



**THE JOURNAL OF THE
SCOTTISH BREWING ARCHIVE
ASSOCIATION**

Volume 14, 2014



ISSN 1463-029X

SBAA Journal - Volume 14

Contents

| | |
|---|----|
| Editorial | 2 |
| The Scottish Brewing Archive – how it began | 3 |
| The legacy of the great pioneers of brewing | 6 |
| A (long) day in the life of a brewer..... | 20 |
| Beer and brewing in words..... | 39 |
| My memories of Craigmillar | 50 |
| Health and safety, or just survival? | 61 |

Editorial

Allan P. McLean ponders pints and the meaning of words.

Visit a brewery these days and they talk a language that the brewers of yesteryear might not have recognised. In the past you would hear references to brew lengths and quantities of barrels. But now the talk is of hectolitres. Tell me a brewery is big enough to produce more than two million hectolitres a year and I may nod sagely, but I really haven't a clue what that means except that it sounds like a lot of beer. For some people it is, although not for the biggest of the big brewing guys. Tell me that a brewery produces 1.4 million barrels a year and that sounds more familiar to my old ears.

These thoughts have been inspired by one of the articles for this Journal. John Martin has gathered together some of the words from the old world of Scottish beer. It is reassuring for me to be reminded that a barrel of beer was 36 gallons – and that's 288 pints by the calculations I learned a few decades ago. And let's face it, if I walk into a Scottish pub in the 21st century my round is still ordered in pints (or sometimes half pints and less often one-third or two-thirds pints). That's because in Britain, beer is still served in old measures rather than litres or fractions of a litre. Metrication never arrived in a pint glass. But as John notes, in an even earlier era, Scotland had different sizes from elsewhere in these islands, and interesting, almost poetic, words to describe drinking vessels.

Also in this edition, there are the words of some now retired people who recall the way things once were in the breweries where they worked. The archive may include many pieces of paper with words on them, but the reality behind these documents was human. It helps to bring the past alive to read the words of those who were there. So let's raise a mutchkin o' yill to the people who made the brewing industry what it was and is.

The Scottish Brewing Archive – how it began

Sir Geoff Palmer¹ recalls the origin of the archive in Edinburgh.

It was May 1980. At that time the Heriot-Watt University was located at Chambers Street and in the Grassmarket. Professor Anna MacLeod had retired and Professor David Manner was Head of Brewing and Applied Biochemistry. The Brewing and Applied Biochemistry Department was situated one floor above, and one floor below, the Library at Chambers Street. The lower floor where Anna and I were located was called the basement. Alex Anderson was the Chief Librarian.

After Anna's retirement, the brewing industry was concerned that Heriot-Watt's relationship with the industry might decline. I asked Roy Summers and George Insill to arrange a meeting with Peter Balfour, Chairman of Scottish & Newcastle, to discuss how a closer relationship could be forged between the industry and Heriot-Watt. A lunch was arranged. Those present at the lunch were: Peter Balfour, Professor Manners, Roy Summers (Production Director), George Insill (the Head Maltster) and I. The lunch was held in the Boardroom at the Scottish & Newcastle Head Office at the foot of the Royal Mile in Edinburgh, which is now the home of the Scottish Parliament.

Peter Balfour, tall and elegant in a dark suit met us at the door. We took our places at the table. Regarding lunch, all I can remember was that a large, long roll of roast beef was brought in by a young lady in a blue denim apron. Peter stood up and with a very long knife, carved the beef and each of us received a very large slice. I sat next to Peter and he told me about his concerns regarding the quality of the malting barley he was growing on his farm. The conversation turned to construction work that was taking place in the brewery. I then said that I noticed that there were lots of books in a skip in the brewery yard. He told me that I could take

¹ Earlier this year Geoff Palmer was awarded a knighthood in the New Year Honours for his services to human rights, science and charity.

any useful 'materials'. He added that there were similar 'materials' in a storeroom in the brewery and that I should scan that heap quickly because it was also for disposal. After lunch I climbed into the skip and noted that there were letters from Horace Brown (the revered brewing scientist after whom the Horace Brown Medal award is based), Henry Younger and a letter from Louis Pasteur² (now in the possession of the Heineken Company) to Mrs Younger, thanking her for her hospitality - speaking no French, that is what I was told it said! I visited the storeroom in the brewery and found a large number of files, brewing artefacts and letters.

For example, there were letters from Mackeson to Mr Alexander Bruce³, the right-hand iron man, of Henry Younger. Mackeson was a hop merchant. Each season he quoted a price. Bruce would send a 'do not reply' note to Henry Younger. This went on until Mackeson accepted a ridiculously low price even though he had sent the usual 'bribe cakes' for Mrs Younger! The letters also showed that despite Bruce's powerful position in the company, he addressed Henry Younger as Mr Henry or Sir.

On returning to the Heriot-Watt after lunch and after my examination of the 'materials' to be disposed of imminently, I hurried to the library and asked Alex Anderson to get a van and remove all the 'unwanted materials' from the brewery. Of course, I informed Alex of the historical importance of the documents and he ordered a University van to remove the 'material' which became the original contents of the Brewing Archive of the Heriot-

² After visiting Edinburgh in 1884 Pasteur was concerned about the poor public health of the people of the city and he asked Henry Younger to help improve the situation.

³ In response to Pasteur's concerns Bruce secured support from the Usher whisky family. Andrew Usher, who blended the first Scotch whiskies (1860) and donated money to build the Usher Hall, was the brother of John Usher. Sir John Usher joined forces with Bruce to set up the Bruce-Usher Professorial Chair of Public Health, as part of the Medical School of Edinburgh University, in 1898. I do some charity work with the current Professor of this Department of Edinburgh University and he is very much aware of the brewing and distilling origins of his Department.

Watt University and of the present Brewing Archive. Donations of similar materials from other breweries followed, such as donations from Sandy Hunter, Chairman of Belhaven Brewery. These early donations led to the formation of the Scottish Brewing Archive (SBA).

