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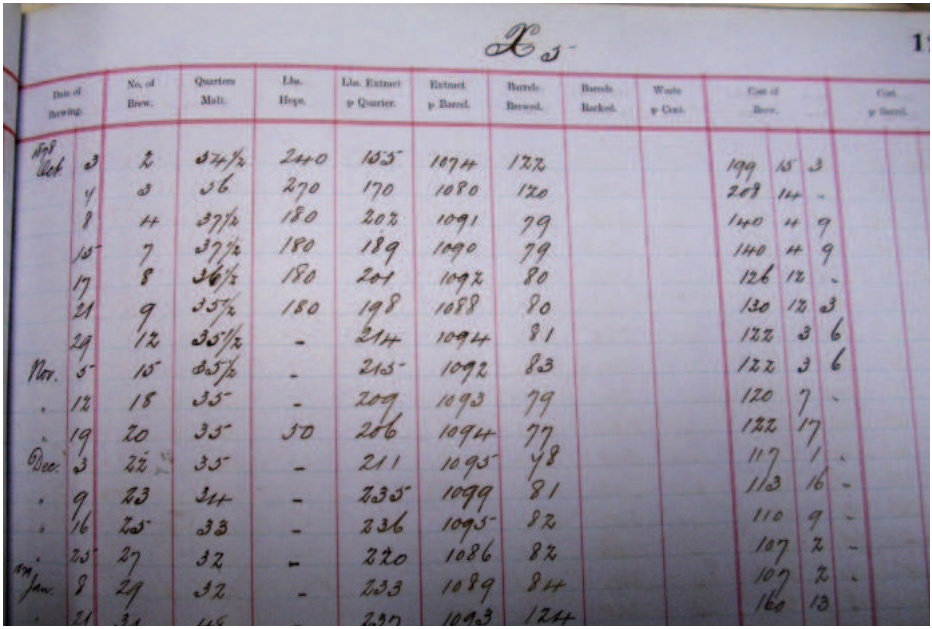
The Annual Journal of the Scottish Brewing Archive Association



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Writing for the Annual Journal of the Scottish Brewing Archive Association

We welcome articles on any aspect of the Scottish brewing industry and these should be sent to the Journal Editor, Robbie Pickering, at info@scottishbrewingarchive.co.uk
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The first known description of brewing Scottish ale?

John Reade

I HAVE ALWAYS BEEN interested in early Scottish brewing history and in 2016 I was invited by Fife Coast & Countryside Trust to give a couple of talks on Medieval Brewing, with tastings, in order to promote the launch of Fife's proposed 2nd long distance footpath, The Fife Pilgrim Way. As the route passed directly in front of my nano-brewhouse at Markinch I was happy to oblige especially as it overlooks Balbirnie Stone Circle, where evidence of brewing from the Neolithic period dating back to 2,500 BC had been discovered by the analysis of beakers found within the burial kists.

Following on from the success of these talks I was subsequently approached to brew a medieval ale at Stirling Castle as part of Channel 4's series on British Historic Towns. I therefore decided that I needed to brush up on my earlier research especially as I had always found that there was little published detail specifically on early Scottish brewing until the 18th century, as most of any earlier written documentation was based on European and English brewing with little or no detail at all regarding the actual brewing process. Hence it was with some surprise that I stumbled upon a description of the malting and brewing process written in 1521 by John Mair, a Scot born near North Berwick in 1467 and educated at Haddington Grammar School.

In 1493 John Mair attended Paris University and in later years he was to become Principal of the University of Glasgow (1518) and Provost of St Salvator's College, University of St Andrews (1533). He died in 1547. His most famous publication "A History of Greater Britain" was published in 1521 and is a major early philosophical work that was revolutionary for that time and seen to be of great importance to subsequent generations of social reformers. The book was, like all publications then, written in Latin but was later translated and reprinted by The Scottish Historical Society.

I was unaware of his description of making ale and I would surmise that it has gone relatively unnoticed by brewers as it forms a minor descriptive role in scene setting for the main body of the work.

His description of making ale is as follows (I've added in italic font my own interpretation to some of the wording used in parts of Mair's description):

> The Britons further brew from barley a most excellent ale. They would refuse to drink such ale as is brewed in Paris, but to the making of their own they bring no small ingenuity. First of all, they put the barley for two or three days, in water, and, when it is swollen, they remove it, and lay it out, flat indoors, that it may become moderately dry. Thereafter the barley is trodden underfoot by active youths whom they summon for dancing upon it. Often enough the grain is swept together and piled to

Figure 1: Balbirnie Stone Circle adjacent to The Fife Pilgrim Way in Markinch (NB. The original site was 100 yards away but had to be moved as part of the upgrade to the A92).

> the height of a foot upon the bare ground; upon this heap too, the dancing goes on till the inner grain is extruded or shows signs of sprouting. The next step is to gather all the grain into a large heap, which emits on all sides a powerful odour. It is then dried in the manner of oats being subject to nine changes of temperature, and again swept together. In this condition it's no longer barley, but what they call braxy [*malt*]; whether the change operated in it is one of accident or of essence matters not. The braxy is then ground in a mill. Many persons in Briton grow rich by this means, though they may possess no special skill or mechanical contrivance – may have nothing in fact but the money to buy a quantity of barley, which they sell to women [*brewsters*], who in turn make the braxy into liquor in the following way. Using only pure water, either that which is taken from a river, or rainwater collected in a cistern, they boil it, and in a boiling state pour it into a large vessel. Into this they pour the braxy, mix the whole together, and lay cloths over the vessel that the contents may boil five or six hours [*mashing*]. Next, from a small hole in the bottom a long piece of wood, by which the vessel is closed, is slightly raised, so that the liquid, not the grain, is distilled [*not the modern interpretation of distillation but racked*]. The liquor is then received into a large vessel, where in Scotland it is once more subjected to boiling heat. But, for the production of an excellent drink, the second boiling – as I know from experience – is of the greatest moment [*here, there is no mention of any flavourings being added such as gale or meadowsweet but probably this would have been the case*]). The twice-boiled liquor is then kept for thirty hours in other vessels, whence it is gently drawn, all care being taken that the lees be left behind [*a second racking?*] The scum

Figure 2: Brewing at Stirling Castle, with Alice Roberts.

> [*trub from previous brews?*] is then added to the liquor in those fresh vessels, in the manner of must [*yeast or barm*]; for the scum is the lees of the old ale, and there is much of it left at the bottom. In the place of the scum some persons take a branch of a young hazel, and throw it into the liquor, and this serves the same purpose as the scum. The ale then rarefies in its own vessels, in the manner of must, and bursts through the sides; but after two days it is a wholesome drink, and according to the abundance of barley and the paucity of the water the drink is strong, or, contrariwise, weak. the purity of the water is in a large measure ensured by its being boiled, as may be seen in the case of ptisane or other distilled waters. No one who is accustomed to this beverage will prefer a northern wine: it keeps the bowels open, it is nourishing, and it quenches thirst.

The photo in figure 2 was taken when we demonstrated on camera at Stirling Castle how medieval ale would have been brewed. I had already brewed four types of the ales in my brewhouse in Markinch, using different Scottish herbs and berries as flavourings in the boil. The yeast I'm showing to Alice Roberts in the still photo was the dried trub from these brews which is re-pitched into the next brew.

In brewing the medieval ale, I roughly followed John Mair's description with two notable exceptions.

I used modern two-row malt as I'm sure his description of the malting process, particularly the bit about dancing up and down on the malt, is not particularly relevant to modern malting techniques! Secondly, my mash, which he refers to as the first boil, was only one hour and not the five to six hours he suggests. The one area which does surprise me in his description is that he describes the grain as barley and not as bere or bigg (six-row barley) which would have been far more commonplace throughout most of Scotland at that time.

In making the ale, I didn't use a thermometer or hydrometer (both 18th century inventions), relying instead on old 17th century descriptions from Country House brewing diaries as to when to add the grain to the mash (i.e. when the heated liquor becomes mirror-like) and when the wort was cool enough to pitch the yeast. I did follow both of John Mair's descriptions regarding the collection and pitching of yeast from previous brews. Namely, to either collect the trub, press and dry it into a cake or to take a hazel stick and stir it in the trub letting it dry then pitching it into the cooled wort in the next brew.

I fermented the ales for three days after which I then bottled them but without adding any priming sugar or finings. I left them for a further four days before sampling. Not unsurprisingly there was little, or no carbonation and they had cleared only very slightly. Nevertheless, I found the ales were still drinkable up to about a week after first sampling them, so the next challenge will be to develop a process that extends their shelf life without the use of hops.

Notwithstanding these points, I must admit that whilst I found the taste of the ale brewed to be quite different from modern interpretations of beer, it was still quite quaffable and thirst quenching!

My next aim is to try and develop recipes to improve them but to stay true to pre-industrial techniques. I have recently found a local Fife farmer who grows and malts historic strains of bere originally from The Western Isles and Orkney. Who knows maybe one day a true commercial ale replicating medieval ales may be achievable!

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Memories of Heriot Brewery 1974–1992

Graeme Fisher

When I left school in 1974, like many 18-year-olds, I wasn't exactly sure what I wanted to do. I was interested in science and wanted a job in a lab where I could continue with further education.

After replying to an advertisement for a Laboratory Assistant at Heriot Brewery, I had an interview with Hugh Freeland (Quality Control Manager) and Tom McCallum (Laboratory Manager). I was delighted when I got the job and started there on Monday June 10th, 1974. While I had previously thought about studying chemistry, Hugh Freeland asked if I would consider microbiology.

In spite of having no biology qualifications, I said yes, and that largely determined the direction of the rest of my career. I also remember getting a phone call asking me not to come in until 2pm on the Monday – Monday morning was a busy time in the lab so afternoon would be a better time to deal with a new start. Fortunately I understood that you don't always get Monday morning off in working life! This proved to be the start of a long career with Tennent's which lasted until I retired 45 years later.

This article is not a definitive history of any sort but is just some of my memories from the last 18 years of Heriot Brewery. There are bits about how the brewery evolved during that period and about some of the people who were around at that time – at this point I'd like to thank a number of my former colleagues for helping jog my memory. Before I jump in I'll start with a potted history of the brewery up to 1974.

Previous history

The original Heriot Brewery was built by John Jeffrey & Co in Edinburgh's Grassmarket in the 1830s but by 1880 was not big enough to meet growing production requirements. To meet these growing requirements Jeffrey decided to add brewing operations to a site at Murrayfield where he had already built a maltings. Production at the Grassmarket site ceased in 1900 and all production transferred to the Murrayfield Brewery, as it was then known. By 1910, if not earlier, it was known as Heriot Brewery.

Jeffrey's were one of the pioneers of lager brewing in Scotland and before the First World War a complete lager brewery was added to the Roseburn site. By the start of the war Jeffrey's had become famous for ales and lagers and had built up a sizeable export trade shipping beers to the Caribbean and India and The Far East.

The loss of export and military markets during World War II resulted in over-capacity – and more mergers/acquisitions – in the brewing industry. In 1960 Heriot became part of Northern Breweries of Great Britain Ltd. It subsequently was part of Caledonian Breweries Ltd then United Caledonian Breweries before a merger with

Figure 1: Jeffrey's Lager label featuring castle motif.

J&R Tennent of Glasgow in 1966 saw the creation of Tennent Caledonian Breweries Ltd (TCB). In 1969 TCB became part of the Bass Charrington group and that was still the case when I joined them in 1974.

1970s

At that time Bass Charrington was one of the big brewing groups in the UK with brewing operations in Edinburgh, Glasgow, Belfast, Cardiff, Burton-on-Trent, Tadcaster, Wolverhampton, Walsall, Birmingham, Runcorn, Sheffield and Alton. The TCB breweries – Heriot in Edinburgh and Wellpark in Glasgow – were the Scottish part of Bass Charrington.

In the 1970s Heriot was a brewery that was evolving as it had done throughout its history. The main entrance to the brewery was in Russell Road and there was another gate on Roseburn Terrace which was usually closed but could be opened for delivery of large equipment if needed (figures 2, 3, 4).

Opposite the Russell Road entrance was the lorry park (now a Royal Mail depot) where the distribution lorries were maintained/washed and parked up. When the distribution operation moved to new premises at South Gyle in the early 1980s this area was then used as a car park. Along with distribution and production operations there was also a sales force based on site, which made Heriot a very busy place at that time.

Figure 2: Russell Road entrance.

Figure 3: Top gate on Roseburn Terrace with offices on the left hand side.

Figure 4: Roseburn Terrace gate open for delivery of a new vessel.

Figure 5: View of the Lager Building from Russell Road gatehouse. The boiler house is on the left and kegging hall on the right.

Figure 6: Decommissioned brewing equipment in the Lager Building.

The centre of the brewery was dominated by the 'Lager Building' which contained the old Lager Brewhouse that was no longer in use. The Lager Building was six floors high and from the roof there were outstanding views across the west of Edinburgh (Figure 5). On warm summer days we'd pop up there to enjoy the views at lunch-time. While it still contained the old malt handling plant, mash vessel and wort copper as well as a fermenting room with open fermenting vessels, these had been decommissioned some years earlier (Figure 6). The only people who still worked in the upper floors of the building were laboratory staff. The Malt Lab, on the sixth floor, was where analysis of incoming malt samples was carried out – most malt was delivered from the Bass Charrington maltings in Alloa. Original Gravity analysis of beers by distillation was also carried out here for Customs & Excise purposes. In those days duty was paid on the gravity of wort at collection. While OG was monitored throughout the process by more rapid methods (refractometer), distillation was still the reference method. The Malt Lab closed around 1977 and was relocated to the Alloa maltings.

The main brewery laboratory was located on the third floor where two fairly small (I now realise) rooms made up the micro and analytical labs. The analytical lab also doubled up as the staff room where coats were stored and breaks taken – I don't think this would be considered good laboratory practice nowadays! On the second floor there was a Taste Test Room used for triangular taste tests and a Records Office where charts of lab results were updated monthly by hand – this was long before the days of spreadsheets. The idea was that people attending the taste tests could inspect the charts at the same time but I don't remember this happening very often. Triangular taste tests were a regular event. They were used to assess new products being developed but the main use was for product matching. Tennent's Lager was being produced in

Heriot and Wellpark and it was vital that a match was maintained between the two sites.

The second floor also held a small office for the Customs & Excise Officer. In earlier times there would have been someone in permanent residence there but by the 1970s he generally came in on a weekly basis to inspect records and liaise with staff.

The engineers' workshop was on the first floor and a mezzanine floor contained the Cooperage Bar where tastings were also carried out along with occasional social events to mark Christmas, retirements etc.

With the lager brewhouse no longer in use all brewing of ales and lagers was carried out in the brewhouse in the south-east corner of the brewery. The beers brewed here were the brands owned by TCB/Bass Charrington which were produced at Heriot – Tennent's Lager, Piper Export, Guards Heavy, Bass Export, Bass Special, Bass Light, Tennent's Light, Tennent's Stout and Fowler's Strong Ale. Fowler's Strong Ale or 'Wee Heavy' as it was known was in the portfolio as a result of a previous takeover of Fowler's of Prestonpans. Drinkers used to top up a Wee Heavy in a pint glass with Special to make a 'Happy Day' which was popular at the time.

These beers were produced mostly using standard ale or lager malt along with wheat flour and sugar in some cases. At that time beer strength was measured by Original Gravity. The OG of most of these beers ranged from 1030 to 1042 with the exception of Fowler's which was around 1070. This resulted in ABV levels ranging from Bass Light and Tennent's Light (3.1%), Tennent's Lager (4.1%) to Guards Heavy and Bass Export (4.5%).

The brewing equipment was typical of the time with a mash tun, wort copper and hop back feeding a plate heat exchanger to cool the wort. The hop back where spent hops had to be removed by hand was replaced by a Hop Separating Vessel in 1976. In 1979 a new lager brewhouse was opened by Andy Irvine, the Scotland Rugby international player.

Wort was directed into a variety of fermenting vessels. Fermenting Room 1 contained 24 open copper FVs with attemperation coils where brine circulated to control fermentation temperature. There weren't any CIP (clean-in-place) systems in these vessels, so operators cleaned them by hand with hoses and scouring pads. It was always an interesting exercise for a lab assistant to climb down ladders into them to take microbiological swabs! Typically one brew would fill five of these FVs. They were used for ale fermentations and two of them were half the size of the other FVs. These smaller FVs were used to collect the strong wort from a brew which would make Fowler's Strong Ale. The remainder of the brew went in to four other FVs and produced Tennent's Light. Fermenting Room 4 contained a number of horizontal tanks which were occasionally used for fermentation but by this time were almost exclusively used as conditioning tanks. There were also four recently-installed conical FVs in the centre of the brewery which were used for lager fermentations.

Maturation was carried out in horizontal conditioning tanks in a number of cellars across the brewery. In the Filter Room there were two Meta Filters which were used to remove any remaining yeast or other solid material and change the appearance of the beer from something that was a bit cloudy to clear, bright beer ready for packaging. A Meta Filter was a "candle"-type filter - so-called because inside the filter housing were a number of vertical tubes made up of of stacked undulating washers with small apertures which allowed liquid to flow from the outside to the inside of the tube. They resembled long, narrow candles which is where the name came from. Filter powder (diatomaceous earth) was added to the incoming beer and a bed of this powder was created around the candles as the beer was pumped through the apertures into the candle with the solids in the beer being retained on the bed. Unfiltered beer introduced to the filter housing was forced through the powder bed under pressure resulting in bright, filtered beer inside the candles which was then pumped on to a receiving tank.

This filtration regime was all that was required for beers with a relatively short shelf-life eg a few weeks. Beers with a longer shelf-life such as bottled beers are at risk of haze formation over a period of time. This is caused by the presence of naturally-occurring polyphenols which come from the cereals used in the brewhouse. To overcome this these beers were further processed through a Polynellie filter to remove the polyphenols and guarantee a longer shelf-life.

The vertical Bright Beer Tanks which supplied beer to the packaging lines were also located here. In the late 70s high gravity brewing was introduced to increase capacity. This led to the installation of a de-aeration plant for cutting liquor and blending equipment.

At that time Heriot had three packaging lines – bottling, kegging and a demountable tank line.

The bottle line filled returnable bottles in three different sizes - half-pint, pint and 'nips'. The nip bottle was a third of a pint and was used for Fowler's Wee Heavy. Returned bottles were washed and inspected prior to filling. Before the advent of Empty Bottle Inspection equipment, bottle inspection was carried out by an operator (usually one of the many women in the bottling hall) sitting at the line. Filled bottles went through a single-deck tunnel pasteuriser before being labelled and packed into crates. The main beers packaged on the bottling line at that time were Tennent's Lager, Bass Light Ale, Bass Export, Piper Export, Tennent's Stout, Sweetheart Stout and Fowler's Strong Ale. All of these beers were brewed at Heriot – with the exception of Sweetheart Stout, which wasn't actually brewed at all. The brand had originated at Youngers of Alloa and was a blend of recovered beer and sugar. At 2% ABV it was particalarly popular with elderly women but could also be mixed with a half-pint of special to make a 'sweet black and tan'. The original 'black and tan' used Guinness but Sweetheart Stout was also used by those with a sweet tooth.

Over the years Heriot also produced or packaged under licence a number of other brands from within the Bass Charrington portfolio and outwith. Some examples that spring to mind are Guinness, Hemeling Lite Lager and Lamot Pils.

Guinness was an interesting product for us. It was delivered in tankers and as a bottle-conditioned beer the filled bottles by-passed the pasteuriser to avoid killing the yeast present. In the lab Guinness specified certain tests we had to carry out. One of these was a yeast count using a haemocytometer under the microscope. At the same time we carried out an assessment of any bacteria present based on a three-star system. One star meant light or no infection, two stars was moderate infection and three stars equalled heavy infection. I recall the Guinness technical rep describing this to me as "hoachin' wi' bugs". In the Scottish vernacular this meant there was a lot of them! Not a very technical term but it was the closest we had to rapid microbiology at the time.

The keg line – which had been installed in 1967 – was situated in the Kegging Hall near the Russell Road entrance. In the kegging hall a flash pasteuriser supplied the keg racker which had six lanes. Each lane had three heads which covered the de-ullage, washing/sterilisation, pressurisation and filling operations. Two keg sizes were filled – the 11-gallon (now referred to as 50-litre) keg and the 36-gallon barrel. The main keg beers packaged were Tennent's Lager, Bass Special, Bass Export, Guards Heavy and Tennent's Light.

At that time sales of draught beer were very big and some pubs with high sales had five-barrel tanks installed in their cellar to avoid the inconvenience of having to regularly change a barrel. Tank beer was found in pubs in the city centres and outlying pubs as well as working men's clubs. These tanks were filled from deliveries made using five-barrel demountable tanks (DMTs). On the DMT line in the brewery a sterile plastic bag was inserted into the tank and filled with beer. The filled tanks were then transported by lorry to the pubs where the beer was pumped into the pub cellar tank (Figure 7).

The pub cellar tanks were made by Porter Lancastrian who make drinks dispense equipment. Not surprisingly they were referred to as "PLTs". Earlier versons were horizontal tanks which had a large plastic bag fitted inside every time the tank was filled - the beer was filled into the bag inside the tank, a bit like "bag in the box" wine. A compressed air supply attached to the tank was used to squeeze the bag and push the beer to the font as pints were poured. This arrangement did result in some quality issues - high levels of dissolved oxygen in the beer which could lead to growth of spoilage organisms and a deterioration in flavour. To overcome this, later versions of the tanks were made of stainless steel so didn't use a plastic bag. They were vertical (ie upright) rather than horizontal and were fitted with an internal cleaning (CIP) system.

Figure 7: Demountable tanks on a vehicle trailer.

Typically these busy pubs would have three, four or five tanks in the cellar and would take a delivery two or three times a week where roughly half the tanks in the cellar or more would be filled. I recall that one pub in Edinburgh – The Gunner (also known as The Penny Farthing) – had ten tanks in the cellar (six for lager and four for special). They clearly sold a lot of draught beer! Draught beer sales were so high then that a number of different beers were filled into demountable tanks. Tennent's Lager was the main one but Guards Heavy, Bass Special and Tennent's Light were also tank beers at that time. As the DMT line only ran on nightshift we rarely saw it in operation but lab staff took samples every morning from tanks filled the previous night.

The Plant Manager at that time was Tom Dryden and his Senior Management Team consisted of Bill Clouston (Head Brewer), Roger Duncan (Packaging Manager) and John Douglas (Chief Engineer). The Quality Control Manager was Hugh Freeland who was based in Wellpark – it was standard practice at that time for the QC Manager to have responsibility for both Tennents' sites. Day-to-day quality issues were handled by the Lab Manager who at that time was Tom McCallum.

1980–1986

In the early 1980s the management team changed with Alex Robertson taking over as Plant Manager. Ian Herok took over as Packaging Manager and Gordon Smith was the new Chief Engineer. As with his predecessor David Johnstone (QC Manager) was based in Wellpark. George Howell, who had become Lab Manager in 1979, was replaced by Iain O'Neill. This period saw a number of significant changes to the brewery.

The keg line was upgraded with the installation of a new keg racker. This was a Burnett & Rolfe Centromatic with eight lanes. As with the previous racker, each lane had three heads. An interesting development in the keg line upgrade was the installation of a Lambertons robot for palletisation of kegs and barrels. This was a significant milestone as it was the first time a robot had been used like this anywhere

Figure 8: Lambertons robot depalletising kegs.

in the brewing industry (Figure 8). As with any new equipment there were teething troubles and it was a bit scary to see a robot lose control of a full 36-gallon barrel in mid-air! These problems did not prove fatal however as robots continued to be used for keg palletisation up until the brewery closure.

A new filler was installed on the bottling line in 1981 but its lifetime in Heriot was short-lived. On 13th May 1983 the last bottle was filled and the line was removed (Figure 9). This created a space to allow the re-location and upgrade of the DMT line. This line operated until the brewery closed and was then transferred to Wellpark Brewery where it ran for a number of years before declining beer sales saw the demise of tank beer operations in the 1990s.

This period also saw a change in some of the the brands being produced in Heriot. The Bass brand had never proved too popular in Scotland and TCB decided to put more focus on ales with a greater Scottish connection. As a result Tennent's Special and Tennent's Export Ale were developed to replace their Bass equivalents. Tennent's Export Ale was literally a prize-winner. In 1983 it won First Prize for Class 2 Pale Ale Brewery Conditioned and in 1985 received the Championship Trophy for Brewery Conditioned (Figure 10).

There was also a growing interest in cask-conditioned beers so Heriot Traditional 80/- Ale was developed. Casks were filled directly from a buffer tank after FV and had finings and aromatic hops added. This was initially marketed as an in-house cask beer for pubs – notably The Sheep Heid Inn in Edinburgh and Horse Shoe Bar in Glasgow. It went down well in these outlets so it was then sold under its own name and sales rose. This led to the installation of a small cask racking operation which could fill

Figure 9: The last bottling, 1983.

Figure 10: The Tennent's Export prize-winning team, left to right: Bill Clouston, Ian Gourlay, Ian Herok, Alan Barclay, Alex Robertson, Iain O'Neill, Tom McCallum.

