceed the quantity - no matter tho' some extraordinary years the quantity exceed the consumpt, the price would be let fall so as to vend the more, or a part kept at home till next season.

4. After all necessary information being obtained, a reasonable price could be fixed, which I apprehend could be such as would tempt the

proprietors to let their fish tacks, as the undertakers could surely exceed the present currency, and it is hoped the proprietors of fishings would abate something in consideration of a fixed price and good merchants.

5. Although it may be said all salmon caught in the flow of the tide are equally good in quality, yet certain it is that through bad management a great many of our salmon are spoiled. Now here is a fund of gain considerable of itself, for the undertakers bring all such fish under an equal good reputation by sending proper persons for the curing and packing them sufficiently - ...[?] would arise great profit from the Irish fish whereas at present through bad management they sell much under our salmon, so they could be bought very low and with proper care be made as good as the Scots salmon.

Ms 20801, *Letter Book, 1763*, pp 137-138.

APPENDIX IV

ACCOUNTS OF THE FORMER COMPANY, BERRY & BELL, AFTER ITS SEQUESTRATION IN JULY 1824

Table IV/1a Burgh of Perth Fishings

1824		Expenditure £ s. d.	Income £ s. d.
June 26	Wages	70 15 4½	
July 6	20 boxes salmon		108 6 3
9	Wages	32 15 9½	
12	? boxes salmon		24 14
12	18 " "		76 8
16	13 " "		47 16
19	21 " "		66 1 3
20	23 " "		82 13 6
23	Wages	27 18 5	
24	22 boxes salmon		78 7 6
27	13 " "		47
Aug. 3	13 " "		40 11 5
3	10 " "		42 10 6
6	Wages	28 18	
10	21 boxes salmon		73 11
13	29 " "		94 6
16	32 " "		80 10 10
17	? " "		37 17
20	Wages	31 3 9	
21	24 boxes salmon		58 18 3
27	16 " "		42 17
27	Wages	28 16 10	
28	18 boxes salmon		47 18 6
Sept. 4	10 " "		26 12
6	6 " "		38 3 6
		220 8 2	1115 2 6

Source: PE 25, Bundle 91, p 12.

Table IV/1b Proportion of Additional Joint Expenditures

1824		£ s. d.
July 3	Thomas Pride, repairing boats, etc.	5 4
20	Andrew Buick for twine	30 8 4
26	Thomas Pride, repairing boats, etc.	1 11
27	twine, etc.	3 10 8
Sept. 4	John fforbes for coals	4 16 7½
5	John McLauchlan for nails	1 10
13	Mathew Leslie for twine	1 17 7
25	proportion of Mr Bell's wages	22 19 4½
25	Mr Bell for watching nets	12 1
27	proportion of Jacob Burn's wages	6 15 7¾
		72 17 6¾

Source: PE 25, Bundle 91, p 13.
N.B. in the original the total given is £72 7 6¾.

Table IV/2a Lord Gray's Kinfauns Fishings

1824		Expenditure £ s. d.	Income £ s. d.
June 26	Wages	162 15	
July 6	40 boxes salmon		220 9
6	15 " "		80 3 9
9	Wages	76 5 11½	
12	20 boxes salmon		79 3 3
12	27 " "		115 1 6
16	50 " "		184 7 6
19	58 " "		186 2 3
20	38 " "		134 19 6
23	Wages	64 15 8	
24	? boxes salmon		204 9 6
27	51 " "		187 17 9
Aug. 2	46 " "		150 8
2	32 " "		118 3 9
2	50 " "		163
6	Wages	66 16 4	
10	49 boxes salmon		191 11
14	68 " "		196 15 8
16	50 " "		134 17 10
16	33 " "		84 18 6
19	83 " "		202 19
20	Wages	71 14	
23	50 boxes salmon		125 1
23	49 " "		118 14
27	51 " "		141 12 6
27	Wages	61 2 7	
30	50 boxes salmon		131 3 6
30	36 " "		91 11 6
Sept. 3	19 " "		50 8 6
7	28 " "		128 8 6
		503 9 6½	3,421 19

N.B. in the original the income column total is given as £3,185 1 3.
Source: PE 25, Bundle 91, p 16.

Table IV/2b Proportion of Additional Joint Expenses

1824		£ s. d.
July 3	Thomas Pride, repairing boats, etc.	1 2 6
Aug. 20	Andrew Buick for twine	66 10 11
26	Thomas Pride, repairing boats, etc.	5 8
27	twine, etc.	10 5 9
Sept. 4	John fforbes for coals	5 5 2½
6	John McLauchlan for nails	4 10
13	Mathew Leslie for twine	4 19 2
25	proportion of Mr Bell's wages	47 13 10
25	Mr Bell for watching nets	1 18 1
		142 11 1½

Source: PE 25, Bundle 91, p 17.

Table IV/3a Richardson of Pitfour's Fishings

1824		Expenditure £	s.	d.	Income £	s.	d.
June 26	Wages	62	3	6½			
July 6	13 boxes salmon				71	11	
6	10 " "				53	3	4
9	Wages	49	13	4			
12	? boxes salmon				24	4	9
12	15 " "				63	18	9
16	21 " "				79	11	6
19	31 " "				103	10	3
20	22 " "				80	7	3
23	Wages	43	7	2			
24	28 boxes salmon				100	11	
27	24 " "				86	15	3
Aug. 3	42 " "				131	11	
3	18 " "				70	14	
6	Wages	41	17	2			
10	24 boxes salmon				92	9	3
13	39 " "				126	15	3
16	29 " "				72	12	
17	32 " "				80	6	3
20	Wages	40	11				
23	38 boxes salmon				91	4	
27	24 " "				69	9	11
27	Wages	42		9			
30	34 boxes salmon				88	7	6
Sept. 3	11 " "				30	14	
6	15 " "				71	9	3
6	1 " "					8	
		279	12	11½	1,589	13	6

Source: PE 25, Bundle 91, p 18.

Table IV/3b Proportion of Additional Joint Expenses

1824		£	s.	d.
July 3	Thomas Pride, repairing boats, etc.		6	10
Aug. 20	Andrew Buist for twine	42		
24	Thomas Pride, repairing boats, etc.		5	8
27	twine, etc.	4	9	5
Sept. 4	John fforbes for coals	1	13	8
6	John McLauchlan for nails	2	14	8
13	Mathew Leslie for twine	1	15	2
25	proportion of Mr Bell's wages	12	4	9
27	proportion of Jacob Burn's wages	20	7	6¾
		85	17	8¾

Source: PE 25, Bundle 91, p 19.

Table IV/4 General Account - Expenditures

1824		£	s.	d.
June 26	fish house wages	2	14	
July 2	James Scott, box covers	3	4	2
3	fish house wages	3	2	
6	stamps		8	6½
9	fish house wages	3	2	
12	stamps		4	6½
12	"		5	½
13	George Bell to account	5		
16	stamps		6	½
17	fish house wages	3		8
19	stamps		6	½
19	George Bell to account	5		
20	stamps		4	6½
20	"		4	6½
24	"		5	½
24	fish house wages	3	8	
24	James Scott, box covers	5	19	7
24	stamps		4	6½
27	"		6	½
27	D McFarlane, 100 boxes	21	5	
27	George Bell to account	5		
31	fish house wages	3	8	
31	James Bell to account for ice	6		
Aug. 2	stamps		5	½
2	"		4	½
3	"		5	½
3	D Walker for pair of oars		8	
7	George Bell to account	5		
7	fish house wages	4	6	
10	stamps		4	6½
10	"		4	6½
12	James Scott, box covers	3	1	10
13	stamps		4	6½
13	"		3	6½
13	D McFarlane, boxes	21	5	
14	stamps		4	6½
14	fish house wages	4		
16	stamps		4	6½
16	"		3	6½
16	"		3	6½
16	"		3	6½
17	"		4	6½
18	Alexander Bell for ice	158	6	6
18	D McFarlane, boxes	21	5	
18	James Bell, freight of ice	10	4	7
19	stamps		5	½
20	James Pitcairn, boxes	40	8	4
20	Andrew Buist for twine	10	8	1
21	stamps		3	6½
21	fish house wages	4		
23	stamps		9	1
23	"		3	6½
27	"		4	6½
27	"		3	6½
	carried forward	359	16	5½

		£	s.	d.
	brought forward	359	16	5½
Aug 27	stamps		2	6½
28	fish house wages	4		
28	stamps		2	6½
28	Gray, Richardson & Co. 130 boxes of ice @ 10s.	65		
30	stamps		3	4½
30	"		8	1
Sept 3	"		3	6½
3	"		3	6½
4	"		2	½
6	"		4	6½
9	John Pullar for cork wood		16	4½
15	stamps		4	6½
		431	7	5

N.B. in the original the total is given as £431 3 3½.
Source: PE 25, Bundle 91, pp 14-15.

Table IV/5 Richardson Of Pitfour - Consignments to London

1824	(1) boxes	(2)	(3)	(4) vessel	(5) consignee	(6) £	s.	d.	1824
June 19	10	83	8	*Defiance*	G Bell	53	3	4	July 6
23	13	99	18	*Osnaburgh*	"	71	11		6
26	6	45	10	*Bridport*	"	24	4	9	12
30	15	100	34	*Ld Kinnaird*	M Bell	63	18	9	12
July 3	21	123	94	*Perth*	"	79	11	6	16
7	31	156	207	*Union*	"	103	10	3	19
10	22	110	164	*Dundee*	"	80	7	3	20
14	28	128	241	*Defiance*	"	100	11		24
17	24	103	200	*Osnaburgh*	G Bell	86	15	3	27
21	42	163	443	*Bridport*	"	131	11		Aug. 3
24	18	60	210	*Ld Kinnaird*	"	70	14		3
28	24	74	279	*Perth*	"	92	9	3	10
31	39	125	420	*Dundee*	M Bell	126	15	3	13
Aug. 4	29	75	368	*Union*	"	72	12		16
7	32	90	357	*Osnaburgh*	"	80	6	3	17
11	38	92	459	*Bridport*	H Goter	91	4		23
14	24	67	254	*Ld Kinnaird*	"	69	9	11	27
18	34	61	438	*Perth*	"	88	7	6	30
21	11	28	127	*Union*	"	30	14		Sept. 3
25	15	35	175	*Dundee*	G Bell	71	9	3	6
28	1		19	*Defiance*	R Wilson		8		
	477	1817	4505			1,589	13	6	

Amount of produce as above	1,589	13	6
Proportion of £40 7s. 4d. interest on money consigned with Perth Bank	10	9	4
	£1,600	2	10

Source: PE 25, Bundle 91, p 6.

Notes

1. The consignments of salmon in this table correspond to those given in the income column of the Richardson of Pitfour Fishing's income and expenditure accounts.
2. The first date is that when the consignment was despatched, the second date was when payment was received. It is this second date that appears in the income and expenditure accounts.
3. It is not clear what the figures in columns (2) and (3) represent.
4. There were seven vessels engaged in carrying salmon to London. Over the period shown they follow each other in a sequence, except latterly the *Defiance*, and take something under four weeks for each round trip.
5. The fish merchants G. Bell and M. Bell are the sons of James Bell of Berry & Bell. Henry Goter gave evidence to the Committee of the House of Commons in 1827 (1827 Committee, p 9).

Table IV/6 General Abstract (Trading Account)

Revenue

	£	s.	d.	£	s.	d.
Produce - Kinfauns	3,421	19				
Pitfour	1,589	13	6			
Burgh of Perth	1,115	2	6			
				6,126	15	
Sale of boats and nets - Kinfauns	66	5				
Burgh of Perth	32	9				
				98	14	
From Mr Proudfoot for ice				3	10	
Boxes sold for general behoof				44		
				6,272	19	
from Perth Bank	5,080	4	4			
" "	144	10	7			
				5,224	14	11
				11,501	13	11

Expenditure

	£	s.	d.	£	s.	d.
Aberdeen ice, etc.	245	11	1			
Other creditors for ice	180	13	2			
Creditors for boxes	34	17				
General expenditures	307	2	9			
				768	4	
Wages - Kinfauns	551	3	6½			
Pitfour	312	5	3¼			
Burgh of Perth	249	13	2¼			
				1,113	2	
Twine (Buist and Leslie) - Kinfauns	81	15	10			
Pitfour	48	4	7			
Burgh of Perth	35	16	7			
				165	17	
Twine (Bell's creditors) - Kinfauns	6	3	7			
Pitfour	3	6	4			
Burgh of Perth	6	17	3			
				16	7	2
Repairing boats, etc. - Kinfauns	13	1	5½			
Pitfour	7	5	11½			
Burgh of Perth	4	18	7			
				25	6	
Fish money - Kinfauns	15	1	7			
Burgh of Perth		12				
				15	13	7
carried forward				2,104	9	9

Expenditure (continued)

			brought forward			2,104	9 9
Bill stamps -	Kinfauns		3	16	2½		
	Pitfour		1	14	8½		
	Burgh of Perth		1	9	2		
						7	1
Expenses of sequestration -	Kinfauns		7	18	8		
	Pitfour		5	10	2		
	Burgh of Perth		6	14	11		
						20	3 9
Advertising boats and nets -	Kinfauns			13			
	Burgh of Perth			6	6		
						19	6
Paid proprietors -	Kinfauns	2000					
	Pitfour	600					
	Burgh of Perth	500					
						3,100	
Payments to the Bank						6,291	1
						11,501	14 1

Payments to the Bank	6,269	1			
Received from the Bank	5,224	14	11		
Principal sum due by bank				1,044	6 1
Interest allowed by the Bank				40	7 4
Principal and interest due by Bank				1,084	13 5
This sum divides among the proprietors thus:					
Kinfauns				423	12 4½
Pitfour				440	18 11¼
Burgh of Perth				220	1 11¼
				1,084	13 5

Source: PE 25, Bundle 91, pp 1-2.