Prior to the formation of the SBA, Professor Anna MacLeod, Mr John Duncan, a former President of the Institute of Brewing and Alex Anderson, the Heriot-Watt Librarian, had already discussed the effects of the vast number of takeovers and closures of breweries within the previous 25 years and realised that valuable historical material could be lost unless efforts were made to preserve the older records of brewing companies. The SBA was to be the home for such material. Sir William McEwan-Younger Bt. officially opened the SBA on the 5th March 1982.

The SBA collection continued to grow with many breweries adding valuable donations of their historical records, the vast majority of which cover the 19th and 20th centuries. However, there are some records that pre-date that period: the oldest record in the archive is the 1725 petition in protest at the two-penny increase on the Duty of Malt.

In 1991 the SBA collection was transferred to the University of Glasgow. Many thanks goes to the University of Glasgow Archive Services who continue to preserve these important records that form a significant part of Scotland's brewing history.

The legacy of the great pioneers of brewing

John Martin discusses some of the key figures in the development of brewing.

Introduction

During one of the SBAA committee meetings last year there was a discussion of the contents of the brewing archive, and Geoff Palmer asked whether we had located important letters and documents relating to the great achievers in brewing who set standards that are still in place today.

As a result I decided to conduct an historical investigation. During my initial investigations I was able to make links with the Scottish Brewing Archive, Heriot-Watt University and the Institute of Brewing and Distilling, and discovered the legacy of these prominent pioneers.

Louis Pasteur

Louis Pasteur (see right) was born in 1822 in eastern France and rose from a very humble background to become a world-renowned chemist and biologist. He attended school locally and his headmaster encouraged him to study in Paris. However he quickly returned, as he became home-sick. To his credit Pasteur went back to Paris and this time was successful. He went on to study at the École Normale Supérieure but although he worked hard was not considered



to be an exceptional student. In 1847 Pasteur was awarded his doctorate and spent several years teaching before moving in 1854 to the University of Lille to become the professor of chemistry where he continued to work on fermentation. By 1857 Pasteur was world famous.

Pasteur founded the science of microbiology and proved that most infectious diseases are caused by micro-organisms. This became known as the 'germ theory' of disease. He was the inventor of the process of pasteurisation and also developed vaccines for several diseases including rabies. The discovery of the vaccine for rabies led to the founding of the Pasteur Institute in Paris in 1888.

His work in fermentation enabled Pasteur to identify the changes brought about during beer or wine ferments, when special micro-organisms are present. As a result of these findings Pasteur was asked to help local breweries where the beer had turned bad. Pasteur made brewing a more scientific procedure and showed brewers how to culture the right organisms for good beer.

In 1876 he wrote his book *Études sur la bière*, which was translated into English as *Studies on fermentation*. The book changed the course of brewing during the late 19th and 20th centuries representing a huge leap forward in the scientific understanding of the process involved in beer making. The English translation of his book is held in the brewing library at the Scottish Brewing Archive.

The brewers put Pasteur's findings to work in their breweries and as a result brought the industry into the modern era. German breweries were amongst the first to employ the heating of beer (i.e. pasteurisation) in order to preserve it. However Pasteur claimed this treatment as too severe for beer and did not recommend it in his book. Pasteur devised a system of brewing which prevented bacteria contamination in the first place, but this procedure was not used until closed fermenters became the norm almost one hundred years later.

Pasteur was in great demand and was invited to Edinburgh University in 1884 to celebrate their 300 years anniversary. During his stay in Edinburgh Pasteur was a guest at the home of Henry Younger of the famous Edinburgh brewing company William Younger & Co., with whom he created a special bond and corresponded with frequently. As a result of this visit Henry Younger was inspired in 1877 to hire a chemist (William McCowan) for the very first time. The letters between Pasteur and Henry Younger formed part of the Scottish & Newcastle archive. However they

were donated to the Heineken Collection Foundation, following their takeover of S&N.

Pasteur became a national hero in France and was honoured in many ways. He died at Saint-Cloud in 1895 and was given a state funeral at the Cathedral of Notre Dame; his body was placed in a permanent crypt at the Pasteur Institute. The debt, which the brewing industry owes to Louis Pasteur can hardly be overestimated.

Alexander Low Bruce

Alexander Low Bruce (see right) was born in 1839 and educated at the Edinburgh High School. He was employed by William Younger & Co. when still in his teens and within a year he was transferred to London where he was later joined by Henry Younger who was to manage this important office as part of his development. Based on the evidence of numerous letters in the Scottish Brewing Archive all incoming correspondence was opened and read by Bruce before being passed on to the appropriate department with instructions.



Bruce worked hard and by the early 1860s was an assiduous and trusted member of the company. His reputation grew and as a result he was despatched to the United States and Canada in 1873 to promote and take orders for William Younger & Co.'s products. This successful sales tour took him from New York to San Francisco, and back, in four months and shortly afterwards he became a partner in the company.

Bruce continued to make further contributions with major sales promotion in the Mediterranean where he secured the regimental contract supplying the Black Watch then stationed in Gibraltar. You could say that Scottish beer followed the flag all over the British Empire at that time.

Bruce had many other interests in the drinks trade and by all accounts had a good head for legal and financial matters. He was a director of the

Edinburgh & Leith Shipping Co., which carried much of the William Younger & Co. beer to London, and also of the Scottish Widows Fund.

In 1876 he married Agnes Livingstone, the daughter of David Livingstone, the great missionary and explorer. As a result Bruce worked to forward the cause of civilization in Nyasaland and the African Lakes, and to put an end to the slave trade.

When Louis Pasteur visited Edinburgh he stayed with Henry Younger and introduced him to Bruce. As a result of this meeting, Bruce decided he would like to establish a new Chair of Public Health at Edinburgh University. Just prior to his death he instructed his legal adviser to bequest £5,000 for this purpose. A total sum of £15,000, which included donations from Alexander Bruce's family, the Younger firm and Sir John Usher, was offered to the Edinburgh University Commissioners and in 1898 a new Professorship in Public Health was established. It was known as the "Bruce and John Usher Chair of Public Health" and was the first of its kind in the UK. The Chair still exists today.