18-gallon kilderkins or 9-gallon firkins. The popularity of this beer lasted and the cask-racking operation continued until the brewery closed (Figure 11).

In 1985 new brewing vessels were installed including a lauter tun for lager brewing. Throughout the 70s and 80s more conical FVs had been added increasing the capacity for lager production. This process culminated with the installation of two 1400-barrel DPVs in 1987.

1986–1992

Jim Tomb had taken over as Head Brewer in 1985 and in 1987 there was another change in the senior management when George Haigh took over as Plant Manager. He was joined by John Reilly (Packaging Manager) and Stephen Black (Engineering Manager). The new QA Manager, who was again based in Wellpark, was Gordon Stirton. After a two-year spell as a microbiologist in Wellpark, I returned to Heriot as Laboratory Manager.

Investment in the brewery had continued throughout the 1980s and the next major development was the total re-location and upgrade of the keg line. The kegging operation was moved from the existing Keg Hall on the south side of the site to an area adjacent to the DMT line which had previously been a warehouse. When the keg racker was re-located another two lanes were added which had four heads for the keg washing/filling processes. Large projects like this were often used as an excuse for some publicity and on this occasion the snooker player, Stephen Hendry - who was

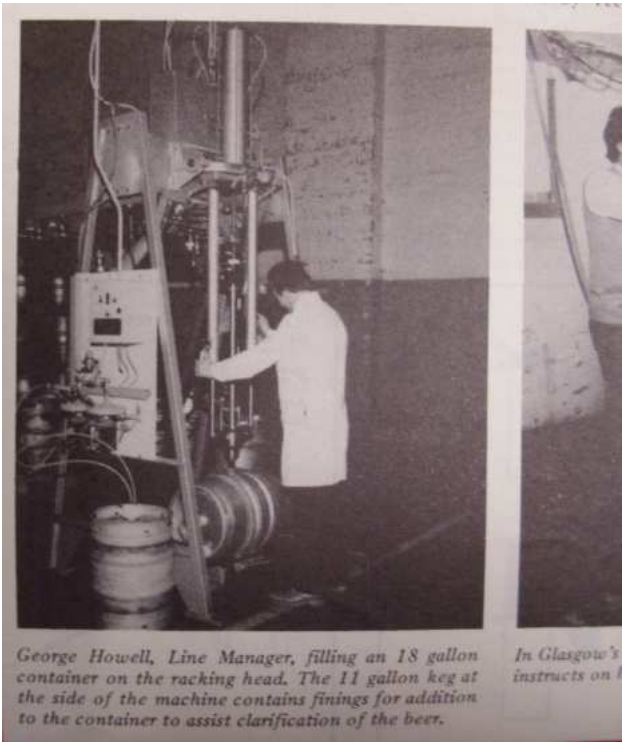
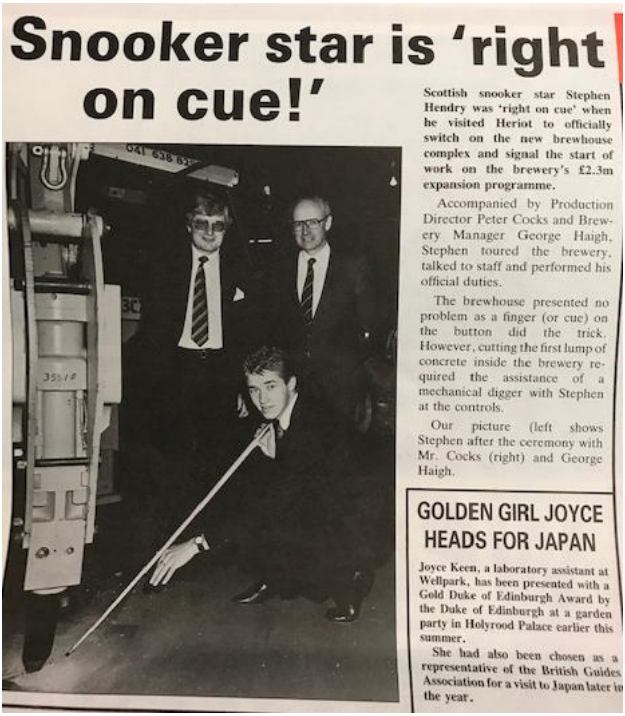


Figure 11: Cask racking.



Snooker star is 'right on cue!'

Scottish snooker star Stephen Hendry was 'right on cue' when he visited Heriot to officially switch on the new brewhouse complex and signal the start of work on the brewery's £2.3m expansion programme.

Accompanied by Production Director Peter Cocks and Brewery Manager George Haigh, Stephen toured the brewery, talked to staff and performed his official duties.

The brewhouse presented no problem as a finger (or cue) on the button did the trick. However, cutting the first lump of concrete inside the brewery required the assistance of a mechanical digger with Stephen at the controls.

Our picture (left shows Stephen after the ceremony with Mr. Cocks (right) and George Haigh.

GOLDEN GIRL JOYCE HEADS FOR JAPAN

Joyce Keen, a laboratory assistant at Wellpark, has been presented with a Gold Duke of Edinburgh Award by the Duke of Edinburgh at a garden party in Holyrood Palace earlier this summer.

She had also been chosen as a representative of the British Guides Association for a visit to Japan later in the year.

Figure 12: Stephen Hendry signals the start of work on the new Keg Hall. Behind are George Haigh and Peter Cocks, Production Director.

Figure 13: Kegging Supervisor John Greig at the re-located keg line with two new lanes at far end.

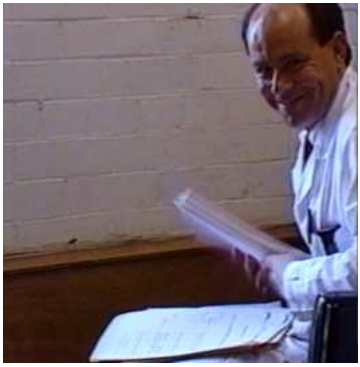


Figure 14: The author preparing for the move to a new lab.

soon to become world champion – came in for a ceremonial start to building work (figures 12, 13).

At the same time the laboratory also moved from its location on the 3rd floor of the Lager Building. As previously mentioned, when I started in 1974 the lab premises were two fairly small rooms. The lab staff had made use of an empty room next door and installed a dartboard – the 'Darts Room' was used at lunchtime and many a good laugh was had in there. Over the years the two original rooms were knocked together making a larger micro lab and the Darts Room was converted into a new analytical

lab. This in turn had been extended as the analytical operations expanded but by 1987 there were plans to move all activities out of the Lager Building. The site for the new lab was a large office suite next to the new keg line. It had lain unused since distribution operations left the site and provided an ideal central location for the lab. As lab manager I was lucky enough to have the opportunity to design the new lab from scratch. The only real constraint was the building space we had to work in which made this a very exciting project (Figure 14).

The departure of the lab from the Lager Building meant that above the engineers' workshop on the first floor no-one was working on the five floors above.

The last significant investment in the brewery took place in 1989 with the installation of a water treatment plant in part of the old kegging hall. As ever with breweries, space was always being recycled especially if there was no room for expansion beyond existing boundaries. When brewing operations started at Murrayfield a number of wells had been sunk in the Roseburn area to provide the water. As these wells were sunk through shale oil beds problems with oil contaminating the water eventually developed. To overcome this water was pumped up from the original wells in the Grassmarket for use at Murrayfield. This continued until 1964 but before that the brewery had switched to town water for brewing purposes. The town supply had served the brewery well but in 1988 we had a problem with microscopic fibres (which turned out to be algae) in the water. This was detected by increased haze readings on both the water and the beers it went into as dilution liquor. While this issue was temporary at the time the Water Authority couldn't guarantee that it wouldn't happen again so the decision was taken to install coagulation and sedimentation treatment to guarantee the quality of the water going forward.

A sociable industry

Not surprisingly because of the product the brewing industry has always been a very sociable one. This was certainly true in the 1970s and continued through the 1980s. I recall regular visits to The Roseburn Bar and The Murrayfield Bar as well as internal functions within the brewery. If anyone was retiring/leaving/getting married etc, it was a good excuse for a get-together and a beer to wish them good luck! Christmas and New Year were also always well celebrated. A Christmas lunch and draught beer would be laid on in the canteen for employees and Hogmanay was always a half-day so that the plant could be closed down properly and people could go about their festivities – in many cases this included a visit to the Roseburn or the Murrayfield!

In the 1970s brewery workers were given a daily allowance of 'pundy'. These were bottles of Bass Light Ale to quench their thirst in the hot working environment. As a result it was not unusual to see beer being drunk around the brewery. In the lab surplus samples of bottled beer were also put aside. An example of this was micro samples from the bottle pasteuriser. These were always taken in duplicate so that if any

Figure 15: Heriot v Wellpark skittles match.

of the samples failed the duplicates could be tested to confirm the result. As failures were very uncommon there was regularly a supply of surplus samples to be enjoyed at the end of the day. These practices have long ceased but it was very satisfying to enjoy a beer and a chat at the end of the working day.

Trade tastings also provided opportunities for socialising. Typically a group of brewery tasters (mostly lab staff and brewers) would embark on a pre-planned route of pubs. We would each drink a half-pint of beer in each pub and take notes and score on appearance/aroma/flavour. While the focus was on Tennent's Lager some other beers were also sampled. This was a serious exercise with a report being compiled so any learnings could be followed up. However I sometimes had difficulty explaining to friends that as part of my job I was going on a pub crawl!

Proximity to Murrayfield Stadium was a useful social feature for the brewery. Ahead of rugby internationals the Guard's Lounge would be opened up to invited guests where beer and food was enjoyed in anticipation of an exciting rugby match. Murrayfield Stadium was also used for a regular event every January – the supervisors' night out. All the supervisors and managers from the brewery would get together in a hospitality bar deep in the bowels of the old main stand for an evening of food, drink and entertainment. It was always good fun and a good excuse for everyone to let their hair down!

Regular in-house sporting events also contributed to the sociable nature of the brewery. There were cricket matches against teams from suppliers, the Alloa maltings and Wellpark. Skittles nights at the Sheep Heid and a fishing club were also popular. In 1985 to celebrate the centenary of Tennent's Lager a number of sports challenges

were held between Heriot and Wellpark. These included a football match (which Heriot won), squash tournament and skittles match (Figure 15).

Inevitably in Scotland, football was a regular feature of social activity. I remember being on a supporters' bus that travelled from the brewery through to Hampden for the Scotland match against Spain in 1974. We also had weekly five-a-side football games at a nearby sports hall – they were always keenly contested and usually examined in fine detail the following day.

In the late 70s we also formed a football team in the brewery. Heriot Athletic played in the Edinburgh Sunday Amateur League for a number of years. I recall being part of the team that won promotion to the top division and played in a cup final. It maybe wasn't the Champions' League but it was good fun and did a lot to cement social bonds across the brewery with players and staff coming from all departments.

In 1980 an Open Day was held where employees came along with their families. They went on a guided tour of the brewery with some of the brewers and other staff acting as tour guides. It was a great opportunity for the families to see where everyone spent their working time and gave people an insight into the history and future plans for the brewery.

People

Throughout this period Heriot Brewery saw the start or the development of their careers for a number of people who went on to other positions in the brewing industry. These include George Howell (Belhaven), Alan Barclay (Diageo), Alex Robertson (Bass, Scottish & Newcastle), Ian Herok (Belhaven), Sandy Manson (ABInBev), Keith Lugton (ABInBev/C&C), Ian Robson (Bass/Diageo) and John Reilly (who went on to become the last Head Brewer at Bass in Burton). I'll also give a name-check to some of the other colleagues I remember – Tom McCallum, Ian Ramage, Ian Gourlay, John Corrigan, Harry Scott, Iain O'Neill. Some of these names might be familiar to you.

The 'shop floor' workers always had a fair selection of characters - some of them felt quite intimidating to an 18-year-old lab assistant! There are far too many to mention but to give one example I remember the shop steward from the brewing department – big Tam Gourlay. He was a big man with a gruff voice but I soon learned he had a heart of gold and a sense of humour! This was typical of many at that time. As part of the lab team I was regularly out taking samples throughout the brewery. Everywhere you went there was always someone who would share a laugh and a joke.

As well as staff for production, maintenance and quality control, Heriot also had a full complement of craftsmen in-house – plumbers, joiners, painters etc. Ivor Reid has already made reference to a similar situation in Wellpark in a previous article. George Weir headed up the team of painters and I was always intrigued by the love some of them had for Tennent's Super Lager. They said that after inhaling paint fumes all day they needed something strong to get through to their taste buds.

Falkirk Training Centre

As well as the breweries in Edinburgh and Glasgow, TCB also had a training centre in Falkirk – a handy location roughly midway between the breweries. Aitken's of Falkirk were one of the brewing companies who had ended up as part of TCB. The brewery in Falkirk had been closed but the offices above the Newmarket Bar were retained and used as a training centre. TCB had a training department who regularly ran a variety of courses there. I remember courses on Effective Speaking, On-the-Job Instructors and Financial Management amongst others. One residential course in particular stands out for me as it was there in 1980 that I met my wife for the first time, giving me a connection to Falkirk that has lasted more than 40 years. On another occasion I recall unfortunately taking a phone call from Giffnock Police telling me that our house in Glasgow had been burgled while I was away on a course. We were in the process of moving back to Edinburgh at the time and this complication was the last thing we needed. It's far from the worst thing that can happen in life but still gives me a particular memory of the Falkirk training centre.

Closure

In November 1991 Bass announced a major re-organisation of their brewing operations across the UK. Part of this saw a £64M investment in the Cape Hill Brewery in Birmingham but it also included the closure of Heriot Brewery and the Bass brewery in Cardiff. Obviously this had a major impact on the 90 or so people who worked there. On a personal note I remember the day of the announcement very well as it came the day before my wife was due to return to work after the birth of our son – a period of considerable uncertainty with a new baby and the prospect of no job.

During the following months production operations were gradually run down and transferred elsewhere and some people left as they found other employment. A striking memory of that time was the conversations people would have. People continued to go about their work but if you talked for long enough with anyone the subject of the brewery closure and what the future might hold inevitably came up. Thankfully most people found new jobs – either within Bass, with other brewing companies or outside the brewing industry. I transferred back to Wellpark where I worked for another 27 years in a number of positions under a number of owners – Bass, Interbrew/ABInBev and finally C&C.

Production operations finally ceased and Heriot closed in September 1992. Many breweries had suffered this fate before and since but it was still a sad occasion as it always is when a brewery closes. The equipment in the brewery was sold or transferred to other Bass sites and the site lay unused for a few years before being sold and developed for housing. It's nice to note that the housing development acknowledges the site's history with the name of the street through it – Roseburn Maltings.

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Some Scottish brewing records, 1871–1904

Edd Mather

Newington Brewery, 1833–34

Quality	Date	OG	RG	FG	IBU	ABV
X Ale	16/04/1833	1.077	1.018	1.015	28	6.8
X Ale	11/06/1833	1.079	1.016	1.013	30	7.25
X Ale	07/11/1833	1.070.5	1.022	1.012	24	6.5
X Ale	05/12/1833	1.074	1.016	1.013	30	6.75
X Ale	31/01/1834	1.077.5	1.016	1.013	30	7.1
X Ale	19/03/1834	1.072.75	1.015	1.012	32	6.7
X Ale	15/04/1834	1.071	1.013	1.010	30	6.75
X X Ale	15/06/1833	1.085	1.021	1.018	40	7.4
X X Ale	01/11/1833	1.084.5	1.018	1.015	30	7.6
X X Ale	31/12/1833	1.094.5	1.018	1.015	28	8.6
X X Ale	30/01/1834	1.084	1.020	1.017	30	7.4
Porter	26/03/1833	1.064.5	1.017	1.014	36	5.7
Porter	05/06/1833	1.059	1.009.5	1.006.5	34	5.9
Porter	01/03/1834	1.060.25	1.011	1.008	54	5.8
Porter	08/03/1834	1.062	1.009	1.006	56	6.25
Porter	18/04/1834	1.066	1.012	1.009	22	6.3
H Porter	17/07/1833	1.078	1.012	1.009	30	7.6
Pale	01/01/1834	1.061	1.011	1.008	44	5.9
Stout	09/11/1833	1.071	1.014	1.011	58	6.6
Stout	29/12/1833	1.067	1.013	1.010	52	6.3
Stout	04/03/1834	1.070	1.013	1.010	52	6.6
Stout	27/03/1834	1.076.5	1.013	1.010	48	7.3
Imp Stout	30/11/1833	1.080.5	1.016	1.013	44	7.4

Source: Brewing Book 1833–1834. NB 6/1/1/1. Scottish Brewing Archive.

Dudgeon & Co, 1871

No.	Date	Quality	OG	Cleared	RG	FG	IBU	ABV
13	07/10/1871	50/-	1.042	1.019	1.012	1.009	40	3.9
27	13/10/1871	60/-	1.058	1.029	1.021	1.018	28	4.6
31	16/10/1871	80/-	1.071		1.033	1.030	28	4.7
3	04/10/1871	100/-	1.081	1.035	1.033	1.030	30	5.75
36	18/10/1871	120/-	1.093	1.044	1.035	1.032	50	6.75
20	11/10/1871	140/-	1.111	1.060	1.039	1.036	18	8.3
9	09/10/1871	160/-	1.125	1.053	1.028	1.025	54	10.75
12	07/10/1871	No 2	1.096	1.042	1.029	1.026	34	7.7
52	08/10/1871	No 3	1.078	1.032	1.026	1.023	62	6.1
1	02/10/1871	No 3 Export	1.078	1.032	1.020	1.017	62	6.4
3	04/10/1871	London No 3	1.078	1.037	1.025	1.022	62	6.25
	08/10/1871	No 4	1.068	1.028	1.019	1.016	62	5.8
5	04/10/1871	X X	1.060	1.031	1.020	1.017	46	5
38	19/10/1871	X X X	1.074	1.048	1.028	1.025	44	5.5
			1.071	1.030	1.022	1.019	44	5.8
11	09/10/1871	Table Beer	1.034	1.017	1.013	1.010	18	3
27	13/10/1871	S	1.076	1.033	1.026	1.023	46	5.9
28	14/10/1871	??????	1.108	1.053	1.038	1.035	16	8.5
18	10/10/1871	B . S	1.038	1.020	1.013	1.010	28	3.4

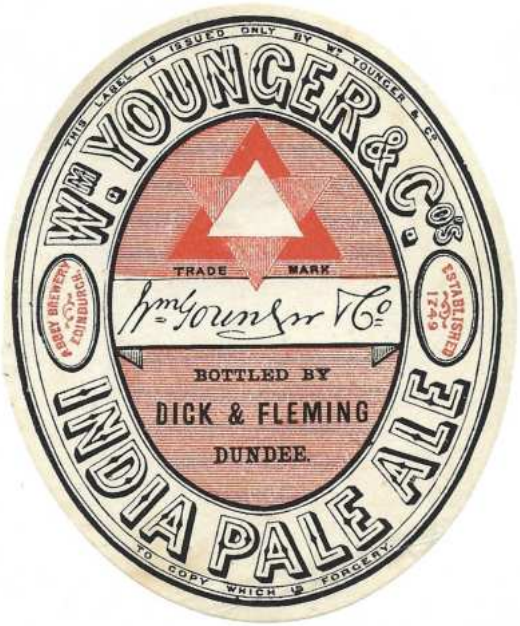
Source: Dudgeon & Co, The Brewing Book of William J Clark 1871–1883. B 6/1/1/1. Scottish Brewing Archive.

NB: This volume is in a deteriorating state of preservation, with entries in 1871, 1881 and 1882–3, with non-contiguous entries. It is probably a personal record as opposed to those required by statute.

William Younger, Holyrood Brewery, 1879

Quality	Brew Nos	Date	OG	RG	FG	IBU	ABV
2 X P	150-151	12/11/1879	1.044	1.011.5	1.008.5	34	4.1
X P	54–55	20/10/1879	1.051	1.013	1.010	36	4.7
X P	88–89	29/10/1879	1.051	1.015	1.012	38	4.7
X P	144–145	11/11/1879	1.051	1.012	1.009	34	4.8
X P	168–169	18/11/1879	1.052	1.013	1.010	40	4.8
X X P	48-49	17/10/1879	1.058	1.015	1.012	52	5.2
X X P	94–95	30/10/1879	1.058	1.016	1.013	50	5.1
X X P	146–147	10/11/1879	1.058	1.015	1.013	48	5.1
X X P	166–167	17/11/1879	1.058	1.012	1.009	50	5.5
Export	82–83	28/10/1879	1.058	1.012	1.009	58	5.5
Export	164–165	17/11/1879	1.058	1.013	1.010	66	5.4
? F?	148–149	12/11/1879	1.074	1.014	1.011	48	6.9

Source: Holyrood Brewery Brewing Book October 1879–March 1882. WY 6/1/3/9. Scottish Brewing Archive.



Wm Younger, Abbey Brewery, 1879

Quality	Brew Nos	Date	OG	RG	FG	IBU	ABV
Table Beer	764	08/08/1879	1.030	1.008.5	1.005.5	22	3.3
Table Beer	39–40	14/10/1879	1.028	1.009	1.006	16	2.75
50/-	755–756	20/08/1879	1.033	1.008.5	1.005.5	20	3.5
50/-	47–48	16/10/1879	1.036	1.010	1.007	19	3.5
Stock 50 /-	133–134	12/11/1879	1.040	1.009.5	1.006.5	22	4
H 60/-	75–76	27/10/1879	1.038	1.009	1.006	28	3.8
H 60/-	213–214	11/12/1879	1.040	1.008.5	1.007	20	4
80/-	762	08/08/1879	1.060	1.018	1.015	28	5.1
80/-	136	13/11/1879	1.061	1.018	1.015	32	5.2
80/-	216	12/12/1879	1.059	1.018	1.015	26	5
100/-	753–754	04/08/1879	1.071	1.020	1.017	44	6
100/-	75	27/10/1879	1.070	1.020	1.017	22	6
100/-	257–258	26/12/1879	1.070	1.020	1.017	28	6
120/-	763–764	01/08/1879	1.081	1.023	1.020	42	6.75
120/-	131–132	12/11/1879	1.082	1.021	1.018	30	7
120/-	265–266	31/12/1879	1.082	1.023	1.020	28	6.8
160/-	151	18/11/1879	1.109	1.039	1.036	40	8
X	804	29/08/1879	1.044	1.011	1.008	26	4.2
X	137–138	13/11/1879	1.046	1.011	1.008	30	4.4
X	269–270	31/12/1879	1.046	1.011	1.008	34	4.4
X X	758	08/08/1879	1.052	1.013	1.010	44	5
X X	43–44	15/10/1879	1.052	1.012	1.009	32	5
X X	259–260	26/12/1879	1.049	1.010	1.007	30	5
X X X	757	08/08/1879	1.062	1.015	1.012	44	6*
X X X	253–254	26/12/1879	1.062	1.012	1.009	30	5.9
X P	749–750	02/08/1879	1.051	1.011.75	1.009	34	5.1*
2 X P	797–798	25/08/1879	1.046	1.011	1.008	34	4.1
2 X P	77–78	28/10/1879	1.046	1.011	1.008	30	4.1
2 X P	253–254	29/12/1879	1.046	1.012	1.009	30	4.0
No 1 Ale	27–28	10/10/1879	1.098	1.028	1.025	56	8.3
No 2 Ale	19–20	08/10/1879	1.084	1.022	1.018	55	7.25
No 2 Ale	185–186	01/12/1879	1.083	1.019	1.016	40	7.4
No 3 Ale	83–84	13/10/1879	1.074	1.021	1.018	30	6.25
No 3 Ale	141–142	14/11/1879	1.074	1.019	1.016	34	6.4
No 3 Ale	201–203	29/12/1879	1.074	1.019	1.016	38	6.4
No 1 Stout	745–746	01/08/1879	1.070	1.018	1.015	36	6.1
No 1 Stout	29-30	10/10/1879	1.071	1.018	1.015	38	6.25
No 1 Stout	255–256	26/12/1879	1.070	1.021	1.018	38	6.25*
No 2 Stout	747	01/08/1879	1.052	1.011	1.008	40	5
No 3 Stout	801–802	25/08/1879	1.046	1.009	1.006	15	4.25

Quality	Brew Nos	Date	OG	RG	FG	IBU	ABV
No 3 Stout	31–32	10/10/1879	1.046	1.009	1.006	24	4.5
No 3 Stout	197–198	04/12/1879	1.047	1.009	1.006	38	4.7
DBS†	157–158	20/11/1879	1.073	1.018.75‡	1.016	76	6.4

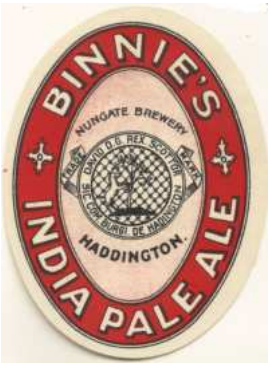
*The use of an asterisk next to a particular brewing denotes the use of Glucose at a certain Degrees contributed.
†Double Brown Stout
‡Bottled

Mark Binnie, 1904

Brew No	Date	Quality	OG	RG	PG	IBU	ABV
58	05/06/1904	Ex B	1.037	1.009	1.006	26	3.7
7	27/10/1904	Ex B	1.046	1.011	1.008	26	4.4
55	27/05/1904	54/- Bitter	1.046	1.009	1.006	26	4.7
59	01/06/1904	54/- Bitter	1.046	1.009	1.006	28	4.7
33	18/02/1904	60/- Bitter	1.057	1.008	1.005	28	6.0
80	09/08/1904	60/- Bitter	1.056	1.008	1.005	28	5.8
29	04/02/1904	54/- I P A	1.048	1.009	1.006	28	4.9
94	22/09/1904	54/- I P A	1.049	1.009	1.006	28	5.0
27	27/01/1904	60/- I P A	1.057	1.011	1.008	28	5.6
92	13/09/1904	60/- I P A	1.057	1.009	1.006	30	6.0
81	09/08/1904	H B	1.044	1.010	1.007	10	4.5
87	23/08/1904	H B	1.044	1.010	1.007	10	4.5
5	20/10/1904	60 /-	1.058	1.013	1.010	26	5.5
30	04/02/1904	80 /-	1.059	1.018	1.015	12	5.2
14	11/11/1904	80/-	1.058	1.016	1.013	14	5.25
31	11/02/1904	140 /- Ale	1.084	1.021	1.018	20	7.5
15	17/11/1904	140 /- Ale	1.084	1.021	1.018	20	8.0
28	27/01/1904	Double Brown Stout	1.071	1.019	1.016	28	6.2
60	08/06/1904	Double Brown Stout	1.074	1.018	1.015	26	6.9

Source: Brewing Notebook of John Binnie 1904–1905. BH 6/1/1/1. Scottish Brewing Archive.