Note
The wages assigned to the three fisheries includes those in the additional joint expenses.

APPENDIX V

18th November 1846, draft of letter to the *Morning Chronicle.*

Sir,

I have just seen an article in our Edinr. Newspaper subtitled Northern Fisheries and stated to have been addressed to you on the 29th *ult.* by your Edinr. Correspondent. I concur very much with the observations of the writer of that letter, and his views in general appear just. There is one great Northern Fishery, however, which in my opinion he has failed to bring forward in the prominent view to which it is entitled - a fishery which is at present sacrificed to some ancient prohibitory laws benefiting unintentionally a few owners of private fisheries at the expense of the national interest. I allude to the salmon fisheries in the Estuaries of Scotland. These fisheries have been hitherto much neglected and are capable of great improvement. I therefore beg leave to address you on the subject trusting that you will give the publicity of your widely circulated columns to a matter of so much importance to the community.

The modes of catching salmon were until within the last half century very rude and adapted almost exclusively for the narrow portions of rivers. About the end of last century, however, a few enterprising individuals invented a new mode of fishing which was found to be a great improvement upon those previously in use. By this new method the fishings in the estuaries and on the sea coast, which had been until then extremely unsuccessful, when indeed they were resorted to at all, were (made) fully available and of great value. Their produce was such as excited the astonishment of all. The proprietors of the upper or old river fisheries became alarmed at the prospect of the destruction of that casual monopoly which they had so long enjoyed advantageously for

themselves but disadvantageously for the community. And acting under the natural impulse of self-interest they took advantage of the terms of the old Scotch statutes regulating salmon fisheries to obtain the prohibition of the new and efficient mode of fishing to which from the general nature of the machinery the name stake net had been given. Accordingly an action was raised at the instance of some of the Upper Heritors in our Scotch rivers and in the year 1812 the House of Lords affirmed a judgement of the Court of Session by which on the construction of certain old Scotch statutes it was held that the fishing of salmon by stake nets in rivers friths and estuaries was unlawful. These statutes were expressed in very loose, vague and general terms, and a sweeping clause was, after great diversity of opinion among the judges, interpreted to prohibit machinery the invention of at a date many centuries subsequent to these enactments of a comparatively rude and ignorant age. In consequence of this decision the fisheries in the estuaries of Scotland have been rendered unproductive as before the industry and enterprise of man had opened up a way for their improvement. And many stations which during the brief period of the permission of stake nets caught 6,000 or 7,000 fish annually are now so worthless as to be wholly abandoned.

From the discussions to which this action gave rise and from other causes the public became soon aware that altho' undoubtedly illegal by decision of the Court, stake nets were not in their nature destructive of the fry and breeding fish and attended with other pernicious consequences characteristic of these engines specially struck at in the ancient statutes. Accordingly in 1824 with a view to the revision of these statutes a Select Committee was appointed by the House of Commons to take into consideration the state of the Salmon Fisheries of Scotland and of the United Kingdom and the Laws affecting the same, and to report the Minutes of the findings with the opinions and observations thereupon from

time to time to the House. In other subsequent years the Committee were reappointed and among the conclusions to be fathomed from a mass of evidence most voluminous and furnished by persons selected from every class of society for intelligence and skill in this - that under certain regulations stake nets ought to be allowed all along sea coasts and in estuaries. No enactment however followed upon the evidence and the estuary fisheries of Scotland continue to this day in the same rude and unproductive state as ever. They are therefore still regulated by the old Scotch statutes, which prohibit fixed machinery of any kind, allowing not even the very simplest contrivances such as a stake or anchor to be used in aid of manual labour. And the practical absurdity is still greater when it is remembered that all these restrictions are confined to Scotland, while in England the fisheries are prosecuted in a mode at once the most enlightened and beneficial to the community.

Such is a summary of the history of the stake net question in Scotland, one in which the public interests are deeply concerned. Your correspondent referring to the destruction of that crop which forms the staple food in Ireland and the Highlands of Scotland observes that it is a happy circumstance that the evil is not irreversible. It is also a happy circumstance that this evil is not irreversible. An enactment in accordance with the evidence formerly led before Parliament would be sufficient to remove it and secure to the public many advantages which they do not at present possess.

By the permission of stake nets in Scotch estuaries a great increase in the supply of salmon would be obtained. It is stated in the Parliamentary evidence that the whole produce of the Tay from the river before the introduction of stake nets was about 30,000 salmon annually, but that during the period in which this machinery was used the produce was raised to 60,000, in other words the entire return was doubled. The

same improvement would of course take place in all the estuaries of Scotland were stake nets legalised; and if so there is occasioned in the community by the present obstructions on the supply, an incalculable loss of excellent wholesome food. In the view taken by your correspondent this increase in produce from the fisheries is the prominent advantage to be derived from an alteration in the law. But there are many besides, perhaps others little inferior in importance amongst which might be mentioned the superiority of the quality of the fish taken in estuaries over those caught in fresh waters, the additional employment which would by an increase of supply be afforded to the poor labouring classes and the removal of the abuses practised under the present system to the destruction of the fry and breeding fish. These advantages, important in themselves, are however remote from the view prominently exhibited in this letter, and shall therefore remain at present without further notice.

The mode proposed for the improvement of the salmon fisheries in Scotch estuaries could not under suitable regulations in the slightest degree interrupt navigation. By that mode the fixtures would be confined to the shore within the low water mark of of spring tides and in order that navigation even in the narrowest estuaries might not be interfered with, it could be provided that ¼ of a mile of clear sea room should be left unoccupied betwixt sea and shore. Nor can any objection be founded against the proposed alteration on the plea of vested right. The present prohibitory statutes are <u>public</u> statutes, having respect solely to the <u>public</u> interests, and liable to be repealed as soon as it might appear that their continuance was inconsistent with <u>public</u> welfare.

In favour therefore of the legalisation of stake nets in the estuaries of Scotland there are many weighty arguments, against it there is not one. Ought the measure then to be witheld even for a single session? It is to be hoped that the enlightened and patriotic govt.

whose regime we are now enjoying will not allow this restriction on the produce of the estuaries of Scotland to remain long unremoved. Your correspondent states that in a country like ours starvation is not a misfortune but a crime! It is the duty of a govt. to remedy every defect in the law of the land; it is their first and most sacred duty to remedy all such defects as prevent a plentiful supply of human food.

I am sir

Your obd. Servt.

Philodemos.

APPENDIX VI

Remarks by Robert Buist on the Action between the Earl of Zetland and the Proprietors of the Estates of Errol and Seaside.
Perth, 11th August 1866.

The Estates of Errol and Seaside are on the opposite side or north bank of the river [Tay] opposite Lord Zetland's; but their nature and position are very different. On the south side the main channel of the river runs close on Lord Zetland's shores, is still marked by buoys, and has been hitherto considered as the navigable channel of the river. In fact when the fishings are advertised, they are described as on the shores of his Barony, and have been invariably fished from certain stations on the shore there, with the fishermens' backs to the south, *ex adverso* of his Lordship's lands.

The fishings on the north side of the estuary are fished in a different manner. The fishings on that side cannot be fished in the same manner as Lord Zetland's, that is, from the foreshore. A broad line of shifting sands attends from their shores to the north bank of the river at low water opposite the shores where his lordship plies his nets. In the space between the river at low water and the north side, a distance of fully a mile, it is composed of a sandy bottom, continually shifting, throwing up banks in one year which disappear again in other seasons, as the currents take place in the bed of the river where at low water it is filled with gullies, lakes and banks which are formed by the direction the tides take either in ebbing or flowing. From time immemorial and by inveterate usage, the proprietors of the fishings on the north bank have had a right to occupy every bank that may [be] cast up or lake that may be formed by the shifting of the sands lying between

the low water channel of the river and their property, and to occupy each bank in any position around it. These banks often shift, and a bank worth one year only a few shillings may be let in another for upwards of £100. Others again may sink in the same proportion, and [?] short time they may be in existence. The very names given them by the fishermen who discovered them are very arbitrary and fanciful, and those that are of a modern age are named from men who are still alive. Thus one of the banks was named "The Beagle", because the Sheriff Officer was present at the discovery. Another was called "McInnes" from the man who first occupied it. "Halley's Lake" was named in the same way. One of the best banks let in 1864 made its appearance a few years before that, and from its funny appearance was named "The Haggis", and let at a trifling rent of a few pounds. In 1864, however, "The Haggis" swelled up so much that it was let for £195. Other banks of an older date have disappeared, and their names are forgotten. Among the banks of an older time were two called respectively "Eppie's Mote" [Moat?], and "Eppie's Taes" [Eppie = Ephraim?, taes = toes]. The "Mote" has now completely disappeared. "Eppie's Taes" have been creeping gradually downwards, and are *ex adverso* of the lands of Errol and Seaside. In virtue of the custom and usage of the river, the upper part of that bank has been fished by the Errol tenants and the lower by those of Seaside. The "Taes" have been creeping towards the south and having come near to the south channel as described above. Lord Zetland is now attempting to deprive both of it on the grounds that a current of the river now runs on the north side of the "Taes". How long that current may run in that channel is a different matter. As stated above, the bed of the river here is composed of shifting sand, and a crush of ice in winter or a heavy spate at any time of the year may give a direction to the river from the lower part of Mugdrum Island that may throw the whole flow of

it in its old channel on Lord Zetland's shores. As has been stated in the Process now before the Court, the tendency of the river to run in that direction is so strong that many years ago to protect his lands, Lord Zetland had to throw out a line of jetties, which so impeded the navigation that the Town Council of Perth had to take an action before the Court of Session against his Lordship and get them removed.

As to Eppie's Taes, they are still creeping downwards, and that bank is by Mr Stevenson's Report, gradually diminishing, and it is highly probable that before this vexatious action is decided, it will have completely disappeared and be among the things that were. The litigants on both sides may get the bills and the lawyers the oyster. It is only of late that Eppie's Taes has been worth contesting for; and it has been in the possession and occupancy of the proprietors on the north side of the river for upwards of forty years. Taking it altogether, it is a deep game that Lord Zetland is playing for such a small stake. There is no alternative for those on the other side but to defend their property.

....

In the meantime I may describe that part of the river as known to me for many years. Above the part in dispute ... are the fishings of Mugdrum, consisting of the river *ex adverso* of the main-land on the south, and of Mugdrum island on the north and south sides. Between that and the opposite shore of Errol the rule obtains there as in the river below Mugdrum Island noticed above, that is, the Mugdrum people fish on all banks that may [be] cast up with their backs to their own property, and the Errol people follow the same rule. There is this difference between them and Lord Zetland that the Mugdrum proprietor has a Charter for fishing on the bank or north side of his island*, whereas Lord

*But there is no permanent distinguishable channel at low water.

Zetland has only a Charter of fishing on the north shores of his property, the main channel of the Tay forming the boundary of his fishings. That channel has existed from time immemorial, so his Lordship is not setting up a claim to what he alleges to be the main channel. As described above, this alleged channel may have cut its way through gullies which if joined together [would] form as it were a continuous run at low water; but which as stated above, is merely cut through the shifting loose sand, forming the bed of the river at high water, and the sandbanks between the old channel and the north-side foreshores at low water. Although at present the sandbank called "Eppie's Taes" may be creeping to the south shore, a bank of ice in winter, or a spate in summer, directed from the point of Mugdrum Island will in all probability restore the Tay to its main channel alongside Lord Zetland's shores.

The fishing sandbanks in the space between the old channel and the north shore of the Tay are all of modern origin, and have all the above fanciful names given them by the discoverers, who are almost all alive. "Eppie's Taes" seems to be the most ancient among them, and by the testimony of the [civil] engineers and people who have known it for many years, that bank appears to be now shifting and hastening to decay.

