5. River Almond

Most of the 45km length of the river is in West Lothian, but its source and its mouth are not. While searching for the former, I took the photograph alongside, looking north from the first bridge over the river, on the B717. The little stream is emerging from scrubby woodland, and has probably travelled little more than a few hundred metres from its source. Doubt as to where exactly it rises stems from the inaccessibility of the woodland, confusing aspects of maps, and mostly the nature of the ground. The area, usually described as on the slopes of Hirst Hill, is being reclaimed after mining, and is riddled with interconnecting drainage ditches and ponds, some of which appear to link to the nascent river. There is a watershed here, with water flowing east and west, but its location may well have been shifted by the mining operations. My best guess is that the source of the River Almond is just east of the B7057 (Shotts Road), at Grid Reference NS 877 629, but there can be no certainty. The point is a bit more than a kilometre north of the small town of Shotts in North Lanarkshire, a slightly shorter distance south of the M8, and just below the 250m contour. I take this opportunity to refer to Table 1, at the end of this text which shows the course of the river, and its tributaries, as well as the locations of the water mills known to have stood by them.

Shotts was a small village in medieval times, which acquired notoriety in the late-14th century as the lair of a robber with a giant's stature, Bartram de Shotts, who preyed upon travellers on the nearby track which then linked Edinburgh and Glasgow. Eventually, he was outlawed, and later deceived and killed by intended victims, yet the village was in after-years known as Bertramshotts, suggesting that most locals took a favourable view of his brigandage. From the early 19th century onwards, Shotts became an industrial centre, first of ironmaking, and then of coal-mining as well. These undertakings are long gone, and Shotts with its population of over 8000, is like a number of similar towns in the Scottish central belt, in appearing somewhat run-down, and lacking a new rationale. Better known now is the hamlet of Kirk O' Shotts, 4km to the north-west beside the M8, and the site of television masts and a prominent 19th century church.

Getting back to the river, it flows south beneath the B717, and then turns north-east through rough upland pasture, travelling just over 3km to where it crosses into West Lothian, on the south side of the ex-mining village of Harthill. A short distance to the south, and still in North Lanarkshire is a monument affixed to Peden's Stone. This was Covenanting country during the reign of King Charles II, when many of those

dissenting from the King's Episcopalian Church, were addressed by Presbyterian ministers in outdoor conventicles. Alexander Peden, originally from Ayrshire, and educated at Glasgow University, was one of the best known of these preachers who risked liberty and life. For a decade he perambulated round lowland Scotland, disguised by a mask, (now apparently displayed in the Museum of Scotland), but in 1673 he was captured and imprisoned for 5 years. He was then earmarked for transportation to the American colonies, but was freed from the convict ship before it departed, and returned to Scotland, where he resumed his preaching career. He died in 1686, sadly for him, just before his co-religionists gained ascendancy after the Revolution of 1688, and a callous attempt to display his corpse on a gallows was only narrowly averted. The link between Peden and the said stone seems rather tenuous, though if he did not preach standing on it, others certainly did. Nonetheless, the monument shown in the photograph was raised on top of the stone in the 19th century, and seems a fitting tribute to a courageous man.

The banks of a small right bank tributary of the River Almond are maybe just visible behind Peden's stone, and it and others boost the amount of water in the stream, as can be seen from the next photograph taken just south of Harthill, looking into West Lothian. Upstream of this point, a lade supplied a water wheel which drove a flax mill, remembered by a street name. That mill, the furthest upstream on the river was later converted to thresh corn, but no trace of it remains. Harthill is a small town, and is now best known for the nearby M8 service station taking its name; this is quite appropriate because a couple of centuries ago, the posting inn at Polkemmet on the east side of the town was where the fast Edinburgh to Glasgow Stagecoaches paused to receive fresh horses. Coal-mining, which began in the 17th century was the main occupation of the townsfolk until the last local pit closed in 1985, and Harthill is another place in the Scottish central belt, which has not really recovered. East of the town, the river enters the Polkemmet estate, which houses a golf course, and other attractions. It was for long the domain of the Baillie family who built a mansion there in the 17th century, and acquired a baronetcy in the early 19th century; they became wealthy by exploiting the coal seams under their estate. An interesting scion of the family, was Sir Gawaine Baillie, 7th Baronet, born in 1934 who had a motor-

racing career of some note, and amassed in some secrecy a stamp collection which sold for many millions of pounds after his death in 2003. His wealthy half-American mother had purchased the magnificent Leeds Castle near Maidstone in Kent in 1926, and thereafter supervised its restoration. The castle became the family home of the Baillies in the 1930s, and Sir Gawaine was brought up there. Thereafter, Polkemmet House, which had become surplus to the family's requirements, had short spells as a school, a police college, and a mining headquarters, but was demolished apart from some outbuildings in the 1960s. The estate was purchased by West Lothian County Council in 1978, and opened as a country park, three years later.

The river next crosses to the north of the M8 for a short stretch, so bypassing the town of Whitburn, and I am going to do the same, save for mentioning that its population depended heavily on the large Polkemmet Mine which closed after the Miner's Strike in the 1980s. No doubt flooding was a contributory factor, perhaps attributable to reduced maintenance during the strike, but the closure would not have been long-delayed because British deep-mined coal was no longer price-competitive with imports, and recently of course the drive to reduce greenhouse gas emissions has led to a reduction in the use of coal, wherever sourced. Nonetheless, the decision was highly contentious, and matters were exacerbated in the area because other major employers fared no better, with the large vehicle manufacturing plant at Bathgate, a few kilometres to the north also closing in the late1980s, while a Motorola plant employing over 3000 people making mobile phones hardly lasted 10 years before closing in 2002. In a way, the next town reached by the River Almond continues that sad story, though the big closure in Blackburn took place early in the 20th century and was of a mill which manufactured cotton cloth from 1793 onwards. It was rebuilt after a destructive fire in 1877, and had a second life as a cardboard manufacturing mill, but the site on the west side of Blackburn now houses St. Kentigern's School, and the mill is remembered only by the names of two nearby streets.

Blackburn was founded by a George Moncrief, who, having made a fortune as owner of a sugar plantation in the West Indies, purchased the estate of that name in the mid-18th century. It is not necessary here to enquire into how ethically Moncrief made his money, by our standards anyway, but to the east of his new town he also built a fine house in the best Georgian style, with two side pavilions which gave it a colonial appearance. The house, shown above, remained a private home until 1972, when upkeep costs forced its then owners to leave, and the buildings began to fall into disrepair. It was restored by 2010 as business premises. In the photograph, taken from the north, the River Almond flows in a shallow valley behind the house, and further south to the right is one of the shale bings which feature strongly in the landscape around the Almond valley, and about which I will say more shortly. A short distance to the east, is the village of Seafield, once surrounded by oil-shale mines, which housed miners, and those who manned a chemical plant fed by the product of the mines. Its name has puzzled me for 50 years, since I got to know a resident, given that it is so far from the sea, but most likely that group of letters is a corruption of another name. By this point, the river

just south of the village has received water from a number of tributaries, including the Cultrig Burn, and the Bickerton Burn, and is about to join with a stream which more or less doubles its water flow rate.