The records in this book were, I believe, copied from the statutory records, and contain attenuation details to the 'clearing' stage; thus the racking gravities and present gravity degrees are my own interpretation.



Glossary

In the tables OG: original gravity; FG: finishing gravity; RG: racking gravity.

Original gravity

The weight of solids dissolved in a liquid medium. Usually expressed in modern brewing terminology as degrees, though in the past this unit has been measured in "brewer's pounds" per barrel e.g.: 19.6 lb/Brl = 1.054.5 (R+), or on the continent as degrees Balling, e.g. 13.6 %B = 1.054.5. NB: Most Scottish breweries used both brewer's pounds and degrees as quantative analysis units.

Racking gravity

The weight of the beer as expressed in X Unit value at the point where the beer is put into containers, be that a draught or bottled packaging format.

Final gravity

This is the weight or gravity at which the yeast can be predicted to stop working in the beer, affecting the mouthfeel and, indeed, bitterness perception e.g. a stronger beer would generally have a higher final gravity than a running beer (see tables for examples such as Wm. Younger & Co No. 1 series of beers).

IBU and bitterness perception

The bitterness of a certain beer, e.g.: Mark Binnie & Co 60/- Bitter at an average content of 28 IBU, may not appear to be bitter. Yet when the final gravity is taken into consideration (1.005), in my opinion this does alter the mouthfeel and perceived bitterness, as the lower gravity of the beer will "thin out" the finish, requiring the use of fewer hops in the copper. This is usually a technique confined to running beers, with any stronger beers having hop charges in the copper appropriate to the brewer's requirements.

Water: an essential ingredient of beer

John Martin, Les Hutcheon

The idea of this article came about when Les Hutcheon showed John Martin photographs he had taken at the time of the Holyrood Brewery closure. John remarked that he had not seen the picture of the Grange well before and following discussions it was agreed that it would be a good idea to prepare an article on the water supply to Edinburgh breweries. John asked Les to write up what he remembered on the water supply and both visited the Grange weeks later to locate the site of the well.

The aim of this article was to tie in with information about breweries in the Edinburgh area during the latter part of the nineteenth and beginning of the twentieth century. As the article developed, it became obvious that it needed to expand in order to put it into context, both in terms of time and geography. Thus an article focused on Edinburgh breweries and based on the use of water in brewing came together from their combined knowledge and research undertaken.

Introduction

We are all aware how essential water is to life, partly because the search for water in space exploration is frequently in the news. However it is not surprising that we take water for granted particularly here in Scotland where there is no water shortage, with our often cloud covered skies giving the gloom of crepuscular doom and impending rain. It is also a fact that we can so easily obtain water just by turning on a tap.

The properties of water are important because of some unique features. The bonds which hold the oxygen molecule to the hydrogen work in different ways within the body of the liquid to that of the surface, enabling a surface tension which some insects can use to walk on water. If not contained in a vessel, water would try to hold itself into a sphere and this has been demonstrated by astronauts showing water droplets in zero gravity forming spherical shapes. This property is important in beer because of the way in which the bonds act thus playing a significant part in bubble formation as gas comes out of solution and in turn the foam that forms to give the head on beer.

Water has the property of becoming denser below 4° Celsius, before turning into the solid state of ice, thus making it unique in that the liquid phase is denser than the solid phase. The ice floats on the liquid water. There is a large energy jump when changing state between ice to liquid and water to steam, the latter being used to drive powerful steam engines. Perhaps most significant in relation to beer is that water is a solvent in which many chemicals and gases can be dissolved.

Although it is now so easy to obtain water for all sorts of purposes in the home and industry, that was not always the case. The need for more water grew as the population

increased. When asked what are the ingredients of beer, the answer is likely to be malt and hops, however water of the correct quality is essential for brewing beer and represents over 90% of the final product.

Today water is such a precious commodity everywhere in the world and industries like brewing which are high users are expected to be highly efficient in its use. The ratio of total water used per hectolitre of beer produced is a key indicator, which many brewers used to keep costs under control. The ratio will vary from one brewery to another, with the more modern breweries being more efficient in their water usage compared to the older breweries. It could range between 1:8 to 1:3.

The salts dissolved in water, particularly well water, were significant in the brewing process and contributed to the development of different types of beers. An aquifer is a body of porous rock saturated with groundwater. The water can move through the aquifer and resurface through springs and wells. For example the water drawn from the aquifer in the Edinburgh area had dissolved gypsum (calcium sulphate) derived from the rock it had flowed through.

The dissolved salts have an important influence by buffering the pH of the wort and beer throughout the process thus influencing the activity of enzymes. The optimal activity of enzymes is influenced by pH as well as temperature. This is why breweries develop their own regimes for the process. In addition dissolved salts can have a direct effect on flavour – such as sodium chloride having an enhanced sweetening effect. This explains why the most suitable water obtained from wells formed a pattern of the locations where breweries developed. This is sometimes described as the "charmed circle".

However not all well water is suitable for brewing. Water from natural springs was thought to have health benefits both to bathe in and to drink. A visit to St Ronan's Wells visitor centre will give the chance to smell and taste the water. It is full of sulphur salts and is most unpleasant and very definitely most unsuitable for brewing.

Wells

Records of wells and examples of wells shown on old maps show just how many wells there were. In addition for the need for water in general, the aquifers found in parts of Edinburgh provided water with slightly varying salt contents, which made the water suitable for pale ale beers. The water was also free of microbial infection having been filtered through a porous rock as it progressed underground. A further advantage in terms of brewing was that it was extracted at a consistent temperature of just about 10° Celsius. This was important before the days of thermometers thus making it possible to control temperatures by mixing known volumes of cold and boiling water to produce consistent mashing heat. Even after the development of thermometers and hydrometers, wells were used in brewing into the twentieth century, in turn determining the location of breweries.

Figure 1: Water tank and well situated on Grange Loan, 1986.

With regard to the wells which supplied Holyrood Brewery, many employees will remember their knowledge of the wells from their jobs, whether they analysed for dissolved salts or for microbiological purity or maintenance of the pumping equipment or indeed the use of water in production. A couple of years before the closure of Holyrood the well water had developed a microbiological contamination and the decision was made to cease adding well water to the liquor supply and to use town water entirely. Because the water was stored prior to use and held in tanks in the loft above the offices locally known as the technical block the tanks were drained for safety reasons. Equipment not in regular use could potentially cause flooding affecting people and equipment. Following the closure of Holyrood in 1986 photographs were taken for the record and followed through to the wells at the Grange to see exactly what was still there before the complete decommissioning of all the brewery sites had taken place. The well house and tanks were located in Grange Loan near the Grange Cricket ground and are shown together with the block of flats which now stands there. There was another nearby well in Blackford Avenue, where there was no tank but well pumping equipment. From the street it looked like a large garage. It is now a dwelling house aptly named as "The Pump House".

Contained in the Water Supply Papers of the Geological Survey carried out in 1965 there are details of 97 wells in Edinburgh. The details cover the owner or occupier, their location, the depth and the volume of water that each well provided. Some breweries had more than one well and in some cases as many as four. "The majority of the wells in Edinburgh are or were used in connection with the brewing of beer, and in fact the chemical suitability of the water from these wells was largely responsible for the growth of the brewing industry in Edinburgh."

Figure 2: Site of the water tank and well on Grange Loan, 2021.

Figure 3: The Pump House on Blackford Avenue, 2021.

It was in 1889 that Wm. Younger & Co applied to the Dean of Guild Court for permission to sink a well, erect an engine house and tank at Grange Loan and near the home of Managing Director, Henry J. Younger. From the Grange, the water was piped and run by gravity to both Holyrood and Abbey breweries. These wells continued to supply water to the breweries until 1985, when Holyrood discontinued their use and the wells were capped.

In the Canongate area, checks were undertaken on a regular basis to determine the level of the underground water supply. If the water level was too high, the water was pumped out to drain to avoid potential flooding.

In 1956 Abbey as a brewery was closed and converted to the Scottish & Newcastle brewing company headquarters. Today this site is the home of the Scottish Parliament, however the springs that used to provide water for brewing are now being used to flush the toilets and thus saving water. Water from the town mains supply is used for drinking.

Edinburgh Breweries

Brewing began in Edinburgh in the 12th century when the monks of Holyrood Abbey sank a well and used the water to brew their ale.

Beer became part of the staple diet throughout Scotland, as untreated water was frequently contaminated and therefore dangerous to drink. Beer became popular and safer to drink as the brewing process involved boiling the water, therefore eliminating any harmful bacteria. It was common that women would brew beer in their homes for their family to drink at meal times.

By the 15th century, brewers were recognised figures in society and considered as important as bakers and fleshers in providing life's necessities. In 1596 the Society of Brewers was formed to regulate grain supply, water supply and pricing policies.

One of the earliest public breweries in Edinburgh was the Argyle Brewery (c. 1710) of Campbell, Hope & King situated in the Cowgate and adjacent to the brewery was Heriot-Watt College, where the first brewing course was run for students.

Edinburgh became known as the brewing capital of Scotland, if not the world, with over forty breweries in the later part of the 19th century mainly as a result of several factors:

- Top quality barley available from the agricultural Lothians
- Nearby collieries provided coal for power
- Good railway links
- Leith docks was ideally placed for exporting beers worldwide.
- An abundant supply of good quality water from the underground aquifer.

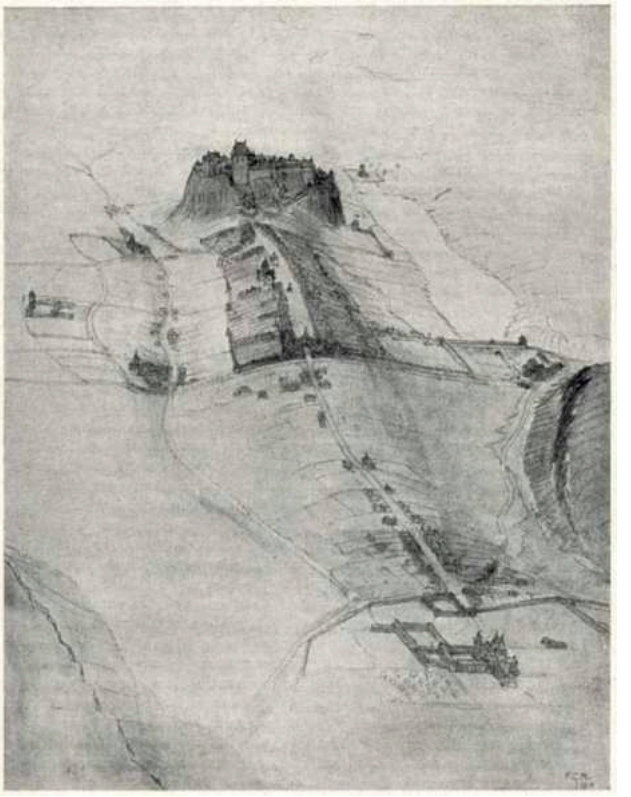


Figure 4: This image of 'Old Town' Edinburgh shows the castle at the top and Holyrood Abbey and the Palace of Holyroodhouse at the foot. The 'Old Town' started to expand in the late 16th century with homes being built on the Canongate. On either side of the Canongate there are waterways running down to Holyrood and where today Holyrood Road and Calton Road are located. It was in this area in the 18th and 19th Centuries that many of the Edinburgh breweries started to emerge.

The brewery locations in Edinburgh were as a direct result of where the best underground water supply could be found, although not all breweries were operating at the same time.

Area	Number of breweries
Canongate and surrounding area	18
Abbeyhill	3
Leith	15
Grassmarket	2
Tollcross and Edinburgh West	6
Southside	4
Craigmillar	7

There are many examples of the wells used for brewing mentioned in the Scottish Brewing Archive Newsletters. The following are just a few examples.

Excerpts from Andrew Smith – "Book of Notes on Brewing" (1834–1869):

> 'We always thought the Abbey Brewery water most suitable for ales, as also Craigend, Croft-an-Righ, we thought was much in the same strata and Mr. Robert Younger always said he could make as good an ale, when his fermentations were good.'

Steel Coulson:

> 'The Croft-an-Righ Brewery was served by two wells situated within the brewery precincts, both in the region of two hundred feet deep and connected to each other by headings. These wells between them could produce a combined output of some five thousand gallons of good quality hard water, twenty four hours a day.'

Craigmillar and Duddingston:

> 'There is an abundant supply of spring wells of the purest water near wester Duddingston and to contain a lesser proportion of earthly matters than any springs in Edinburgh.'

John Jeffrey's breweries: Heriot Brewery in the Grassmarket had four wells of varying depth. The brewery at Roseburn (later named Heriot Brewery) when the original brewery in the Grassmarket closed, had three wells, named Ale, Lager and Roseburn. After the closure of the Grassmarket brewery, the water was piped underground to the Roseburn brewery, such was the quality.

Boroughloch Brewery:

> 'By the 16th century the Burghloch (now the Meadows) was regarded by Edinburgh as a major water supply and several Acts were passed to conserve this valuable asset.'
>
> 'The Brewers Society was formed with a view to making the supply of brewing water from the Burghloch a permanent feature. The Society arranged the laying of water pipes, including the erection of a windmill to pump the water to its brewery in Chamber Street.'

Robert Younger – St. Ann's Brewery

A good example of brewery wells is at the St. Ann's brewery on Croft-an-Righ lane purchased by Robert Younger in 1854.

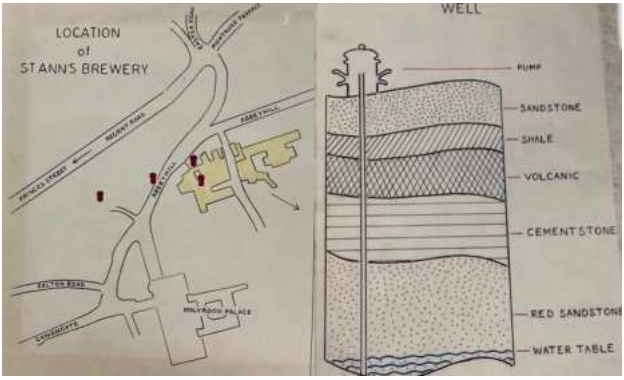


Figure 5: Location of the wells at St Ann's Brewery and the layers of ground material above the water table.

Many of the Edinburgh breweries had more than one well to ensure there was a constant supply of water. In some cases the wells became contaminated and were closed. The St. Ann's brewery operated four wells as can be seen in the map marked in red (Figure 5), including a cross section showing the different layers of ground material that was required to be bored before reaching the water table.

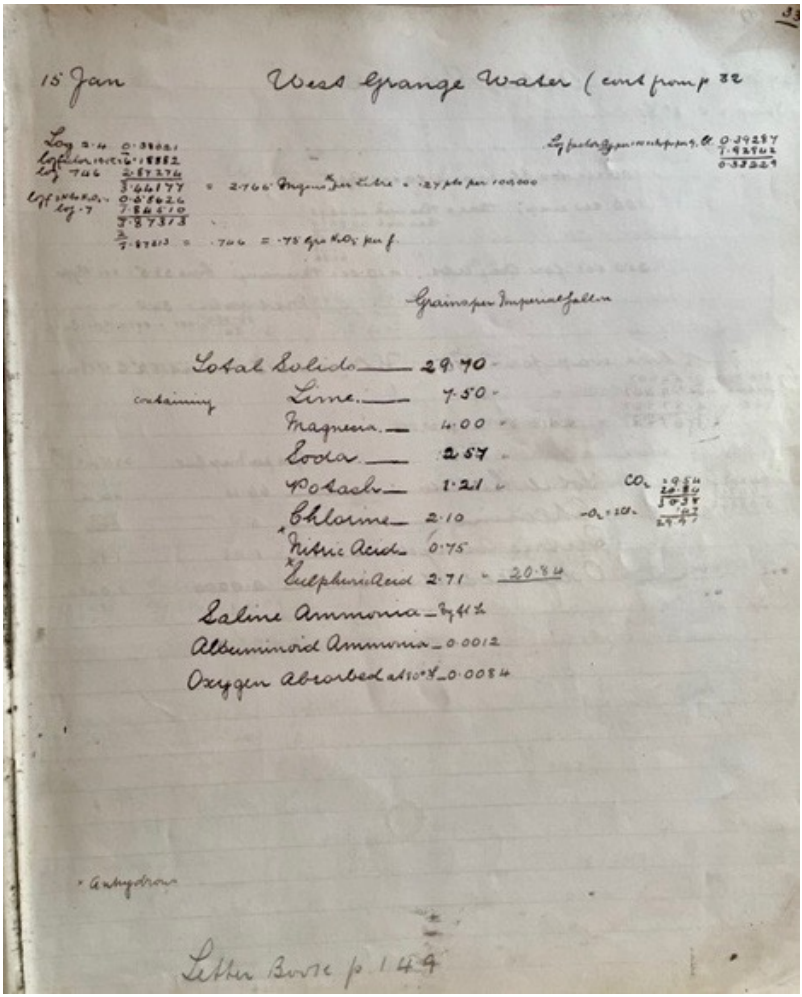


Figure 6: Analysis of well water from West Grange, 15 January 1890.

Analysis of water for brewing

As water was such an important ingredient of beer, a great deal of time was devoted to ensure that the quality was ideal for brewing.

Wm. Younger & Co employed a chemist for the first time in 1877 following Louis Pasteur's book the 'Studies of Fermentation', which was published the previous year.

The chemist's name was William McCowan and it was after his appointment that the analysis of water was brought to a higher level.

The water from all the wells was analysed on a regular basis and in such detail in order to determine its content and its quality.

The image in Figure 6 is an example found in the Wm. Younger & Co Laboratory Water Analysis record of 1890 and shows the composition of water at the West Grange well.

Wm. Younger & Co also carried out water analysis on behalf of other Edinburgh breweries.

It is interesting to note that Wm. Younger & Co also appointed John S. Ford in 1889 (the same period as the water analysis record) who was later renowned in the brewing industry for his scientific analysis of beer and its compounds. He was recognised for his achievements when he was awarded the Horace Brown Memorial Medal, the most prestigious honour bestowed by the Institute of Brewing and Distilling.

Water contamination

Although the underground aquifer provided good quality water to all the breweries for many years, problems did develop as a result of industrialisation in the Canongate area. The following are some extracts from articles that appeared in the Scottish Brewing Archive Newsletters that underline some of the problems that the breweries did encounter.

> 'In the spring of 1859 we were very short of water, all our bores yielding very little. We had put a well down near the Cooper's Shop, 80 or 100 ft. deep, and got plenty of water, but the gas came in and spoiled it'.
>
> 'The Gas Works situated on the North Back of the Canongate was held responsible for polluting the water supply in the vicinity'.[1]

Gordon & Blair – Craigwell Brewery:

> 'Problems had arisen with the water supply to the Craigwell Brewery in the early 20th century. Increased domestic and industrial usage resulted in the water table sinking and pollution creeping in, and shortly before the First World War it was found necessary to sink a new well at the western end of the North Back of the Canongate (now Calton Road).'

[1] Andrew Smith – "Book of Notes on Brewing" (1834-1869)

The contamination problem did continue as Wm. Younger & Co issued a petition to the House of Lords in 1887 regarding their concerns that 'poisonous matter' produced by the Edinburgh Gas Light Co. (which was in close proximity to the Abbey and Holyrood Breweries) was contaminating the underground water supply. Following this petition Wm. Younger & Co were given assurances by the Edinburgh Corporation that they would provide a supply of water suitable for brewing.

In 1890 a well in the West Grange provided Wm. Younger & Co with water and further wells nearby were added in 1903, 1914 and 1936.

Town water supply

In 1624 water was brought into a reservoir at Castlehill from springs and Comiston to the south to supply water to the town. Further reservoirs were brought into use till today when Edinburgh water is treated at the water treatment works at Glencorse having been sourced from reservoirs some 30 kilometres away. From being conveyed in wooden pipes originally, to lead pipes, the excellent quality town water is now delivered to houses through a network of welded plastic pipes.

Waste products and effluent disposal

An examination on the use of water would not be complete without dealing with the waste and effluent. As the population and the use of water increased the waste became an increasing problem. In the eighteenth century waste flowed from the Nor Loch and the Burgh Loch through the Foul Burn through the Craigentinny Meadows to the Forth Estuary. The open sewer was such a health hazard that by 1922 the Craigentinny sewer was built replacing the open ditch over the Craigentinny Meadows. Later in the twentieth century more and enlarged sewers were brought into use. The sewage was still being dumped into the Forth estuary till the MV Gardyloo was brought into use. At the Seafield Works the liquid was separated and pumped well out into the Forth. The sludge was taken out three times a week from Leith to be dumped into the mouth of the Forth on the MV Gardyloo. For six months it was dumped to a site north of the May Island and for another six months to a site south of the May Island. This procedure carried on from 1978 till 1998. European legislation prevented the discharge of raw sewage into any of the waters of the North Sea. Now the treatment works at Seafield separates the liquid from the solids and pumps the purified liquid well out into the Forth while the solids are dried pasteurised and rendered sterile and safe before becoming available as fertiliser.

Conclusion

The necessity for pure water is obvious, however the expression can be confusing. To the chemist pure water may be described as consisting of two hydrogen atoms to one oxygen molecule (H2O), or possibly better to think of water (HOH) as a hydrogen ion (H+) and a hydroxyl ion (HO-) combining. In general terms pure water means water containing small quantities of minerals, which enhance its qualities, as opposed to impure water containing harmful or toxic chemicals or harbouring dangerous micro-organisms. This distinction has always been recognised in the brewing of beer. The realisation that the earth has limited resources with increasing competition for them, will see the demand for water increase. Water has particular properties, which make it very special and essential in brewing beer. Do not take it for granted.

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In Ale terms, is 'Scotch' Scots for 'Scottish'?

Graeme Cruickshank

As far as beer terminology goes, any brew with a particularly Scottish ring to its name tends to get a degree of attention around these parts, but when a beer is described as being 'Scottish', does that simply mean 'Made in Scotland', or does such a tag carry broader implications? Add 'Scotch' to the mix, and another dimension comes into play. Time to dip into the standard work, Ian Donnachie's 1979 *History of the Brewing Industry in Scotland*. A glance at the Index – no mention of 'Scotch'. Alright then, is there a book with 'Scotch Ale' as its title? Indeed there is, but tread warily, as this is where awkward questions begin to arise.

The author of the book in question is Gregory Noonan, a brew-pub owner in Vermont, USA, the work being published in 1993. Therein lies a problem, because the text frequently employs the words 'Scotch' and 'Scottish' without distinguishing what they mean relative to each other. That is not to say that they are used indiscriminately or interchangeably, but the phrase 'Scotch and Scottish Ales' appears a number of times without any explanation of how the two words relate one to the other. Greg Noonan was honest enough to admit that he didn't really know how to handle the issue.

In general terms, 'Scotch' is not that easy a word to deal with. My Chambers dictionary gives its meaning as "a form of 'Scottish', though disliked or resented by many Scotsmen". It adds that the term is often applied to products of actual or supposed Scottish origin, citing whisky as the prime example (I dislike this usage only if an American insists in pronouncing it Scatch). Among the numerous examples where it has a peculiar connotation are the well-known Scotch egg, bonnet, mist, and broth, plus some less common euphemisms like 'Scotch fiddle' (an itch, because it calls for the application of dexterous finger-work) and 'Scotch woodcock' (a dish of egg and anchovies on toast). Of 'Scotch Ale', however, there is no mention. So what would a Scots Dialect dictionary have to say? Mine adds a few more examples, but still none with a brewing connection.