Alexander Bruce died when he was only 54 years old in 1893 from bronchia-pneumonia and in his obituary in *The Scotsman* it was mentioned, "By this unexpected and dolorous event, Edinburgh has lost a citizen of rare worth."

John Simpson Ford

John Simpson Ford was born in 1866 in Edinburgh and was educated at the Royal High School, and then the University where he studied medicine. However, he abandoned medicine in favour of chemistry in which he obtained a class medal and went on to win the Hope Prize as the best student of his year in laboratory work.

In 1889, and just five years after Pasteur's visit to Edinburgh, Ford was appointed chemist to William Younger & Co. Ltd. and remained working there for a mere 55 years. His only further education, other than self-education and through brewing experience, was a three month period working in the Jorgensen laboratory in Copenhagen where he met Emil Hansen. Much of his time was devoted to introducing Hansen's single-cell yeast culture into Scottish top fermentation brewing, including the use of

mixed cultures of primary and secondary yeasts. During this time Ford would inform William Younger of the progress in his research by letters, which form part of the collection at the Scottish Brewing Archive. Ford considered that the chemical composition of the wort was a very important factor in brewing fermentation.

By 1921 he was appointed a director of William Younger & Co. Ltd. in recognition of his hard work and the contributions he made to the company. During the many years working at Younger's brewery Ford's scientific work consisted of organising laboratory routine to such an extent that he will be remembered as the "father of the laboratory". He pioneered methods of analysis, especially of malt, which spread to other breweries, and he was recognised for his achievements in 1941 when he was presented with the Horace Brown Memorial Medal, which at that time was the highest scientific honour in the brewing industry.

An outstanding feature of Ford's character was his inherent generosity, especially to the young. His staff all sung his praises and acknowledged what they owed to him. His philosophy was that if a job was worth doing, it was worth doing well. He realised there were no short cuts to success. John Ford died in 1944 and in his obituary Henry Younger wrote his own testament to his friend and work colleague:

"Fortunate are those who grew up under his supervision and the many now out in the world of brewing and other fermentation industries who can testify how much they owe to his teaching." He continued by acknowledging:

"a great personal loss at the passing of a great friend and master of his craft."

In 1945 Mrs Ford endowed a memorial to her late husband with, the then, Heriot-Watt College. Her wish was that a memorial should be of a nature to encourage young brewers. A trust was set up and over the years there were changes in how the award would be carried out. Today the J.S. Ford Award is the highest distinction for the Diploma in Brewing and is awarded to the best candidate based on exam results. Apart from the honour, the successful student receives a cheque for £1,000 and an

engraved tankard, presented at an IBD function. Testimony indeed, to a man who contributed a lifetime of research into brewing.

Horace T. Brown

Horace T. Brown (see right) was born in 1848 and although largely self-taught he was a true polymath and left his mark on virtually all areas of science in a career that lasted over 50 years. (A polymath is a person whose expertise spans a significant number of areas and is known to draw on complex bodies of knowledge to solve specific problems). His work spanned barley germination, beer microbiology, water compositions, oxygen and fermentation, beer haze formation, wort compositions, and beer analysis.



Brown's contributions to brewing were remarkable and his focus was on solving practical brewery problems by employing and developing fundamental scientific principles through his study of all aspects of the brewing process.

As a result of this knowledge and expertise he was in great demand with many breweries to resolve on-going problems. One example of this is a report, dated 1898, held in the Scottish Brewing Archive, when he was asked to visit the William Younger & Co. Ltd. breweries and to report back on his findings. In the report one of his recommendations was to improve the water supply for brewing purposes by adding calcium sulphate and gypsum.

Horace Brown was one of the founding fathers of the Institute of Brewing (IOB) and was known for his outstanding contributions to chemical, biological, and geological research. On Brown's death in 1925 the IOB resolved to ensure that his achievements would be remembered forever by

establishing a medal in his honour. The medal is presented every three or four years and is the highest honour the Institute can award.

Today the Horace Brown Medal has a more international perspective and the scope has broadened from eminent scientist to eminent person. The importance over the years of research and development to the brewing, malting and distilling industries cannot be overstated. It has enabled these industries to evolve from a craft into a technology through the applications of scientific and engineering principles. The brewing industry owes a great deal to Dr Horace T. Brown.

Emil Westergaard

Dr Emil Westergaard was born in Copenhagen, Denmark in 1873. He graduated in Pharmacy in 1896 and then obtained a doctorate in 1897. From 1896-98 he was an assistant at the Alfred Jorgensen laboratory, a world-renowned research establishment.

In 1898 Westergaard came to Edinburgh to work at William McEwan's Fountain Brewery, as confirmed in a letter held by the Scottish Brewing Archive and also in a Royal Society of Edinburgh obituary, in which he was described as a "scientific expert to the firm of Messrs. McEwan & Co. Ltd., brewers."

It was during his time working at Fountain Brewery that he started teaching evening classes on brewing at Heriot-Watt College on a part time basis in 1904-05. In 1906 he was appointed a full time lecturer in the Department of Technical Mycology (the study of fungi). When working at Heriot-Watt, Emil presented a series of lectures in 1908 which were published as a volume of the *Transactions of the Royal Scottish Society of Arts* under the title *On brewing: five popular lectures*, and which is held in the Scottish Brewing Archive library.

The title of Brewing Professor (the first such appointment made by Heriot-Watt) was awarded to Emil in 1912, though he resigned in 1918 following a dispute with the Governors of the College. In addition to the other honours he received, he was a Fellow of the Royal Society of Edinburgh. He continued to live in Scotland, but was found dead in 1920. Emil was only 46 years old and his death was a tragic conclusion to a brilliant career.