From the facts stated above, it becomes a most important question as to the rights of property and as to how they may be regulated or fixed by law. Were the proprietors to be led into expensive and perhaps ruinous litigation by a proprietor who was wealthy, and who after his neighbours has occupied property more than 40 years undisputed, comes forward and claims possession of it, under the pretence that he can wade to it at extreme low water, this principle if adopted by our Courts of Law would open a door to constant litigation. It is therefore a very important question what is landed or movable property in such cases.

As stated above, the banks are constantly changing. Like whales in the Arctic Ocean, they are continually rising and falling, although they may be more permanent in their position and in the course of time they disappear like the whales. Some such rules as have obtained in the Arctic seas might be applied here. There if a fishing vessel fastens a harpoon in a whale, no other ship has the right to interfere with the fish. If the two struck at the same time, then they follow and divide it. According to Milton

> The hugest beast that swims the ocean stream
> Have by pilots oft been deemed an island.

We therefore in the case before us considering the shifting nature of our sandbanks, and seeing their movable properties, may not be stretching a point too far in contending that the same principle may be applied to regulate them, as does the possession of the whale in the Arctic Ocean. Thus Eppie's Taes having been struck by the harpoons of the Errol and Seaside boats, and they having been following their property so obtained have the exclusive right to it; and now although Lord Zetland has pushed off his skiff to anchor it on this moving island, he will find ultimately that this latter has by the anchorage of "the Norway skift" [as in "the sealy mind of the whale"] been secured to the other fishers.

....

We may shortly note the characteristics of the fishings above, as already described, between Errol and Mugdrum are of a shifting nature as of the bed of the river under discussion. Between Lord Zetland's and Seaside the bed of the river appears to be of a different and more permanent nature. There occurs what is called the Channel Bank, recently in dispute between Birkhill in the south and Castlehuntly on the north bank of the Tay [22nd March 1864, Frederick Lewis Scrymgeour

Wedderburn, Pursuer *v.* George Patterson and Others, Defenders. See *1864 Session Cases,* pp 902-910]. As I understand, the charters on either side lead to the middle of the Tay. After a litigation in the Court of Session Castlehuntly, who claimed to have sole right to that bank was found to have only a right to come to the centre of the river, and the line coming through the bank, he only got half of the latter. In fact all the banks in this quarter appear to be of a different nature as by a *Plan of the Tay* now before me, drawn up by authority of the Court of Session in 1809 by a Mr Bell under the instruction of Mr Jardine, Civil Engineer, that the Castlehuntly tenant had erected stake nets on his banks of more than 1¾ miles long, and Birkhill on the south side of the Tay had also erected stake nets of the length of more than ¾ of a mile. These two were the uppermost stake nets in the river, and next to Seaside. These two stake nets fixed on the banks there show that the sand was quite of a different nature from the bed of the river above Seaside, as the banks there were of a constantly shifting nature, and it would have been impossible for any stake nets to have been erected there, or stood had any attempt been made to erect them.

Notes

1. Eppie's Mote and Eppie's Taes were so named after a seaman who was found drowned there.

2. A witness during the court proceedings commenting on Zetland's claim that his agent had waded from the south shore to Eppie's Taes at low water, "Lord Zetland would be a dangerous neighbour if he had Colossus for a Tutor."

Glovers, box 11, bundle 1.

APPENDIX VII

ARTIFICIAL PROPAGATION

> The propriety of attempting salmon propagation by artificial means, ... was first suggested by Lord Gray, who being in France had seen experiments of this nature going on there, under the auspices of the French Government, and the personal superintendence of *M.* Coste, Professor of Natural History in the National Institute of France. Dr Esdaile of Calcutta was in Perth about the same time, and wrote a letter to the local newspapers on the subject, suggesting that the proprietors of the Tay fishings should try something of the kind.'

As a result of Lord Gray's initiative a general meeting of the Tay proprietors was held on 19th July 1853 at which it was agreed that experiments with the artificial propagation of salmon should be carried out on the Tay. It was estimated that cost of constructing a pond would be £500, and this was raised by a special assessment on the proprietors at a rate of 6½% which raised £500 17s. 10d. from those proprietors willing to co-operate in the scheme[2]. Also present at this meeting were Thomas Ashworth who had begun similar experiments at his fishings in Galway and Professor Quekett, Resident Curator of the College of Surgeons, London, both of whom advised as to a proper site for the necessary breeding ponds. These were constructed at Stormontfield (NO 104309) on land provided by the Earl of Mansfield. Robert Buist was at the time superintendent of the watchers and he was given responsibility for the ponds as part of his duties. After he was replaced as superintendent of the watchers (1861) he retained his position in charge of the work at Stormontfield.

The experiments at Stormontfield created considerable interest both in the United Kingdom and abroad, and Buist had reports published in *The Field* under the *nom de plume* "Peter of the Pools". Buist was convinced of the benefits of artificial propagation, but as the work at

Stormontfield started in the same year (1853) as the voluntary reduction in the length of the netting season, he admitted that the increase in the produce of the river, as indicated by the increase in rentals, could not be distinguished from the effects of the latter change. Buist's enthusiasm was to some extent misplaced as he laboured under the misconception that smolts released into the river in May returned *the same year* as grilse, and in the following year as salmon of (up to) 12 lbs[3]. At the time the Stormontfield Ponds came into operation it was estimated that one out of every thousand (0.1%) eggs ultimately became a marketable fish, but by 1861 this estimate had been reduced to one in three thousand (0.03%))[4]. By the 1870s the Stormontfield Ponds were producing about 100,000 smolts *per annum*[5]. In 1863 they came under the direct management of the Tay District Salmon Fisheries Board. This meant that the running costs came out of the general assessment made by the Tay Board rather than a separate contribution from (some) proprietors[6].

By 1882 there were two establishments for the artificial propagation of salmon in the Tay District and Stormontfield was by then regarded as rather antiquated. "*M.* Chabot-Karlen in his recent Report on foreign pisciculture to the Minister of Agriculture in France, when speaking of Stormontfield, declares that it must either be regenerated or abandoned." A second hatchery had been established on the Earn at Dupplin (NO 06 19) using the much more modern methods developed at the Howietoun hatchery on the River Forth near Stirling[7]. In his evidence to the Elgin Commission in 1900, P.D. Malloch gave it as his opinion that scale of rearing in hatcheries was much too small to make any impact upon the salmon stock. The figure quoted by him to the Committee for the Tay was 57,000 ova *per annum*, which Malloch described as "a perfect farce altogether." Malloch's estimate of a significant number for a

river like the Tay was in the region of ten million *ova* annually[8]. In the light of more recent opinion, Malloch's observation appears to be correct. Taking the figure of 0.1% as a reasonable approximation of the rate of survival from egg to return to the natal river of the adult fish, then only 57 returning salmon is indeed a farcical figure, though 10,000 would be commercially significant[9]. Calderwood made more explicit the ineffectiveness of salmon hatcheries which were designed to augment the salmon stock of a river. Tagging experiments were carried out with smolts on the Tay in 1905 and 1906. Of the 5,500 smolts tagged in 1905, 110 (2%) were subsequently re-captured, and in 1906 303 (3.03%) of the original 10,000 market smolts were re-captured. If only some 3.0% of smolts could be expected to return to the natal river, then the scale of a hatchery producing sufficient smolts to make an appreciable impact would have to be very large, and in addition to the capital cost of the hatchery, there would be the running cost of feeding the fry/parr/smolts for up to three years in the ponds. Calderwood made the point that the same effect could be achieved by "buying" back from the netsmen 260 males and females which would give an extra million eggs without the cost of a hatchery[10].

1. Robert Buist: *The Stormontfield Piscicultural Experiments, 1853-1866.* Edinburgh, 1866, p 4.
2. PE 1/1/13, pp 604-606.

   Among those proprietors *not* willing contribute to the scheme were:

Marquis of Breadalbane	Duke of Atholl
Earl of Kinnoull	Paterson of Carpow
Hay of Mugdrum	Allan of Errol
Wedderburn of Birkhill	Stewart of Balmerino

3. Buist, *op. cit.* pp 10-11.

4. The former estimate Ashworth and Buist, the latter estimate Ashworth and ffennell, quoted in A. Young: *Salmon Fisheries*, London, 1877, p 205.

5. *ibid.* p 208.

6. TBMB, Vol. 1, p 31.

7. *First Report to the Fishery Board for Scotland, 1882* by Archibald Young, p 13.

8. *Elgin*, II, p 467.

9. "The overall survival from egg to return of adult into the home river might be expected to be in the region of 0.1% (±?). Private communication from Gordon Struthers, Freshwater Fisheries Laboratory.

10. W.L. Calderwood: *Salmon and Sea Trout*, London, 1930, pp 182-183.

APPENDIX VIII

WAS THERE OVER-FISHING?

Because fear of the consequences of over-fishing played such an important role in shaping the attitudes and actions of those involved in the Tay salmon fisheries during the nineteenth century, it is of interest to know if these fears were justified. This Appendix is confined to ascertaining the extent, if any, of such justification in the light of more recent research. However, though modern work on fish stocks has done much to reveal the complex dynamics involved, much still remains to be explained[1].

Being anadromous, during its life-cycle the Atlantic salmon inhabits two distinct environments: the river (freshwater) environment within which it is born and progresses to the smolt stage, and the oceanic (salt-water) environment where it remains as a mature fish until returning to its natal river to breed. Both of these environments exert an influence on the size of a salmon stock. The particular variables which will affect any given fish stock are its rate of reproduction and size in relation to food supply and suitable breeding environments. If the fish stock is too large in relation to these, then its rate of reproduction will be low because of the insufficiency of resources and the stock will fall to a more appropriate size. On the other hand, if it is too small, there may be insufficient breeders to replace loss by catching and natural mortality in which case the size of the stock will fall yet further, possibly to extinction. However, wide variations in the size of a fish stock are possible before the latter becomes a threat and, in general, it is claimed that fish populations tend to match themselves to the available food supply. In this respect Nikolskii

quotes "Anokhin's self-regulating rule" that "deviation from the final adapted state itself acts as the stimulus for returning to that state".[2] The adjustment mechanism is believed to be changes in the availability of food causing changes in the fish's metabolism, which then alter the reproductive rate. However, the food supply itself need not be the causal factor: the same effects would also occur if the fish stock varied relative to a given food supply.

These general concepts have to be adjusted to allow for the particular characteristics of the salmon. Relatively little is known about the effects of the oceanic environment on the salmon or of how the balance between food supply and size of the stock applies at that stage of its life-cycle. Because they do not feed in freshwater, availability of food is irrelevant to breeding salmon once they have entered their natal river. However, the extent of the spawning grounds in relation to the number of returning fish will clearly be of significance: too large a number reaching the redds would lead to overcrowding and insufficient food for the young fish after hatching, too small a number reaching the redds would lead to them being insufficiently utilised. It is thus clear that the food supply in freshwater is crucial to the immature fish throughout all the freshwater stages, and for that period of time the relationship between food supply, environment and immature fish is the same as it would be for a non-migratory fish stock, except that the immature fish are non-breeders and there will be a lapse in time before any change affecting the immature freshwater stock is translated into an effect upon breeders. The lapse being the time the mature fish spends in salt-water. Thus if there were improvements in the freshwater food supply or the extent of the suitable breeding environment, this would lead to a higher survival rate at the immature stages, earlier smolt migration, and hence more sea feeding with consequent increases in

fecundity on return to the river. The reverse would apply if there were a reduction in food supply or the extent of the breeding environment.

The particular significance of this concept to a commercial fishery is that though commercial netting reduces the size of the breeding stock, the proportion between hatched fish and food supply will be favourable to higher survival rates which will compensate for the effects of the netting. That this form of adjustment takes place appears to be widely accepted, though there are limits to the extent to which this natural compensation mechanism can counter the effect of fishing. For a given fish stock in given circumstances, there is a "maximum sustainable yield" which is the highest level of exploitation which will also allow the stock to remain at its existing size - a straightforward theoretical concept, but difficult to realise in practice. However, fish stocks may vary quite considerably on either side of the maximum sustainable yield without being threatened with extinction. This form of analysis had not been developed during the nineteenth century, which would have done nothing to allay fears about over-fishing. Though it is interesting to note that (separate) complaints were made about too many fish getting to the redds[3] and too few fish getting to the redds[4], perhaps an adumbration of the maximum sustainable yield concept.