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The Breich Water is created by the meeting of moorland streams to the south-west of the small town of Fauldhouse, and flows generally north-eastwards for 13km to meet the River Almond. Although, Fauldhouse appears on some of the earliest maps, it has no old buildings, and as with its near neighbour Shotts it was mining of iron and coal nearby that led to its growth towards the present population of c5000, and the demise of these industries has left it largely a dormitory town. Flowing on the south side of the town, Breich Water follows a route parallel to and north of the A71, Edinburgh to Kilmarnock road, passing by the one-street village from which it takes its name, and some sites once occupied by watermills, before it reaches the village of Addiewell. Extraordinary as it may seem now, Addiewell could quite fairly be described as being at the centre of the world oil industry in the middle part of the 19th century, and I must pause to consider how that could be, and why few signs remain of its importance. The short answer to the first question, is that a brilliant scientist and entrepreneur, James 'Paraffin' Young discovered how oil products could be obtained from a mineral found abundantly in West Lothian, and equally importantly, had the practical ability and financial nous to set up an industrial scale process to exploit his discovery. The answer to the second question is that the extraction of shale oil by Young's methods, was superseded by drilling into reservoirs of liquid oil, onshore and offshore, and eventually by a more economic method of separating out shale oil, namely fracking. It is an irony that Scotland the pioneer of the original shale oil industry, which survived until 1962, seems too risk-averse and in thrall to a 'green' lobby to contemplate exploiting the remaining shale beds using the newer method.

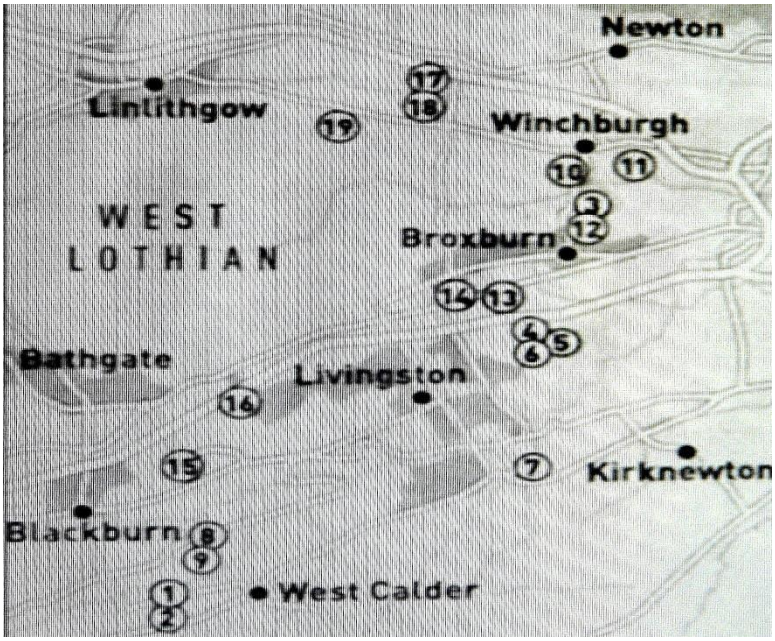
If not quite a rags to riches story, James Young's career was certainly remarkable. He was born in Glasgow in 1811, and initially followed his father into the craft of cabinet making, but his life was changed by his enrolling for evening lectures at the Andersonian College, where he caught the eye of Thomas Graham, a chemistry professor. By the time he had reached his late 20s, he had moved to North-West England and was supplying technical expertise to chemical manufacturing plants. He combined an eye for opportunities with the ability to think laterally, and to back up his ideas by hard experimental graft. He formed a company which utilised oil from seepages in mines, but soon saw that there would be a market, if production of oil-based products could be increased by exploiting a more abundant source. To achieve this, he developed a process which, after distillation, yielded oils and candle wax from cannel coal, heated in retort furnaces more gently than in an existing process which produced coal gas. He took out patents which he defended vigorously, and formed a partnership which in 1851, opened a factory at Bathgate, where suitable Boghead coal was mined. This enterprise thrived for a decade, but inevitably competition increased, and his patents were circumvented or just ignored, while relations with his partners deteriorated. So, he thought to start again and did so by building a huge factory at Addiewell, the extent of which can be seen on 19th century maps. Importantly, Young had adapted his process to allow the new plant to use oil-shale which was abundant in West Lothian as feedstock. Having established the new business, Young stepped back in 1870 at the age of 59, though remaining chairman of the profitable enterprise; his lead was followed by many other companies to the extent that early in the 20th century, 3 million tons per annum of shale were mined and processed in Scotland. James Young helped to fund David Livingston's African expeditions, and in semi-retirement, living in Wemyss Bay, received

honours including an honorary doctorate from St. Andrews University, and a Fellowship of the Royal Society, but they hardly seem commensurate with his achievement. He died in 1883.

Of course, the widespread use of the internal combustion engine caused an explosion in the demand for oil products through the 20th century, and the discovery and exploitation of large liquid oil fields around the world enabled that demand to be met. Shale oil remained a useful if usually less economic source of chemicals which explains why oil-shale continued to be mined and processing plants remained open well into the 20th century. Below is a list of 20 oilworks, which once operated within a relatively small area of West Lothian.

Tarbrax Oil-W	Westwood Oilworks	Roman Camps Oilworks	Hopetoun Oilworks
Cobbinshaw Oilworks	Gavieside Oilworks	Deans Oilworks	Niddry Castle Oilworks
Addiewell Oilworks	Seafield Oilworks	Uphall Oilworks	Dalmeny Oilworks
Hermand Oilworks	Oakbank Oilworks	Holmes Oilworks	Linlithgow Oilworks
New Hermand Oilworks	Pumpherston Oilworks	Broxburn Oilworks	Philpstoun Oilworks

Few traces of the production plants remain, half a century after the last of them closed, but other very obvious and many would say, unsightly reminders of the West Lothian oil boom are part of the landscape, namely shale bings. They are spoil heaps of the residue from the crushed coal, turned red during the heating process which separates out the useful oil products; it has been estimated that for every 10 barrels of oil produced, 7 tonnes of shale residue remained. Of 27 shale bings left when oil production ceased in 1963, 19 remain, located as shown on the map adapted from Dr. Harvie's report for West Lothian Council, and some are now the subject of protection orders as reminders of West Lothians industrial heritage.



Key to bings

1 Addiewell north
2 Addiewell south
3 Greendykes
4 Drumshoreland north
5 Clapperton
6 Drumshoreland south
7 Oakbank
8 Mid Breich
9 Five Sisters
10 Faucheldean
11 Niddry
12 Albyn
13 Green Bing
14 Stankards
15 Seafield
16 Deans
17 Philpstoun north
18 Philpstoun south
19 Bridgend

On the left bank of the Breich Water beside the site of Westwood Oilworks, c4km east of Addiewell, is one of the most prominent shale bings, known now as the 5 sisters, and shown alongside, viewed from the east. Although the reddish tinge of the heated and discarded shale residue is obvious on the mound furthest to the left, the others now carry a covering of vegetation. This greening will presumably continue, and the artificial hills will be a valuable wildlife habitat and no longer a major eyesore, though paradoxically their role as a monument to an industrial heritage will diminish as they more and more resemble a natural feature. However, many years will pass before others like the largest of all, Greendykes (number 3 on the map above), will complete that transformation. Before the Breich Water swings northwards to join the River Almond just south-east of Seafield, the small town of West Calder is on the right bank. It was a coach stop from the late 18th century, on the turnpike road between Edinburgh and Lanark, on the route now occupied by the A71, but a century later had grown well beyond its present population of c5000 to house many of those working in the shale oil industry. The only old building in the town is the ruin of the plain old parish kirk, built in 1643, but replaced in 1880, but it has a busy main street and seems to have recovered better than many places from the removal of its main raison d'être.