Back, then, to Greg Noonan's book *Scotch Ale* (which is examined elsewhere in this Journal). One section of the Foreword is promisingly headed 'Scotch and Scottish Ales', but disappointingly it consists of nothing but an 1827 poem by John Imlah, without a single word of commentary or explanation; it is a spirited three-verse eulogy in praise of Alloa Ales, but does absolutely nothing to address the Scotch/Scottish debate. Likewise, Noonan's Introduction does little to encourage the hope that the difference between the two names may be clarified: "Scotch and Scottish Ales provide good examples of beer styles that, outside Scotia's shores, are widely misunderstood … It is my hope that this investigation of the Scotch and Scottish styles, as uninformed and lacking as it is, will adequately serve to better define them both" (p.4). That clearly

indicates that Scotch and Scottish Ales may be regarded as two distinct and separate products.

This impression is confirmed by Noonan at the end of his Introduction: "As a final word, let me emphasise that this is NOT the definitive work on Scotch and Scottish ales. I trust any information that my efforts left undiscovered will be compiled by other researchers to more fully define, categorise, and document the historical evolution of Scotch and Scottish ales" (p.5). The extent to which this laudable aim is realised falls quite a way short of such lofty expectations. Perhaps this special SBAA Journal might assist in that process, a necessary task, as all too often the joint term is used as if it referred to a single entity, such as speaking of "The soft and malty style of Scotch and Scottish ales" (p.48).

Even so, Greg Noonan's book does on occasion make a distinction between the two, notably when he offers something approaching a definition (p.41): 'Scotch Ale', he says, has a strong 6 to 10% ABV, is sweet and very full bodied, with roast malt flavours predominating, with an original gravity (that is, the specific gravity of the wort prior to fermentation) of 1070 to 1130. By way of contrast, 'Scottish Ale' ranges from 1030 to 1050 OG. Noonan unhelpfully declines to give an ABV range for Scottish Ale, but we may deduce it, as he cites 60/-, 70/-, and 80/- as typical of the group. Taking Belhaven brews as a bench-mark, this yields an ABV of between 3.0 and 3.9%.

That upper measure may seem as being on the low side; a glance along my bottle shelving reveals Maclay's 80/- at 4.0%, along with Bridge of Allan's 'Ben Nevis' and 'Brig o' Allan', then Caledonian 80/- at 4.1%, McEwan's 80/- at 4.2%, Williams Bros. 80/- the same, Stirling's Black Wolf Brewery 'William Wallace' 80/- at 4.5%, and Arrol's 80/- at 4.7%. Top of the crop stands the City of Stirling Brewery 80/-at 4.8% alongside Bridge of Allan's 'Wallace Monument'. Devanah of Aberdeenshire, still using the old system in 1986, weighed in at 1041 to 1044 OG, at the higher end of the range. Thus 'Scotch Ale' comes out consistently stronger than 'Scottish Ale', with no overlap recorded – though with such inconsistency of 80/- ABVs, even within the same brewery, the value of using that term statistically is questionable.

Perhaps it is not possible to make a firm distinction. [*Editor's note:* The labels in figures 1 and 2 illustrate the issue. Up until the 1950s bulk beer was still sent out to independent bottlers and the brewery supplied the labels. These show William Younger in 1953 selling the same beer as Scotch Ale in England and Barley Wine in Ireland, while in Scotland it was just Strong Ale.]

Noonan notes further differences between the two groups, describing their appearance as being 'burnished copper to brown' in colour, in both cases, but with the Scotch being just a shade deeper in tone. He continues: "Scotch and Scottish ales require extensive cellaring at cold temperatures, as was traditionally universal practice among Scottish brewers, for their flavour to develop. Scotch ales are invariably rich (even to the point of being syrupy) and mouth-filling, soft as well, showing less acidity than

Figure 1: Wm Younger 'King of Ales' labels, 1953. Bottled in Huddersfield the beer is Strong Scotch Ale, but the beer packaged at the brewery in Edinburgh is just Strong Ale. William Younger collection, Scottish Brewing Archive.

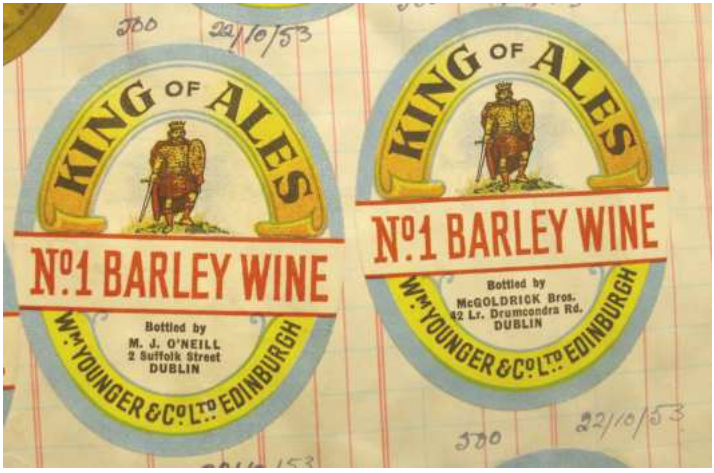

Figure 2: Wm Younger 'King of Ales' labels, 1953. Here the beer is packaged by local bottlers in Dublin and sold as Barley Wine. William Younger collection, Scottish Brewing Archive.

is usual for beer". Here chemistry is used to illustrate the difference: "A sampling of Scotch ales gave a 'pH' range [the measure of acidity or alkalinity, usually on a scale of 1 to 14, with 7 being neutral] of 4 to 4.75, whereas Scottish ales measured between 3.75 and 3.9, which is within the more usual range for beer" (p.44). Such factors thus present us with a clear distinction – 'Scotch Ale' has greater strength, a slightly darker colour, and a modicum of greater acidity, than 'Scottish Ale' does.

'Scotch' also features when citing detailed recipes, as Noonan lists the vital stats for 60/-, 70/-, 80/-, and 90/-, the first two being labelled 'light' and 'heavy' respectively, the third being nameless, and the fourth being termed 'Scotch'. He doesn't finish there, however, going stratospheric with 120/-, a single mash producing a 'wee heavy' and a double mash a 'Scotch' ale. Ironically, this is actually contrary to Scottish tradition, which eschewed the practice of producing a second mash in favour of sparging, as will be discussed in some detail shortly. The 'wee heavies' even go on to 140/-, with both single and double mashes, the same applying to 'Edinburgh' ale. Thus Scotch Ale is confirmed in its place at the higher end of the scale.

The worry is that the term may not always be used consistently. For example, when Noonan states that "Scotch ale would reign at the apex of internationally acclaimed beers" (p.11), delightful a sentiment though that may be, is he simply referring to Scottish ales in general terms? Again, exactly what does he have in mind when he maintains that "The popularity of the old Scotch Ales diminished at various times due to import restrictions, taxes (especially those that taxed beer by strength), and market shifts" (p.17), continuing "About 1820, there was a resurgence in the popularity of Scotch ales" (p.18). The same question arises when he refers to "the long storage period common for old Scotch ales" (p.93). The issue becomes more complex still when the term 'Scots' is introduced, as in the statement "Scots ales don't need hop aroma … high yeast pitching rates are absolutely essential to the low ester [an organic compound] of Scots ales" (p.109). Swerving around the chemical complexities of this statement, it may be seen as providing the answer to the question posed in the title of this article.

Perhaps the same applies when Noonan makes comparisons with IPAs. "The principal reason for Scotch ale's historic success in export markets was its superior keeping quality … Not until the keeping quality of India ale indicated that hops had a preservative nature, did [the use of] hops come to be appreciated. Though far lower in alcohol content than strong Scotch ale, India ale proved to travel and store even better" (p.72). A factor here might be the influence of 'adjuncts' (i.e. unmalted grain, or indeed any fermentable ingredient) being added to the mash. Noonan notes that "The records clearly show that adjuncts were more liberally used in brewing India ale than they were for Scotch ale" (p.91).

Citing some more modern brews from my beer-bottle shelving for comparison, Falkirk Tryst's 'Carronade' IPA comes in at 4.2%, Caledonian IPA (marketed under

Figure 3: Various incarnations of the label for Orkney Brewery's 'Skullsplitter' ale, whether one word or two. The brewery has always maintained that the beer is named for a 10th-century Viking ruler, and not after its effect on the drinker.

the Deuchar's banner) at 4.4%, and Maclay's 'Wallace' IPA at 4.5% (while Double IPAs push the strength up markedly, Broughton's to 7.5% and Cromarty's 'Man Overboard' to a whopping 8.8%). Although the IPA figures quoted are quite respectable, they are substantially less than the upper reaches of the Scottish heavy brigade – the likes of Caledonian's 'Edinburgh' at 7.5%, same for Stornoway's Hebridean 'Berserker', MacEwan's 'Jamaican' at 8.0%, same for Traquair's 'Jacobite', Orkney's Raven 'Skullsplitter' at 8.5%, Traquair 160/- at 9.5%, then reaching up to the dizzying heights of Tweedbank's Tempest 'All the Leaves are Brown' at 11.2%, and Stewart of Loanhead's 'Elysium' at 11.5%. Other very strong Scottish ales are also available, but of the selection listed here, it may be significant that not one incorporates the word 'Scotch' in their name.

One might have greater faith in the integrity of Noonan's naming of Scotch, Scots, Scottish ales were it not for a clanger which he dropped in regard to Alfred Barnard's comprehensive four-volume 1889-91 study of beers of the British Isles. He gives the

correct title in his Bibliography, defining the geographical area covered as 'Great Britain and Ireland', but in the text, this is expressed as comprising 'England and Ireland' only. Oh dear – black mark, Greg. A chance to redeem himself might be contained in another Bibliography entry, which refers to a 1984 work of obvious relevance, called 'In Search of Scotch Ale' by David Johnstone. It is not readily apparent from the composition of Noonan's entry, being compiled by a non-academic, if this is a book, an article, or something else. It was apparently issued by the Institute of Brewing in London, but there is no sign of it in either of that organisation's bimonthly publications, its Journal or its Newsletter, in that year. When asked recently, they claim no knowledge of it. Branches existed throughout the British Isles and beyond, and although the Scottish Section was very active during the year in question, it is the Irish Section which Noonan mentions. However, they are silent on the matter. Considering the title, this is all very frustrating.

Thankfully, that is not the only relevant piece by David Johnstone. In the previous year, he issued an article called '100 Years of Lager Brewing in Scotland' – an unpromising title, it might be thought, but is has something of relevance to say about Scotch Ales, and might even have formed the basis of his 1984 presentation. One section is headed 'The Growth of Export Scotch Ale', in which Johnstone maintains that prior to the establishment of the brewing industry in these parts around the middle of the 18th century, Scottish Ales were held in fairly low esteem, partly because of their variable quality. The improvement which they then underwent, he claims, was brought about by the affluence (for some) resulting from the Industrial Revolution at home, and from the demands of Scottish expatriates, especially in the Americas. Johnstone then draws the following conclusion: "From this domestic and overseas demand emerged the genre of beer that rejoiced in the name of 'Scotch Ale' – a strong, smooth, high-quality beer, which was to become a major Scottish export 100 years before whisky began to take its place" (pp.256–57).

One of the firms to enter this market was Tennent's Brewery in Glasgow, destined to become a giant of the trade. The foundations had been laid in 1740 by brothers Robert and Hugh Tennent, inn-keeper and barley farmer respectively, with Hugh's sons, John and Robert, forming J. & R. Tennent in 1769. taking over at Wellpark in 1793. David Johnstone relates that in 1797, the first shipment of Tennent's Scotch Ale left the Clyde bound for North America, targeted at the Scots in Virginia who were supplying the tobacco lairds of Glasgow. Robert's son Hugh took over in 1827, and according to Johnstone, he lost no time in utilising his contacts around the world "to take advantage of the Scotch Ale boom which was then taking place". He had been in partnership with William Middleton since the turn of the century as merchants, specialising in the Havana trade, and now "many a barrel of Tennent's Scotch Ale found its way to the West Indies and the Americas as return cargo on the tobacco ships" (p.257).

Hugh Tennent retired in 1855, handing over to his son Charles, who was both a skilled brewer and an efficient manager. By the time of his regrettably early death in 1864, the firm were the largest exporters of bottled beer in the world. Their markets did indeed encircle the globe, and included San Francisco, Calcutta, Mauritius, and Melbourne, with the cellars at Wellpark being able to accommodate 80,000 barrels of beer. One wonders what proportion would have been classed as Scotch Ale? After Charles was succeeded by his two young sons, the works was run by trustees until they were old enough to assume responsibility. Archibald took over in 1882, but poor health compelled him to retire two years later, selling out to his brother Hugh. He also did not enjoy good health, and had spent a considerable time on the Continent 'taking the waters' (some of which had been fermented!), and was impressed by German and Danish lagers.

On assuming the reigns of power, Hugh Tennent (a great-grandson of one of the founders) set about lager production, which got under way in the following year, 1885, and proved a great success. So was that the end for Scotch Ale? The answer is more complex than it may seem at first glance. Quite the opposite, it would seem, for Johnstone expresses the belief that this could have led to a revival of old-style Scottish brewing, because he reckons that "the methods of continental lager production and scotch ale production were virtually identical". This concept prompted him to propose an interesting scenario: "Was the secret of the world-wide success of Scotch Ale that it was really a dark lager?" (p.257). This is a somewhat contentious proposition, and is the topic of a critical appraisal elsewhere in this Journal, yet David Johnstone felt sufficiently confident, at the conclusion of his article, to claim that "it began in 1885, when Hugh T. Tennent, with his firm's long background of brewing fine Scotch ale by techniques akin to lagering, committed his brewery to the successful production of lager in Scotland" (p.259).

We are still searching for a definition of the term 'Scotch Ale', and Johnstone mentions a book by the influential 19th-century beer author William Roberts of Edinburgh, which may point us in the right direction. He helpfully gathers Roberts' main points together in tabular form, which he refers to as "techniques used by Scots which were unique in the British Isles, deriving from the need to produce a 'keeping' beer for the booming export trade" (p.257): 1) the use of sparging [of crucial importance – more on this shortly]; 2) boiling for just 1 to 1½ hours, to avoid spoiling the delicate aroma; 3) fermentation at low temperature, for three weeks or so; 4) storage in cold cellars for up to six months; 5) avoidance of skimming, a practice resulting in a tendency towards bottom fermentation (i.e. lagering); 6) brewing and fermenting in the winter months, to facilitate cooling; 7) the use of pure, soft water. These procedures were generally in sharp contrast to English practice, giving a highly distinctive quality to Scottish (Scotch?) ales. For example, under point 2, the boiling time is half or less of

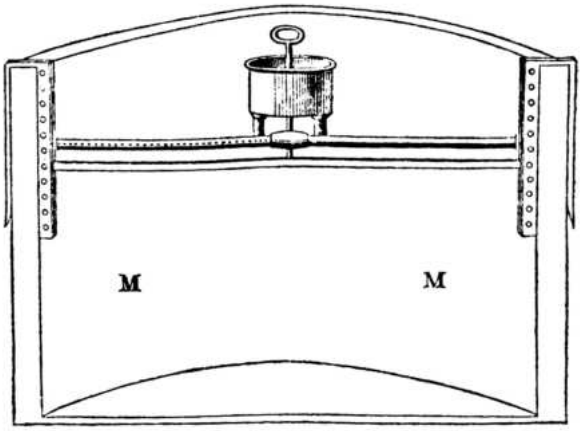

Figure 4: Drawing of a sparging machine, from William Roberts' *Scottish Ale Brewer* (1837).

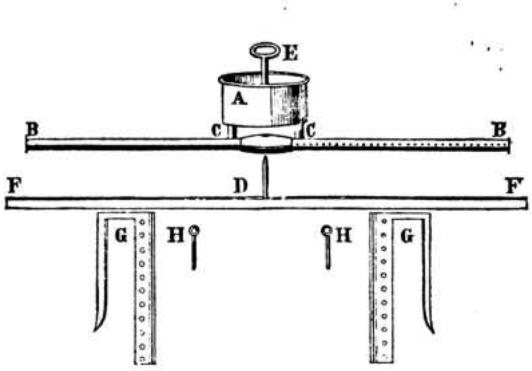

Figure 5: Drawing of the 'detached parts' of a sparging machine, from William Roberts' *Scottish Ale Brewer* (1837).

that of English brewers, while under point 3, the fermentation time is fully thrice as long as typical English practice. It is point 1, however, which is the most significant.

Sparging is dealt with in considerable detail by William Roberts (pp.83–95), which he describes as "a process adopted by the Scottish brewer in lieu of a second mashing" (p.83), and may be defined as the technique of "sprinkling or trickling hot liquor [i.e. water] over the surface [of the mash] by a continual and uniform shower" (p.85), or alternatively by "a regular and constant shower" (p.87). He is critical of the English

brewer "who draws off the whole of his wort before he mashes a second time", strongly advocating "the practice of the Scottish brewer, [which] is to commence sparging very soon after the tap is set ["taps are set" in the 2nd edition] or as it is termed, slacked; others commence to sparge immediately upon the tap[s] being set, and indeed some commence before they slack, and continue this operation without intermission until the desired quantity of extract has been obtained" (p.83). Greg Noonan amplifies this definition by emphasising that the basic purpose of sparging is to retrieve the remaining malt sugar from the dense mash, and that this can only be achieved by operating at a high temperature, advocating that "a temperature of 172°F (78°C) should be reached as quickly as possible" (pp.105–06).

Roberts illustrates a sparger by means of a line drawing (p.86; see Figure 4), where **M** represents the mash-tun, plus a more detailed engraving of its 'detached parts' (p.88; see Figure 5), which is figured and described in much the same manner as if it were a patent. He begins his description thus: "The sparger is a copper tube of about 1½ to 2 inches in diameter, divided into two equal parts or arms, closed at each end, having a line of small holes perforated on their reverse sides" (p.86). He adds a footnote to say that "This machine is made by a coppersmith in Leith, and varies in price from four to six guineas". Identifying the firm is no straightforward task, as there were five coppersmiths operating within the burgh at that time, three of them on The Shore (not literally, that being a street name).

William Roberts was a wholesale stationer turned winemaker, running the British Wine Works from his modest villa at Laverock Bank in the northern Edinburgh suburb of Trinity. He was also a knowledgeable brewer, with a high level of expertise in the technical and scientific aspects of the process, as his book makes clear. He was scathing in his criticism of those English brewers who were disparaging about his promotion of the benefits of the sparging process, especially John Richardson in his 'Treatise on Brewing' (presumably referring to his *Philosophical Principles of the Science of Brewing*, 2nd edition, 1798).

Taking a contradictory stance, Roberts strongly advocated the use of the sparging process, claiming that "it is, in my opinion, decidedly preferable to a second mash for ale worts, and has ever [i.e. always] been considered in this light by the whole of the Scottish brewers. Indeed, of late years, the great proportion of the more scientific and experienced brewers in England have adopted it, and have, I believe, found it the more advantageous method" (pp.88–89). So is sparging the key to separating Scotch Ales from Scottish Ales? Perhaps it is, though Roberts stops short of actually saying so, though he does use the phrase in four tables, each headed 'Results of experiments on Scotch Ales by means of Partial Evaporation', which he reproduces in his book (pp.141, 143, 145, 147).

On the other hand, he is fulsome in his praise of the article on brewing which appeared in the Encyclopaedia Britannica Supplement: "Although necessarily condensed

Figure 6: A variety of Scottish Ale labels from Scotland and abroad. Top and centre: Mastra from Uruguay, featuring Nessie. Bottom row: Rebel Prince from Belhaven and Scotch de Silly from Belgium. Scotch Porter sounds a real corker, from John Young & Co's Fisherrow Brewery, just across the River Esk from Musselburgh.

in its statements, and partaking more of the nature of an outline than a comprehensive treatise, yet affords the most perfect and enlightened view of the subject that I have anywhere seen" (Preface, p.x). However, he identifies a flaw of some significance: "It is confined merely to a discussion of the English system", and he argues strongly for "a comprehensive, minute, and strictly intelligible account of the practice of this art [viz. brewing] as it prevails in Scotland – more particularly with reference to the system which prevailed in former times, when Scotch Ale deservedly held, as it still holds, the first rank among fermented liquors of British manufacture" (Preface, p.xi). Warm sentiments indeed, but again the question arises as to whether 'Scotch' is being used to describe a particular class of ale, or whether it simply means 'Scottish' in more general terms.

The current interest in this topic was initiated a few years ago by Allan McLean, who illustrated in a SBAA Journal article five Scotch Ale labels, representing the products of Gordon, Douglas, Lorimer, Campbell & Co., and the Continental Brewing Co. of Philadelphia, USA. The first two were produced by Scottish Brewers Ltd. of Edinburgh especially for John Martin (no, not our revered Chairman, but some guy in Antwerp, Belgium), having been previously supplied by George Younger of Alloa. Lorimer's 'Best Scotch' was brewed for Vaux of Sunderland at the Caledonian Brewery in Slateford, Edinburgh, which they had taken over (previously run by Lorimer & Clark). Allan also mentioned McEwan's 'Best Scotch Ale', and William Younger's 'Best Scotch Bitter', both made in Edinburgh specially for the English market. It seems as if the great majority of the Scotch ales brewed in Scotland were destined for consumption in other countries!

In the wake of Allan McLean's piece, I followed up with an SBAA Newsletter article illustrating another three Scotch Ale labels, by Caledonian, Maclay, and Black Isle. I can now add another: Belhaven's 'Rebel Prince', brewed in memory of Bonnie Prince Charlie especially for Asda supermarkets, which at 5.0% is considerably stronger than their 70/- 'Scottish Ale' (Figure 6). Allan's inclusion of an American example of 'Scotch Ale' put me in mind of a brew I had encountered while in Uruguay some years ago, produced by the Mastra Brewery in Montevideo, so I included it too. The label on the front gave nothing away, but round the back of the bottle, a secondary label made a very interesting claim, the product being described as "Cervesa [Beer] Strong Scotch Ale". Alas, no details were provided.

Checking the Mastra website for more information about the name, I saw that a version of it is currently being produced (early 2022). However, some changes have been made – the bottle size has been increased from 330ml to 500ml, though the strength has been reduced from 6.2% to 5.5%, while the name has been changed from 'Scotch' to 'Scottish'. The interesting feature is that its Scottishness (whatever that is) is no longer concealed in small writing round the back – it is emblazoned up front, with the label illustrating a panoply of Scottish images, including a set of bagpipes, a

thistle, a sporran set against a kilt (or at least a swatch of tartan), a Saltire, and what looks suspiciously like a whisky bottle, sitting alongside a glass containing a couple of ice-cubes. It even has Nessie gliding along in a slightly choppy Loch Ness!

This is not Uruguay's only contribution; a little way east of Montevideo, the Volcanica Brewery in Los Toscas similarly produces a "Scotch Red Ale". There are examples in North America as well as South, such as the 'Claymore' Scotch Ale made by the Great Divide Brewing Co. of Denver, Colorado. At 7.7%, they call it "our tribute to the Wee Heavy beers of Scotland". Not to leave out Europe, a good example is the 'Scotch' ale produced by the Silly Brewery in Belgium, weighing in at a highly respectable 8.0%. It actually comes in four varieties, having been barrel-aged in different types of wine cask. A fascinating feature is that the Silly website provides a description of how they regard their brand of 'Scotch': "A Scotch-style fermentation beer, it offers a finely-wooded nose, hinting at hazelnut, and is therefore distinct from traditional British scotches [how's that for an oxymoron!]. It has a more rounded taste, letting a discreetly full-bodied bitterness come to the fore" (that's supposed to be a Scottish characteristic?). These are but a few of the many examples in existence of what one might call 'Scottish Heritage Ales', with an emphasis on the 'Scotch' element.

It is clear that this article has only scratched the surface of the Scotch/Scots/Scottish conundrum, and much more research and analysis needs to done if we are going to achieve a satisfactory solution. At the same time, there is abundant evidence of the essential Scottishness which the brewing industry in Scotland has created in a particular range of its products, strong and malty in character, which are greatly enjoyed in Scotland, and have proved inspirational in many lands around the world.

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[5] Graeme Cruickshank, 'Another Scotch or Two' in the *Scottish Brewing Archive Association Newsletter No. 46* (2021), pp.3–5.

100 years of lager brewing in Scotland

David I. H. Johnstone

We reprint this historic 1983 article by David Johnstone (1947–2016) in the interest of making it available to scholars. The positions put forward in the paper have been more influential than perhaps their author ever imagined, and are criticised elsewhere in this issue, so it seems only fair to re-publish the original text.

David Johnstone gained a B.Sc. from Glasgow University and began his career at Tennent Caledonian Breweries (Wellpark) in 1969. At the time of writing the article he was quality control manager for Bass Brewing (Scotland and Ireland) Ltd. He became Head Brewer at Wellpark in 1987 and was Chairman of the Scottish Brewing Archive from 1990–1999.

The article was originally printed in the July 1983 edition of The Brewer, the journal of the Institute of Brewing (forerunner of today's Institute of Brewing and Distilling) and is reproduced courtesy of the IBD. Earlier versions had been read to the Western Canada Section of the M.B.A.A., and to the Scottish and Yorkshire & North Eastern Sections of the Institute of Brewing. The text is complete except for the omission of the original illustrations and correction of a few obvious spelling errors.