Henry Stopes

Henry Stopes was born into the brewing business in Colchester in 1852 and went on to become a brewery architect of some repute, as well as introducing a new and improved malting procedure. His other passion was as an amateur palaeontologist (the scientific study of prehistoric life including the study of fossils).

Henry Stopes became his father's junior partner in the family brewing business. He was very successful at his job and went on to set up his own brewery engineering company (H. Stopes & Co.) in 1880. His company concentrated on building and altering malt kilns and malt-houses to use his own malting system. By 1886 Stopes was working on over 20 breweries and malt-houses in Britain and abroad.

Apart from his brewing interests he regularly attended meetings of the British Association for the Advancement of Science and was elected to the Royal Historical Society in 1876, the year he met Charlotte Carmichael, his future wife, at the Glasgow meeting of the British Association. Their daughter Marie Stopes was born in Edinburgh, and went on to become a birth control pioneer in the field of family planning as well as a campaigner for women's rights. She was recently recognised and ranked number 10 out of 100 of Edinburgh's most famous residents who have attained the greatest achievements, past and present. Henry Stopes continued his palaeontological research, but his health deteriorated over the last 10 years of his life and he died in 1902 aged only 50. Stopes' palaeontological collection, estimated to consist of over 100,000 items, was sold in 1912 to the National Museum of Wales in Cardiff.

His main contribution to the brewing industry was during the 1880s when he was a frequent speaker on the problems in the malt industry and wrote the book *Malt and malting: an historical, scientific and practical treatise*. It is included in the extensive brewing library of over 200 books at the Scottish Brewing Archive.

Henry Younger

Henry Younger was one of the fourth generation of the William Younger family and rose to become Chairman of this famous Edinburgh brewing

company. He was simply known as "Mr Henry" by his colleagues. William Younger & Co. already had an extensive trade at both home and overseas and, before becoming a senior partner of the business, Henry Younger was put in charge of the company's new London office in 1866.

William Younger & Co. was the leading brewing enterprise in Scotland in the 1870s and 1880s and during this period greatly expanded both its Abbey and Holyrood breweries. This was also a period when important discoveries were made in the chemistry of brewing, leading to a significant improvement in quality control. Henry Younger had an almost fanatical concern for beer quality control and took great interest in order to enhance the brewing firm's reputation in this highly competitive sector. In 1884 he ordered the translation of Louis Pasteur's famous paper on fermentation and the chemistry of yeasts.

That same year Louis Pasteur attended the celebration to mark the tercentenary of Edinburgh University and Henry Younger arranged to have a private saloon carriage for Pasteur with The North British Railway Co. The carriage was attached to the express train travelling from King's Cross to Edinburgh, and a letter confirming this arrangement is held in the Scottish Brewing Archive. Henry Younger also invited Pasteur to see the Abbey and Holyrood breweries where he spent time in the laboratory and, using a microscope, made drawings and gave his opinion on certain aspects of the brewing process. Alfred Barnard wrote the following, in his book *The noted breweries of Great Britain*, about Pasteur's visit:

"During his peregrinations of the establishment, he commented on the general cleanliness of the vessels and buildings, and went away highly gratified by his visit."

Following Pasteur's visit, Henry Younger made a donation of £500 to the Edinburgh University building extension fund to honour Pasteur and his visit to Edinburgh. This donation was a vast sum of money at that time.

William McCowan

In 1877 William McCowan became the first brewing chemist employed by the famous Edinburgh brewers William Younger & Co. During McCowan's tenure working for Youngers he researched and introduced the brewing

science made famous by Louis Pasteur and was able to provide solutions to beer quality problems that had been encountered at that time.

Although the brewing of beer had been ongoing for centuries, it was not until the second half of the 19th century that real progress in brewing technology took place. The Pasteur discoveries revolutionised the manufacture of beer and within a short time most brewers employed a chemist for the first time. William McCowan travelled to Europe in 1878 to research the latest developments in brewing which included a visit to Pasteur's laboratory.

By 1880 William Younger & Co. decided to break into new markets and started to brew lager for the first time. As a result of this new venture of brewing lager, McCowan visited the Carlsberg Brewery in Copenhagen in 1881. Following McCowan's visit, Younger's used the yeast supplied by Carlsberg when brewing lager.

Younger's stopped the production of lager after McCowan left the brewery in 1883, as it was deemed to be unprofitable, and decided to concentrate their efforts on the brewing of Pale Ale. It is interesting to note that Tennent's started to brew lager in 1885 in Glasgow and have continued to do so ever since. McCowan's hand-written notebook of his visit to Carlsberg is kept in the Scottish Brewing Archive, along with other letters and documents. There is also a pub in Edinburgh named after McCowan which was opened in 2000 by Scottish & Newcastle plc.

William McEwan

William McEwan was born in 1827, the son of an Alloa ship-owner, and rose to become the owner of one of Scotland's major brewing concerns at Fountain Brewery in Edinburgh. In 1851 William moved to Edinburgh to learn the brewing trade at his uncle John Jeffrey's brewery in the Grassmarket. By 1856, with money borrowed from his mother and uncle, he branched out on his own and built Fountain Brewery. William was very successful in brewing and exported beer to all corners of the globe. In 1931 his company joined forces with William Younger & Co. Ltd. to form Scottish Brewers Ltd. and in 1960 became part of Scottish & Newcastle Ltd., which grew to become the largest brewing company in the UK.

William McEwan was also a philanthropist and gave generously to Edinburgh Royal Infirmary, the city's universities and St. Giles Cathedral, as well as financing a scheme to support poor students at the Heriot-Watt College. He collected a series of fine paintings and donated a Rembrandt and a Frans Hals to the National Gallery of Scotland. However his most impressive and lasting memorial is the McEwan Hall, which he funded in 1897 at a cost of £115,000.