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The augmented River Almond flows from the confluence with the Breich Water for c1km, slightly north of east between cultivated fields, before it reaches buildings on the western outskirts of Livingston. Here on the left bank of the river is the Almond Valley Heritage Centre, home to a number of attractions, two of which are very relevant to this account. One is the Scottish Shale Oil Museum, which houses surviving artefacts of the industry, including some memorabilia which belonged to its founder, James 'Paraffin' Young FRS. It is probably worth restating that for several decades up to the early years of the 20th century, the area round about was the centre of the world oil industry, thanks to the inventiveness and vision of Mr. Young. My only real disappointment with an interesting display, was the lack of an overview which would have brought this out more strongly. Also on the site is a watermill, with a breast-shot configuration, in which water is delivered near the equator line of the wheel, which powered the grinding of corn from the 1790s onwards; there are in addition, a water-powered threshing mill, and a well-preserved water delivery system, comprising lades and a mill pond. I am not clear if the mill can operate, but it did not do so when I visited.

Livingston is a new town designated as such in 1962 and it is now by far the largest conurbation in West Lothian, with a population in 2016 of 56,700; it ranks 7th in Scotland, but its years of rapid growth have ended, and a raised target of 100000, which was put in place in the 1970s, looks unrealistic in the foreseeable future. There is no dominant employer which, given the demise of those that have filled that role in the wider area, is probably no bad thing. The town is a significant retail centre and hosts light industry and many business enterprises in its Kirkton Technology Campus on the right bank of the river. The village which gave its name to the town and has been absorbed by it is on the left bank of the River Almond, a little further downstream. It has the air of a pleasant backwater, with an 18th century, rather plain, church, and other buildings of that

vintage and some more recent, on its quiet main street. An inn is one of the older buildings and dates from busier times when the street was on the toll road between Edinburgh and Glasgow. A minor road leaves the village to the south, crossing the River Almond on a single-arch bridge dating from c1800. My photograph taken from the bridge looking up-river, shows how much the river has grown in travelling c15km for Harthill. It is joined a few hundred metres downstream on the right bank by another substantial stream, the Killandean Burn, only 2km long, but formed by the fusion of the Harwood Water, and the West Calder Water which themselves are both c10km long with their sources on high ground to the south, near the boundary between West Lothian and Lanarkshire.

The River Almond flows through the south side of Livingston though not a very visible presence in a valley dense with trees, until leaving the conurbation behind to the south-east, it reaches the large village of Mid- Calder which just about maintains a separate identity. Mid-Calder is high on the right bank of the river, and its centre with a prominent inn, and a tight double bend in the main street does not seem to have changed in the past 60 years. The place is old, with origins said to be in the 11th century, and has been linked with the Sandilands family since they received it as part of a marriage contract in 1350. Their mansion near the centre of the village, and accessed through a 17th century archway, began life as a castle, but was rebuilt to an L-shaped plan in the 16th century, though it probably incorporates older elements. At roughly the same time the head of the family was ennobled as Lord Torphichen, compensation for losing his position as Preceptor of the Knights Hospitaller, who were suppressed in the Reformation. Since then the house has been extended, and has remained in the hands of the Sandilands until the present day. The Kirk of Calder is a short distance north-east of Calder House, and there has been a church on the site since c1150. A new church was planned in 1542, and probably its large scale indicates that it was intended to be collegiate, but only the choir was built, and after the Reformation it was walled off to the west, leaving what must have been a curiously proportioned, truncated building. Eventually in 1863 a western extension was opened which gave the building the T-shape which can be seen now. The photograph above is a view from the south-east.

Mid-Calder is a quiet village, albeit that modern housing is encroaching relentlessly, yet two centuries ago it must have been very different. The main Edinburgh to Glasgow toll road ran along the main street then, and the idea that it was at a cross-roads is supported by its role as an important gathering point on the main cattle drove road south. Animals from the north of the country congregated at the Falkirk Tryst, and were then moved south-east by various routes to be brought together again at Mid-Calder after fording the River Almond. Thereafter, they were herded south-east to the Cauldstane Pass over the Pentland Hills and on to the Scottish Borders and England. The annual cattle-drive must have been a big event in Mid-Calder, until faster means of transport by rail and steamship became available in the later 19th century, and took over the task of supplying Scottish meat to the large populations in the south.

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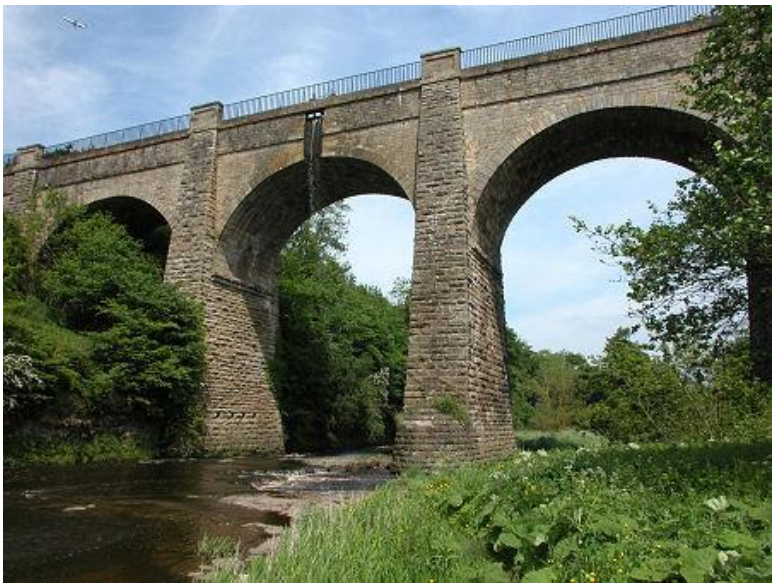
Once past the centre of Mid-Calder, the river receives a large tributary on the right bank, the Linhouse Water. The confluence is well shown by an internet photograph taken from the north-west, 36 years ago by a Mr. Richardson. The River Almond flows from the bottom right to the upper left, and is joined from the top right by the tributary; the roads in view are the B8046, from Mid-Calder to Pumpherston bridging the River Almond on the bottom right, and part of the B7015 once the A71, heading towards Edinburgh crossing the Linhouse Water on the very top right. Just out of shot, upstream of the latter bridge the Linhouse Water is itself joined by the Murieston Water. That stream flows 12km from the Cobbinshaw Reservoir in the south-western foothills of the Pentland range. The reservoir, shaped like a fish with its tail to the south-west has an area of 126 ha, and was built in 1818 to supply water by way of the outlet stream, the Bog Burn, then in succession, the Murieston Water, the Linhouse Water and the River Almond, before being drawn off into the Union Canal, linking Edinburgh to Falkirk and the Forth and Clyde Canal. Most of the course of the tributary is through moorland, alongside the southern rail link between Edinburgh and Glasgow, but it does pass through Harburn Golf Course where I, or at least my golf ball, visited its waters more than once, especially the first time I played there as a rather callow 18-year old.