Introduction

> "Then let us toast John Barleycorn
> Each man his glass in hand
> And may his great posterity
> Ne'er fail in old Scotland."

With this verse in 1787, Robert Burns, Scottish National Bard, concluded his ballad to John Barleycorn, a song and name which is almost universally linked with whisky. Yet the brewer who examines the song closely will find no more than a poetic description of the malting process. It is strange why the name of Burns should be so closely linked with only whisky, and why that drink should play such a part in his annual celebration. It was certainly more than a century away from being the successful export it is for Scotland today, and at that time only beginning to gain a certain local popularity. In fact most of Burns' references are to the excellent ale that was the traditional drink of the country. In one of his best-known works — 'Tam O'Shanter' — he refers to ale on many occasions by no less than four different names — "Nappy", "Reaming Swats", "Tippeny" and plain "Ale" — and to a drink known as "Usquabae" once, which may have been whisky, or some students think, strong ale, as the poet often uses the term "Whisky" when he mean "Ale".

In fact the linking of Burns and whisky is only another example of the popular misconception that Scotland is a nation of whisky drinkers. To those holding this view, the truth comes as something of a surprise, for although whisky is undoubtedly popular

in Scotland, we are exceeded in our per capita consumption by the "Sassenachs" from Lancashire! Even more surprising is the fact that. as a ratio of alcohol consumed, beer exceeds whisky by around two-and-a-half to one. Since 54 per cent of beer drunk in Scotland is now lager, it can be fairly claimed that lager is the favourite tipple of the Scots.

How has this come about? It is often suggested that increased continental travel has introduced more people to the drink and that that higher standards in Scottish "pubs" have encouraged younger people and women, who take more readily to lager. This, however, does not explain why Scottish beer drinkers now drink 54 per cent lager, far more than the 30 per cent consumption in the rest of the UK. If we examine the sales figures we see that the real growth has taken place in the sixties and seventies. Looking back to the fifties however, and as far back this century as our records can trace, Scotland has had a steady base level of around five per cent lager consumption — ten times as much as the rest of the UK at a lowly half per cent. The "springboard" from which lager took off was obviously higher in Scotland.

For the reason as to why this should be I feel we must delve into Scottish brewing history, particularly to that of my own brewery at Wellpark in Glasgow, now owned by Tennent Caledonian Breweries Ltd.

Early Glasgow Brewing History

The real start of brewing tradition in Glasgow was when the oldest part of the current Glasgow Cathedral was built on the banks of the Molendinar Burn [stream] in 1136, by the site of St Mungo's grave of 603 A.D. The monks brewed ale both for themselves and for sale or barter to the local population. Immediately on the other side of the Molendinar, a small tributary of the Clyde, are the ancient brewlng areas of Drygate, Ladywell and Wellpark, now totally enclosed by Wellpark Brewery. From a very early time small family concerns are known to have brewed for sale here, possibly in opposition to the monks.

The first connection of the Tennent family with brewing occurs in 1556 with an early member of the Incorporation of Maltmen. The Tennent family, as the name suggests, were tenant farmers in the parish of Cumbernauld who moved south to nearby Glasgow to farm on the northern outskirts. Although farmers, they traded as both maltmen and market gardeners and we know certainly brewed beer, in much the same way as cider is made today for local consumption in the apple farms of Southern England.

The Tennents appear almost constantly in the records of the Incorporation of Maltmen from the sixteenth to the nineteenth centuries, many rising to high office. In 1749 a Robert Tennent successfully defended a lawsuit from the Incorporation of Maltmen concerning his malting and brewing at the White Hart Inn in Gallowgate, which he then owned. At this time Wellpark Brewery was adjacent to the brewery

of William McLehose. It was from here that Bonnie Prince Charlie's men obtained refreshments over Christmas 1745, on their retreat from England. City records state that "Each and every man was refreshed and heartened by the brew at Wellpark". Hugh and Robert Tennent formed H&R Tennent in 1740 and brewed in Drygate Foot, now called Wellpark.

In 1755 Robert Tennent sold the White Hart and built the very famous "Saracen's Head" hotel — the first top class hotel in Glasgow. It had 36 rooms whose beds were guaranteed "good, clean, and free from bugs"! Many visitors of note stayed there, including Dr Johnson and his biographer Boswell, and poets Burns and Wordsworth. In 1788 it became the chief coaching station of the city. when the first London mail coach arrived amidst great celebration. The site of this original "Saracen's Head" is today being excavated: the current "Saracen's Head" standing a block to the east and known affectionately by Glaswegians everywhere as the "Sorry Held"!

Robert's brother, Hugh, farmed Easter Common near Petershill, a suburb of Glasgow. Of a number of Hugh's sons, two, John and Robert, formed the company of J. & R. Tennent in 1869, initially renting a small premises in the Drygate. Barley from the parental farm was malted here for the brewing of their ale. In the year 1777 they purchased the Drygate premises and in 1793 they took over Wellpark. The Tennents had now become established public brewers.

The Growth of Export Scotch Ale

Prior to the founding of organised brewing firms in the eighteenth century, Scottish ales were never held in great esteem, being mainly unhopped and very variable in quality. A large proportion of ales imported from England were therefore consumed, despite the Scottish parliament's efforts to curb this. However, by the middle of the eighteenth century we find some evidence of a reversal of this import trend, beginning with a demand in the Americas from Scottish expatriates. The affluence brought on by the Industrial Revolution at home also meant that a higher quality ale than the standard "Tippeny" — small beer so-called after its price of twopence a quart – was needed to satisfy the Scottish and English beer drinker.

From this domestic and overseas demand emerged the genre of beer that rejoiced in the name of "Scotch Ale" — a strong, smooth, high quality beer (not unlike the later English "India Pale Ale") which was to become a major Scottish export 100 years before whisky began to take its place.

John and Robert Tennent, even in their early times, were not slow to latch onto the potential of the export market, and in 1797, the first [consignment] of Tennent's Scotch Ale left the Clyde, destined for North America, in particular to Scots in Virginia supplying tobacco to Glasgow factories. Growth at this time, however, was slow and trade mainly local. Robert died in 1825 and John in 1827 at which time, as one

contemporary manager put it, "All workmen might have been entertained round an ordinary dinner table"!

On his uncle's death in 1827, Hugh Tennent, son of Robert, left the partnership of Middleton and Tennent to take charge of the brewery. This firm had been Havana merchants, trading in tobacco from the West Indies, and Hugh wasted no time in utilising his contacts around the world to take advantage of the Scotch Ale boom which was then taking place. Through his former partner, by now trading as William Middleton & Co., many a barrel of Tennent's Scotch Ale found its way to the West Indies and the Americas as return cargo on the tobacco ships.

Hugh led the firm for 30 years through an intense period of expansion and growth, retiring in 1855 to hand over the brewery to his son, Charles Stuart Parker Tennent. Charles was a trained and skilful brewer as well as a good manager and continued to increase export trade, while at the same time raising the business technically to the pinnacle of efficiency. At the time of his death in 1864, J. & R. Tennent were the largest exporters of bottled beer in the world, selling to markets as far apart as Melbourne, San Francisco, Mauritius and Calcutta. The brewery could hold, in its cellars, 80,000 barrels of beer, in oak vessels ranging from hogsheads to large stout vats of 600 barrel capacity.

The Lager Challenge

Charles's untimely death left only two very young sons – Archibald Hay Tennent and Hugh Tennent Tennent, so the brewery was run by trustees until Archibald came of age in 1882. Archibald, however, suffered very poor health, spending most of his time abroad, and two years later, when Hugh also came of age, Archibald sold his share to him.

Hugh, himself, had never enjoyed great health and had lately spent some years on the continent "taking the waters" in the company of his personal physician, Dr. Wyllie Clarke. It was while he was in Bavaria in 1881–82 that he, taking somewhat more than the waters, acquired a taste for lager and discovered that the Germans and the Danes benefited from a substantial export market. Henninger Lager was in fact on sale in high class grocers in Glasgow in 1880.

Hugh seems to have resolved to beat the Germans and Danes at their own game,and when he took over, he wasted no time in organising lager brewing; the first brews being produced in May 1885. In that year Dr. Wyllie Clarke was appointed chief executive and a continental brewer – Jacob Klingler, a German, from Augsburg, Germany — was brought in as a way of getting the best qualities of established German lagers. German coopers were also imported to produce the large twenty and forty barrel cellar casks needed for maturation.

This early lager was so successful that Hugh decided to build a separate lager brewery on the site in 1889. The contract went to L. A. Riedinger of Augsburg and the brewery,

completed in 1891, was built to full German specifications. The enterprise earned the contempt of a local newspaper who hailed it as a "Madman's Dream"!

But Hugh was far from being a madman and his business dealings, for a young man, show that he was very astute indeed. It is my belief that during his visits to Bavarian breweries one thing had become very obvious to him – that the methods of continental lager production and scotch ale production were virtually identical. W. H. Roberts, in his book "The Scottish Ale Brewer and Practical Maltster" of 1837, describes techniques used by Scots which were unique in the British Isles, deriving from the need to produce a "keeping" beer for the booming export trade. These were:

1. The use of sparging as against the English technique of double-mashing.
2. Boiling for 1–1½ hours instead of 3 to avoid spoiling the delicate aroma.
3. Low temperature fermentations (50°F) lasting up to three weeks as compared to the English high temperatures (70°F) for less than a week.
4. Storage in cold cellars for up to six months (lagering!) – hence the huge Wellpark cellar capacity.
5. The practise of skimming was rarely carried out which would almost certainly result in a yeast strain with a tendency to bottom fermentation.
6. Brewing and fermenting in the winter months to facilitate cooling.
7. The use of pure, soft water.

From contemporary accounts, these techniques had been used at Wellpark for many years and could all have been taken directly from a continental brewery manual.

So was the secret of the world-wide success of Scotch Ale that it was really a dark lager, and was this an even earlier derivation of the modern Scots' preference? It is relevant that Tennent's early lager variations included a dark lager and for some years in the 1890s an intriguing product known as "Lager Stout"! Perhaps I should have added another hundred to the title of this paper!

It is indeed tragic that Hugh did not live to see his great idea bearing fruit, as he died in 1890 at the untimely age of 27; the last of the Tennents to be in direct control of the brewery. True to his memory, however, the management of the brewery pursued the lager idea with a commendable zeal, using every possible method to achieve perfection.

In 1898 a Hansen yeast propagator – the height of microbial technology at the time – was installed to ensure the two yeast strains remained pure. These yeasts - one German and one Danish – were specially selected, just as the brewers had been, so that Tennent's lager could enjoy the best qualities of both lagers.

With Tennent's trading position at the time the success of their lager on the export market was assured and soon it achieved a world-wide reputation for a product of the highest quality. It was inevitable that some local interest in lager would develop, and we first see this happening in the 1890s. One of the most famous of the early customers was "Buffalo" Bill Cody in 1892 when Tennents "supplied large quantities

of lager beer to his wild west show during its last run in London"! Local consumption was further boosted by sale from stalls at Glasgow Trade Exhibitions in 1901 and 1911.

The Spread of Lager in Scotland

The three principal brewing centres in Scotland have always been Glasgow, Edinburgh and Alloa. In the second of these, Edinburgh. Hugh T. Tennent can also lay claim to having started the lager brewing tradition when Jeffrey's commenced production in 1902, apparently coincident with the arrival there of one Jacob Klingler, previously employed with J. & R. Tennent of Glasgow! Klingler, of course, was one of the brewers brought in by Hugh Tennent in 1885. He had a long career with Jeffrey's, despite internment during the First World War, eventually returning to Germany as a brewing consultant in 1927. Indicative of his liking for Scotland, he returned for a lengthy holiday in the early 1930s to look up his many friends in the brewing trade.

During the many and complex mergers of the 1960s, Jeffrey's Heriot Brewery joined Wellpark in the Bass Group, thereafter brewing lager under the Tennent Caledonian banner – rather appropriately since Tennents' had originated the lager brewing traditions of both breweries.

It was in the 1920s before lager brewing finally spread to the third Scottish brewing centre at Alloa, when Burton brewers, Samuel Allsopp's acquired the Archibald Arrol brewery in 1921 after their own lager brewery was destroyed by fire. Lager brewing then commenced under the famous Scottish head brewer, John J. Calder. This brewery has since seen considerable development and now produces "Skol" lager for the Allied-Lyons Group.

Development and Innovation in the Twentieth Century

The nineteen thirties saw the start of the two developments at Wellpark which were to have a far reaching effect on the growth of lager. The first of these, in 1935, was the cone-top can. Tennents introduced a 12-ounce version of this for pilsner lager for the export trade, and was one of the first breweries in Europe to do so. The philosophy was that the can would be a more durable container than the bottle on a long sea voyages and could therefore be packaged in cheap cardboard cartons rather than expensive wooden cases. It could also be cooled more quickly prior to consumption. A standard bottle filler could be adapted for filling these cans simply by wheeling a light action crowner into place, standard bottle crowners being prone to collapse the can.

This can was at first moderately successful. small quantities being produced regularly from 1935 to 1939, when export trade was halted by the war. After the war, however. Tennents decided against using the cone-top can as it had developed a poor reputation due to metallic flavours from iron pick-up. The waxy type of lining was

the main culprit, although the resemblance of the can to the "Brasso" container did little to help the image.

The other landmark of the thirties was a temporary introduction of draught lager in 1938, when it was specially produced for sale on the Tennent's stand at the Empire Exhibition in Glasgow. Reports suggest it went down very well indeed but at this time there seems to have been no attempt made to produce it for local sale. We have some evidence of very early but seemingly unsuccessful attempts to introduce draught lager and this may have been the reason.

To return to the can, in 1954 the Metal Box Co. were successful in their efforts to persuade Tennents to re-launch a 12 ounce version of the export market, having improved the lining and produced a new flat-topped design. Again they were one of the first breweries to use this can, and this time it was a success.

To follow up this success, Metal Box pressed Tennents to try the new 10 ounce can on the home sale market. The managing director at that time, a Mr. W. B. Duthie, felt that the small can was too expensive relative to the beer it held and asked Metal Box if they could make it as large as possible. On investigation they found that the limiting factor was the length of seam the soldering machine could produce, which worked out at a can which would hold 16 ounces. Mr Duthie announced that this was the can he wanted and Metal Box produced it to a special order.

Its success, particularly on lager was rapid and a rush of sales for Christmas 1955 ensured that the can had well and truly arrived. The 16 ounce can was therefore the result of joint development by Metal Box and Tennents. The early introduction of this can to Scotland by Tennents is undoubtedly one of the reasons why Scotland's taste for lager is some way ahead of the rest of Britain. It is interesting to note that, in 19B3, nearly all 10 ounce can producers in England have been converted to the Tennents-type 16 ounce can.

The story of the famous girls on the back of Tennent's lager cans – the so-called "Lager Lovelies" – is an interesting one as it happened almost by accident. At first the cans were decorated only by pictures of glasses of the beer – two glasses depicting the original marketing notion of a "two glass can". It was then realised that enough room was available on the can to include a picture. Accordingly, 60 Scottish scenes were introduced over three series, followed by 20 English scenes. In a view of Trafalgar Square a young lady was shown standing by the fountain. She was model Ann Johansen, and the deluge of mail received by Tennents from all over the world enquiring about her prompted them to run a series on "Tennent's Ann". This was only the start of a tradition of girls on the cans, and over the years a large number have appeared. Tennents have so far produced over 700 can designs, to the great frustration of collectors everywhere!

If the can gave a fillip to the sale of lager, the effect of the keg was spectacular. In 1963 Tennents took the then highly unusual step of selling lager in draught form. I

well remember the local amazement and interest it created in the Commercial Hotel, Hamilton – one of the first outlets to receive keg lager. Despite widespread scepticism many were soon converted and the reputation for the quality of Tennent's Lager on draught spread rapidly, resulting in a phenomenal growth rate for this product. It has been suggested that the selling of lager in draught form in the male preserve of the "pub" finally removed the slight stigma that lager was a drink for women and children and opened up lager drinking to traditional male beer drinkers! This may well be the case.

The increasing demand for lager during the sixties and seventies meant that, in terms of scale, brewing plant at Wellpark changed dramatically. No longer were the wooden vats and German casks sufficient to meet the needs of the lager drinker (although they were still in use up to 1964). Replacement took place in fairly rapid order with 130 barrel glass lined fermenters and cellar tanks, followed by 400 to 800 barrel rectangular stainless steel fermenters paired with 600 barrel epoxy-lined cellar tanks. and finally, in the late seventies, cylindro-conical stainless steel fermenters of 2,600 barrel capacity with 1,200 barrel cellar tanks. The Riedinger brewhouse was replaced by a Ziemann in 1959, and a Steinecker in 1969, augmented by Balfour plant in 1977.

The growth of lager in Scotland in the sixties and seventies was matched, not surprisingly, by a proliferation of lagers available. From three breweries with one lager each on the market in the early fifties, we now have perhaps ten times that number to choose from. The original, however, remains the brand leader.

Conclusion

The only thing uncertain about the future of lager in Scotland is how high the percentage will eventually go. There has been a levelling off of volume sales in recent years partly attributable to the recession and partly to the poor summers of late, but the popularity against ale continues to increase. The plethora of cheap and poor quality lagers to emerge during the recession has done little to enhance the reputation of the beer, but possibly the genre will disappear during economic recovery. As to the weather. we can only hope!

England seems set yet again to follow the Scottish trend. although perhaps the strong Midland following for traditional ale may ensure they never quite catch up. Certainly, growth in the English premium lager sector of the market has been over 10 percent, despite the depression in all other beer sales, and this may well be an indicator of things to come.

So where did this drinking revolution begin and how did it come about? I feel there can be no possible doubt, despite claims from elsewhere based on amateurish and unsuccessful attempts to brew lager, that it began in 1885, when Hugh T. Tennent, with his firm's long background of brewing fine Scotch ale by techniques akin to

lagering, committed his brewery to the successful production of lager in Scotland, a commitment which continues to this day.

Acknowledgements

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In defence of Greg Noonan

Robbie Pickering

Introduction

Greg noonan's 1993 book *Scotch Ale* is possibly the most widely read book about Scottish beer.

This seminal work has, for better or worse, substantially influenced the brewing of "Scottish-style" beers in the United States (and in the rest of the world), and occasionally such influences even cross back across the Atlantic and make themselves obvious in the beers made by the new wave of microbreweries in Scotland.

This is in spite of Noonan's own disclaimer in the introduction, which is prophetic when read today: "Scotch and Scottish ales provide good examples of beer styles that, outside of Scotia's shores, are widely misunderstood." He adds: "As a final word, let me emphasize that this is *not* the definitive work on Scotch and Scottish ales."

In the subsequent decades, American home and professional brewers went on to create their own interpretations of what they imagined Scottish beer to be like, based on these writings and the few commercial imported examples (to be fair, not that many commercial examples were available in Scotland either).

Characteristics of American "Scottish Ale" are very light hopping, a heavy caramel sweetness and sometimes, despite the belated pleadings of style gurus, the use of peated whisky malt to give a peaty, smoky flavour.

What is true of the US is generally true of "craft" breweries elsewhere too, as not only the inspiration but also the styles are copied: for example, the Scotch Ale produced by the Stoertebeker brewery in Stralsund, northern Germany, boasts of its use of peat-dried malt.[1] It is fairly clear that, even within Europe, "craft" brewers gain their understanding of foreign styles from across the Atlantic, not from neighbouring countries, even when those styles originate there.[2]

Some contemporary critics like to blame the emergence of the American Scotch Ale on the influence of Noonan's work, and this article is an attempt to discover whether Noonan is really responsible for their prevalence.

The conception outlined above of what a Scotch ale ought to be like was already quite firmly established in the minds of American beer enthusiasts by the time Noonan's book appeared. For example, Caledonian's Edinburgh Strong Ale (sold as "MacAndrew's Scotch Ale" in the US) was being criticised in 1992, a year before *Scotch Ale* was published, for supposedly being too pale and too hoppy:

[1] "The peaty-malty Scotch-Ale with its unusual flavour is brewed from British whisky malt kilned over Scottish peat." https://www.stoertebeker.com/stoertebeker-scotch-ale

[2] See Geeraers [6] for a discussion of this phenomenon.

> MacAndrew's is an aberration among Scotch Wee Heavy Ales … color bronze (much lighter than the typical 90/- Wee Heavy); aroma of fresh hops (also untypical of the style)[3]

The marketing of such beers frequently makes use of highly stereotypical and cliched imagery, with beer names such as "Kilt Lifter", "Robert the Bruce", "Lake Nessie", etc. The Americans did not invent this type of stuff, of course: John Martin of Antwerp long promoted their "Gordon Highland Scotch" when it was brewed in Edinburgh, which of course is in the Lowlands, and the advertising blurb once read "Bred in the Highlands in an environment of savage Scottish lochs and haunted castles."[4] Nor are Scots brewers themselves innocent of placing the odd castle, broadsword or Highland cow on their labels.

What is striking on re-reading Noonan's book is that he does not give much credence to this type of stuff. He never takes the rather dogmatic attitude expressed above, that a particular beer is "too hoppy for a wee heavy". His brief history of Scottish brewing is basically a summary of Donnachie and all the better for it (incidentally, Noonan's account of the rise of IPA is superior to most of what was being written on the subject in 1993.)

Noonan notes that Glasgow, Edinburgh and Alloa were among the first cities anywhere in the world to be industrialised. He mentions that Scottish brewers rapidly adopted new technology such as the saccharometer and thermometer. His account does not have any truck with romantic nonsense about rural, kilt-clad Scots smoking their malt over peat fires outside the but an' ben.

Noonan's sources

On the face of it, Greg Noonan did the right things: he went to Scotland to drink beer, and he interviewed working brewers about how they brewed. One of the book's strengths is that clearly a lot of dedicated research went into it.

The problem was that at the time he did it there were only a handful of surviving breweries. Had he visited thirty years earlier or later, he might have gained a quite different picture of Scottish brewing.

In 1993 Noonan could list just fourteen breweries in Scotland (there are now well over a hundred). Six were long-established (Alloa, Belhaven, Maclay, S&N, Tennent, Caledonian), seven were new micros or brewpubs (Bobbin Inn, Borve Brewhouse, Broughton (1979), Harviestoun (1983), Orkney (1988), Rose St, West Highland)

[3] Bill Ridgely, "MacAndrew's Scotch Ale", Homebrew Digest, 28 September 1992. https://hbd.org/hbd/archive/979.html

[4] Quoted in https://www.scotsman.com/news/world/scotch-ale-made-in-belgium-thistle-do-nicely-1-1302023

and one was Traquair House, which falls into neither category neatly, as it was an abandoned brewhouse brought back into use in 1965.

He tried to speak to the brewers at breweries large and small, from David Brown at Scottish & Newcastle and David Johnstone at Tennents to Duncan Kellock at Maclays and Iain Cameron at Traquair House. It wasn't his fault that he travelled to Scotland at a time when the number of breweries was only slowly rising again from an all-time low.

His source for the historical background is Ian Donnachie, surely as creditable a source as any available at the time (and still regarded as the standard work on the subject forty years later), and he relies on Charles McMaster, the legendary archivist who could have a fair claim to be the most knowledgeable man on the planet on the subject of Scottish ale. George Insill too receives effusive praise. You could not credibly claim that Noonan did not do his research.

It is, at first sight, also praiseworthy that Noonan drew upon classic brewing texts such as W. H. Roberts *The Scottish Ale-brewer and Practical Maltster*. But we will come back to that later.

Jackson's Scottish ale

"Perhaps because it can be a cold, gusty, snowy country, Scotland has traditionally produced ales that are enwrappingly full-bodied and malty."[5]

This sentence from Michael Jackson, and variations on it, are probably what most of the world believes about Scottish beer. I mention Jackson's influence because it is pretty clear that the image of "Scottish Ale" in America had been established before Noonan put pen to paper. How exactly it developed might reward detailed further study.

Michael Jackson was well acquainted with Scottish beer, having worked in Edinburgh as a journalist. The great weakness of Jackson's work was that he tended to assume the beers he encountered in Auld Reekie in the 1970s and then classified in his writing were what Scottish beer had always been like.

The issue with this framework, which I will call the "60-70-80 framework" for convenience, is not so much that it is inaccurate to describe all Scottish beer. It is a passable description of the rather narrow range of beers that Michael Jackson encountered in Edinburgh pubs in the 1970s.

Jackson's belief in Scottish maltiness led him to critique Maclays' ales as too hoppy to be truly Scottish, and to positive irritation when he encountered the "Scottish Ale" brewed by pioneering US microbrewer Bert Grant, which was redolent with Yakima Valley hops.

[5] Jackson [9, p. 106]

It's curious that Jackson had this attitude, because he must surely have seen the many antique brewery mirrors which adorn the city's Victorian pubs. And these, in the main, do not advertise 60/- or Heavy or the other 'styles' that Jackson told the world about: they promote India Pale Ale or Mild and Pale Ales.

There is not much, if anything, on which Noonan contradicts Jackson. You might perhaps say that Noonan sought to provide the source material to Jackson's framework.