Although it is now held that "the food capacity of the river ... is the primary determinant of the salmon or trout population"[5], not a great deal of attention was given to this matter in relation to the Tay basin during the nineteenth century, though something must have been known about the feeding habits of immature fish to allow the Stormontfield hatchery to be set up in 1853[6]. More concern was expressed about the reproductive environment and the extent of the spawning area. This was something that tended to worsen during the nineteenth century as mill dams were erected and more abstraction of

water prevented fish from reaching some of the redds. Access to the potential spawning areas beyond the Falls of Tummel was frequently discussed but they remained unexploited beyond the end of the century. It may be concluded from this very brief description of the maximum sustainable yield concept that, although those concerned with the fisheries were aware of elements of the concept, these were not sufficient for them to appreciate their collective significance, in particular that there was an ill-defined spread between the upper and lower danger points - neither of which was a constant - within which the salmon stock might remain without being endangered.

An alternative form of analysis, which may be developed rather further, is the "dynamic pool" model which takes account of four variables. A fish stock may increase because more fish are born or because existing fish grow larger, and it may decrease because of natural mortality or fish being caught. These factors affect fish of different age classes in different ways. For example, if the catch is disproportionately from a particular year class or classes, then this may alter the age structure of the stock[7]. A commercial salmon fishery, such as that on the Tay, is an example of a natural "open access resource", i.e. no barriers to entry beyond the ability to bid for a tack and being able to acquire gear, and once access to the resource had been gained exploitation is by competitive withdrawal. Using the dynamic pool approach, the yield of a fishery will depend on: the growth rates of the fish, recruitment of fish to the "fishable" stock (in nineteenth century terms, salmon making themselves available to coastal or river nets), natural mortality rates and, mortality due to netting. An equilibrium in the fish stock would be reached when increases from growth rates and recruitment were exactly equal to reductions from natural and fishing mortality. Assuming that a fish stock will tend

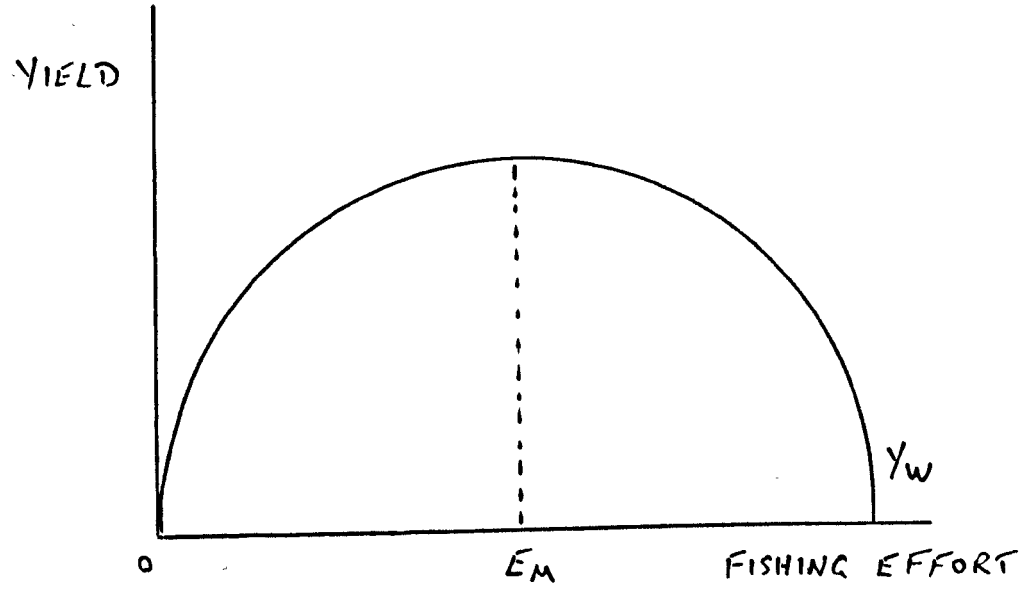
towards equilibrium (see Anokhin *supra* p 459), then, within limits, an increase in fishing intensity will give rise to an increase in the rate of renewal until balance is again achieved. This may be expressed as a yield function as follows:

$$L = k_2E(M - \frac{k_2}{k_1}E)$$

Where L is landings, E is fishing effort, M is maximum fish stock and k_1 and k_2 are constants. Thus catches are a function of both fishing effort and the size of the fish stock, but the fish stock is also a function of fishing effort[e].

The implied connection between catches and effort may also be shown by means of a figure. Figure VIII.i shows how as fishing effort increases from zero there is at first a positive yield at a decreasing rate which ultimately reaches a maximum (OE_m). This positive relationship between effort and yield is possible because during this phase the reduction in the size of the stock and the average weight of fish are more than offset by the loss to natural mortality and the increased rate of growth. Thus each increase in fishing effort will lead to a new equilibrium with a higher yield of fish. Beyond the maximum, population effects dominate and increases in fishing effort reduce the size of the equilibrium yield. As the figure shows, unrestrained increases in fishing effort would ultimately lead to the the extinction of the stock, though there could be equilibria with very low yields. An additional factor, not incorporated in the figure, is that increased fishing effort will create more "fishing units" (stations/tacksmen) which may cause congestion within the fishing area, e.g. the necessity to resort to "staff on land"[a] and a consequent reduction in catches. The point which emerges from the model is that a fishery can sustain a wide range of discrete fishing efforts, each of

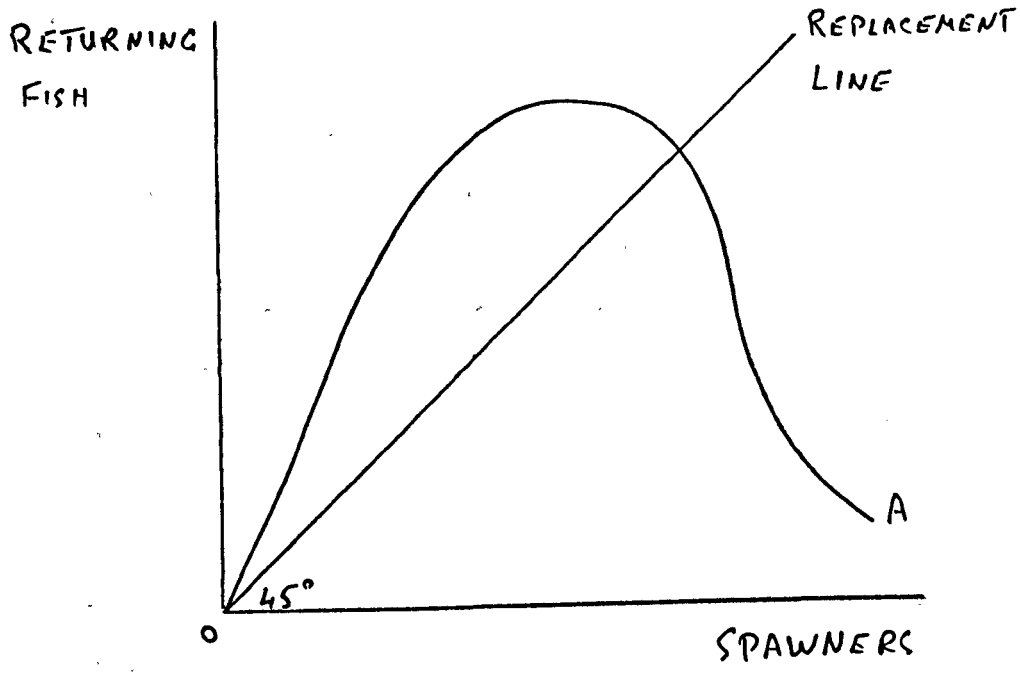
Figure VIII.i



which will produce an equilibrium that need not, *ceteris paribus*, lead to the extinction of the fisheries, even when fishing effort is past the maximum and giving a reduced yield.

Anadromous fish such as the salmon have an additional complication compared to other types of fish in that their availability for catching is (or was in the nineteenth century before the development of the Greenland fishery) restricted to their return to the coasts and rivers, and the return of different year classes is associated with different seasons of the year (see table 1.3, p 16). Thus the availability of (say) grilse in a particular year will be dependent on the number of spawners some four or five years previously. If too many grilse were caught that year, then the number returning to spawn "now" will be that much less. It is also the case that too few grilse caught can lead to "overloading" the redds which would also reduce the number of returning fish[10]. The form of this relationship is shown in figure VIII.ii.

Figure VIII.ii

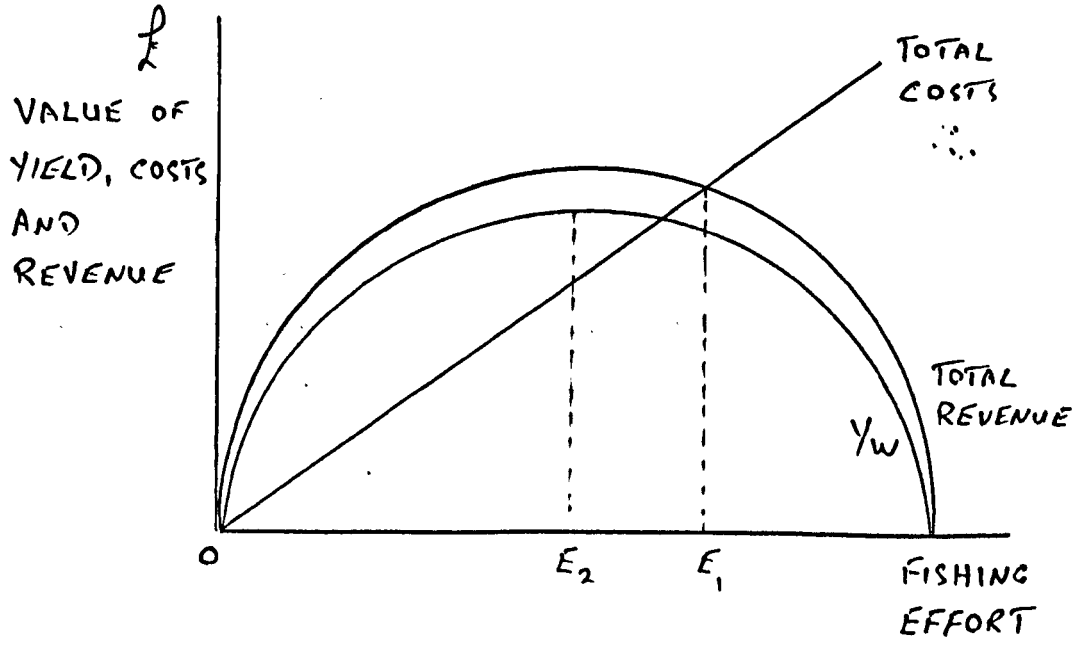


Returning fish in year t+i are plotted against spawners in year t. The 45° line joins the points for all levels of fish stocks at which the number of returning fish which escape capture (the escapement) are just sufficient to maintain the given salmon stock. Thus anything to the left and above the 45° line indicates numbers of returning fish in excess of those necessary to maintain the existing stock. The total number of fish returning in any season is shown by the line OA, thus the distance between the 45° line and OA is the number that can be caught in that year without eroding the stock in future years. The complications of the analysis become more apparent when it is appreciated that the figure applies to one year class only, and as table 1.3 suggests, there might be five such classes in any one season. The point which emerges from this analysis of a single year class is that, again, there can be a wide variation in the number of returning fish taken in the nets before a fatal erosion of the stock sets in. The exegesis of both the maximum

sustainable yield and the dynamic pool models show that there may be considerable increase or decrease in catches, or variations in fishing effort before a fish stock becomes endangered. As the salmon stock of the Tay did not disappear during the nineteenth century (or since), this suggests that the contemporary fears were based upon a misunderstanding of the situation which exaggerated the dangers.

The models so far have been concerned solely with natural variables which may limit their applicability. However, an economic dimension may be added to the dynamic pool model which increases its relevance. In figure VIII.iii the total cost and total revenue curves, aggregated for all units in the fishery, have been superimposed on the physical yield of a fishery (Y_w)''. Costs include a normal profit to the proprietors and there are assumed to be a number of competing units (tacksmen) facing the same costs and receiving the same prices for their

Figure VIII.iii



produce. Under these assumptions the produce of the fishery will be expanded to the level at which total costs equal total revenues (fishing effort of OE_1), for beyond that point individual units would make losses. At this level of fishing effort, produce may be greater than the maximum physical yield (OE_2). In terms of the individual units, the equilibrium is where average total cost equals average revenue, i.e. where transfer earnings are just being met and there is no economic rent. Each time there is an increase in total receipts or a reduction in total costs, the point at which the aggregate curves intersect will move further to the right, implying a yet more intense fishing effort. This is because, when the adjustment occurs, the individual units enjoy economic rent which will be dissipated by more units being attracted into the industry and/or existing units fishing yet more intensively. There is no self-correction inherent in this situation, and it could lead to the very last fish being taken from a fishery, provided that the revenue from its sale covered the cost of catching it[12]. Thus by adding the cost and revenue curves it is possible to explain in economic terms why the level of fishing effort might vary extensively within the limits imposed by the yield curve, and how, in the circumstances envisaged, there is no form of commercial restraint to stop fishing before a fishery is exhausted, provided only that average cost does not exceed average revenue. During the second half of the nineteenth century in particular, when revenues were rising, the economic dimension provides an explanation for the continuing increase in fishing effort *and* for falling catches at individual fishings, and it also gives more substance to the fears expressed at the time about over-fishing.