The Linhouse Water runs a little to the east of the Murieston Water on an essentially parallel north-easterly course of similar length. Its effective start-point is the Crosswood Reservoir with an area of 29ha, the only part of the mid-Victorian Edinburgh supply arrangements to draw on the River Almond catchment. As usual for that time the water was taken directly from springs, and the reservoir provided compensation flows along the Crosswood Burn, which changes its name to the Camilty Water, and then the Linhouse Water before reaching the River Almond. Just downstream of where the first name change occurs, there is an impressively high weir shown above, at the site of Camilty Mill. This was initially a corn mill, but in 1890 it was converted to produce gunpowder for the coal and shale mines in the neighbourhood, and it continued to do so until shortly after a serious explosion which killed two employees in 1925. Apparently, the army had maintained a permanent presence on the site to guard against any of the gunpowder falling into the wrong hands.

The lower reaches of the Linhouse Water are in Almondell and Calderwood Country Park, on land which once made up two private estates, but is now owned by West Lothian County Council. The park continues along the River Almond, downstream of the confluence with the Linhouse Water, providing riverside and woodland walks; there is a visitor centre converted from the stables attached to Almondell House which was built in the late 18th century, but demolished in 1969. I have already mentioned that Cobbinshaw Reservoir at the head of the Murieston Water was built to ensure the availability of water to top up the Union Canal. The existing river system was relied on to get water from the reservoir into the River Almond, but as the canal crosses the river on a 21m high aqueduct, shown later, other arrangements were necessary to deliver water at the correct height. About 1km downstream from the junction with the Linhouse Water, the River Almond encounters two weirs; the first channelled water into a lade to power a corn mill on a site now occupied by a water treatment plant, the second continues to channel water into a lade which feeds the canal. The route followed is 5km long and complicated, sometimes in an open lade, sometimes piped below ground, beginning on the left bank of the river, it passes under the picturesque Camps Viaduct with 9 arches which once carried a branch rail-line, but now only a footpath, then it is carried across to the right bank of the river by a small aqueduct and on to its destination at the east side of the grand aqueduct which takes the canal over the River Almond. The feeder can add water at a rate of 1400 gallons per minute, and its path has been chosen to ensure that it slopes downwards, but the fall is gradual, so that it reaches the canal having descended from the start point by 20m less than the river beside it, or to put it another way, 20m above the river from which the water came.



The Almond Aqueduct, also called Lin's Mill Aqueduct is an imposing structure, built to a design developed by Thomas Telford, though the Union Canal project engineer, Hugh Baird, had a strong input during construction; it was completed in 1822. The iron trough which contains the canal water is supported by 5 masonry arches, each spanning 15.2m, and the total length is 128m. The overflow on the central arch can be seen as fine tuning the canal water level. Lin's Mill was a cornmill, converted in recent years to a private house, and William Lin was a 17th century miller who died of the plague in 1645.

From the tow-path above the river, Illieston Castle is visible upriver on the left bank; it was probably built as a simple tower, in the16th century and served as a royal hunting lodge. It passed to a branch of the Hamilton family, and was extended in the 17th century before being given baronial features like the pinnacle and crow steps by the noted architect William Burn in c1850. It has been refurbished recently, and is still a private dwelling. Without encroaching on the farmland around it and the steading now converted to private houses, it is only visible from some distance to the north-east, and this accounts for the slightly fuzzy photograph taken on a hazy day.

Bridges of different ages and configurations are a theme of this stretch of the river, because it is crossed a short distance downstream by the comparatively modern bridge carrying the M8 motorway, and another railway viaduct, before it reaches the most spectacular of them all, the Almond Valley Viaduct which carries the main Edinburgh rail-line to Glasgow, via Falkirk. It was completed in 1842, comprising a total of 43 arches

in two sections separated by an embankment, 400m long. All but one of the stilted segmental arches spans 15.2m, the exception being one of the seven in the western section over what is now the A89, which spans 20.1m; the river on the eastern section is 21m below the line of arch crowns. It is hard to find a photograph which does justice to the fine spectacle presented by the viaduct; those showing most of its long curve lack detail, but hopefully the one I have taken of the eastern section, is a reasonable compromise. The River Almond, which has for a short distance served as the boundary between West Lothian and the City of Edinburgh, enters the City as it flows under the viaduct, and remains within its confines thereafter. The river, flowing predominantly north-east, next skirts round the west side of the village of Newbridge; the name referring to a bridge over the River Almond, earlier I think than the present stylish twin-arch model which dates to c1800 and is now pedestrianised. It was on the route from Edinburgh to Glasgow, which eventually became the A8, replacing the turnpike road through the Calders and Polkemmet.

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A short distance further downstream, the river receives its most significant left bank tributary, the Brox Burn (as in brock meaning badger). This stream rises in the Bathgate Hills, north-east of that town, and flows east past Bangour Hospital, once the destination for too many car-accident victims on the A8, before the M8 was opened. On its right bank, a little further downstream is Houston House, built for a lawyer called Sharp in 1600, but now a hotel, and almost surrounded by Uphall Golf Course. On my first visit there, many years ago, I felt the need of a safety helmet, if not a suit of armour, because holes were packed close together near the clubhouse, and golf-balls seemed to be flying everywhere, accompanied by frequent shouts of ‘fore’ which did not help much, as it was unclear where the balls were heading. A house just downstream has been converted from Houston Cornmill, which dates back to 1471, and ceased to operate only in 1950. Uphall was once known as Strathbrock, another badger reference, and in some form must be ancient, because its parish church of St. Nicholas dates in part to the late-12th century. In the photograph taken from the west, the lower part of the tower, and the nave behind it, are Norman, as is suggested by the doorways in view; an extended chancel was completed in the 13th century. Otherwise, although the church has been added to, most notably with a 17th century aisle, modified, and refurbished, especially internally, in the years since, it is recognisably what it once was. The church is on Ecclesmachan Road which runs north from the main street, once the A8, and about 1km further north is the village of

Ecclesmachan which also has a very old church, this one dedicated to St. Machan. The place-name including 'Eccles', the Latin form of church suggests a very early foundation, but St. Machan was a 12th century bishop who was born in Ireland. The church was consecrated by Bishop de Bernham in 1244, but little from that church remains, largely because it was sacked in 1445 by Lord Chancellor Crichton during his conflict with the Douglas family, after the infamous Black Dinner, which is touched on, in the account of the River Tyne. It was rebuilt in the early 16th century, but most of what can be seen now dates from the 18th and 19th centuries. However, the two rounded doorways in the photograph, taken from the south-west, are thought to be of the 12th century. It is unusual in Scotland to find two parish churches with fabric as old as this, so close together.

Uphall now is conjoined to the 19th century town to its east, called Broxburn, and together they have a population of c14000. They made up another shale-oil hot spot with mines, oilworks, and shale bings scattered around, and grew in the 19th century to provide housing and amenities for the workforce. When the separate businesses were gathered into Scottish Oils in 1920, the headquarters was in Broxburn, but the efficiencies resulting from the amalgamation only delayed the inevitable, and operations ceased in the 1960s. Proximity to Edinburgh has presumably helped to provide alternative employment, especially in a large industrial estate on the eastern outskirts of the townships, which seem to be thriving more than ex-mining towns further west.