The issue with the Jacksonesque framework is that it is ahistorical. Jackson talks about Scottish weather and the distance from England's hop gardens in an attempt to rationalise why the beer he drank tasted the way it did. Noonan writes in a similar vein, and at great length, about brewing history, and in so doing gives the incorrect impression that modern Scottish beer of the 70/- pale ale type is a direct descendant of the Scotch ale of old.

Much of the literature thus ends up conflating 18th-century strong ales with gravities in the 1.100s with light pale ales of 1.035, as if they were all made the same way. Noonan quotes several 19th-century authors on the subject of the strong Scotch ale. But if you are trying to brew a Heavy or Export of the 1970s, none of those authors' writings is relevant, because those historical practices do not apply to the post-war 60-70-80 framework.

Grists

Recipes circulating on the internet for "Scottish Ale" generally have little to do with how beer was made in Scotland over the last 200 years. They are informed by the flavour profile of commercial American beers and by information passed around on homebrewer forums.

In its US form the style has become detached from its origins, and brewers see no issue with using whatever ingredients contribute to the desired flavours. In a marketplace that offers hundreds of different malts, this is perhaps as inevitable as was the use of only two or three malts in the past.

A contemporary American "Scottish Ale" recipe might contain Golden Promise or Maris Otter base malt and any or all of crystal malt, Munich malt, Special B and roast barley.

Younger's original recipes

The historical William Younger recipes transcribed by Pattinson [18] are simple: pale malt, maize and sugar, with caramel added for colour.

This is true for the whole period from the late 19th century to the late 1950s. In 1880 William Younger's 80/- was brewed from 100% pale malt. 78 years later, 1958 Younger XXP was made with 65% malt, 30% maize and 5% sugar. But neither feature speciality malt or roast barley.

A typical "Scotch Ale" recipe

These are the grists of two recipes published in the respected American magazine *Craft Beer and Brewing*.

Beer 1	
63%	'English-style' pale malt
15%	Maris Otter
8%	British crystal malt
6%	Munich
3%	Carapils
2.5%	wheat malt
0.5%	peated malt

Beer 2	
83%	Maris Otter
5%	Special Roast
2.5%	Extra Special Roast
2.5%	aromatic malt
2.5%	melanoidin malt
2.5%	pale chocolate or chocolate rye malt

Beer 1 is "a versatile, ruby-amber, richly malted ale with notes of caramel, toffee, and just a whisper of peat smoke", Beer 2 "a richly malted strong Scotch ale".[6]

Noonan's recipes

These adventurous grists do not come from Noonan. His recipes are quite faithful to what he was told at Scottish & Newcastle: pale malt and a small amount of roast barley. Noonan's recipes also contain a little Carapils for some reason; perhaps to add the fullness of flavour he considered an advantage of Scottish malt over US two-row, or to achieve the fuller colour he believed historic malt possessed compared with today's.[16, pp. 112–119]

It is fairly clear that American "Scottish Ale" has developed a life of its own, and new entrants in this style in the American market (or the "craft" sector of other markets) are far more likely to refer to existing US products than to anything actually brewed in Scotland.

Where the use of Vienna, Munich or chocolate rye malt in "Scottish ale" comes from is anyone's guess, but Noonan's recipes do not use these speciality malts, so we must absolve him on this score.

[6] "Pike Kilt Lifter Scotch Ale", https://beerandbrewing.com/recipe-pike-kilt-lifter-scotch-ale/; Josh Weikert, "Recipe: Kopfspalter Strong Scotch Ale", https://beerandbrewing.com/recipe-kopfspalter-strong-scotch-ale/

Noonan's innovations

There are aspects of the American Scotch Ale legend that are more Noonan than Jackson, however.

As a visitor to Scotland, Noonan might have been struck more than a local by the novel flavour of the Scottish beers he drank. He supplies thorough tasting notes and for him roast barley is a signature flavour.

Some tasters expect peat aroma and believe they find it in the roast barley. As we will see later, there is no peat in the actual Scottish-brewed ales, but there seems to be a trans-Atlantic divide in perception: some American tasters claim to detect peat aroma and taste in Scottish beers; British writers on beer rarely suggest this flavour. Jackson himself only started mentioning it in later years, when he was already spending much of his time in America and detected "a hint of roast barley that is reminiscent of peat" in McEwan's beer.[9, p. 109]

In the first *World Guide to Beer* in 1977 Jackson devoted only three pages to Scotland, mostly about Traquair House, and he did not say he thought Scottish beer tasted of peat then.

Here though, Noonan seems to have been led by what he was told by Scottish brewers, in this case Dr David Brown of Scottish & Newcastle, who told him: "[T]he use of roast barley, and residual sweetness, determines more what makes a Scotch ale than does the yeast… Roast barley accounts for flavor, rather than caramel malt as the English do. This is by a tradition that has stood for hundreds of years, rich and sweet beers."[7]

Here it's clearly Dr Brown conflating the old Scotch ale with modern Scottish pale ales. Roast unmalted barley wasn't permitted until the Free Mash Tun Act in 1880 – so it can't possibly be the case that its use has defined Scotch ale for centuries.

Pattinson [18] has shown that up until the Second World War there is almost no evidence for the use of roast barley in Scottish pale ales, although there are some records that show small amounts of black malt being used.

There was a long tradition of "colouring-up" beer in Scottish brewing. Beer could be had customised to an astonishing number of different shades, sometimes even for individual pubs. This was done with a judicious addition of caramel colouring.[8]

But after the Second World War a shift seems to have taken place with the major brewers shifting to roast barley for colouring beer. Concerns began to emerge about caramel, and roast barley was easier to work with in the brewery.

[7] 16, p. 43.
[8] For more on this see Sterowski [25].

> Roast barley was used for colour, never caramel. At least not at the brewing stage. Occasionally a very dark brew of K5/A might be brewed with colour added at the grant to allow the resultant brew to be used for blending with "spare" beer, much of which was pale in colour. Caramel was frowned on as a possible carcinogen, and also was a real pain to get out of the drums and dissolve and declared to the excise. And it just wasn't needed for production brews. RB was enough though there was a limit before it could impact on lautering.[9]

Noonan's fault here would merely be in over-generalising from what Brown told him. He was not wrong to say that the beer made by S&N contained roast barley; what was wrong was to assume that Scottish beer had always been made that way.

It was also incorrect to assume that there was anything particularly Scottish about this ingredient. Around the time S&N were launching Tartan Special, London's Watney Mann were preparing their own contender for the new heavily-advertised keg ale market: Watney's Red. This differed from its ancestor, Watney's Red Barrel, in that it was coloured with roast barley rather than crystal malt.[3]

Peat

Some people blame Noonan for the fad of adding peated whisky malt to "Scottish Ale", but he does not advocate, or even mention, this practice in his book.

The fame of Scotch whisky around the world leads some to assume that Scottish brewers and distillers would all use the same malt, but this has never been the case, counter-intuitive though it may seem.

There is some evidence that peat may have been used as fuel in pre-industrial times, for example on Orkney.

But if you take a map of Scotland showing the peaty areas, and overlay it with a map of all known breweries over the last two hundred years, you see that with a very small number of exceptions, Scottish breweries were located a good distance away from sources of peat (Figure 1).

Normally when comparing real-world data with a hypothesis, you would expect some outliers which tend to cast doubt on the theory, because life isn't an experiment. But in this case there is a physical separation which is startlingly close to perfect.

We can therefore state unequivocally: Scotch ale – not pre-industrial ale made before written records, but the widely exported Scotch ale which made its brewers world-renowned – was not brewed with peat malt.

Up until the present day peat malt remains a grain which only finds its way into the Scottish brewer's mash tun in exceptional circumstances. Recently Glasgow-based Simple Things Fermentations (STF) has released a clearly American-influenced

[9] Personal communication, former S&N staff.

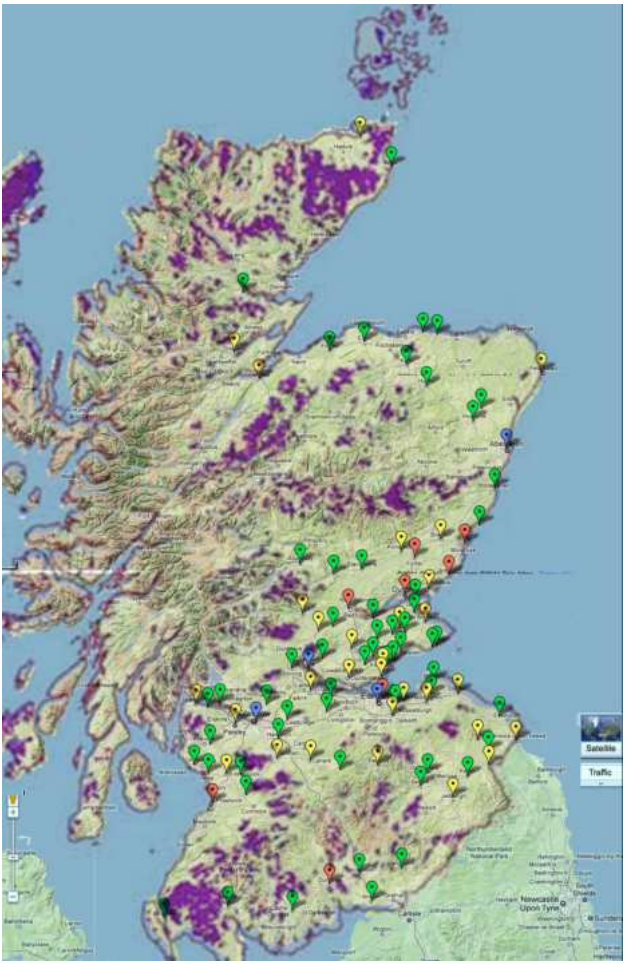

Figure 1: Peaty areas of Scotland (purple) and Scottish breweries. Peat map, Macaulay Land Institute; breweries, R. Pattinson, "Scottish breweries in 1837 - the map", https://barclayperkins.blogspot.com/2011/09/scottish-breweries-in-1837-map.html. Green markers, one brewery; yellow 2-4 breweries; red 5-9 breweries; blue 10 or more breweries.

"Scottish Light" which contains not just peated malt, but also Munich and chocolate rye.

STF has also made a peated pale ale, but the only other peated beer I am aware of in the recent past was produced by the now defunct Old Worthy Brewing Co. All three of these products were made in very small batches, some only once.

Although Noonan does not make the claim that Scottish beer used peat malt, he does tell one story which suggests it was once done.

Noonan quotes Russell Sharp and Charles McMaster as his sources who say that Maclachlan's brewery in Edinburgh made a beer using whisky malt, which was popular in Glasgow until the 1960s and renowned for its "peat reek". I have never seen any other mention of this beer, which perhaps deserves further investigation.

The story is superficially plausible, since Maclachlan's also owned Auchentoshan distillery. However, the twist in this tale, which makes me sceptical about it, is that Auchentoshan does not use peated malt.

Blame it on the BJCP

More influential than any book in the world of American "craft" brewing is an organisation: the Beer Judge Certification Programme (BJCP).

From 1997 the BJCP's style guide declared that Scottish Ale could contain peated malt, although it was even then well understood in America that peat malt was inauthentic.[10]

> A faint, smoky character from the use of small amounts of peat-smoked malt is sometimes present.[26]

With the 2004 revision of its guidelines, much more verbose than previous versions, the programme edged back from the peat malt, but doubled down on the mythology, implying instead that peaty character might come from the water running down from the glens:

> The peaty aroma is sometimes perceived as earthy, smoky or very lightly roasted… The initial malty sweetness is usually accentuated by a low to moderate kettle caramelization… A low to moderate peaty character is optional, and may be perceived as earthy or smoky …often quite dry due to use of roasted barley. Traditional Scottish session beers reflecting the indigenous ingredients (water, malt), with less hops than their English counterparts (due to the need to import them). Long, cool fermentations are traditionally used in Scottish brewing… Any caramelization comes

[10] See discussion from 2000 https://groups.google.com/g/rec.food.drink.beer/c/95y9qM3IjjE/m/rf-TQfKdAp4J

> from kettle caramelization and not caramel malt… Although unusual, any smoked character is yeast- or water-derived and not from the use of peat-smoked malts. Use of peat smoked malt to replicate the peaty character should be restrained… The optional peaty, earthy and/or smoky character comes from the traditional yeast and from the local malt and water rather than using smoked malts.[27]

I believe it is fairly clear who bears the greater responsibility for the spread of the image of "Scottish Ale" in the form in which American beer enthusiasts are familiar with it – and it's not Greg Noonan.

All the classic tropes about Scottish beer – peaty water, cold fermentation, roast barley, kettle caramelisation, and the old canard that although Scottish brewers could export beer all over the world, they couldn't manage to get hops up the coast from Kent – are repeated here in their purest form.

But since 2015 the BJCP denounces its own previous position:

> The malt character can range from dry and grainy to rich, toasty, and caramelly, but is never roasty and especially never has a peat smoke character… Peat smoke is inappropriate… Burning malt or wort sugars via 'kettle caramelization' is not traditional nor is any blatantly 'butterscotch' character… Slight smoke character may be present in some versions, but derives from roasted grains or from the boil. Peated malt is absolutely not traditional.[28]

In 2021 the self-flagellation became brutal:

> [T]hese Scottish beers are weaker, sweeter, darker, lower in attenuation, and less highly hopped compared to equivalent modern English beers. They are produced using slightly cooler fermentation temperatures than their counterparts. Many of these differences have been exaggerated in popular lore; they are noticeable, but not huge, yet enough to affect the balance of the beer, and to perhaps indicate a national flavor preference… The use of peat-smoked malt is not only completely inauthentic, it produces a dirty, phenolic flavor inappropriate in any of these styles.[29]

Despite this U-turn, we can expect the American "Scotch Ale" to continue in its current form for some time yet; American brewers will continue to add peat malt because they like the result and don't really care about what brewers in Scotland itself do or don't do.

Caramelisation

One of the signature flavours sought after by devotees of US-style "Scotch" is a caramel sweetness. It has become a widespread practice among American homebrewers to achieve this by drawing off a few litres of the first wort from the mash and boiling it down to a syrup before returning it to the rest of the wort.

This technique supposedly imitates the effect of a long boil in a direct-fired copper. It is now so commonly described in Scotch Ale recipes that some people appear to believe this is how beer was traditionally made in Scotland.

Noonan does suggest doing something in this direction: "As soon as some wort is run into the kettle, turn its heat on full, and lightly carmelize the wort to develop characteristic Scottish flavor and color."[16, p. 107] He certainly did consider caramelisation to be an important flavour component, but did not discuss this subject any further in his recipe section or suggest reducing wort for flavour.

But it's not Noonan, but veteran US homebrewer Scott Abene, known as "Skotrat", who seems to be the person who popularised a much more intensive method of boiling down wort to a syrup (around two gallons down to a pint) and adding it back to a Scotch Ale, which he credits to advice from Iain Cameron at Traquair. This technique appears in Abene's recipes as early as 1997.[11]

There is another source for this type of thinking which is also closer to home than Noonan. Michael Jackson had championed the beers of Edinburgh's Caledonian Brewery since the buy-out of Lorimer & Clark led by Russell Sharp, and the brewery for a while used a stylised depiction of its direct-fired coppers in its marketing materials. Sharp told Jackson: "We are boiling, not stewing… This gives flavours that you cannot achieve with stainless steel and steam heat."[9, p. 108]

Along with Caledonian and Traquair, the other crucial import which established the image of Scottish beer in the US was McEwan's Scotch Ale, a strong beer which then, as now, was not available in Scotland itself. This, however, was brewed in the modern, industrial New Fountain brewery in Edinburgh – the type of place Russell Sharp was having a gentle dig at.

David Johnstone and Scotch ale as a proto-lager

One influential belief which has been spread, particularly in the United States, by Noonan's book is the idea that Scottish brewing has more in common with lager than with English ale brewing. This is used to back up related notions: cold fermentation is logical because Scotland is cold; this explains why Scots drinkers took to lager faster than the English, and so on.

[11] http://www.skotrat.com/skotrat/recipes/ale/scottish/recipes/10.html.

Noonan does make a statement to this effect: "as will be seen in chapter two, Scottish traditional techniques were so akin to lager practice that brewing Pilsener was not as "foreign" a concept to the Scots as it might at first seem."[16, p. 26]

The belief that Scottish fermentation temperatures were significantly lower than in England *and that this continued into modern times* – something which is now regarded by some as a crucial characteristic of "Scottish Ale" – may well owe its wide circulation to this book.

But the idea is evidently not Noonan's own.

When *Scotch Ale* was published in 1993 it provoked a sharp response, albeit in the middle of a generally positive review, from David Johnstone, the former head brewer of Tennent's. Johnstone was disappointed by the book as he felt that Noonan had disregarded Tennents, and perceived a bias towards Edinburgh and against Glasgow, and its most famous brewery, in Noonan's work.

Why would a man who had written a book on brewing lager, Johnstone asked pointedly, now make derisive comments about "fizzy lager"?

This is all the more surprising as Noonan had taken quite a bit of advice from Johnstone, quoting him extensively in the book. Johnstone evidently gave generously of his time and knowledge when Noonan was researching his book.

But what Noonan did get from Johnstone was the latter's theories on the supposed similarities between Scotch ale and lager beer. These ideas in turn are based on Johnstone's own reading of Roberts' *Scottish Ale Brewer*.

This is somewhat suspect, as Roberts does not say anything on the subject of lager brewing, and Johnstone's interpretation is tendentious. For it is impossible to believe that Johnstone's arguments were not influenced by his own position.

As the head brewer of Scotland's leading lager brewery, Johnstone was proud of his product and its long history. That much is obvious from his writings. He had a motivation to regard his beer as a continuation of Scottish brewing tradition, rather than, as Noonan eventually implied in his book, a modern interloper. This led him to try to rationalise its position in the industry and attempt to paint it as a natural evolution of indigenous Scottish brewing traditions.

Johnstone was not saying these things for Noonan's benefit – he had made the same arguments in a paper for the Institute of Brewing in 1983.[12] In this admirable attempt I believe he makes some claims which stretch credulity.

The source Johnstone quoted most was Roberts, who says outright that Scottish brewers fermented colder than the English:

[12] D.I.H. Johnstone: "100 Years of Lager in Scotland", *The Brewer* (July 1983), reprinted in this issue.

> "I have pointed out the difference between the practice of the Scotch and that of the English; the former preferring a low, the latter a much higher temperature, in pitching their tuns. This distinction is of great importance; and, in connection with the practice of sparging, may be considered as constituting the leading peculiarity in the Scottish system of brewing."[19, p. xiv]

There is no possibility of misinterpretation there. Roberts is saying not only that Scottish brewers pitched their yeast colder, but that this is the most important difference to what English brewers did.

But the "Scotch ale is lager" thesis is not really from Roberts (who didn't write about lager brewing) — Johnstone seems to have got that from another 19th-century writer, David Booth, who writes:

> The Scotch and the Bavarian Brewers have certain points of similarity in their systems of fermentation. Both enter their worts to the yeast at a very low temperature; and both finish the tumultuary fermentation in the gyle-tun; so that in neither is any yeast thrown off after cleansing. [4, III:16]

Booth appears to be the originator of the belief that Scotch ale needs a long, cold fermentation. He describes the favourite pitching temperature as 50°F [10°C] and 45–46°F [7.2–7.7°C] as "by no means uncommon". "The fermentation sometimes continues for three weeks, and a fortnight would be a pretty fair average."[4, II:52–55]

But Booth goes on to say that the yeast used is clearly of a different nature, that low temperature alone is not enough to make a Bavarian beer with British top-fermenting yeast. Booth devotes pages to describing the decoction mash techniques in use at Munich and Augsburg. Johnstone does not address this difference to British infusion mashing.

Once again, Noonan's fault is merely to repeat what he was told by a leading Scottish brewer, based on two of the best-known brewing authors of the 19th century. Perhaps he can be forgiven for taking as good coin the statements of Booth and Roberts, exaggerated by Johnstone.

While contemporary brewing records from Tennent's have not survived, at least none that show the fermentation temperatures, we do have them from William Younger. These show a quite different pattern of fermentation from that suggested by Roberts – so either Roberts got it totally wrong, or fermentation temperatures rose during the 19th century.

Beer	OG	day 1	day 2	day 3	day 4	day 5	day 6
Table Beer	1035	15°C	15.56°C	16.7°C	17.8°C		
42/-	1043	15°C	16.1°C	17.2°C	18.9°C		
60/-	1064	14.4°C	15°C	16.7°C	18.3°C		
80/-	1074	14.4°C	15°C	16.7°C	17.8°C	18.9°C	19.4°C
100/-	1086	13.9°C	14.4°C	15.5°C	17.2°C	18.9°C	20.0°C
120/-	1103	12.2°C	13.3°C	15°C	16.7°C	18.9°C	20.5°C
140/-	1115	12.2°C	14.4°C	16.7°C	18.9°C	21.1°C	22.2°C

William Younger records WY/6/1/2/3. SBA. `https://barclayperkins.blogspot.com/2019/12/scottish-fermentation-temperatures.html`. Temperatures converted to Celsius from original source.

Roberts does say "it is not the present but the old system of Scotch brewing which I inculcate."[19, p. 38] And Noonan himself notes that fermentation temperatures rose during the nineteenth century.

If we can believe Roberts, perhaps Scottish brewers had previously fermented colder – nonetheless, there is no documented source that I know of which describes Scottish brewers using underground cellars or blocks of natural ice to cool their beer, as Bavarian and Thuringian brewers did.

Booth suggests pitching temperatures of between 48° and 52° Fahrenheit [9–11° C]. The reason Booth pitches cold is because the ales in question are very strong with huge original gravities of between 1.099 and 1.120, which would rise in temperature quite dramatically as they fermented.

James Steel on Bavarian brewing

There is an interesting discussion in the book of Scottish brewer James Steel, where he initially appears to agree with Roberts, Booth and Johnstone. Steel's views on many subjects are often very idiosyncratic, but it may be interesting to see whether he confirms (or contradicts) what other authors have written.

According to Steel "the old Scotch strong ales were started at 54° F [12.2°C] and carried through at temperatures scarcely exceeding 60° [15.5°C], and in winter sometimes so low that they required heating to keep the fermentation alive; but the fermentation, however low it went, never gave indications of going into the depositing order, but rather simply, would have stopped in its action altogether."[23, p. 96]

Steel recommends fermentation "as low as possible, beginning at 56° [13.3°C] and finishing under 66° [18.9°C]".[23, p. 77] and says ale should not be allowed to rise above 72° F [22.2°C] and porter not above 76° F [24.4°C] . We can note, however, that these temperatures are substantially warmer than those suggested by Roberts and Booth.

Steel even reports that in Burton the stored beer was on occasion allowed to freeze, and explicitly compares this to Bavarian practice:

> In Burton, beers are stored away all in transit casks, of all sizes, from butts down to kilderkins. The storage space wanted being now so very extensive, brewers have ventured on storing out of doors, and the surplus of the winter brews is piled up many tiers high, in acres of horizontal extent in the yards and fields belonging to the various firms. Chilling or freezing in winter is held to be beneficial for the beer, on the principle enunciated by Liebig in his Bavarian theories – viz., that when fermentation is carried on at a low temperature, the changeable elements in the beer are separated from it without danger of acidity. [23, p. 78]

So, by Johnstone's logic, if Scotch ale was lager, so was Bass ale! The Burton brewers stored huge amounts of beer, and at temperatures colder than any recorded in Tennent's stores. But no-one, as far as I am aware, has ever suggested that this meant Bass were brewing lager. No-one has ever written that the reason people in Derbyshire drink lager today is because of a folk memory of the cold-matured Burton ale.

Steel goes on to state of Bavarian beer that "All the fermentations are conducted at as low a heat as possible, and 55° Fah. [12.8°C] is the uppermost limit."[23, p. 104]

Steel grasped (as did Booth) that a low temperature on its own would not produce the "depositing fermentation" (which we know better as bottom-fermentation) of Bavarian beer. Ordinary top-fermenting yeast would go dormant at cold temperatures. So James Steel didn't believe that Scottish ale was made in the same way as lager.

Steel also points out that Bavarian mashing was completely different from the way it was done in England and argues that such a different way to mash could not possibly produce a beer of the same kind as English methods.

Johnstone doesn't discuss the great differences between mashing techniques in Scotland and Germany. In the nineteenth century, what distinguished lager brewing from British brewing more than anything else, arguably more than type of yeast or fermentation regime, was the use of very elaborate and time-consuming decoction mashes, where part of the mash is removed to the copper, boiled and returned to the mash vessel. The boiling helps break down the malt particles and thus makes further starch available. Once this decoction is re-combined with the rest of the mash, the enzymes in the mash tun can convert this newly available starch to sugar.

Nothing like this was practised in Scottish ale brewing. It is the most crucial difference between British and continental wort production – so different, that British brewers intent on brewing lager – including J & R Tennent – believed they had to build an entire new brewhouse to do it.

By the middle of the nineteenth century the temperatures suggested by authors are closer to what is recorded in surviving brewing logs.