However, in spite of an economic case to the contrary, the fact remains that the Tay salmon fisheries did not succumb to over-fishing. A further economic argument may help to explain this. One of the

dangers inherent in an open access resource is excess capacity, in the case of a fishery too many fishing units. The explanatory model assumes an increasing national income, income elasticity of demand greater than zero and a supply curve less than perfectly elastic, all of which are perfectly reasonable in the given circumstances. Under such conditions, as the demand for fish rises the inelastic supply curve will ensure that price increases, and the larger profits will be dissipated among more and more fishing units as they are attracted into the fishery - there being no barriers to entry. As the fishing effort intensifies, the supply curve becomes totally inelastic or negatively sloped, which raises prices yet higher and attracts yet more entrants, but adds nothing to output so that the existing (or reducing) supply of fish is shared among more and more fishing units. Increasing competition for a given or shrinking fish stock makes joint action among the participants more difficult as each unit is pre-occupied with maintaining its share of the produce to the exclusion of all else. Concentration on the maximisation of produce and income also discourages the adoption of conservation measures as they would reduce produce and income in the short-term. However, such competition does encourage single operators or small groups of operators to (clandestinely) adopt methods of dubious or outright illegality in order to gain some advantage over their fellows. There is also a tendency to prevent the adoption of any legitimate innovation that would improve the efficiency of the competing units, indeed there may be action to deliberately reduce efficiency to preserve the *status quo.* With chronic over-capacity such a fishery becomes particularly vulnerable to any decline in the price of fish. In such circumstances the participants would wish to sell-out and leave the industry, but there is no one willing to buy them out, so they cannot reinvest their capital

elsewhere. Thus entry and exit conditions to the industry are asymmetrical.

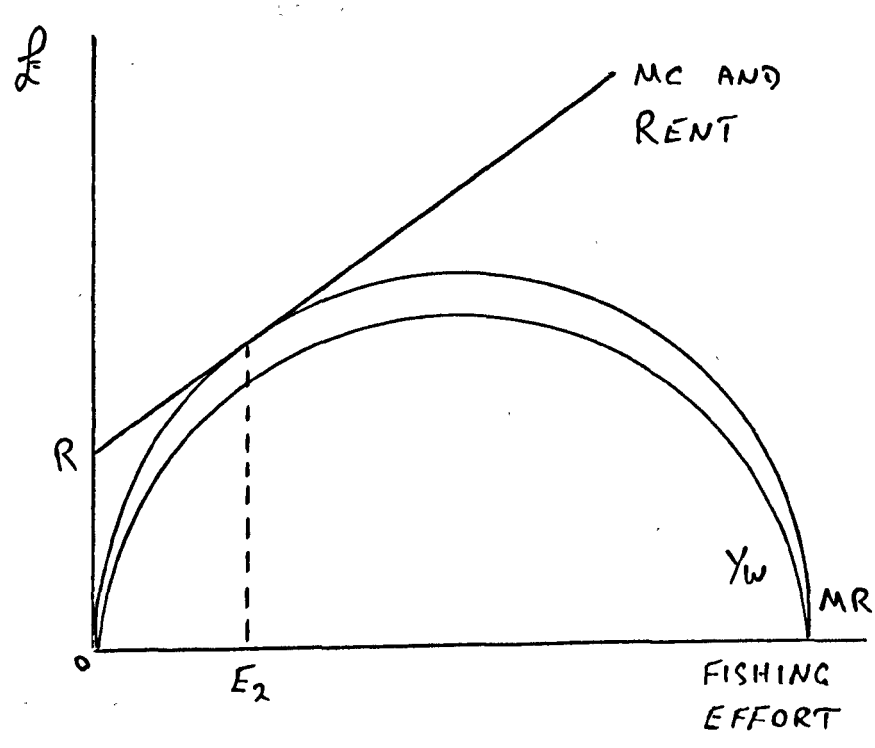
There are elements in this model which are recognisable as applying to the Tay fisheries. Particularly during the second half of the nineteenth century, the apparently insatiable demand for salmon and rising prices ensured profits sufficient to attract a constant flow of new entrants to the Tay salmon fisheries (see table 10.2, p 414). The reports at the time were of increased competition for a salmon stock that certainly was not increasing and, although there were improvements in efficiency, they tended to be improvements to existing methods, while innovations like the hang net and Bermony boat were resisted, though the clandestine use of the hang net was widespread until 1888. There was also a singular unwillingness to adopt joint measures that might have alleviated the situation, though there were additional reasons for this connected with other disputes between the proprietors. However, the Tay fisheries were not precisely the same as the model. There was a constant flow of new entrants, but by mid-century they were competing for a fixed number of stations, so that, though the number of tacksmen increased, the number of stations did not. Thus by the physical limitation on the number of places where nets could be plied, the Tay fisheries escaped the ultimate excesses of the model. The Tay also avoided the asymmetry between entry and exit by the principal capital investment - the fishing - belonging to a proprietor who rented his property to different tacksmen[a]. The tacksman's investment in gear was not irreversible on the Tay, as there was no reason for the stock of nets and cobles exceeding the number of stations at which they could be utilised.

Thus the addition of an economic dimension to the basic dynamic pool model enhances its applicability to the Tay salmon fisheries in the

nineteenth century. If the intensity of fishing was profit-led, then rising prices after *c.* 1850 would explain the greater fishing effort and how a smaller share of the (relatively) fixed salmon stock went to each tacksman. It also helps to explain the pressures to inhibit innovation and any increase in efficiency. If what happened on the Tay conforms to the explanation given, then what prevented the extinction of the salmon stock, apart from any variations in the length of the fishing season, was the physical impossibility of increasing the number of fishing stations, which were confined to that part of the river between Newburgh and Campsie Linn by the unsuitability of the net & coble below and the dearth of fish above. More and more tacksmen were attracted to the river, and had there been scope, no doubt they would have worked more and more stations as happened when the banks below Newburgh were colonised. Fortunately for the salmon stock, however, the number of commercially worthwhile stations was strictly limited and insufficient to erode the salmon stock past the point of no return'[4].

There is a further development of the model which may help to explain the final event to affect the Tay fisheries during the nineteenth century. If a fishery came into the hands of a single company, then it would not be in the company's interest to exploit the fishery to the same extent as under "free entry". Rather than making decisions on the basis of the average curves it would use a marginal approach. This is shown in Figure VIII.iv where the company's marginal cost curve (MC) does not start at the origin because it contains an element (OR) of economic rent equal to the lowest return acceptable to the company. The result is that the point at which marginal revenue (MR) equals marginal cost plus rent is further to the left than it would be for multi-firm "free entry", implying a lower level of fishing effort (OE_2) and less exploitation of the fishery. This is a possible explanation in economic terms of the

Figure VIII.iv



behaviour of the Tay Salmon Fisheries Company after 1900 when it reduced both the number of stations worked and the length of the netting season.

Mill's article deals with the Scotch salmon fisheries as a whole, but he implies that, up to the 1950s such threats to the salmon stock as there were, emanated from the rivers, e.g. poaching and pollution, and these were not sufficient to disturb a "relatively comfortable and stable position."[115] This confirms the impression that rivers such as the Tay were not under ultimate threat during the nineteenth century. He admits, however, that no incontrovertible statements about salmon stocks may be made without statistics and there was no legal requirement for their collection until 1951[116]. Thus the main evidence that a salmon stock such as that of the Tay was not under serious threat during the nineteenth century is its continuing existence during that time.

Mills, however, suggests additional reasons for the disquiet that was felt at that time. For example, it was not fully recognised during the nineteenth century that the season at which a year class of salmon returned to a river need not remain the same. Malloch's criticism of the extension of the netting season was that it coincided with the large number of salmon ascending the river during the Lammas Floods'[17], but Mills' point is that the time of this larger than usual run might alter to be either earlier or later. It can thus be appreciated how, if a particular run altered the time of its return from the netting season to close-time, this could be erroneously seen as a depletion of the salmon stock and add to the general concern on this subject. It also shows that it was not necessarily in the best interests of the salmon stock to leave the opening and closing dates of the netting season unchanged over time as has tended to happen, though the *1862 Act* did allow for their alteration. Similar disquiet may have been created from ignorance of long-term variations in the numbers of returning fish. On the basis of various statistical series'[18] Mills concludes that salmon catches are subject to a long-term cyclical fluctuation over a twenty to thirty year period. Given that people were unaware of this long-term cycle during the nineteenth century, it is yet another reason for their concern about produce if the long-term cycle gave rise to declining catches for periods of ten to fifteen years. The other associated point is that persons connected with salmon fisheries tend to be too much influenced by short-term variations in produce.

> Rarely is reference made to a long run of catch data; 6 to 10 years of diminishing catches is sufficient for most of them to draw subjective conclusions. ... For this reason it is perhaps not surprising that in the field of salmon management, in all Atlantic salmon-producing countries, the voice of the involved layman has a much greater influence on management policy than it has on that for the purely commercial marine fisheries.'[19]

This observation applied with particular force in the nineteenth century when there was less understanding of the subject and fewer scientists to have opinions[20]. It may be concluded from both the interpretation provided by the economic models and from Mill's observations that the salmon stock of the Tay during the nineteenth century was not threatened by over-fishing to the extent feared at the time. It was, however, almost certainly the case that the level of exploitation was greater than the maximum yield (see figure VIII.i p 487).

REFERENCES

1. This Appendix is principally based on:

Crutchfield & Pontecorvo: *The Pacific Salmon Fisheries*, Baltimore, 1969. Particularly for the economic models.

"How to Fish", *The Economist*, 10th December 1988.

G.V. Nikolskii: *Theories of Fish Population Dynamics*, Edinburgh, 1969.

D.H. Mills, "Atlantic Salmon Management", from Bailey & Parrish (eds.): *Developments in fisheries research in Scotland*, Farnham, 1987.

Private correspondence from Dr John Berry of Tayfield.

2. Nikolskii, *op. cit.* p 199.

3. Letter to Buckland & Young, see pp 320-321.

4. See comment by Sir Robert Menzies, p 322.

5. Nikolskii, *op. cit.* p 210.

6. See Appendix VII.

7. See Chapter Nine, note 12.

8. Based on Crutchfield & Pontecorvo, *op. cit.* p 17.

9. See Chapter Five, I, *passim*.

10. See pp 324-325, Dickson's ***Memorandum No. 1.***

11. In order to keep the model as simple as possible it is assumed that price elasticity of demand is greater than unity and that the cost functions are linear.

12. Far-fetched perhaps in regard to the Atlantic salmon, but a real possibility in regard to species such as the blue whale.

13. Matters did not reach a situation in which proprietors wished to divest themselves of their fisheries, strictly a right to fish for salmon in designated waters. This may be explained in economic terms as such a right would have zero opportunity cost, there being no other use to which the right might be put, thus it was worthwhile retaining the fishing as long as some level of rent was paid.

14. Shortening the netting season after 1853 no doubt helped this.

15. Mills, *op. cit.* p 207.

    After the 1950s the Greenland Fishery and drift netting in the sea provided more serious threats.

16. ***Salmon and Freshwater Fisheries (Protection)(Scotland) Act, 1951.***

17. See pp 405-406.

18. Mills, *op. cit.* pp 210-212.

19. *ibid.* p 210.

20. *cf.* Professor McIntosh's comments, pp 406-407.

SELECT BIBLIOGRAPHY

MANUSCRIPT SOURCES

National Library of Scotland, Edinburgh.

Richardson of Pitfour Papers.

National Register of Archives (Scotland).

NRA(S) 874, Berry of Tayfield Papers.

NRA(S) 1489, Hay of Leys Papers.

NRA(S) 1489, Kinnoull Papers.

Perth and Kinross District Archive, Sandeman Library, Perth.

B59/13/17, Perth Register of Acts and Decreets.

B59/16/11-14, Perth Town Council Minutes, 1694-1753.

PE 1/1/1-29, Perth Town Council Minutes, 1753-1905.

B59/35/1-44, Fishing Papers.

PE 1/4/1-3, Harbour Commissioners' Minute Books.

PE 15, Perth Town Council Mass.

PE 16, Town Clerk's Papers.

PE 25, Harbour Commissioners' Papers.

PE 51, Perth Town Council Legal Papers.

GD 227, Glover Incorporation Papers.

MS 5, P.D. Malloch Papers.

MS 34, Hay of Seggieden Papers.

Tay District Salmon Fisheries Board.