Newliston House and estate is on the left bank of the Brox Burn, just short of its junction with the River Almond. It is strongly linked with the Dalrymple Earls of Stair, who were encountered first in the essay on the River Tyne, but they were its owners for less than a century, and had nothing to do with the erection of the mansion which stands now. The estate was a possession of the Dundas family whose main seat was a castle near South Queensferry, from the 15th century, and they built a house early in the 17th century. The estate and house came into the possession of John Dalrymple, later 1st Earl of Stair by marriage in 1669; he as Secretary of State in Scotland is rightly assigned a large share of the responsibility for the Massacre of Glencoe in 1692, and this overshadows an otherwise noteworthy if convoluted career. Newliston House had been the scene of a domestic tragedy, a decade earlier, when the eldest son and heir of the aforementioned earl was shot and killed, probably accidentally, by his 9-year old younger brother, who eventually became as a result, the 2nd Earl of Stair. He figured prominently in the Duke of Marlborough's army in the War of the Spanish Succession in the first decade of the 18th century, and over 30 years later as a Field Marshal commanding an allied army in the first stages of the War of The Austrian Succession. He left his mark on the estate, when in the 1720s after a term as Ambassador to France he had gardens laid out which aped some of the features at the Palace of Versailles, including a canal leading from the River Almond. It is suggested that a Union Jack pattern was included, and that he followed the fictional example of Tristram Shandy's Uncle Toby by

incorporating landscape features drawn from one of the many battlefields he saw. He planned to rebuild the house, but lacked enough money, and when he died in 1747, the estate had to be sold to pay off his large debts. The purchaser was a London merchant called Hog, and it was his family who commissioned Robert Adam in 1789 to design the house which stands now, augmented by wings added half a century later by another famous Scottish architect, David Bryce, and shown in the photograph taken from the Scottish Gardens website. Members of the Hog family still live in the house which is regularly opened to the public.

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A short distance downstream of its confluence with the Brox Burn, the River Almond is joined by another small left bank tributary, the Niddry Burn which rises west of Ecclesmachan, which has already been visited, and flows generally eastwards, passing to the south of the village of Winchburgh which is on the route once followed by the main road from Edinburgh through Linlithgow to Stirling. The stream flows between two of the largest remaining shale bings, Greendykes and Niddry, and just south of the latter, as shown in the photograph, is Niddry Castle. The L-plan tower was built by the Seton family, more associated with East Lothian, in the first years of the 16th century, and was a staging post for Mary, Queen of Scots after her escape from imprisonment in Loch Leven castle, on her way to defeat at the Battle of Langside, and her ultimately disastrous flight to England. The castle was acquired in 1660 by the Hope family whose main seat, the nearby palace which is Hopetoun House was built shortly afterwards, so it is unsurprising that Niddry Castle was neglected and fell into the ruined state in which I saw it first. However, it was restored in the 1980s, during which process, remains of its substantial barmkin were excavated; it had clearly once been a strong fortalice.

The River Almond loops to the south of Kirkliston which is now largely a dormitory town for Edinburgh, a few kilometres to the east of the capital. It has a very long history, and the first 'parliament' recorded in Scotland probably met here in 1235, summoned by King Alexander II. The settlement was a possession of the Knights Templar, and so named Temple Liston until their downfall in the early 14th century when it was transferred to the Knights Hospitaller and acquired the name Kirkliston. The church, viewed from the south-west, alongside, dates in large part to the 12th century, and apart from the robust square tower, features two Romanesque doorways; one in the south wall of the nave is visible to the right-centre in the photograph. To the left the burial aisle of the Dalrymples (Earls of Stair) of Newliston can just be seen. Otherwise, Kirkliston is an unexceptional place with a population just over 3000, rather hemmed in by motorways, roads, and Edinburgh Airport. I remember many years ago being told by a resident of its nickname, 'Cheesetown' derived from the fact that Navvies working on projects like the Forth Railway Bridge were housed there, and needed large quantities of cheese for their lunchtime 'pieces'.

A short distance away, on the opposite side of the river from Kirkliston is the Ingliston estate which since 1960 has been the permanent venue for the Royal Highland Show which attracts almost 200000 visitors annually to the Scottish showcase of agricultural and countryside products. There was a motor-racing circuit on the site, but that has closed, nonetheless, exhibitions and other events, including the show, draw close to a million people each year. There is a rather plain Victorian mansion on the estate, but my memories are of the golf course which once surrounded it, where I hit my first shots at the age of about 10. Between the Ingliston estate, and the River Almond is Edinburgh Airport which began life as Turnhouse Airport with a grass airstrip during the 1st World War, in 1916. At the start of the 2nd World War, a paved runway was built, and the airport became the home of fighter squadrons flying Spitfires. The airport remained under military control after the war but commercial flights began in the late 1940s. Civilian control was established in 1960, new terminals were built, the first requiring the diversion of the River Almond, but a key development was the opening of a new runway over 2500m in length, and importantly aligned east/west with the prevailing wind. The original runway running nearly north/south had been very subject to cross-winds. Since then there have been many other developments; ownership became private under BAA in 1987, and it was sold to Global Infrastructure Partners in 2012 for £807 million. In 2017, 13.47 million passengers took off or landed, making Edinburgh Airport the 6th busiest airport in the UK, and the 2nd busiest, behind Manchester Airport, not serving London.

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Beside the airport, the River Almond receives a substantial right bank tributary, the Gogar Burn, which was straightened and culverted to pass underneath the runway. Just before its underground stretch, it passes close to Gogar Castle which was built in 1625, on the site of a 14th century predecessor. It comprised 2 blocks touching at one corner, where a stair block was later added. Extensions were built, one in 1700, others later, and it was baronialised in the 19th century. As shown, it has been well looked after, even if the whitewash gives it a rather twee appearance. Its access road crosses the Gogar Burn on a single-arch bridge which is reputed to date from the 17th century, though it looks to have had much attention since then.

The Gogar Burn is the longest tributary of the River Almond, flowing 21km from its source south-west of the village of Kirknewton in the northern Pentland foothills, though it carries less water than others already mentioned. It is close to the mid-point of its course when it reaches the Dalmahoy estate in which are the two golf-courses on which I spent a fair proportion of the school holidays during my teenage years. My brother and I usually walked about 1½km from our home to catch the bus along the A71 to the estate gate, and then another kilometre uphill to the clubhouse. Just inside the entrance we had crossed a fine late-18th century ashlar bridge with a single semi-circular arch and decorative balustrades, not that it captured any of our attention then. I am afraid the same was largely true of the impressive clubhouse which was Dalmahoy House; the rear view of the imposing classical mansion is shown alongside. The building was completed to William Adam's design in 1725 for the Dalrymple family who have already featured in this account, but it was sold to the Earl of Morton in 1750, and has been held by that family since. The golf club leased the House and the land occupied by the courses; the latter were designed for them by the renowned professional player and course architect, James Braid, in 1927. Unfortunately, the relationship with the owners was always fraught, and when the lease ended in 1977, it was not renewed, so the members had to look to play elsewhere, while the Earl developed the site as a golfing hotel. It remains to say that the Gogar Burn only skirts the property to the north, influencing the play of only a couple of holes; far more of a hazard is the scenic lake in view from the House windows in the photograph, which helps to make one of the golf holes beside it as memorable as any in Scotland.

As teenagers, when finished playing, we would wait at the gate for the bus back to Edinburgh, hoping that a member leaving in a car would stop to give us a lift into the city. One, who often did, drove a souped-up Ford Anglia, and the highlight of the journey was his negotiation at top speed of a relatively tight double-bend at Addiston Mains, where the A71 crossed the Gogar Burn. I certainly did not realise then that there was another much older bridge, a few tens of metres south of the present road bridge, but I do now, and will say something of it. Addiston Mains Old Bridge is marked on a map produced by John Adair, dated 1682, and it continues to appear on 18th century maps including the well-known Roy map of the 1740s, and more recent maps up to the present day. Access is difficult, but it was recently visited by Mr. Simpson, and the information and photographs in this description were obtained by him. The surviving part of the segmental arch of span c6/7m has single flush arch rings; they and other lower parts of the bridge are ashlar, with a reddish tinge but still most probably limestone. The bridge was estimated to be 3 to 3½m wide originally.