As a Liberal MP for Central Edinburgh from 1886 to 1900, William McEwan was considered a "silent member of the House". However, in recognition of his public generosity, he was offered a peerage which he declined, accepting instead an appointment to the Privy Council. When he died in 1913, he bequeathed one and a half million pounds to his daughter, the flamboyant socialite Mrs Margaret Greville, and with it Polsden Lacey, a mansion in Surrey which can be visited today. Although Fountain Brewery is no longer, the McEwan brand is still very much alive and still in great demand today.

J. Morison Inches

The Commercial Brewery, in Sugarhouse Close off the Canongate in Edinburgh, was founded in 1868 by Morison & Thompson and continued until 1877 when J. & J. Morison acquired it. In 1960 the company was taken over by Scottish Brewers Ltd. and later that year became part of Scottish & Newcastle plc. The brewery was closed as a commercial concern and instead S&N used the premises as a pilot brewery for product development, as part of the research and development wing of the Technical Centre.

However it was J. Morison Inches, the great grandson of John Morison the founder of the business, who inherited the business in 1914 and left a valuable brewing legacy. In 1960 he sold the brewery to his neighbour, William Younger & Co. Ltd. and became a director of S&N until 1968.

J. Morison Inches was one of the most respected figures in Scottish brewing. He bequeathed £250,000 from his estate to brewing research at the International Centre of Brewing and Distilling at Heriot-Watt University. The bequest is now used for the new educational J. & J.

Morison fund with a £9,000 scholarship given annually to a selected PhD student from Heriot-Watt for brewing related research. This generosity from J. Morison Inches was no great surprise: throughout his working life he had a deep interest in the educational aspect of the industry.

Anna MacLeod

Anna MacLeod was a Scottish academic, a dedicated teacher and the first female Professor of Brewing and Biochemistry in the world, at Heriot-Watt. She was educated at Invergordon Academy and Edinburgh Ladies College, and then graduated from Edinburgh University with a BSc in Botany. She joined the faculty of Heriot-Watt in 1945, where she remained until her retirement in 1977. In the late 1960s she was awarded the degree of Doctor of Science from Edinburgh University for a thesis on the germination of barley.

In 1961, together with Leslie Samuel Cobley, she co-edited *Contemporary botanical thought*. Anna edited the *Journal of the Institute of Brewing* from 1964 to 1976, and was the first female President of the Institute of Brewing from 1970 to 1972. In 1975 she was appointed Professor of Brewing at Heriot-Watt. In 1976 one of the greatest honours in the brewing industry was bestowed on her: the Horace Brown medal.

In 1993 Heriot-Watt awarded her an honorary Doctorate of Science for her research on gibberellic acid, which was an advantage for maltsters as it shortened the malting process. At that occasion the Dean of the Faculty of Science, Professor Philip Harper, said that Anna MacLeod's association with the brewing industry put her in the same fraternity as other great scientists. He said that she was recognised nationally and internationally with distinction as a university teacher, scholar, scientist, technologist and as a brewer.

One of her PhD students, Geoff Palmer, worked with her especially on the research of barley and they published numerous papers together. He then became her successor at the Heriot-Watt in 1977. Heriot-Watt University's Brewing and Distilling department started the Anna MacLeod Scholarship with a financial gift she had bequeathed in her will.

Geoff Palmer

Sir Godfrey Palmer, better known as Geoff, was born in Jamaica and moved to London when he was 14 years old. As a Jamaican, it probably does not come as a great surprise that Geoff was a good cricketer, although he also enjoyed football. Geoff first started at Heriot-Watt University as a research student in 1964 when he was interviewed by Professor Anna MacLeod, who was renowned for her contribution to brewing education and well respected within the brewing industry.

In 1968, Geoff moved to work for the Brewing Industry Research Foundation in Surrey where he pioneered the use of scanning electron microscopy to study barley and malt, developed a new concept of malt modification, and invented the barley abrasion process, all of which greatly benefited the industry.

His work greatly improved scientific knowledge of cereal grains and of barley in particular. His diagrams and electron micrographs are well known and used worldwide, and gained him an international reputation as one of Britain's foremost cereal grain science experts. Geoff was also a consultant to brewing, distilling and grain companies in many parts of the world, especially in the brewing industry.

The photo to the right includes Geoff Palmer, Anna MacLeod and Helen Smith (née Morrison), a brewing graduate, all enjoying a glass of beer after receiving the following awards: Geoff - Doctor of Science; Anna - Honorary Doctorate in Science; and Helen - First Class Honours Degree in Brewing in Distilling.



Geoff received the OBE in 2003 and earlier this year was awarded the knighthood for his services to human rights, science and charity. Geoff is also credited as being partly responsible for the formation of the Scottish Brewing Archive established in 1981. As a result, many historical brewery records have been saved and provide documentation that helps to tell the story of their legacy and the important part they played in brewing.

It is fitting that this article celebrates the achievements of the great pioneers of brewing and highlights their legacy during the 25th anniversary of the International Centre of Brewing and Distilling at Heriot-Watt University.

A (long) day in the life of a brewer

Richard Rees remembers his first day at Holyrood Brewery.

On his first day at Holyrood Brewery (part of Scottish & Newcastle) the Head Brewer, Stirling Gardiner welcomed him to the fray and gave him a conducted tour of the brewery, including introductions to many of the characters that worked there. Richard started work as a Brewery Shift Manager at Holyrood in 1973, before moving to Fountain Brewery as Senior Brewer, three years later. Richard continued to work for S&N for a period of 25 years in positions that included Group Beer Production Controller and Logistics Controller. These are his memories of his first day.

It's 8 o'clock on a grey Monday morning in an office off the Royal Mile in Edinburgh. I am sitting at a very large table. I have just completed my 2-two year "Cooks tour" of the company as a graduate trainee, including a spell in Belfast during the Troubles. Now I was being called not to the bar but to a real live brewery.

The sound of heavy walking boots moving at an improbable rate approaches. The door crashes open. Head Brewer has arrived. Resplendent not in white coat, but well-worn tweed. And carrying the black book, which I in turn would carry for the rest of my working life.