Muspratt says in 1860: "The cooling is performed in the usual way. The pitching heat is about 57° [13.9°C], though sometimes it is reduced to 56° [13.3°C] or even 54° [12.2°C]; and the period of attenuation extends from eight to twelve days, according to the weather, during which the heat rises to about 70° [21.1°C] or more, but never higher if possible than 72° [22.2°C]. The extent of the attenuation varies from half to two-thirds of the original gravity. The cleansing of Scotch ales differs in nothing important from the usual system."[14, p. 279] When Barnard visited T&J Bernard for his classic *Noted Breweries* book he recorded that their cooling system "cools sixty barrels per hour, in summer weather, down to 55° or 56°" [12.7–13.3°C].[2, pp. 110–111]

Let us now follow Young Hugh Tennent to Bavaria. What do the German authors contemporary with Roberts and Hugh Tennent say about fermentation temperatures?

Continental brewers knew about top-fermentation and in fact 10–15°C is precisely the temperature suggested for pitching yeast into top-fermenting beer in contemporary German books. Stahlschmidt [22] writes: "the temperature of the inoculated wort is generally 10–15°C and rises in the course of the fermentation by 6–10°C. In Bohemia top-fermentation is done cooler, by which means the beers gain in stability and sweetness."

Bohemian brewers fermented colder than the Germans, according to Stahlschmidt, because it made the beer more stable. But they were still aware that it was top-fermentation.

For bottom-fermentation Stahlschmidt recommends temperatures as low as 4°C, and 10° as a maximum.

Even for German lager beers, the primary fermentation does not take as long as the three weeks suggested by Roberts for the old Scotch ales. Stahlschmidt suggests "winter beer" can be racked to the lagering vessels after seven or eight days, "summer beer" nine or ten.

The caves used for lagering beer in Bavaria and Thuringia would typically have a natural temperature of around 5–8°C, which could be cooled further to 3–4°C with the use of massive blocks of ice. With the introduction of artificial refrigeration in the late 19th century, German breweries could, and did, take their lagering tanks even colder.

If we believe Booth and Roberts that fermentation in Scotland was once colder, and knowing what temperatures were being used by the 19th century, the conclusion must be that once temperature control was available, Scottish brewers started fermenting warmer, whereas Germans did the opposite: they fermented colder.

The most puzzling question of all, though, is: if Scottish ale was already basically lager beer, as claimed, why on earth did Tennent think it necessary in the 1880s to construct an entire new brewhouse, at enormous expense, in order to produce lager? Why did they believe they needed to employ a German head brewer to oversee it, if

"the methods of continental lager production and scotch ale production were virtually identical"?

Year	Place	Pitch temp	Max temp	Source
1904	Berliner Weisse	17.5	23	Schönfeld
1966	Drybrough	16.1	18.9	Drybrough
19th C	Scotland	13.3–18.9	22.2	Steel
1890	Edinburgh	12.8–13.3		Barnard
1860	Scotland	12.2–13.9	22.2	Muspratt
1842	Burton	12.2	20	Hitchcock
18th C	Scotland	12.2–15.5	-	Steel
1868	Germany (top)	10–15	16–21	Stahlschmidt
1927	Cologne	10		Olberg
1834	Scotland	7.8–10		Booth
1837	Augsburg	6.9	-	Booth
1894	Dreher, Vienna	5.6–7.5		Alworth
2020	Pilsen	5	7.3	Seidl
1868	Germany (bottom)	4–10		Stahlschmidt

All temperatures converted to Celsius for ease of comparison. Sources: Schönfeld, p. 153. Drybrough brewing records, D6/1/1/7, SBA. Steel, pp. 77, 96. Stahlschmidt, pp. 188, 226. Olberg, pp. 64–65. Booth, pp. 30, 52–55. Barnard, pp. 110–111. Muspratt, p. 279. Hitchcock, pp. 40–43. 1894 Dreher brewing ledger reproduced in Alworth. Pilsner Urquell temperatures from footage in Machacek and Seidl episode 3.

In the table above we can see there is still a distinct divide between top- and bottom-fermentation temperature. Only the very cold 7.8°C suggested by Booth comes anywhere close to lager temperatures, and it's important to understand that pitching temperature is not the actual fermentation temperature.

We can see in particular if we compare the temperature range given by Hitchcock (who was talking about Burton strong ale) that the range 12–15°C was similar to that used for ales of a similar strength in England.

Hitchcock writes:

> "The heat during fermentation may be allowed to reach sixty-eight degrees [20°C], but not more: the attenuation not reduced so low, by three pounds, as is stated under the head of attenuation. The fermentation in some breweries is allowed to be rather rapid: such may be permitted, if the ale is for immediate consumption; but if it is to be kept, the attenuation must be slow. Four pounds decrease in gravity every twenty-four hours, produces the richest flavoured, most potent, brilliant, and

> sparkling article. In fact. the slower the fermentation of ales is, the more superior the article will be, in every respect. The pitching heat of this ale is about fifty-four degrees [12.2ºC], or even less in summer, unless the gyle-tuns are beneath the surface of the ground."[7, pp. 40–43]

Which all sounds very much like the traditional wisdom about Scotch ale – but Hitchcock is describing Burton fermentations. The cool temperature is not because Scotland is cold – it's because Scottish brewers made a lot of very strong ales and yeast activity would heat up the beer too much if they pitched warmer. Brewers of strong ale in England did the same thing.

What is apparent is that whatever Booth and Roberts might say, from at least the first half of the nineteenth century Scottish brewers were pitching and fermenting much warmer than suggested by those authors. It is therefore ahistorical to suggest that 20th-century "Scottish ales" – the familar 60-70-80 framework – were fermented at close to lager temperatures. The logs exist for those. They didn't ferment cold and slow.

It is interesting to note that the contemporary recipes quoted earlier in this article suggest fermenting the beer at between 16º and 21ºC for ten days, not the 10ºC for three weeks suggested by Booth, Johnstone et al. Despite the repetition of this story, modern US "Scotch ales" generally do not attempt the long, cold fermentation said to be characteristic of the style.

Schottisches Ale

Johnstone was, however, not the first to class Scotch ale as a type of lager. At least one nineteenth-century German author (I have found only one example) seems to have regarded Scotch ale as bottom-fermenting in some sense, but it is unclear why.

> We class beers by the type of fermentation as either top-fermenting or bottom-fermenting. The former include the light table beers, the Bohemian, English, French and Belgian beers; the latter includes the Bavarian, Austrian and Saxon lager beers, the Scottish ale, etc.[30, p. 516]

The author offers no reasons why he believes Scotch ale to be bottom-fermenting. We also don't know whether the author had first-hand knowledge of Scotch ale or was just relying on hearsay. Perhaps he had read Roberts.

Other German sources, on the other hand, refer to it simply as another kind of Ale:

> Of *English beer* we may mention the *Ale* ("English Oil") and *Porter*; of the first sort there are pale yellow and highly conditioned kinds and also those which are brown, bitter and mild *(Scottish Ale)*.[20, p. 161]

[3943] **Schottisches Ale.** [1]

Dieses ausgezeichnete, in ganz Großbritannien und den bedeutendsten Haupt- und Handelsstädten des Continents sehr beliebte Malzgetränk wird seit Kurzem in dem Brauhause zu Klein-Schwechat nächst Wien, von dem Unterzeichneten erzeugt. Derselbe hatte während seines längeren Aufenthaltes in England und Schottland Gelegenheit, die dortige Manipulation genau zu beobachten und sich gründlich eigen zu machen, so daß sein Erzeugniß nach Ausspruch mehrerer competenter Abnehmer dem Urproducte an Stärke, Güte und Feinheit des Geschmacks nichts nachgibt. Er rechnet es sich zur besondern Ehre dieß, den jeden Aufschwung heimischer Industrie begünstigenden Bewohnern seiner Vaterstadt anzuzeigen, und setzt den Preis dieser originellen Biergattung auf 8 fl. C. M. den Ni. Oesterr. Eimer billigst fest. Bestellungen können bey dem Unterzeichneten, oder auch in der Stadt, Judengasse Nr. 504, zweyten Stock gemacht werden.

Anton Dreher, Brauer zu Klein-Schwechat.

Figure 2: Advertisement for Dreher's Vienna-brewed Scottish ale (*Wiener Zeitung*, 14 December 1836). The text boasts that Dreher had observed and learned brewing techniques in England and Scotland and promised that his ale was equal to the original in strength, quality and fineness of flavour. Dreher was more modest in his private letters home, saying "I will not pretend to have the experience of a Scottish brewer nor will I hope to brew such good ale immediately, although it should not be completely impossible."

Imported "English Oil" – a strong export ale, such as we might today call a pale barley wine – was surprisingly common in Germany in the eighteenth and nineteenth centuries, and popular enough that it was imitated by German brewers for their local market.[13]

The weird story of Scottish Ale in Habsburg Vienna

There is a connection between Scotch ale and continental lager, but it is not the one that Johnstone imagined.

In 1836 the Austrian brewer Anton Dreher had recently returned from his tour of England and Scotland with Georg Lederer and Gabriel Sedlmayr. Dreher and Sedlmayr were the anonymous "German brewers of Vienna and Munich" who supplied David Booth, quoted earlier in this article, with so much of the information on continental brewing for his book.

Dreher had also learned a lot from the trip, and began offering "Schottisches Ale" for sale in Vienna.

It does not seem to have been a success, and Dreher found a more lucrative beer to brew instead. He built a modern English-style malt kiln and used it to kiln a new kind of malt, closer to English pale ale malt than to the dark Munich-type common at the time. The resulting beer was Vienna lager, a type of lager of historical importance and one which is now enjoying a slight revival.[14]

[13] For more on this see Sterowski [24].
[14] See Krennmair [12] for more on this.

Dreher's brewery became one of the biggest in continental Europe and possibly contributed to the growth in lager exports which towards the end of the century pushed British brewers towards also producing lager.

It is tempting to speculate how the history of lager might have looked if Viennese drinkers had been keener on Dreher's Scottish ale.

Dreher's Scottish ale experiment comes only a year after Scottish export ale, according to legend, was presented to the Emperor of Austria, who apparently declared it "The Burgundy of Scotland". Belhaven Brewery still occasionally uses this story today, and in the nineteenth century other Scottish brewers, such as Robert Disher, used it to promote their own beer.

There is, however, one more commonality between Tennent's and Dreher: Dreher's Klein-Schwechat brewery where he developed Vienna lager was built, like Wellpark, bang slap next to the local cemetery. But we won't go into that.

Conclusion

Greg Noonan was far from being a dilettante. He was an accomplished brewer with a deep understanding of the science behind the process, and had already written another book on brewing, all the while running his own successful commercial brewery. He was as qualified as any foreigner could be to write about Scottish beer.

But he didn't have the decades of experience working and drinking in Scotland that he would have needed to do a better job.

Occasionally this leads to fairly elementary howlers: we learn that "cask-conditioned ale is available in most Scottish pubs", which was not true in 1991 and certainly isn't true now; and a couple of times we are told that Scots like a head on their pint, "unlike the English" – try saying that to drinkers in Manchester or Leeds!

His position as a visitor also meant that he was reliant on what he was told by his contacts in the Scottish brewing industry. He did not have the cultural background – perhaps he felt he did not even have the right – to critically inspect what they told him.

Noonan did his best. He went to Scotland and talked to Scottish brewers about how they made their beer. Michael Jackson didn't do anything different for his own research. But what both Noonan and Jackson failed to realise was that the things that brewers told them could easily be folklore handed down through the brewery, rather than evidenced facts.

There is some egregious nonsense about Scottish beer sometimes believed, and propagated, by people in other countries, and, alas, in Scotland too. But wherever that stuff comes from, most of it is not from Noonan's work. The current legend of Scotch ale pre-dates the book *Scotch Ale* and the responsibility for its spread belongs for the most part to people other than Noonan.

Acknowledgements

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Figure 1: William McEwan

William McEwan – politics, philanthropy and accolades

Eleanor Docherty

In part one of this series, 'Family Connections', which appeared in the 2021 SBAA Journal, I outlined the McEwan family tree and showed how brewing was really in William McEwan's blood long before he established the Fountain Brewery, having had family connections to two other major Scottish breweries. In this part, I will talk mainly about William McEwan's philanthropy, but it would be remiss of me not to mention his career in politics and the many accolades he received as a result of his generosity.

Politics

William took up a career in politics in 1880, when he joined the Liberal Party. In 1886, he ran as a Gladstonian Liberal candidate for the Central Edinburgh Division and was successful. As a result, he retired from Fountain Brewery, handing over the day-to-day running of William McEwan and Company Limited to his nephew, William Younger, who became Managing Director. William McEwan remained as

Chairman and continued to receive weekly reports of expenditure, even whilst on holiday.

McEwan was known among his political colleagues as 'the quiet politician', because he rarely spoke in the House of Commons. However, when he did, he was committed to the causes he supported and made his voice heard e.g. he was strongly in favour of Irish Home Rule. Despite his silence, he was returned, unopposed in 1895. He even gained the support of the temperance movement! This may have been because he was himself a supporter of temperance from a young age. Whilst living and working in Honley, he joined both the Teetotal Society and the Huddersfield Total Abstinence Society – not what you would expect from someone who would become one of the most successful brewers of his time. William retired from politics in 1900, due to ill health. Sir Arthur Conan Doyle ran as a Liberal Unionist candidate for his seat, but was unsuccessful.

Philanthropy

Many of the donations listed in this article were discovered in the McEwan journals held at the Scottish Brewing Archive in Glasgow whilst researching payments towards the construction and fitting out of McEwan's house at 25 Palmerston Place, Edinburgh. This was before the outbreak of the Covid pandemic, so the research was carried out in 2018 and 2019. Whilst incidental to that research, the entries on these pages alone give a good indication of McEwan's generosity, but I am sure that a more general browse through the journals will show a great many more examples. At the time of writing this article, Covid restrictions have meant that I have been unable to visit the archives recently. Nevertheless, I will be able to show that, while William McEwan became enormously wealthy, he was also enormously generous when it came to giving to good causes. He supported a diverse range of projects, from supporting family and local causes, educational, church and medical organisations to of course the large-scale philanthropic project for which he is best known, the McEwan Hall in Edinburgh. I believe that this level of generosity was clearly part of his nature since a young age and not just a result of his great success as a brewer. Where a page from the journals has been reproduced, I have added a typed transcript beside the entries of interest for ease of reading. I have categorised his donations to give a better idea of the breadth of causes he supported.

From at least the point where William started his first job, he kept meticulous hand-written records in pocket books and journals, including inventories of his clothes, books and other personal belongings. His records show how much he paid for lodgings, provisions, personal spending (including biscuits!) and regular entries to 'Charity' are seen throughout.[1] One of his pocket books shows a hand-written note

[1] SNM 13/3/8 – Cash book for 1845 and 1846.

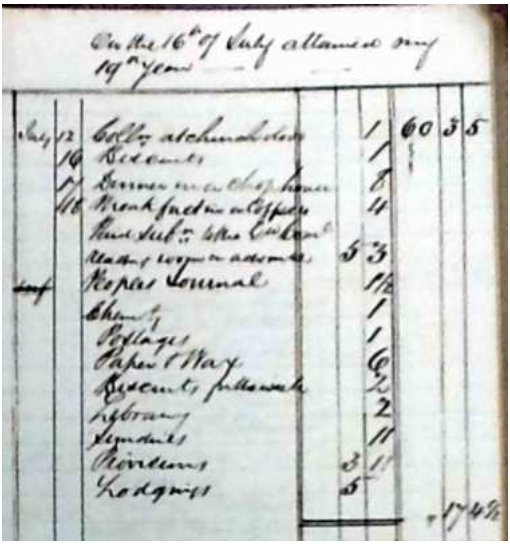

Figure 2: William McEwan's pocket book with details of his expenses.

at the top of the page, stating "On the 16th of July attained my 19th year" (Figure 2). The year would have been 1846 and at that time he was working as an accounts clerk for TL Paterson's (Merchants) in Glasgow. His salary at that time was around £30 per annum.[2]

Charity begins at home

Throughout the journals, there are payments to various family members on both the McEwan and Younger sides of the family. It is not known whether these were loans or contributions from a grateful relative, who had himself received a great deal of support from his family during his early career. However, given his generosity elsewhere, I think it is safe to assume that most, if not all, of these payments were gifts.

Interestingly, there are six-monthly payments to 'Mrs Anderson' – this was Helen Anderson, the mother of McEwan's illegitimate daughter, Margaret, whom he eventually married in 1885. He clearly maintained both of them financially, showing that he had a strong sense of responsibility. We know that he also ensured that Margaret had a good education and met the kind of people, who would help to propel her into the higher echelons of society.[3]

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Figure 3: Polesden Lacey.

1906 – Gifted £80,000 to daughter, Margaret, to purchase Polesden Lacey estate

Margaret married Capt. The Hon. Ronald Henry Fulke Greville in April 1891. William ensured she had a lavish wedding and both he and his wife Helen showered the new couple with expensive gifts. In 1906, McEwan gifted the sum of £80,000 to Margaret for the purchase of the Polesden Lacey estate at Great Bookham, near Dorking, Surrey. Sitting in 1,400 acres of land, the current house at Polesden Lacey was designed by Thomas Cubitt, who is credited with designing many grand houses, especially in London's well-to-do areas, such as Belgravia, Eaton Square and Pimlico (where McEwan married his wife, Helen Anderson). He was also responsible for the east front of Buckingham Palace.

Sadly, Ronald died only two years after they moved in, aged 44, from pneumonia following surgery to remove a cancerous tumour from his throat. Margaret never re-married. However, by this time, she had become a well-known society hostess and lived a full and rather lively life, which I will elaborate on in Part Three of this series, which will appear in next year's journal.

In addition to this generous gift, upon his death, William left the bulk of his estate to Margaret, which at that time was worth over £1.5 million.

Civic duty and poor relief

4th September 1877 – £50 to the Indian Relief Fund

From 1876–1878, there was a terrible famine on the Deccan Plateau region of India. The famine was partly as a result of crop failure after a terrible drought. However, the plight of the Indian people was worsened, because the English viceroy at the time, Lord Robert Bulwer-Lytton, continued to export huge volumes of grain from India to England. Almost 10 million people died as a result of the famine. As McEwan had a growing colonial export trade, he would have been only too aware of this situation.

20th December 1882 – £10 to Alloa Drill Hall and £50 to Alloa Industrial Home

Despite making his money based in Edinburgh, McEwan clearly didn't forget his roots. The Alloa Drill Hall's location was adjacent to Ochil House, which served originally as a Tontine Inn from 1807. The house saw many different uses over the years, including a courthouse and prison. It was acquired in 1882 as offices for the 1st Clackmannan and Kinross Rifle Volunteers.

In the 1877–1887 edition of 'Lothian's Annual Register for the County of Clackmannan', the following text appears:

> "Charitable Institutions ALLOA INDUSTRIAL HOME
> This Institution was unfortunately destroyed by fire in February, 1882. New premises in Broad Street have been built, but have not yet been opened. The institution is to be henceforth designated Day Feeding School."

The institution was previously known as the Alloa Ragged and Industrial School. It housed young boys, who were educated in the local seminaries and were taught to make fire-lighters. The school was supported by subscriptions and donations.

Figure 4 illustrates the range of payments made by McEwan to various payees – on just one page! There are many payments throughout the journals to 'McIntosh School Fees'. I have been unable to identify this school or where it was located. If anyone has any idea what this may have been, do write in and let us know. I have assumed that it was possibly where his daughter, Margaret, was educated, but that is just a guess.

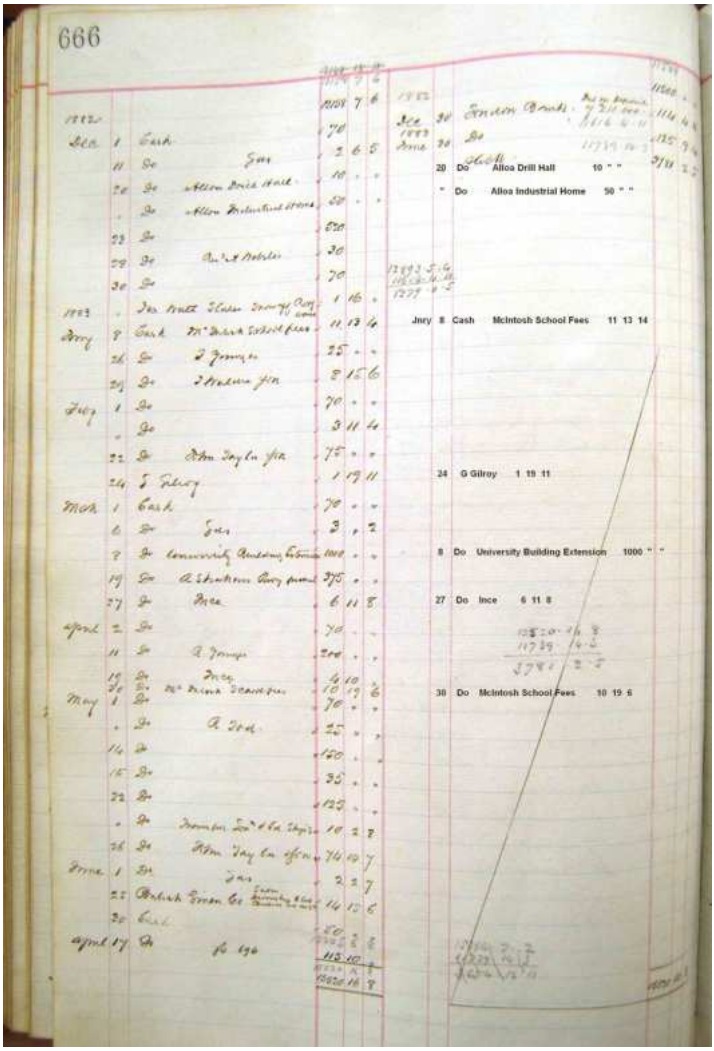

Figure 4: The book indicates the range of payments made.

Church

12th November 1883 – £100 to St. David's Manse, Edinburgh

It would be reasonable to assume that William valued the Christian faith, as he regularly makes donations to church funds. St. David's Free Church in Morrison Street, Edinburgh would have been a short walk from Shandwick Place or Manor Place, where William was lodging. A manse at 11 Viewforth Terrace was purchased in 1870, but this was later sold and a new manse purchased at Murrayfield. I have been unable to determine the exact date of this purchase, but it is reasonable to imagine that this donation was a contribution towards the new manse.

23rd November 1883 – £100 to No[rth] Merchiston Church, Edinburgh

The Kirk Session of Edinburgh St. Michael's began when an iron church was built in 1877 at the corner of Ardmillan and Angle Park Terrace. It was built for the purpose of mission work in the parish of St. Cuthbert's. At that time, it was named North Merchiston Church. As a result of the rapid growth of the surrounding area, membership of the iron church reached over 800, which far exceeded its capacity. A much larger church was needed. Therefore, in 1881, building on the site of the current church began and it was opened on the 28th November 1883.

The iron church was dismantled and rebuilt within the grounds of the Royal Edinburgh Hospital. Although it has undergone some changes, the main structure remains the same and now operates as The Hive, an activity centre and coffee bar for the hospital's in-patients.

1886 – Stained Glass Window at St. Giles' Cathedral

The window was actually donated to the cathedral by the Brewers of Edinburgh, of which McEwan was probably a member.[4]

McEwan was certainly keen to help towards the restoration of the cathedral, as a year later, in October 1887, a payment of £500 was made towards the St. Giles' Restoration Fund.[5] This page (Figure 5) also shows further payments to 'Mrs Anderson', McIntosh School Fees, rent at 43 Manor Place, where he was lodging at that time and insurance on the Chester Street House, which is the house at 25 Palmerston Place, which he had built for himself and his future wife Helen Anderson and daughter, Margaret. The house is a grand, imposing building on the corner of Palmerston Place and Chester Street, Edinburgh.

[4] For further details of this particular gift, I would refer you to John Martin's article in the April 2022 SBAA newsletter, where he goes into more detail on the window.

[5] SNM 4.4.1.1, p665.