The trackway has been built up on both approaches to the bridge, and on the bridge itself, presumably to reduce the dip at the crossing point. Much of the bridge has collapsed, as shown in the second photograph, and with trees growing out of the debris, matters can only get worse. Wear on the grass suggests that the hazardous crossing is still being used, though perhaps only by animals. I think it most likely that the bridge was built in the mid-17th century; the history as conveyed by the maps is convincing, and although specific clinching architectural features hardly exist for this period, there is nothing about it to contradict the assertion. The surviving arch looks robust, but everything above it could fall away at any time. I have given it some space in this account because 350+ year-old bridges are not common in Scotland, and the existence of this one seems to be ‘going under the radar’, as it is neither Listed nor on the Buildings at Risk Register

The Gogar Burn continues south-eastwards, passing under the Union Canal, the M8 motorway, and the main Edinburgh/Glasgow railway line in quick succession. Suntrap House and its Garden on the left bank, were

until recently parts of a National Trust for Scotland property; the stream then loops eastwards under the Edinburgh Bypass into Edinburgh Park and the Gyle Centre, filled with retail and commercial buildings, and then westwards past Millburn Tower, also on the left bank, a 19th century mansion with extensive formal gardens, still in private hands. Hereabouts, stood Millburn Mill, in the mid-18th century, according to Roy's map, but it was gone by the 19th century, and I do not know what function it performed. The Gogar Burn then swings round the extensive headquarters of the Royal Bank of Scotland, for a few months before the crash in 2008, the largest bank in the world, when the infamous Fred Goodwin was at the helm; now it is a more modest, if still very large, institution. The burn passes under the A8 and there reaches the Gogar Castle estate which has already been visited, so the journey along the River Almond can be resumed.

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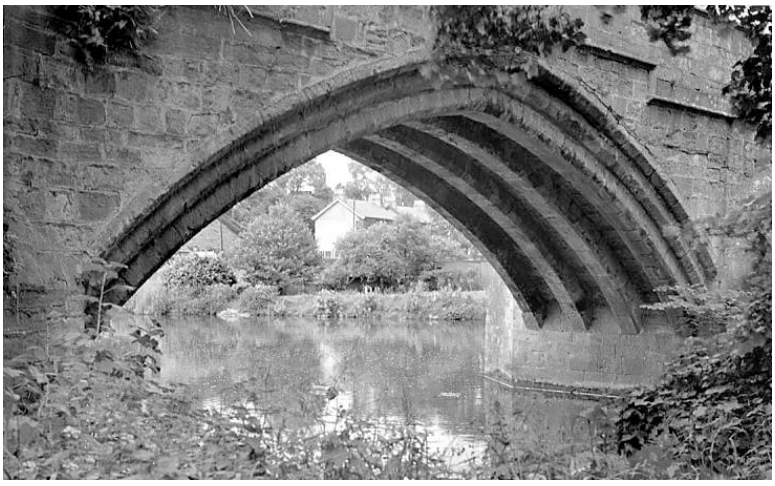
Less than 2km downstream from the confluence, on the left bank of the east-flowing river is Craigiehall House on an estate with a recorded history going back to the early 12th century. The present house was built to a design by Sir William Bruce in 1699 to replace an old tower house, and much effort was devoted over the next half-century to landscaping the grounds, a process which included the building of a mock-temple and rustic bridges. The property has been the property of the Army in Scotland since the 2nd World War, and is currently its headquarters, though it is to be vacated and sold in 2018, when it may become more accessible to the public. Approximately 1km downstream the river turns north under old Cramond Bridge which from medieval times carried the equivalent road, to and from the ferry crossing at South Queensferry.



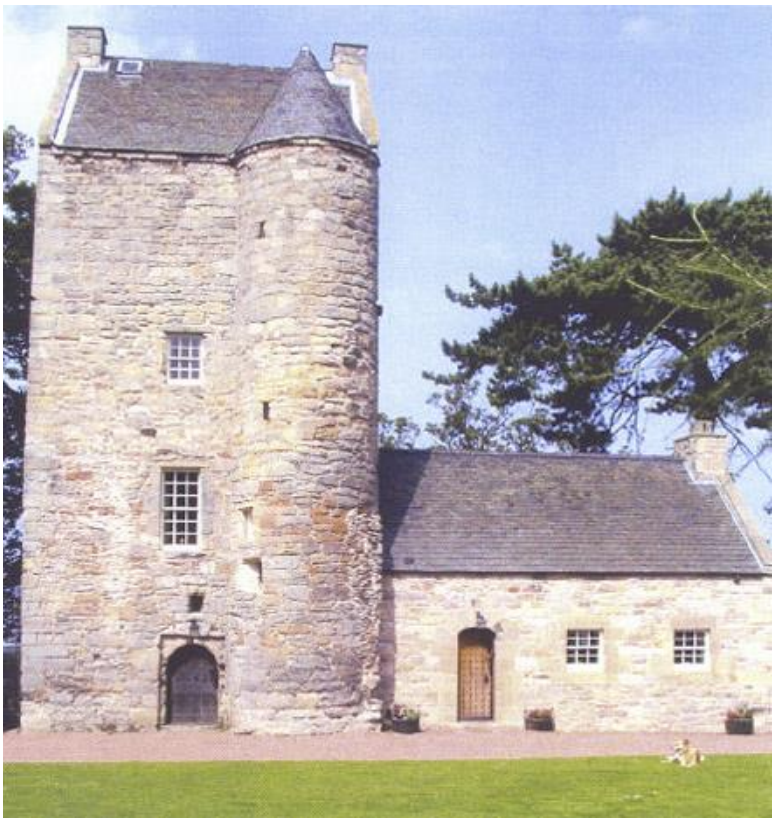
This bridge dates from the late 15th century but the two eastern arches which had collapsed were rebuilt in 1619. It comprises three shallow pointed arches, each spanning c12m, though the central arch is slightly smaller than the others. The western, oldest, arch, on the right in the upper photograph, and shown in detail in the lower photograph, is unmistakeably medieval with four heavy ribs, of which the two at the outside are chamfered at their outer faces and there are two chamfered arch rings in two orders, i.e. stepped. This arch is the most pointed. The other two arches are plain in contrast without decorative features save for a horizontal string course which dips downwards over the piers. The carriageway width is 3.3m, probably unchanged since the oldest arch was built. The upper photograph also

illustrates how substantial the River Almond has become. Adjacent to the west side of the bridge is Cramond Inn which dates in part to the 17th century, though its more decorative features like the crow-step roof are 19th century additions.