Sederunt Books of the Proprietors of Salmon Fisheries in the River Tay, 1843-1862.

Minutes of the Tay District Salmon Fisheries Board.

Tay District Salmon Fisheries Board Papers.

PARLIAMENTARY PAPERS AND OFFICIAL PUBLICATIONS

Report from the Select Committee on the Salmon Fisheries of the United Kingdom, 1824.

Committee on the Bill for the More Effectual Preservation and Increase of the Breed of Salmon, and for Regulating the Salmon Fisheries, Throughout Great Britain and Ireland, 1827.

Report from the Select Committee on Salmon Fisheries, Scotland: together with the Minutes of Evidence, Appendix and Index, 1836.

Report from the Select Committee of the House of Lords Appointed to Consider of the Bill intituled 'An Act for the better Regulation of the Close Time in Salmon Fisheries in Scotland;' 1842.

Report from the Select Committee of the House of Lords on Salmon Fisheries, Scotland, 1860 (456) XIX, 1.

Nominal Return of Every Salmon Fishery in Scotland; Valuation of Each, and Mode of Capture Practised; 1864 (70) LVIII, 583.

Report of the Special Commissioners appointed to Enquire into the Effect of Recent Legislation on the Salmon Fisheries in Scotland, C 419, 1871.

Royal Commission on Salmon Fisheries: Report of the Commissioners; 1902 Cmnd. 1188 xiii, 1. Part II Evidence and Indices; 1902 Cmnd. xiii, 75. Part III, Appendix, Section II (Scotland); 1902 Cmnd. 1281 xiv, 263.

Reports to the Fishery Board for Scotland, 1882-1904.

Scottish Salmon and Trout Fisheries - First Report, July 1963, Cmnd. 2096.

LEGAL CASES

The R.H. Lord Gray and Lady Gray v. Magistrates and Town Council of Perth, 1757.

Earl of Kinnoull and Other v. James Hunter of Seaside, 1800.

Duke of Atholl and Others v. Maule and Others, 1812.

Frederick Lewis Scrymgeour Wedderburn v. George Patterson and Others, 1864.

Masters of Allan's Mortification v. Bernard Thomson, 1879.

PERIODICALS

The Economist

The Field

Perthshire Advertiser

The Salmon Net

GENERAL WORKS OF REFERENCE

Biographical Dictionary of Eminent Men of Fife, Edinburgh, 1867.

Biographical Dictionary of Scientists, London, 1976.

The Book of Scotsmen, Paisley, 1881.

Burke's Peerage and Baronetage

Burke's Landed Gentry

The Complete Peerage, London, 1932.

The Concise Scots Dictionary

Dictionary of National Biography

Members of Parliament, Scotland 1357-1882, London, 1882.

New Statistical Account

Old Statistical Account

The Scots Peerage, Edinburgh, 1907.

Who Was Who

Who's Who of British MPs, Sussex, 1976.

SECONDARY SOURCES

Anon. *Observations Regarding The Salmon Fishery of Scotland. Especially with Reference to the Stake-Net Mode of Fishing; The Regulation of the Close-Time; and The Necessity of a Legislative Revisal of the Antiquated Scots Statutes at Present Applicable to These Subjects,* Edinburgh, 1824.

Anon. *An Inquiry into the Present State and Means of Improving the Salmon Fisheries: Including a Digest of the Evidence taken by a Select Committee of the House of Commons,* London, 1827.

Anon. *Salmon Fisheries of Scotland,* Farnham, 1977. Published by the Association of Scottish District Salmon Fishery Boards.

Anon. *The Tay Valley Plan,* Dundee, 1950.

Barker, McKenzie & Yudkin *Our Changing Fare,* London, 1966.

Barr, David (ed.) *Salmon Fishing in Scotland,* London, 1981.

Berry, John *Report of an Investigation of the Migration of Smolts in the River Tay during Spring 1931,* HMSO, 1932.

Berry, John "Salmon Research and the Development of Salmon Fisheries", *Proceedings of the Royal Philosophical Society of Glasgow,* vol. LXVIII, part iv, pp 47-60, Glasgow, 1943.

Bielak, A.Y. & Power, Geoff "Catch Records - Facts or Myths?" from Derek Mills & David Piggins: *Atlantic Salmon: Planning for the Future,* Beckenham, 1988.

Buist, Robert *The Stormontfield Piscicultural Experiments, 1853-1866,* Edinburgh, 1866.

Calderwood, W.L. *The Salmon Rivers and Lochs of Scotland*, London, 1909.

Calderwood, W.L. *Salmon and Sea Trout*, London, 1930.

Campbell, James *Balmerino and its Abbey*, Edinburgh, 1899.

Campbell, R.H. "The Landed Classes", from T.M. Devine & R. Mitchison (eds.): *People and Society in Scotland*, Vol. I, Edinburgh, 1988.

Coull, J.R. "Salmon Fishing in the NE of Scotland before 1800", *Aberdeen University Review*, 42, pp 31-38, 1967.

Coull, J.R. "Fisheries in the NE of Scotland before 1800", *Scottish Studies*, XIII, pp 17-32, 1969.

Crutchfield & Pontecorvo *The Pacific Salmon Fisheries*, Baltimore, 1969.

Cutting, C.L. *Fish Saving*, London, 1955.

Day, Francis *The Fishes of Great Britain and Ireland*, 2 vols. London, 1880-1884.

Dodd, George *The Food of London*, London, 1856.

Drummond & Wilbraham *The Englishman's Food*, London, 1969.

Dunlop, Jean *The British Fisheries Society, 1786-1893*, Edinburgh, 1978.

Duthie, R.J. *The Art of Fishcuring*, Aberdeen, 1911.

Edgerton, Frank "Changing Concepts of the Balance of Nature", *The Quarterly Review of Biology*, Vol. 48, No. 2, June 1973.

Edgerton, Frank "A Bibliographical Guide to the History of General Ecology and Population Ecology", *History of Science*, Vol. 15, Part 3, No. 29, September 1977.

Gauldie, Enid *The Quarries and the Feus*, Dundee, 1983.

Glacken, Clarence *Traces on the Rhodian Shore*, London, 1976.

Grant, I.F. *The Social and Economic Development of Scotland Before 1603*, Edinburgh, 1930.

Gray, Malcolm *The Fishing Industries of Scotland, 1790-1914*, Oxford, 1978.

Haldane, A.R.B. *The Great Fishmonger of Tay*, Abertay Historical Society, Dundee, 1981.

Hall, Rev. James *Travels in Scotland by an Unusual Route*, London, 1807.

Hopkins, Harry *The Long Affray*, London, 1986.

Leith, J.M. "Salmon Legislation in Scotland", from D. Herbert (ed.): *Fish and Fisheries, a Selection of Essays of the International Fisheries Exhibition, Edinburgh, 1882*, Edinburgh, 1883.

Lenman, Bruce *From Esk to Tweed*, Glasgow, 1875.

Lenman, Bruce *An Economic History of Modern Scotland*, London, 1977.

Malloch, P.D. *Life-History and Habits of the Salmon, Sea-Trout, Trout, and Other Freshwater Fish*, London, 1910.

Malloch, William "The Development of Freshwater Fisheries", *Transactions of the Perthshire Society of Natural Sciences*, Vol. VIII, Part II.

Melville, L. *Errol: Its Legends, Lands and People*, Perth, 1935.

Melville, L. *The Fair Land of Gowrie*, Perth, 1939.

Menzies, W.J.M. *The Salmon*, Edinburgh, 1925.

Mills, Derek *Scotland's King of Fish*, Edinburgh, 1980.

Mills, Derek "Atlantic salmon management", from Bailey & Parrish (eds.): *Developments in fisheries research in Scotland*, Farnham, 1987.

Mowat, I.R.M. *Easter Ross 1750-1850*, Edinburgh, 1981.

Netboy, Anthony *Salmon, the World's Most Harassed Fish*, London, 1980.

Nikolskii, G.V. *Theory of Fish Population Dynamics*, Edinburgh, 1969.

Passmore, John — *Man's Responsibility for Nature*, London, 1974.

Peacock — *Perth: Its Annals and Its Archives*, Perth, 1849.

Penny, George — *Traditions of Perth*, facsimile edition, Perth, 1986.

Encyclopaedia Perthensis, 2nd edition, Edinburgh, 1816.

Riddell, John — *Clyde Navigation*, Edinburgh, 1979.

Ross, John — "Curing and Preserving Fish in Scotland and Its Islands" from D. Herbert, *op. cit.*

Russel, Alex — *The Salmon*, Edinburgh, 1864.

Shaw, John — *Water Power in Scotland 1550-1870*, Edinburgh, 1984.

Shaw, Susan & Muir, James — *Salmon: Economics and Marketing*, Beckenham, 1987.

Shearer, W.M. — "Relating Catch Records to Stocks", from Derek Mills & David Piggins, *op. cit.*

Smith, A.M. — *Jacobite Estates of the Forty-Five*, Edinburgh, 1982.

Speake, Robert — *Kinfauns Castle*, Manchester, 1982.

Stewart, Charles — *A Treatise on the Law of Scotland Relating to Rights of Fishing*, Edinburgh, 1869.

Thomson, James — *The Value and Importance of the Scotch Fisheries*, Aberdeen, 1849.

Thompson, Paul with Wailey, Tony & Lummis, Trevor — *Living the Fishing*, London, 1983.

Thorne, R.G. — *The House of Commons 1790-1820*, II, Constituencies, London, 1986.

Walker, F. — *Tayside Geology*, Dundee, 1961.

Walker, F. — *The Geology and Scenery of Strathearn*, Dundee, 1963.

Whittow, J.B. — *Geology and Scenery in Scotland*, Penguin, 1979.

Williamson, R.B. — "Status of Exploitation of Atlantic Salmon in Scotland", from Derek Mills & David Piggins, *op. cit.*

Wilson, C. Anne *Food and Drink in Britain*, London, 1973.

Worster, Donald *Nature's Economy*, Cambridge, 1985.

Young, Archibald *Salmon Fisheries*, London, 1877.

CONTAINS PULLOUTS

SHEET NO 01/11

BRIDGE OF EARN AND DUNNING

ORDNANCE SURVEY

SHEET NO 01/11

ROADS AND PATHS

Not necessarily rights of way

- Motorway
- Trunk road
- Main road
- Secondary road
- Dual carriageway
- Road generally more than 4m wide
- Road generally less than 4m wide
- Other road, drive or track

Narrow roads with passing places are annotated

Unfenced roads and tracks are shown by pecked lines

- Path

RAILWAYS

- Multiple track
- Single track
- Narrow gauge
- Siding
- Embankment
- Tunnel
- Road over & under
- Level crossing, station

Standard gauge

PUBLIC RIGHTS OF WAY

(Not applicable to Scotland)

Public rights of way shown on this map may not be evident on the ground

- Public path
- Byway open to all traffic
- Road used as a public path

Footpath
Bridleway

Information not available in unenclosed areas

MOD ranges in the area
Danger!
Observe warning notices

Public rights of way indicated by these symbols have been derived from Definitive Maps as amended by later enactments or instruments

The representation on this map of any other road, track or path is no evidence of the existence of a right of way

BOUNDARIES

As notified to May 1972

- County (England and Wales) Region or Islands Area (Scotland)
- District
- London Borough
- Civil Parish (England)* Community (Wales)
- Constituency (County, Borough, Burgh or European Assembly)

Coincident boundaries are shown by the first appropriate symbol opposite.

*For Ordnance Survey purposes County Boundary is deemed to be the limit at the seaward foreshore whether or not a parish area adjoins.