"Good Morning, young man. Welcome to the Brewery. I hope you will be successful and happy here. Yes, yes. No time to lose. I will introduce you to your shift."

Down the stairs, across the top yard. "This is Jock, the Intake Foreman". "Hi Jock". Jock gives a look of disbelief at the Pierre Cardin beclad child in front of him, followed by a not entirely unfriendly shrug and wink in my direction.

"Don't ever get Jock on to the subject of Burma " warns HB mysteriously as, with a wave to the gently steaming draff and spent hops silos to the left, and the old and new mill houses on the right, we dash up the stairs of the (then) new and semi-automated Balfour brewhouse, dodging a Smith's of Drumclog draff wagon as we went.

"This is Jimmy, brew-house controller, and this is Jock, copperheads". Hi guys...

Everywhere the magic smells of Fuggles and Styrian hops and boiling wort...

Another precipitous plunge down stairs of a steepness that told of the presence of many marine engineers in the projects department. Gouts of steam, some intentional, some not, erupted from the pipework serving an array of 60 Brls Pontifex coppers. An empty frame told of a copper collapse in times past.

I stumble across the setts of the deceptively steep pend from the Canongate towards the lower yard and Holyrood Road takes us past the stairs to the lab. A lithe and very blond microbiological assistant approaches. Things were looking up; surely she could not be called Jimmy or Jock ... a wee stotter indeed.

HB rushes through a pair of bar doors which swing viciously back at me. My gaze alights on red quarry floor tiles, denoting that we were now entering a part of the brewery that my team would spend ages cleaning.

Onto a gallery, looking down into the Paraflow Room which housed the two wort coolers, sterile air and yeast injection and upstream in a far distant and rarely visited cave known as the Black Hole of Calcutta, the two whirlpools installed when the Balfour Brewhouse (Cereal Cooker, Mash Mixer, Lauter Tun) was built.

I would learn, sometimes to my cost (and sometimes to my benefit), that the BH of C was also a short cut, which allowed brown-coat foremen and Her Majesty's Excise officers to pop up *deus ex machina* in places you would not expect. The two wort runners, Jimmy and Jock, wave up to us in a cheery, if sweaty way.

Onwards through another swing door into the brightly lit Middle Tun Room, boasting 240 Brls stainless steel tuns and strangely an old copper tun of some 30 Brls. As I was to learn, this relatively clean room was used to progressively grow the open tun yeast cultures up to production batch size. I also discovered the hard way that the external panel attemperators in these vessels would be fickle.

Thence into the Coronation (of George VI) Tun Room (CTR), a veritable cathedral where the sunlight filtering through the south windows showed it to be filled not with pews, but a 40 strong congregation of tuns either side of a central aisle. All built to the Borsari design of concrete vessels covered with a thick layer of black resin, and of uniform 240 Brl size, a slight problem when the typical brew length was 600 Brls (this was long before the advent of high-gravity brewing)

Necessarily, these tuns had internal attemperators using chilled water, the copper coils being attached to the tun walls by brass brackets. Cleaning with spray balls was ineffective – too many shadow areas. So after the tun was emptied at the end of fermentation, into the tun you would go to squeegee out the bottoms and hand clean both the tun surface and that of the attemperators.

These tuns, like their smaller and older sisters in the Old East Tun Room – one of the few parts of the Brewery still standing today – were open and deep, perhaps nine feet from tun floor to the metal dipping plate mounted very firmly on the top edge of the tun beside the aisle.

A ladder was required to gain access. Sometimes a ladder would slip through yeast-covered gloves, hitting the tun floor with some force. Damage to the tun floor was inevitable, leaving patches of the concrete exposed. Every year or so, the smell of hot pitch and the musical sound of Swiss-Italian voices from a distant tun told you that Borsari were back to fix the tuns.

HB surges along the CTR introducing me to more of my team, as I try not to trip over hoses or bang my head on the crans on the overhead wort main. More Jimmies, a James and a Jock. I never did meet the Ken who everybody seemed to mention.

"And this is Alphonse ..." Alphonse Rynkowski had been demobbed from the Polish Air Force at Donibristle at the end of WW2 and had stayed in Scotland. Always immaculately dressed, he is wrestling with a dangerously top heavy mono-pump mounted on a trolley to which octopus-like armoured hoses were attached variously to the overhead main and to a black rubber pan.

"I skip barry, brewman". My slight worry that this might be a Polish version of a Haka was allayed when HB advised that Alphonse was about to skim FV32 bare to stop the fermentation with perhaps 3-4 degrees of free fermentable.

Onward and more red quarry tiles on the floor announced the presence of the press room, gleaming white cast iron monsters for the yeast retained for brewing, and a less imposing but no less effective press for the so-called "buckshee" yeast. Buckshee yeast was slurried with chilled water and pumped into the Macpherson's tanker to be taken to Speyside to pitch the distillery wash. Nobody then could imagine a New Zealand company based in Hull taking this business in order to stabilise distillery fermentations. Whatever was left was bagged and sent to the food and drinks industry.

Thence to the beating heart of the brewery, the Tun Room Office, where brown (coat) was king and white was tolerated. A windowed room, filled with light, with views across the roof of the Harp Lager Brewery next door to Abbey Brewery and beyond. A hallowed island in the middle of the room held the brewing book and the Customs and Excise book.

Endless rows of sleeves of fermenting wort graced the shelves, as the end of shift "boards" were drawn, allowing the foremen to check the present gravity and pH of each tun, information precisely entered into the brewing book by the shift foreman. I would be taught exactly how to spin the stem of a Reeves saccharometer to disperse both the CO₂ on the base and the foam on the stem to speed up the measuring process. I would also be "taught" to keep everything clean and tidy.