Watermills in Cramond have a long history, with a corn mill belonging to Inchcolm Abbey recorded in the 12th century, as is a cloth mill later in the medieval period. However, it is perhaps surprising to learn that mills in this quiet suburban village played an important part in the industrial revolution in Scotland. There were between 1752 and the middle of the 19th century, 4 mills producing iron products along a short stretch of the river between old Cramond Bridge and its mouth, namely Cockle Mill, furthest downstream, Fairafar Mill, Peggie's Mill, and Dowies Mill, all owned by Messrs. Cadell & Co., though previously they had spent a decade in the same ownership as the renowned Carron Company. There is no trace of the two upstream mills, Peggie's and Dowies which made such items as spades and hoops. The next, downstream was Fairafar Mill, where the main forge was sited, and ploughs and cartwheel axles were produced; a ruined building survives here alongside the high weir which diverted the necessary water flow to the mill. At Cockle Mill, there were rolling and slitting facilities, and also the office block and a tidal dock. Remnants of the buildings survive here, some incorporated into houses.

A Roman fort was built in Cramond between the years 140 and 142 during the campaigns of the Emperor Antonius Pius, which concluded with the building of the Antonine Wall. Presumably it was a staging post for soldiers coming from the south to join the Roman army, by road along Dere Street, or less likely by sea to a supply port at the mouth of the River Almond, protected by the fort. It was vacated in c170, when the Romans retreated to establish the more easily defended line of Hadrian's Wall. Then, in 208 the Roman Emperor Septimius Severus led the last major Roman incursion into Scotland, and the Roman fort at Cramond was re-established and significantly enlarged, while a large walled settlement for civilian followers emerged to its south and east. Cramond served once again as the main supply base for the Roman forces in Scotland, unloading vessels which had sailed from southern Britain and the Rhine. Septimius Severus died in York in 211, and his son and successor Caracalla ordered the withdrawal of Roman forces to Hadrian's Wall, a year later. The buildings of the fort and settlement appear to have remained in use by the local population for several centuries, and a church was built on the site in c600. The area was excavated first in the 1950s, and there have been non-invasive surveys and further excavations since. The ground plan of part of the fort is laid out in parkland around the south and east sides of Cramond Kirk yard, as shown in the photograph above, in which can be see the lines of the walls of barracks and granaries, and some foundation masonry. A well-preserved Roman bath house was discovered north of the main site, then excavated and

reburied for its protection in 1976. Further evidence of the Romans at Cramond was found in 1997 when a large carved stone lioness was recovered from the water at the mouth of the River Almond. In the background of the photograph on the previous page is Cramond Kirk, described by Gifford et al as a 17th century cruciform church built on the site of a medieval predecessor, but also incorporating the tower at the west end and a vault at the east end, from that earlier church. Otherwise, it has been much altered since, if in a relatively small way externally, and the interior dates wholly to a restoration in 1911.



With the exception of parts of the church, Cramond's oldest standing building is the small tower beside the main village car-park. It has 4 floors, and is 14m high, with a distinctive stair turret; the plan dimensions are 7.5 X 6.4m. The lay-out was conventional with vaulted lowest and top storeys, and a hall on the second floor. The tower, viewed from the south in the photograph alongside, may date from the 14th century, and was once a residence belonging to the Bishops of Dunkeld. It has recently been restored as a dwelling after a long period of disuse, and during the process, footings of medieval ancillary buildings were found. The doorway is arched though perhaps it has been modified recently, and the windows have a modern appearance.

The River Almond reaches the Firth of Forth beside Cramond waterfront in the picturesque setting, shown in the aerial view, looking south. A ferry for foot-passengers allows walkers to cross the river, and proceed westwards towards Queensferry and its bridges. Much of the intervening land is the Dalmeny estate, which has been since the 17th century, the main home of the Primrose family, long-time Earls of Rosebery. Amongst the possessions of the estate is Cramond Island, just out from the mouth of the river; it was lightly fortified during both World Wars in the 20th century. Access is free by way of a causeway, which

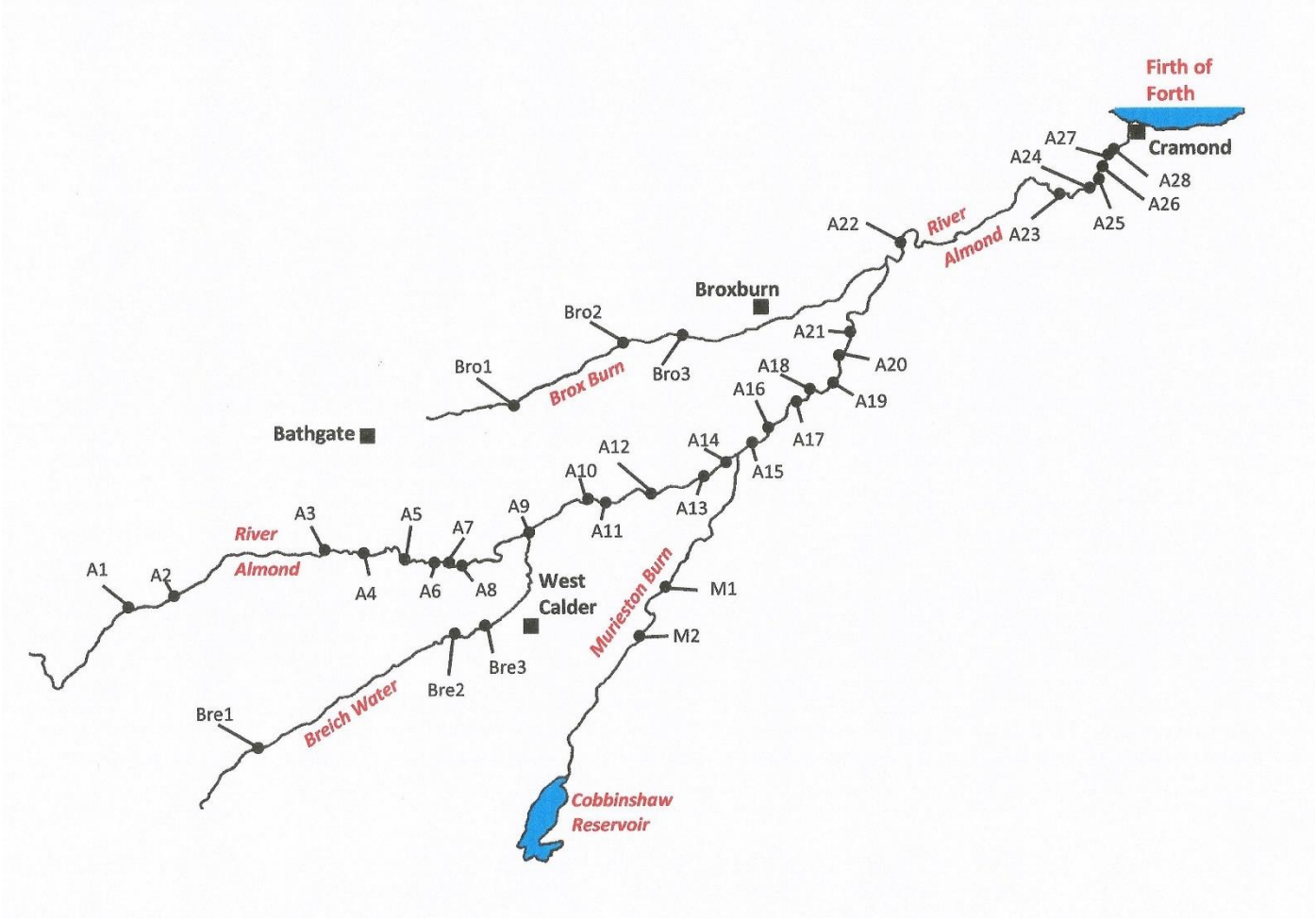
emerges from the water at low tide, but it seems that information on the tides is not easy to come by. As a result considerable numbers of visitors have to be taken off the island by coastguards.