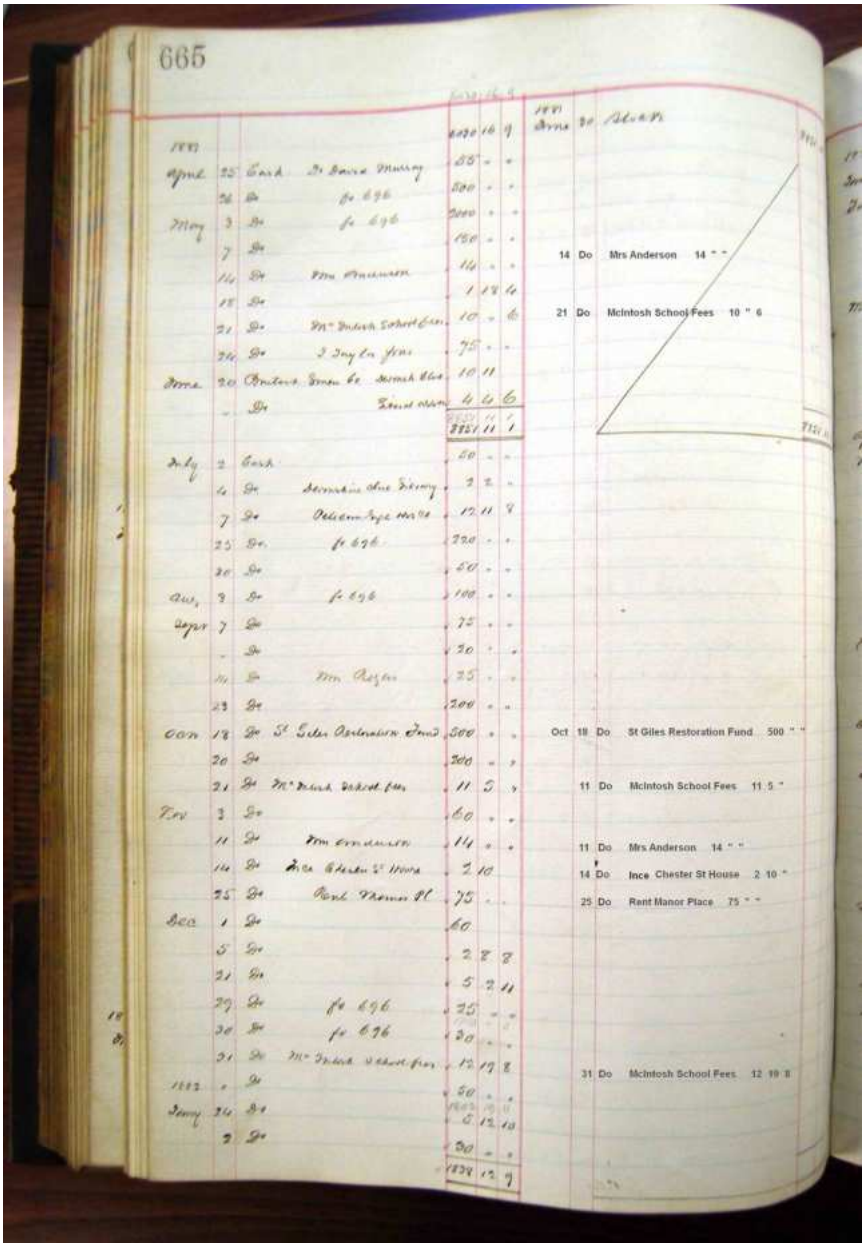

Figure 5: This page shows payments to Mrs Anderson, school fees, rent and insurance.

Science

1896 – The Cooke/McEwan Refractor Telescope – City Observatory, Calton Hill, Edinburgh

The original City Observatory was on Calton Hill, Edinburgh. It was renamed the Royal Observatory in 1822 during the visit of King George IV to the city. However, by 1888 its equipment was obsolete, due to lack of funding. Its proximity to the city centre was also not an ideal location, due to rising light levels coming from the New Town. Therefore, in 1888, Charles Piazzi Smyth, the second Astronomer Royal for Scotland, resigned his position and the Government planned to close the observatory. When the Earl of Crawford learned of these plans, he donated instruments from his own observatory and astronomical library at Dunecht to the nation on condition that the Government build and maintain a new Royal Observatory to replace the one on Calton Hill. The Blackford Hill Observatory was therefore created, as well as the new City Observatory on Calton Hill. William McEwan donated the six-inch Cooke refractor telescope, which was installed in the McEwan Dome of the Playfair Building.

Art

1885 – Two Paintings to the National Galleries of Scotland

William McEwan was a keen collector of art and in particular Dutch art. It is believed that this may have influenced the use of the Cavalier logo on McEwan's branding from the 1930s, this being a stylised representation of 'The Laughing Cavalier' by the Dutch artist, Frans/Franz Hals. McEwan donated the paintings 'A Dutch Gentleman' and 'A Dutch Lady' to the National Galleries and these are on display at the Scottish National Gallery.

1892 – Another Dutch Painting to the National Galleries of Scotland

This time, McEwan donated the Rembrandt painting 'A Woman In Bed', which is also on display at the Scottish National Gallery.

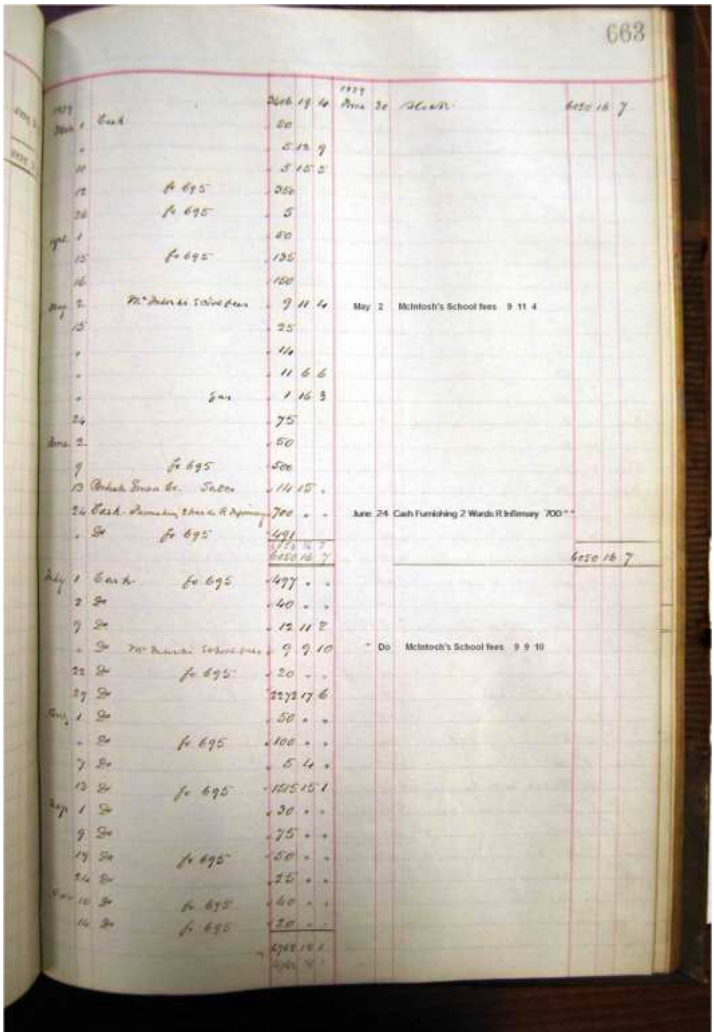

Figure 6: On this page McEwan records payments to the Royal Infirmary.

Medicine

24th June 1879 – £700 subscription for the furnishing of two wards at the Royal Infirmary of Edinburgh

The Royal Infirmary of Edinburgh was established in 1729, but it became unfit for purpose. Therefore, a complex of new buildings was opened at Lauriston in 1879. An appeal for funding was launched by the Royal College of Physicians of Edinburgh and many rich benefactors responded, including William McEwan. At the time, it was the largest voluntary hospital in Europe and was the teaching hospital for the University of Edinburgh's Medical School. This is where Sir Arthur Conan Doyle studied medicine before he became famous for his writing. His tutor and mentor, Dr Joseph Bell, worked and taught at the new infirmary and was the model for Sherlock Holmes.

5th November 1884 – £52 : 10 to 'Maternity Hospital'

The name and location of the hospital are not specified. However, given the date, it is likely that this was a donation to supply a specific piece of equipment or furniture for the new, purpose-built Edinburgh Royal Maternity Hospital, which complemented the new Royal Infirmary of Edinburgh.

Education

1887-1893 – Books to the City of Edinburgh Libraries

On 25th July 1849, William wrote an entry in his journal, stating "I have now attained the age of 22 years. Ever since my school boy days I have been what is termed a considerable reader and have dabbled a little in almost all subjects" (Figure 7). He goes on to lament the fact that he has had no-one to direct him in his studies. Nevertheless, he studied History, Philosophy and Poetry "as the whim seized me". There are various entries in the McEwan journals for payments to 'Library', so he was certainly keen to further his education. It is no surprise then, that he would wish to provide quality reading materials for future generations of 'considerable readers'.

A member of staff at the Central Library, Edinburgh, was able to confirm that William McEwan donated books on Scottish family histories, as well as a full set of the Maitland Club volumes. The Maitland Club volumes consist of "Original Papers and Other Documents Illustrative of the History and Literature of Scotland".[6]

[6] You can view a digital version of Volume II at `https://deriv.nls.uk/dcn6/8063/80634449.6.pdf`

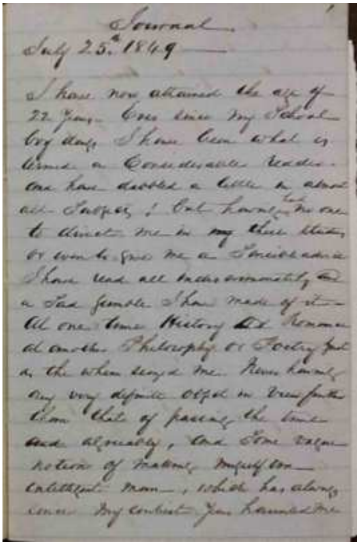
Journal
July 25th 1849
I have now attained the age of 22 years. Ever since my School boy days I have been what is termed a Considerable reader.

Figure 7: McEwan's journal in which he describes himself as a "considerable reader".

1888 – The McEwan-Pretsell Scheme

Founded in partnership with James Pretsell, an Edinburgh businessman, this was a scheme to support young people from Edinburgh, wishing to take on apprenticeships in various trades and those who wished to further their education by way of evening classes, but who were financially unable to do so. Through the financial assistance of this scheme, they could attend either Heriot-Watt College, which was at that time housed in the building opposite the National Museum of Scotland in Chambers Street, or Edinburgh College of Art. Following McEwan's death, his daughter Margaret took on the responsibility for his contributions.

The University of Edinburgh

1874 Onwards – The University of Edinburgh Medical School and McEwan Hall

In 1874, the University of Edinburgh needed to build a new Medical School. Although its history dates back to the barber surgeons of the 16th century, it was not until 1726 that the Faculty of Medicine gained recognition within the university. The quality of the surgical and medical teaching was such that the number of students wishing to attend classes grew and grew and the Edinburgh Medical School became one of the most prestigious medical schools in the world. It also accepted women into certain selected medical classes in 1869. Some of you may recognise Jex-Blake Mosaic IPA,

made by Bellfield Brewery. This was named after Sophia Jex-Blake, who was one of the 'Edinburgh Seven' – the first group of female matriculated undergraduate students at any British university. By the 1860s, the faculty's buildings at Infirmary Street and Old College on South Bridge were not sufficient to cope with its continuing expansion.

The Medical School and the McEwan Hall were both part of the same project – the University's Building Extension Scheme. The committee for the scheme was formed in 1874 and it was tasked with raising funds for and the construction of various new buildings. A public appeal raised £84,000 and the government provided a further £80,000. However, the government would not contribute towards the cost of building a graduation hall, as it considered that to be frivolous.

The committee approached a number of wealthy locals, seeking donations. William McEwan was one of many donors and gave the following amounts:

Year	Amount
1874	£250
1877	£250
1883	£1,000
1884	£1,000
1885	£5,000

The new building for the Royal Infirmary was finished in 1880 and the new medical faculty, located nearby at Teviot Place, was opened in 1884.

According to correspondence I have received from the University of Edinburgh, they believe that it may have been William's positive experience with the donations he had already made, which encouraged him to respond to the further appeal for funds to build a graduation and ceremonial hall.

The McEwan Hall (Figure 8) was opened as a graduation and ceremonial hall for the University of Edinburgh on the 3rd of December 1897. The building cost £115,000 and William McEwan donated at least £94,000 of that sum (University of Edinburgh Building Extension Scheme (Committee) Administrative Records). A parliamentary grant of £8,000 was secured and some old building materials from the site were sold to raise funds. Interest from some investments was also used to make up the remainder of the sum.

The hall, which sits in Bristo Square, Edinburgh, took 20 years to build and a further three years for interior decoration. It was designed in the highly-decorative Italian Renaissance style by the eminent architect Sir Robert Rowand Anderson. It was intended not only for University of Edinburgh graduations, but also as a gift to the people of Edinburgh for all kinds of concerts and ceremonies. It is now a Category A

Figure 8: The McEwan Hall.

listed building. The original competition design incorporated a tall campanile, but this was not completed in the final build, due to insufficient funds.

The exterior of the building was completed in 1894. It is built from stone from the Prudham Quarry in Hexham, Northumberland. It is circular in design and has large, heavy timber doors. Above the main entrance there is a deeply-etched carving of a graduation scene (Figure 9).

William McEwan is honoured twice on the exterior walls. Firstly, with a carved Latin inscription (Figure 10): *Hanc aulam academicam Gulielmus M'Ewan Universitati Edinburgensi libens animo donavit MDCCCXCIV*. Roughly translated, this means "William M'Ewan willingly granted this academic hall to the University of Edinburgh 1894".

There is also a bronze plaque (Figure 11), added after William's death in 1913.

A nearby block of tenement flats was purchased and demolished to allow for a landscaped area in front of the hall and the siting of an elaborate lantern, known as the McEwan Lantern Pillar, just outside the hall. The lantern has now been moved further across Bristo Square, not far from Teviot Row House. It was also designed by Robert Rowand Anderson. The pillar itself was carved from Portland stone and has a three-sided base, which tapers as it reaches the top. It is carved with foliate scrolls, floral garlands and dancing cherubs. Also carved into the pillar is the McEwan family crest, comprising of a lion and a wheat sheaf. The inscription reads "Donated to the city of Edinburgh by William McEwan, Member of Parliament".

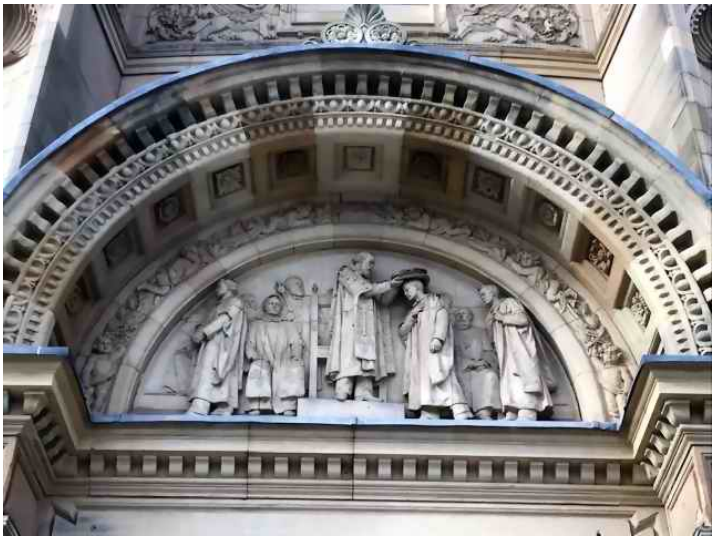

Figure 9: Graduation scene above the entrance to the McEwan Hall.

Figure 10: The Latin inscription on the exterior.

Figure 11: Plaque dedicated to William McEwan.

Figure 12: The McEwan Lantern Pillar with detail.

Figure 13: The central dome of the McEwan Hall.

The main auditorium of the hall seats 1,700 people and is simply breath-taking. The organ was built by Robert Hope-Jones and has a separate console. If you have ever attended a concert in the McEwan Hall, you will no doubt have felt the whole place reverberate as it is played. There are seats at ground level, as well as two galleries. However, it is the beautiful artwork that is the stand-out feature of this hall. The decoration was designed by the artist William Mainwaring Palin and took three years to complete. When you see it, however, you can easily understand why it took so long.

The magnificent central dome is divided into 15 panels. Each panel has a human figure, 13 of which represent the academic subjects of astronomy, mathematics, poetry, history, divinity, philosophy, medicine, oratory, jurisprudence, fine arts, music, biology and physics. Around the base of the dome is the biblical inscription "Wisdom is the principal thing, therefore get wisdom, and with all thy getting, get understanding. Exalt her and she shall bring thee to honour." (Proverbs 4:7).

On both sides of the platform there are large murals. The one on the right-hand side (Figure 14) depicts Minerva, the goddess of wisdom. She is seen seated on a marble throne, receiving the gift of the hall from William McEwan, who is portrayed in flowing robes, sitting among a group of figures.

There is a wonderful website, called SCRAN,[7] which is part of Historic Environment Scotland. It is a real treasure trove of images and information for anyone interested in

[7] www.SCRAN.ac.uk

Figure 14: In this mural Minerva is depicted receiving the hall from William McEwan.

researching local history in Scotland. Due to copyright restrictions, we are unable to reproduce any of the images here in the journal for free. However, there are a few that I must mention as I go along, for which I will give the full URL. For some images, you need to create a free account or you can log in using your library card number.

The first of these images is the invitation to the opening ceremony. https://www.scran.ac.uk/database/record.php?usi=000-000-499-195-C&searchdb=scran&scache=538u257jjm It is beautifully printed and illustrated. William McEwan is said to have stood up to give his speech amid "loud and prolonged cheering from the entire audience", which gave him a standing ovation. During the ceremony, McEwan received an honorary LL.D. (Doctor of Laws) degree from the University. In the same year, he also received the Freedom of the City of Edinburgh. The Student's Representative Council gave an acceptance address to William McEwan, expressing their "profound gratitude", see https://www.scran.ac.uk/database/image.php?usi=000-000-499-193-R&cusi=000-000-499-193-C&scache=5bmme2v9fx&searchdb=scran They go on to say "We can assure you that we all regard this Hall as a noble addition to the University Buildings, and esteem its donor as one of the greatest benefactors of our Alma Mater. We therefore ask your acceptance of our profound gratitude, and we feel sure that, however distant and scattered we may be in future years, we shall always look back with pride and affection upon this great Academic Hall with which your name will ever be associated."

I find it deeply saddening, therefore, that nowadays, other than the name of the hall itself, you are hard pressed to find much reference to William McEwan within the building. A bust of him can be found at the bottom of a dark stairwell at the far end of a long corridor on the ground floor (turn left once you are through the main entrance). The engraving simply says "William McEwan, MP" (Figure 15).

In 2017, the McEwan Hall re-opened following an extensive, three-year programme of repair, restoration and upgrading of the facilities at a cost of around £33 million. Part of the work was the building of a new, modern glass entrance within Bristo Square, very close to the main building (Figure 16). This new addition, so close to the original, grand building, has divided opinions and it is easy to see why.

I suppose that the hall and its surrounding area will go through many more changes over the next century or two, as the needs of a modern university are provided for. What will not change, however, is the extraordinary generosity of the man who made it all possible – The Right Honourable William McEwan, PC, LL.D., MP.

Generous, even in death

William McEwan died on 12th May 1913. A few years earlier, he had been run over by a horse-drawn carriage and he never fully recovered. He spent his final years living at Polesden Lacey with his daughter, Margaret, and is buried in Great Bookham Churchyard, not far from the house. However, even in death, William was

Figure 15: The bust of McEwan in the hall.

Figure 16: The 2017 new entrance to the McEwan Hall.

still generous to those around him. His assets at the time of death were valued at £1,501,250 18s. 11d. He left the bulk of this to Margaret, totalling over £1.5 million. This included his homes at 25 Palmerston Place, Edinburgh and 16 Charles Street, London. He left £4,000 to his butler, Frederick Samuels; £200 to his valet, Henry Vine; and one year's salary to those of his London servants, who had been in his employment for one year or more at the time of his death. He also left the family house at 15 Forth Street, Alloa, to his nephew, Robert Younger and various family members benefited from receiving generous shares in William McEwan & Company Limited. However, for me, the most poignant statement in his Will, which could so easily be overlooked, is where he refers to Margaret as "lawful daughter of me and Mrs Helen McEwan, my late wife". As I stated in Part One of this series in last year's journal, this terminology used in legal documents of the time meant that he was declaring Margaret as his biological daughter and not his step-daughter, as she had been referred to in the press of the time. It is so sad that he was not able to declare this openly during his lifetime, due to prevailing Victorian attitudes.

In addition to taking care of his family and servants in his Will, the following are two of the larger bequests that McEwan made to the city of Edinburgh:

1913 – Bequest of £15,000 to the Royal Infirmary of Edinburgh and a further £1,000 to the Convalescent House at Murrayfield

The Lothian Health Board minutes of 2nd June 1913 read:

> "Intimation of Legacies – There were read letters from Messrs Morton, Smart, Macdonald & Prosser, W.S., dated 19th May, intimating that the late The Right Honble William McEwan had bequeathed legacies of £15,000- and £1,000- to the Royal Infirmary and to the Convalescent House, respectively."

The Lothian Health Board minutes of 4th August 1913 read:

> "Payment of Legacies – Intimation was made that payment had been received of the following legacies, - By the late Right Honble Wm. McEwan, P.C., LL.D., Ex M.P. for Edinburgh, (plus interest and less duty) £13,623 : 18 : 1d nett for the Royal Infirmary, and £908 : 5 : 3d nett for the Convalescent House, Murrayfield, respectively, per Messrs Morton, Smart, Macdonald & Prosser, W.S.,…"

These sums of money were considerable indeed. Unfortunately, no record seems to have been kept to say specifically what the funds were used for.

1913 – Gifted 25 Palmerston Place, Edinburgh to the University of Edinburgh

With the agreement of his daughter Margaret, William's house at 25 Palmerston Place, Edinburgh (Figure 17) was gifted to the University of Edinburgh.[8] The house, which is on the corner of Palmerston Place and Chester Street, was purpose-built and fitted out to the most breath-taking standards for McEwan. He moved into it in 1885 with his new wife, Helen Anderson and their daughter Margaret, although they seem to have spent most of their time at their London home.

At the time of gifting, the house was valued at £4,500 and the university's factor suggested that it could be rented out for £225–250 per annum. The university Court agreed to this and the Court Minutes of 18th May 1914 record that they granted permission to lease the house for a period of 10 years.

As the house has five floors, it was probably rented out to various organisations at the same time. One of those was the General Board of Control for Scotland (previously known as the General Board of Commissioners in Lunacy for Scotland). A notice in the Daily Record on 11th May 1914 states that they were moving to their new premises at 25 Palmerston Place on 28th May 1914. They were clearly still there in 1937, as the Scottish Association for Mental Welfare posted a notice of a meeting to be held there in The Scotsman in February 1937.

[8] I wrote about this magnificent building in the 2019 SBAA Journal article 'The Edinburgh Home of William McEwan'.

Figure 17: William McEwan's house at 25 Palmerston Place, Edinburgh.

During World War I, the Scottish War Savings Committee established offices in the house and during World War II, the Home Office Air Raid Precautions Services also had an office there.

The house was sold to the National Coal Board in June 1952 for £10,000 and changed hands several times over the years. In 2011, it was sold to the Spiritualist National Union Trust and now trades as The Sir Arthur Conan Doyle Centre. Despite its many and varied uses over the years, it has not lost its homely nature and when I used to volunteer there, I often wondered what it looked like when the McEwans lived there.

Well-deserved accolades

William McEwan was indeed a generous benefactor and I am happy to say that his munificence did not go unrewarded. The following are just some of the richly-deserved accolades and awards that William received during his lifetime:

He served as Deputy Lieutenant of Edinburgh for 30 years.

In 1897, the year of the McEwan Hall opening, he was awarded an Honorary LL.D. (Doctor of Laws) from the University of Edinburgh, as well as the Freedom of the City of Edinburgh.

In 1907, he was offered a knighthood by Edward VII, but he refused, stating "I would rather be the first in my own order than at the tail end of another."[9] However, in the same year, he did accept the appointment of Privy Councillor to the king.

In 1913, after his death, and in gratitude for the generous bequest made to the Royal Infirmary of Edinburgh, the managers of the hospital wrote to Margaret, seeking her permission to name one of the beds on a male medical ward after him, which she agreed to.[10]

Although Fountain Brewery closed in 2004 and was subsequently demolished, the creation of McEwan Square on part of the site of the former brewery ensures that William McEwan's name lives on in Fountainbridge.

The third and final part of this series shall appear in next year's journal, when I will tell you more about William's beloved daughter, Margaret. As well as teaching her the brewing business, he also instilled in her a philanthropic nature. However, as we shall see, she was not all 'sweetness and light'. She was kind to those she favoured, but was not the kind of lady to be crossed!

[9] Evans, 2013.
[10] Lothian Health Board Minutes – 24th November and 8th December 1913.

Figure 18: McEwan Square on the site of the former Fountain Brewery.

Acknowledgements

My thanks to Karen O'Brien, S&LLL Strategy Officer, Central Library, Edinburgh, for researching McEwan's donations for me. I am indebted to Louise Neilson, LHSA Access Officer of Lothian Health Board for her kind assistance in providing me with information on McEwan's bequests and copies of the relevant sections of Lothian Health Board's minute books.

My grateful thanks go to Danielle Spittle, CRC Library Assistant, University of Edinburgh for her invaluable assistance in researching the funds donated for the Medical School and McEwan Hall, as well as the university's use of 25 Palmerston Place.

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Cover: Before lager conquered the world, Scotch ale had a good go at it. These brewing logs show the X5 strong ale brewed by Tennent's for export in the 19th century.

Back cover: Venetia Stevenson, British-born 1950s Hollywood starlet, died in September 2022 at the age of 84. To readers of this journal she will be forever best known as the girl on the Sweetheart Stout label. RIP.