SYMBOLS

- Church or chapel: with tower, with spire, without tower or spire
- Glasshouse, youth hostel
- Bus or coach station
- Lighthouse, lightship, beacon
- Triangulation station
- Triangulation, point on
- Church, chapel, lighthouse, beacon, building & chimney
- BP, BS — Boundary Post, Stone
- T, A, R — Telephone, public, AA, RAC
- MP, MS — Mile Post, Stone

VILLA — Roman antiquity (AD 43 to AD 420)
Castle — Other antiquities
Site of antiquity
Site of battle (with date)
1066
Gravel pit
Sand pit
Chalk pit, clay pit or quarry
Refuse or slag heap
Slipping masonry
Well, Spring
W Spr

Water
Sand, sand & shingle
Mud

NT — National Trust always open
NT — National Trust opening restricted
NTS NTS — National Trust for Scotland

Electricity transmission line pylon poles

VEGETATION

Limits of vegetation are defined by positioning of the symbols but may be delineated also by pecks or dots

- Coniferous trees
- Non-coniferous trees
- Coppice
- Orchard
- Scrub
- Bracken, rough grassland
- In some areas bracken (···) and rough grassland (···) are shown separately
- Heath
- Reeds
- Marsh
- Saltings

Shown collectively as rough grassland on some sheets

HEIGHTS AND ROCK FEATURES

30 (25) — Determined by ground survey or survey

Surface heights are to the nearest metre above mean sea level. Heights shown close to a triangulation point refer to the mean height of ground level and not necessarily to the summit

Vertical face — Loose rock — Boulders — Outcrop — Scree

Contours are at 5 metre vertical interval

As the centre of this sheet true north is 4° 13' west of grid north. Magnetic north was almost 7° west of grid north in 1982 decreasing by about 2° in three years

A booklet, Place names on maps of Scotland and Wales, is published by the Ordnance Survey and includes a glossary of the names common to Scandinavian and Welsh languages used on Ordnance Survey maps of Scotland and Wales

Details of abbreviations used on this map can be provided on request

Made and published by the Ordnance Survey, Southampton

This sheet has been compiled from 1:10 560 or 1:10 000 scale maps published 1970-78 which were made from surveys dated 1965-76

Revised for significant changes 1980

Major roads revised 1982

CONVERSION METRES — FEET

1 metre = 3·2808 feet

1000 3000
900 2500
800 2000
700 1500
600 1000
500 900
400 800
300 700
200 600
100 500
Metres 0 — 0 Feet
15·24 metres = 50 feet

HEIGHTS IN METRES

1:25 000 BRIDGE OF EARN AND DUNNING NO 01/11

Ordnance Survey

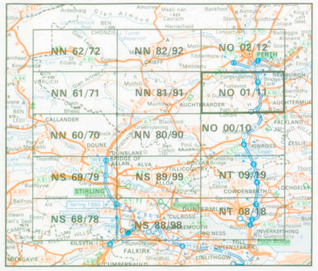
Bridge of Earn and Dunning

Sheet NO 01/11

Pathfinder 361

Pathfinder Series of Great Britain

1:25000



NO 01/11

TAYSIDE REGION

PERTH AND KINROSS DISTRICT

PERTH AND EAST PERTHSHIRE CO CONST

KINROSS AND WEST PERTHSHIRE CO CONST

MID SCOTLAND AND FIFE EURO CONST

FIFE REGION

NORTH EAST FIFE DISTRICT

EAST FIFE CO CONST

OCHIL HILLS

Strathearn

River Earn

River Tay

Glen Farg

Bridge of Earn

Dunning

Abernethy

Forgandenny

Forteviot

Glenearn Hill

Ardargie Hill

Culteuchar Hill

Dron Hill

Moncreiffe Hill

Balmanno Hill

Ballomill Hill

Dumbarrow Hill

Clevage Hills

Black Hill of Kinpen

Eldrick Hill

Skyshore Hill

Green Hill

Balquhandy Hill

Caspers Hill

Clow Hill

Big Knowes

Glenfarg

Scale 1:25 000

SHEET NO 01/11

ISBN 0-319-20350-9 (FLAT) ISBN 0-319-10350-1

ROADS AND PATHS

PUBLIC RIGHTS OF WAY

RAILWAYS

BOUNDARIES

SYMBOLS

VEGETATION

HEIGHTS

OTHER ORDNANCE SURVEY PUBLICATIONS

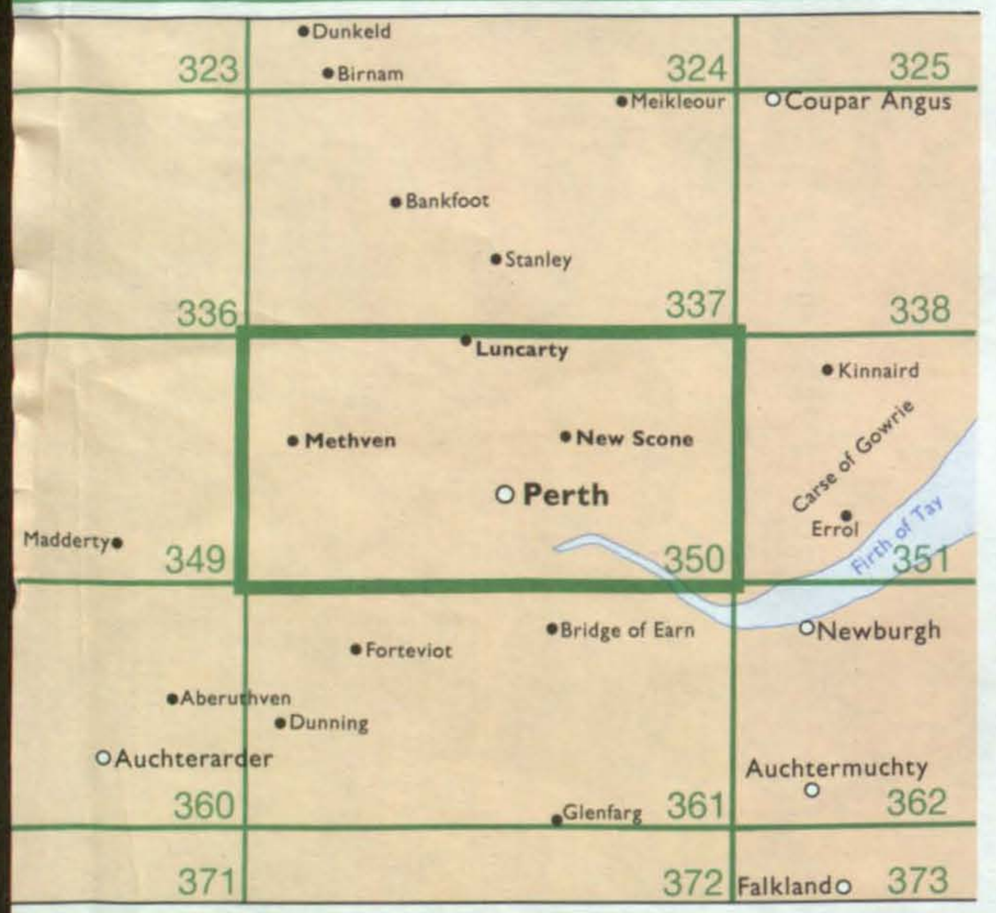
NO 02/12 PERTH & AREA PATHFINDER 350

Ordnance Survey

PATHFINDER 350 (NO 02/12)

Perth
& Area

2½ in to 1 mile · 4 cm to 1 km 1:25 000



Scale 1:25 000

SHEET NO 03/13

STANLEY

ORDNANCE SURVEY

SHEET NO 03/13

ROADS AND PATHS

Not necessarily rights of way

- Motorway (M1 or A(M)1)
- Trunk road (A1)
- Main road (A68)
- Secondary road (B6356)
- Dual carriageway
- Road generally more than 4m wide
- Road generally less than 4m wide
- Other road, drive or track
- Gradient: 20% (1 in 5) and steeper; 14% (1 in 7) to 20% (1 in 5)

Narrow roads with passing places are annotated

Unfenced roads and tracks are shown by pecked lines

Path

RAILWAYS

- Multiple track
- Single track
- Narrow gauge
- Siding
- Cutting
- Embankment
- Tunnel
- Road over & under
- Level crossing; station

Standard gauge

PUBLIC RIGHTS OF WAY

(Not applicable to Scotland)

Public rights of way indicated by these symbols have been derived from Definitive Maps as amended by later enactments or instruments

The representation on this map of any other road, track or path is no evidence of the existence of a right of way

Public paths — Footpath; Bridleway

Byway open to all traffic

Road used as a public path

Information not available in unenclosed areas

DANGER AREA — MOD ranges in the area

Danger! Observe warning notices

BOUNDARIES

As notified to September 1985

- County (England and Wales) Region or Islands Area (Scotland)
- District
- London Borough
- Civil Parish (England)* Community (Wales) –
- Constituency (County, Borough, Burgh or European Assembly) area adjoins

Coincident boundaries are shown by the first appropriate symbol

*For Ordnance Survey purposes County Boundary is deemed to be the limit of the parish unless whether or not a parish area adjoins

SYMBOLS

- Church or chapel: with tower; with spire; without tower or spire
- Glasshouse, youth hostel
- Bus or coach station
- Lighthouse, lightship, beacon
- Triangulation station
- Triangulation point (pillar); church or chapel; lighthouse, beacon building; chimney
- BP, BS — Boundary Post, Stone
- T, A, R — Telephone, public, AA, RAC
- MP, MS — Mile Post, Stone

Roman antiquity (AD 43 to AD 420)

VILLA

Other antiquities

Site of antiquity

1066 — Site of battle (with date)

Gravel pit

Sand pit

Chalk pit, clay pit or quarry

Refuse or slag heap

Slipway

Electricity transmission line: pylon; pole

W, Spr — Well, Spring

Water

Mud

Sand; sand & shingle

National Park or Forest Park Boundary

NT — National Trust always open

NT — National Trust opening restricted

NTS NTS — National Trust for Scotland

FC — Forestry Commission

VEGETATION

Limits of vegetation are defined by positioning of the symbols but may be delineated also by pecks or dots

- Coniferous trees
- Non-coniferous trees
- Coppice
- Orchard
- Scrub
- Bracken, rough grassland

In some areas bracken (···) and rough grassland (···) are shown separately

Heath

Reeds

Marsh

Saltings

Shown collectively as rough grassland on some sheets

HEIGHTS AND ROCK FEATURES

50 — Determined by ground survey or air survey

Surface heights are to the nearest metre above mean sea level. Heights determined by a precision pillar refer to the station height at ground level and not necessarily to the summit

Vertical face; Loose Rocks; Boulders; Outcrop

Contours are at 5 metres vertical interval

At the centre of this sheet true north is 1° 13′ east of grid north. Magnetic north is estimated at 6° west of grid north for 1986 decreasing by about 7′ in three years

A booklet, Place names on maps of Scotland and Wales, is published by the Ordnance Survey and includes a glossary of the most common Gaelic, Scandinavian and Welsh elements used on Ordnance Survey maps of Scotland and Wales

Details of abbreviations used on this map can be provided on request.

Made and published by the Ordnance Survey, Southampton

This sheet has been compiled from 1:10 560 or 1:10 000 scale maps published 1977-82 which were made from surveys dated 1973-82

Revised for significant changes 1984

Major roads revised 1985

Forestry Commission information as supplied at 18-6-84

1:25 000 STANLEY NO 03/13

Ordnance Survey

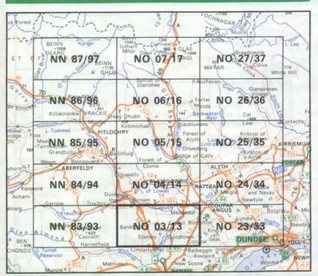
OS

Stanley

Sheet NO 03/13

Pathfinder Series of Great Britain

1:25 000



NO 03/13

HEIGHTS IN METRES

CONVERSION METRES — FEET

1 metre = 3·2808 feet

Metres 1000 900 800 700 600 500 400 300 200 100 0

Feet 3000 2500 2000 1500 1000 500 0

15·24 metres = 50 feet

TAYSIDE REGION

PERTH AND KINROSS DISTRICT

NORTH EAST SCOTLAND EURO CONST

NORTH TAYSIDE CO CONST

MID SCOTLAND AND FIFE EURO CONST

PERTH AND KINROSS CO CONST

Strath Tay

River Tay

Obney Hills

Muir of Thorn

Cairnleith Moss

Bankfoot

Stanley

Five Mile Wood

Formal Hill

Dunsinnan Wood

Sidlaw Hills

Scale 1:25 000

SHEET NO 03/13

SHEET NO 22/32

ROADS AND PATHS

Not necessarily rights of way

- M 1 or A 6(M) — Motorway
- A 31(T) — Trunk road
- A 35 — Main road
- B 3074 — Secondary road
- (Narrow roads with passing places are annotated)
- A 35 — Dual carriageway
- Road generally more than 4m wide
- Road generally less than 4m wide
- Other road, drive or track

Unfenced roads and tracks are shown by pecked lines

- Path

RAILWAYS

- Multiple track } Standard gauge
- Single track } Standard gauge
- Narrow gauge
- Siding
- Cutting
- Embankment
- Tunnel
- Road over & under
- Level crossing, station

PUBLIC RIGHTS OF WAY (Not applicable to Scotland)

- Public paths: Footpath, Bridleway
- Road used as a public path

Information not available in uncoloured areas

DANGER AREA — MOD ranges in the area Danger! Observe warning notices

Public rights of way indicated by these symbols have been derived from Definitive Maps as amended by later enactments or instruments held by Ordnance Survey

The representation on this map of any other road, track or path is no evidence of the existence of a right of way

BOUNDARIES As notified to 1-3-79

- County (England and Wales) Region or Islands Area (Scotland)
- District
- London Borough
- Civil Parish (England)* Community (Wales)
- Constituency (County, Borough or Burgh)