Medical flats of flocculation tests on pumping beers were ranked in front of the windows. Still more medical flats were filled with expressate from the yeast room, and "RP" (reprocessed beer). As duty white coat, you had to taste all the samples, a particularly painful task on a Wednesday when the smaller FVs tended to pump and the number of samples rose dramatically.

Everything was meticulously recorded, including the formality of the Excise books and the Brewing Journal, the clipboards of the brown coats or the scraps of paper and lab coat sleeves of the white coat brewers. And in that Tun Room Office, I am introduced to Henry, my shift foreman.

As the years have rolled by, I have realised that he was perhaps the most decent and dedicated person I have worked with. A Gollum-like personage, but with a flat hat that was only ever removed on the rare occasion that Henry had to go to HB's office. Henry demanded the best from everybody until the job was done. Failure drew a veil of sadness over his face, no anger, just sadness, you had let him down and you were capable of better.

"Well young man, I shall leave you in the care of Henry and the rest of the browncoats to get you trained" (in fact I was also being mentored by one of the whitecoats). "And on each Friday afternoon, you will show me the notes you have made in your Black Book". And off went the boots up the Old East Tun Room.

The Tun Room Foreman, Jock Scott took me under his wing and issued me in good National Service style with white lab coats (three), blue S&N overalls (two), rubber ankle boots (one pair). I also received, in their original box, an unused pair of brewery clogs with horseshoe metal sole protectors: I still have them.

I was then dispatched to train with Jock Stevens, the Intake Foreman who patrolled the top yard, dealing with the intake of articulated malt boxes, which had a very tricky Z-bend to negotiate with several adverse cambers and dip as they entered the Canongate entrance, and then had to turn sharp right across the sloping pend and under the old brewhouse. From time to time, an ERF (brewery lorry) drive shaft would fail, neatly blocking access for all other traffic.

The malt boxes mainly came from the SNB Slateford maltings, but specialised malts for lager, including caramalt and crystal malt came in from contract maltsters, and sometimes in sacks.

The sacks were handballed off the vehicles and barrowed into the old mill room on the west side of the intake yard, where reserve stocks of malt and sugars were kept, "just in case." An old Porteus mill had also been kept for the same reason. The malt boxes tipped their loads into a hopper at the south end from whence they were conveyed and elevated into silos in the new mill area, all under automatic control.

Liquid cane sugar arrived in dark blue tankers from the Tate & Lyle plant in Greenock; most of this would be pumped into the brews at the Grant perhaps forming 5% of the grist. Cane sugar was expensive, and HB would

remove it from the grist line whenever brewhouse capacity permitted. But some sugar was dissolved in hot water under excise scrutiny and filled into so-called "brown bomber" casks for use in priming in cellars at the bottom of the pend as it debouched into Holyrood Road.

The steepness of the pend meant that rolling the barrels was impossible. So they were rolled onto a three-wheeled truck, the back two wheels of which supported two metal slipes along which the barrels were rolled. The slipes were in turn fixed to a horizontal ring in which was placed a heavy one-cylinder Lister diesel engine driving a single front wheel. The ring allowed the vehicle to be "steered" with some difficulty. I think there may have been a brake on the front wheel. But it was a terrifying sight to see Jock driving the loaded Lister at some pace down the often-slick pend.

Wort syrup arrived in large articulated tankers from Manchester and London, and these were unloaded in Bakehouse Close just off the Canongate. The intake pipes had to be flushed with hot water before and after delivery into the heated storage tanks in the old garage under the brewery offices.

One day, a high fructose syrup tanker arrived from Marseilles driven, needless to say, by a Languedoc chauffeur whose English was non-existent, and whose French was nothing like we had been taught at school. The tanker is unloaded, and the driver is now asking for directions, but to where? Lorna, our comely secretary, with very good schoolgirl French, is summoned. Lorna returns with a slight flush on her face and averted eyes. "He was asking the way to Danube Street (a world renowned New Town house of ill repute) ..." Well, it was a long drive from Marseilles. We did wonder what he did with the tanker whilst he was cementing the Auld Alliance.

On the east side of the yard sat the draff and spent hops silos, high on a framework under which assorted vehicles – tractors, even smart cars with

trailers - would come to take away the spent hops for use in gardens. The brewhouse produced huge amounts of hot and wet draff, and the small size of the silo meant that Jock had to keep a tight grip on the trucks taking away the draff if the brewhouse was not to stop.

One morning there was nearly a serious accident when the draff silo slide failed and the entire contents of the full silo fell onto the truck waiting below, which vanished under a mountain of scalding draff. Fortunately the driver was not in the cab. The water from the draff ran into the malt intake silo and thence into the engineers' bothy.

Jock Stevens was a stalwart of the Burma Star Society, and would often regale me with his wartime exploits. It seems his battalion of vertically challenged Scots were guarding a beach, and had been told that the Japanese troops were all small, with pebble glasses and bandy legs, and therefore no match for a bunch of Hearts supporters.

The Japanese landing ships duly arrived and, as the ramps dropped, Jock found himself confronted with the Imperial Guard, recruited from the north of Japan, and many six foot and more in height ... Discretion took the part of valour, which was why Jock could tell me this. But there were darker events that Jock did not tell me about: he never forgave the Japanese.

And of course there were the hops. Arriving in jute pockets from English farms stencilled with the names of Hawkins, Kent Goldings, Fuggles, and the heavy compressed ballots from Bavaria and Styria. All were lifted up to the brewhouse hop loft by means of a rope hoist: at each floor there was a hinged platform through which the rope passed and then the pocket or ballot in turn, lifting the two halves of the platform, which crashed back into place after the pocket had passed on.

Jock was also responsible for the hop store located in the old Deuchar's Brewery at Craigmillar beside the railway and opposite Drybrough's.

When the hop harvest came, Jock and myself and a couple of operators would go over there to stow the hops in a refrigerated cellar, all that was left of the old brewery.