Dalmeny house was completed in 1817. I have never been there although it is open to the public in the summer months, so I shall refer anyone interested, to McWilliam for a description. The previous residence on the estate was Barnbougle Castle, which is visible from Cramond waterfront. During the early 19th century the 16th century castle was allowed to fall into ruin, but the 5th Earl, who was Prime Minister for just over a year in 1894/95, had it rebuilt as a retreat for his own use. He was given to welcoming parties of distinguished guests to Dalmeny House, with the 4-time Prime Minister, William Gladstone, often one of them, but then withdrawing for the period of their stay, alone to Barnbougle Castle. Even though he made occasional forays to check that his guests were being looked after well, it was a rather peculiar way of extending hospitallity, but of a piece with many of his actions. None of his contemporaries doubted his exceptional abilities, and although he never returned to political office after resigning as Premier at the age of only 48, he did not lack opportunities to do so, usually on his own terms. He collected other appointments like a voracious magpie; for most of his later life he was Lord Lieutenant of Mid and West Lothian, he was at various times Rector of all 4 ancient Scottish Universities, he was the first Chairman of London County Council, and president of diverse sports clubs like London Scottish Rugby Club, and Heart of Midlothian Football Club. He was recorded in his youth as saying that he had three ambitions, to be Prime Minister, to marry an heiress, and to own a Derby-winning horse; all were achieved. He acquired many high honours, and owned at least 10 estates and mansions across the country, yet his biographers, of whom there have been a few, have written of an unhappy, unfulfilled, almost tortured life, and speculated, mainly unkindly on the reasons for his angst. In fairness it should be acknowledged that the death from typhoid of his wife, ne Hannah Rothschild, in 1890 at the age of 38 had a shattering impact on the Earl; some who knew him have stated that he never recovered, and that his later career would have been very different, if she had lived longer.

When water from the source of the River Almond reaches the mouth, it has travelled 45km. The mean discharge rate is 6.2m^3/s, (82667 gallons/minute), equivalent as a simple guide to 8 times the load of a standard road tanker flowing into the Firth of Forth each minute. Thus, it is both the longest and largest Lothian river. Until the later years of the 20th century, it was very much an industrial river with all that means as regards pollution of the water, and in consequence the scarcity of wildlife in and around it. The surroundings were also blighted by ever growing spoil heaps, not rendered any more attractive by the fact that they were mostly red, rather than black as in the rest of the country. There have been dramatic changes in the past few decades, but it cannot be pretended that many of the consequences of the closures of factories and mines, have been beneficial for the communities along the river. There is little doubt that towns on its banks have suffered greatly from the loss of employment for their residents and the consequent reduction of spending on the services provided by their businesses. Most of the towns have not fully recovered, but at least there are signs along the river of some new opportunities with the opening of country parks and other tourist attractions. The remaining shale bings are slowly greening, as vegetation takes hold, though I remain unconvinced by the idea of more than one or two being preserved as monuments to the industrial heritage. Certainly the river itself is now vastly cleaner, and West Lothian council are able to claim that trout and salmon regularly make their

way up-river. Hopefully, these are straws in the wind for a bright if very different future for the River Almond and those living close to its banks.

Table 1. Water Mills on the River Almond and its Tributaries



River Almond

	Mill	Type		Mill	Type
A1	Sideheads	textile	A15	Mid Calder E.	corn, grain, flour, meal
A2	Dumback	saw, corn, grain, flour, meal	A16	Pumpherston	unknown
A3	Whitburn	unknown	A17	Shiel	unknown
A4	East Whitburn	unknown	A18	New Mill	unknown
A5	Red	corn, grain, flour, meal	A19	Clock Mill	unknown
A6	Blackburn 1	textile	A20	Lins	corn, grain, flour, meal
A7	Blackburn 2	paper	A21	Bird's	corn, grain, flour, meal
A8	Hopefield	corn, grain, flour, meal	A22	Priest	corn, grain, flour, meal
A9	Grange	paper	A23	Craigiehall Saw	saw
A10	Livingston	corn, grain, flour, meal	A24	Cramond Brig	corn, grain, flour, meal
A11	Rosebank	corn, grain, flour, meal	A25	Dowies Saw	Saw, foundry
A12	Adambrae	paper	A26	Peggy's	Paper, foundry
A13	New Calder	paper	A27	Fairafar Foundry	corn, grain, flour, meal, foundry
A14	Mid Calder W.	corn, grain, flour, meal	A28	Cockle Foundry	corn, grain, flour, meal. foundry

Tributaries

Breich Water

	Mill	Type
Bre1	Fauldhouse	special, corn, grain, flour, meal
Bre2	Cuthill	saw
Bre3	Breich	corn, grain, flour, meal

Brox Burn

	Mill	Type
Bro1	Dechmont	saw
Bro2	Houston	corn, grain, flour, meal, saw
Bro3	Broxburn	corn, grain, flour, meal

Murieston/Bog B.

	Mill	Type
M1	Torphin Mill	corn, grain, flour, meal
M2	Annetscross Saw	saw

Table 2. Mills on Tributaries not on the Map

Mills are ordered from the source of the stream; tributaries are ordered from the source of the stream which they feed. Left Bank tributaries are denoted (L), Right Bank tributaries, (R), Continuations, (c); 2 parents are named where a stream does not flow directly into one of those named in Table1.

Colour code for mill type; Corn, Grain, Flour, Meal, Barley; Textiles; Paper; Sawmills, Coopers; Foundries; Special inc. Snuff, Flint, Gunpowder; Unknown:

For mills with different functions at different times, more than one colour is used. BF ≡ Bleachfield

Stream	Parent (1)	Parent (2)	1.	2	3
Killandean B. (R)	R. Almond		Killandean		
Harwood W, (c)	Killandean B.	R. Almond	Baad's		
Linhouse B. (R)	R .Almond		Morton		
Niddry B. (L)	R. Almond		Binny	Ochiltree	Bells
Gogar B. (R)	R. Almond		Millburn		

Of these 7 additional mills, 2 were corn mills, 1 was a saw mill and 4 were of unknown type.

The total number of mills listed in Table 1 is 36, to which can be added the 7 in Table 2, giving 43 in all.

Of these, 20 were in the generic category, corn mills, 2 were textile mills, 4 were paper mills, 7 were saw mills, 4 were foundries, 1 was special (gunpowder, etc.), and 10 were of unknown type. (these numbers allow for changes of function over the lifetimes of the mills, hence the total exceeds 43).

The mills which have been listed are those which operated at some time in the 18th, 19th, and 20th centuries and appear on maps dating to that period; obviously there will have been mills much earlier than that, and a few of them account for discrepancies between the main text and the tables. No doubt, some of them were on the sites occupied by later mills, but I do not have the information needed to place them.

Within the River Almond catchment area, 30 Threshing Mills have been identified. They have not been included in the Tables, because they cannot be viewed in the same light as other mills. They rarely stood alone, but were usually tagged on to an existing mill, or housed in a shed on a farm steading. It is often not possible to differentiate between those which were powered by water, and those driven by a circling horse. That is in no way to underplay their importance economically and socially, as discussed in Appendix 2. The imbalance between their number and the number of corn mills is perhaps surprising, but presumably reflects the fact that traditionally grain has always been separated from straw prior to delivery to a corn mill, and mills served more than one farm.