Coincident boundaries are shown by the first appropriate symbol opposite

*For Ordnance Survey purposes County Boundary is deemed to be the limit of the parish structure whether or not a parish area adjoins

SYMBOLS

- Church or chapel: with tower; with spire; without tower or spire
- Y — Glasshouse, Youth hostel
- Bus or coach station
- Lighthouse, lightship, beacon
- Triangulation station
- Triangulation point on church, chapel, lighthouse, beacon, building & chimney
- BP, BS — Boundary Post, Stone
- T, A, R — Telephone, public, AA, RAC
- P, MP, MS — Post office, Mile Post, Stone
- VILLA — Roman antiquity (AD 43 to AD 420)
- Castle — Other antiquities
- Site of antiquity
- 1066 — Site of battle (with date)
- Gravel pit
- Sand pit
- Chalk pit, clay pit or quarry
- Refuse or slag heap
- Sloping masonry
- W, Spr — Well, Spring
- Water
- Sand, sand & shingle
- Mud
- NT — National Trust always open
- NT — National Trust opening restricted
- NTS NTS — National Trust for Scotland
- Electricity transmission line: pylon, pole

VEGETATION

Limits of vegetation are defined by positioning of the symbols but may be delineated also by pecks or dots

- Coniferous trees
- Non-coniferous trees
- Coppice
- Orchard
- Scrub
- Bracken, rough grassland
- Heath
- In some areas bracken (+) and rough grassland (……) are shown separately
- Shown collectively as rough grassland on some sheets
- Reeds
- Marsh
- Saltings

HEIGHTS AND ROCK FEATURES

- 50 · Determined by ground survey
- 285 · Determined by air survey

Surface heights are to the nearest metre above mean sea level. Heights shown close to a triangulation pillar refer to the station height at ground level and not necessarily to the summit

Vertical face; Loose rock; Boulders; Outcrop; Scree

Contours are at 5 metres vertical interval

At the centre of this sheet true north is 0° 57′ east of grid north. Magnetic north was about 7½° west of grid north in 1979 decreasing by about ½° in three years

A booklet, *Place names on maps of Scotland and Wales*, is published by the Ordnance Survey and includes a glossary of the most common Gaelic, Scandinavian and Welsh elements used on Ordnance Survey maps of Scotland and Wales

Made and published by the Director General of the Ordnance Survey, Southampton, from whom details of abbreviations used can be obtained

This sheet has been compiled from 1:10 560 or 1:10 000 scale maps published 1970-77 which were made from surveys dated 1964-74

Revised for significant changes 1979

Major roads revised 1979

1:25 000 CARSE OF GOWRIE AND BALMERINO NO 22/32

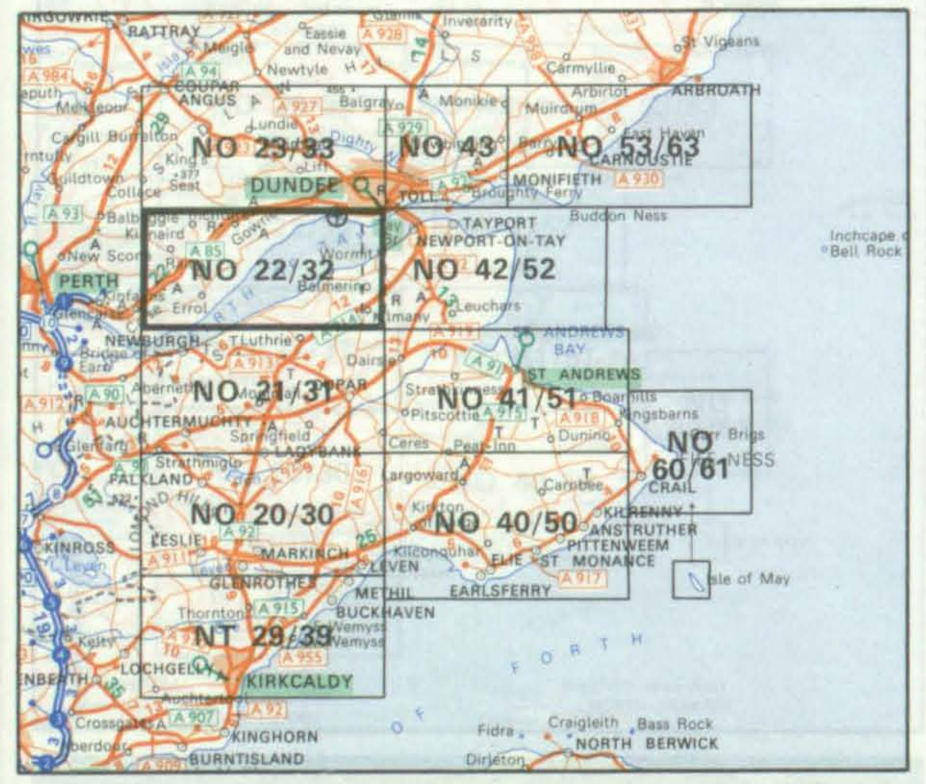
Ordnance Survey

Carse of Gowrie and Balmerino

Sheet NO 22/32

Pathfinder Series of Great Britain

1:25 000



NO 22/32

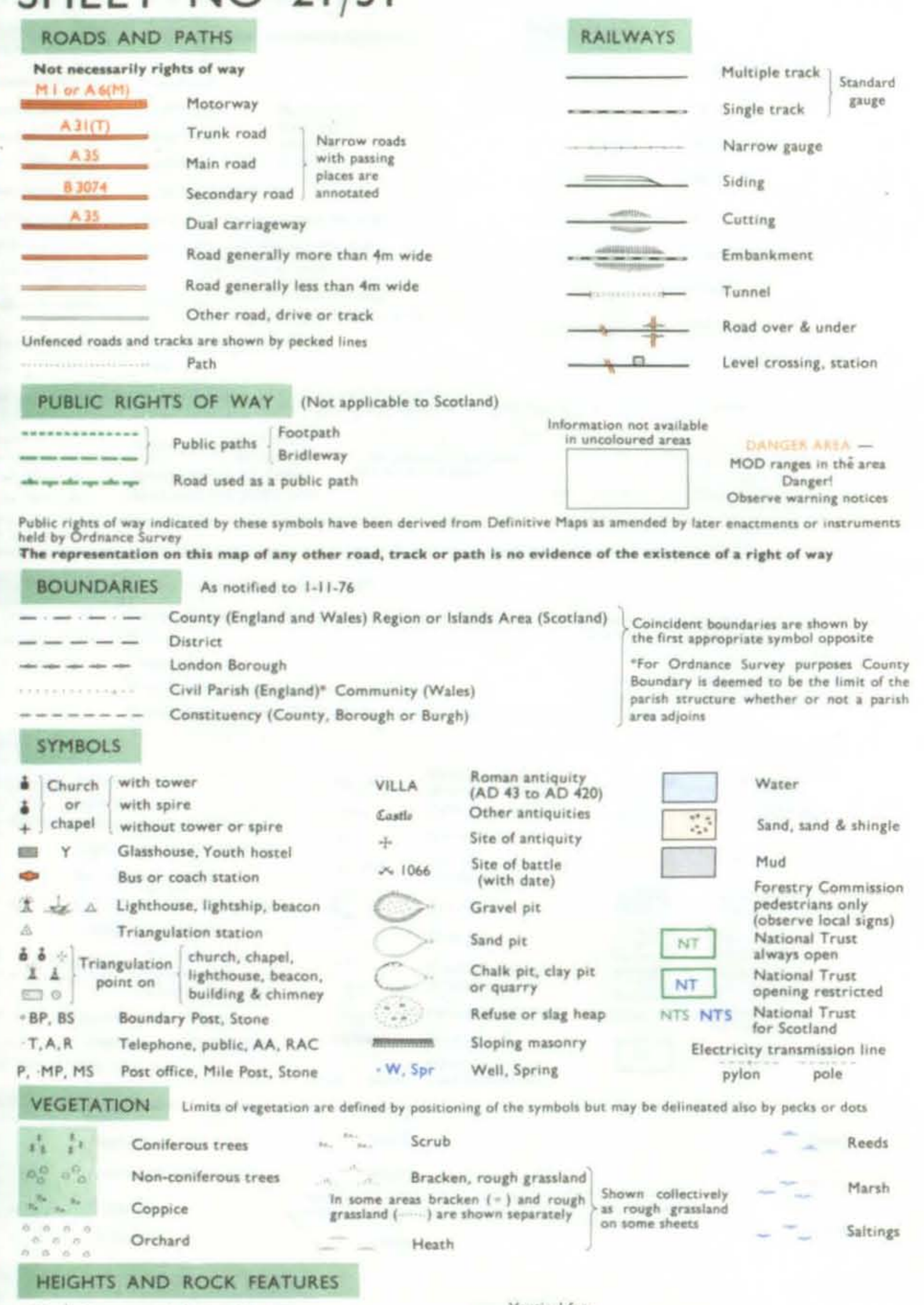
CARSE OF GOWRIE AND BALMERINO

ORDNANCE SURVEY

SHEET NO 22/32

Scale 1:25 000

SHEET NO 22/32



HEIGHTS AND ROCK FEATURES

50 · 285 · Determined by ground survey / air survey

Surface heights are to the nearest metre above mean sea level. Heights shown close to a triangulation pillar refer to the station height at ground level and not necessarily to the summit

Vertical face — Loose rock — Boulders — Outcrop — Scree

Contours are at 5 metres vertical interval

At the centre of this sheet true north is 0° 57′ east of grid north. Magnetic north was about 8° west of grid north in 1977 decreasing by about ½° in four years

A booklet, *Place names on maps of Scotland and Wales*, is published by the Ordnance Survey and includes a glossary of the most common Gaelic, Scandinavian and Welsh elements used on Ordnance Survey maps of Scotland and Wales

Made and published by the Director General of the Ordnance Survey, Southampton, from whom details of abbreviations used can be obtained

This sheet has been compiled from 1:10 560 or 1:10 000 scale maps published 1971-75 which were made from surveys dated 1964-72

Revised for significant changes 1975

Major roads revised 1976

1:25 000 AUCHTERMUCHTY AND CUPAR NO 21/31

Ordnance Survey

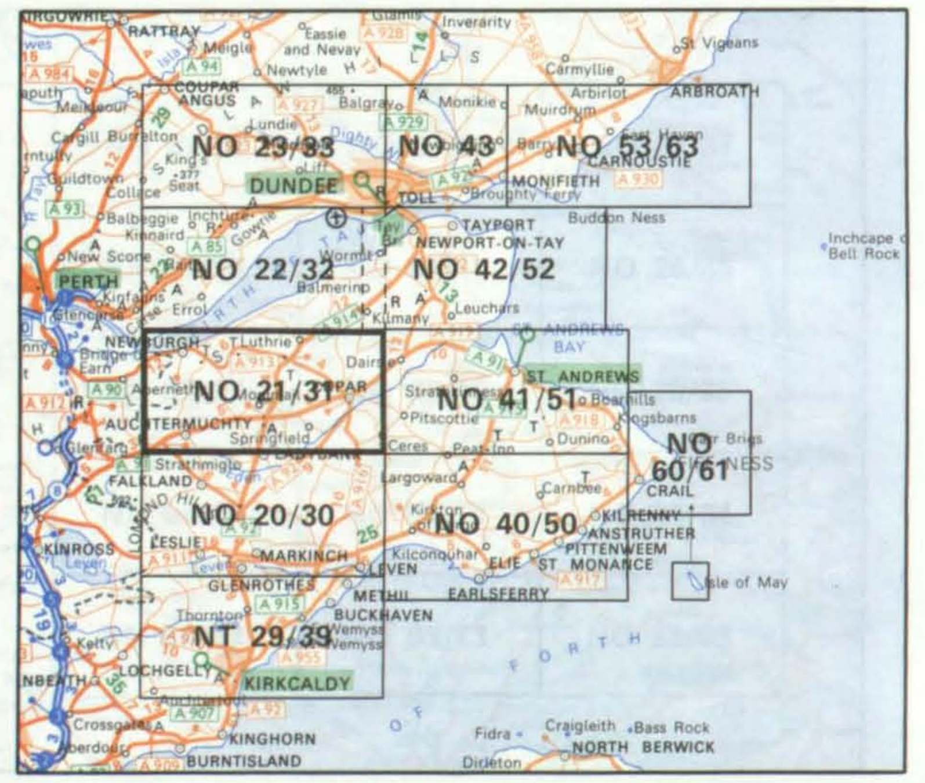
Auchtermuchty and Cupar

Sheet NO 21/31

Pathfinder 362

Pathfinder Series of Great Britain

1:25 000



AUCHTERMUCHTY AND CUPAR — ORDNANCE SURVEY — SHEET NO 21/31

Scale 1:25 000