Packaged hops were pretty much unknown. There were some hop pellets and isomerised hop extract mainly for use in lagers. But the hop grist was normally made up from five or six hop varieties to give the bitterness and aroma sought: Younger's beers were not heavily hopped, about 25 EBU. The copperhead operator would chisel lumps of hops from each pocket or ballot to make up the grist indicated in the grist line prepared by the brewery clerk from time to time.

The hops were mainly added at the start of the copper boil, with some late hopping perhaps 10 minutes before the end of what was normally a one-hour boil with a target evaporation of 3%. Hop extract cans would be opened and then put in a wire basket inside the copper. Each copper had an internal calandria topped with a Chinaman's hat, producing a spectacular boil that could be observed through the glass porthole.

I was then handed over to Jimmy Dolbear, the Pump foreman. Jimmy had a gammy leg often requiring him to use a stick, and would smoke a pipe whenever possible. Jimmy ran the bottom yard, where a small room full of mimics controlled the pumping of fermented beer from the FVs to MVs in the HMV (Horizontal Maturation Vessel) Room just to the west of the CTR, and also through tunnels under Holyrood Road to MVs in Park Stores, the kegging plant which consumed the greatest part of the Brewery output.

The HMV room was also the home of the reprocessed beer plant, where returned beer would be decanted, bowsered (a type of filter), pasteurised at 140F and stored in the HMV room until it was injected into the pumping brews. Oxygen control was pretty much unknown and the beer flavour showed it. But the duty regime subverted quality, alas.

Jimmy's team would also prepare isinglass, breaking down the swim bladders of exotic (and very large) tropical fish with citric acid supplied by Vickers. Not something to be done with a queasy stomach. Injector pumps pushed the finings into the pumping brews at a rate of one pint per barrel. Eventually liquid finings displaced this process.

And thence to the brewhouse, a semi-automated system with a wonderful mimic board. Having studied computing at Uni, working on the new and very powerful IBM 370, going round the back to watch the rotary controllers slowly revolving and tabs switching pumps on and off, other controllers with carefully profiled Perspex disks again rotating and controlling the flow rate of the Lauter Tun or the temperature rise of the cereal cooker, all this was quite fascinating to the geekish side of my nature.

After a whole week's training, I found myself having to run the brewhouse on my own after a brewhouse controller on another shift had a heart attack. Running the brewhouse was a little scary, but with the help of the copperhead operator Alec, somehow we coped. My functional training was completed by Henry and the tun room team who taught me the dark arts of wort running, tun cleaning and yeast pressing.

Life in the brewery was dominated by the shift system, a seven day continental shift system with eight-hour shifts except on Saturday when a 12-hour nightshift allowed the day and backshifts to work six hours each and both be able to have a Saturday night out. For the whitecoats, if there was a shortage of staff, you could find yourself working 12-hour shifts for a week or more, an exhausting process even if you were in your twenties.

In the depths of the Scottish winter, the shift pattern meant that you would not see daylight for six weeks or more, a literally depressing time of life. The compensation came in summer when, after letting the brewhouse controller away for a break, and dealing with the 0200 and 0330

attenuation boards, you could climb out of the Brewer's Office onto the Old East Tun Room roof and watch the sun rising over Bass Rock in the Firth of Forth, the sunlight illuminating the nearby basalt columns of Salisbury Crag.

Your eyes were enchanted by the changing impact of the sun's rays on Arthur's Seat. Sheep were still allowed to graze in the Queen's Park, and their bleats welcomed the start of a new day. But your ears heard something more fundamental, the sound of a city coming to life. The sound of bakers, milkmen, bus and train drivers, nurses and doctors, a secret army of people who, like yourself, toiled at unnatural hours to support a society which had no real understanding of why they could switch the lights on in the morning or the provenance of their breakfast bap. The bacon, slicing sausage and egg baps served in the Park Stores canteen were an essential lubricant of the brewing process.

The troops and their foremen changed shift at 6 am, 2 pm and 10 pm (12 noon and 6 pm on Saturday). The white coat brewers, later to be termed shift managers, changed an hour later, a very sensible arrangement to maintain continuity and typical of the Holyrood approach.

You were expected to be in the Brewer's office 15 minutes before the start of your shift to take your handover, usually a small scrap of paper noting the issues to look out for. Normally the brewery ran very smoothly. The departing brewer could leave with no worries, his successor slipped into his shoes.

Just occasionally things did go wrong.

I remember collecting a brew of PA in FVs 38/39/40 at the south end of the CTR. George Barclay, one of the browncoats, did his tun room patrol to check how the brews were fermenting. He came to me and advised that the FVs were very sulky. He had roused the FVs but still there was no yeast

activity, even after the brew was re-pitched. Everybody knew it was a race between the yeast and the bacteria now. And it featured on my handover.

16 hours later I came back on shift. As I came into the CTR the smell of parsnips told me the bacteria had won. We never did find out why the yeast had not multiplied. Frantic calls to the Edinburgh City Council ensued to ensure there was no one working inside the sewers before we sent that brew down to Seafield [the then sewage processing plant beside the sea].

"Rat across the busbars." This Potteresque utterance – from a very shaken instrument engineer as he stumbled out of the brewhouse – was the start of an interesting few days.

Said rat, of which only the head and tail now remained, was obviously a well fed creature with a fine taste for barley malt. It had managed to blow all the switchgear in the brewhouse as the rakes in the lauter tun were lifting preparatory to draff discharge, and the cereal cooker was gelatinising a charge of maize grits. Enzymes were hurriedly obtained to keep the grits liquid as the agitator was off, which also meant that the steam jackets had to be closed down.

The coppers were run on manual until the boil was complete, and then emptied by gravity. Discharging the Lauter tun was a "pig". This was not like a mash vessel. A wide flat floor, the presence of the rakes and the inability to get a purchase on the floor meant that the task of manually pushing the heavy draff to the hatches was a tough one. The temperature and humidity did not help. It took three days to complete, the draff developing a very sickly aroma as decomposition set in.

Normally however, the shift was a steady round of patrols of the plant, with a full attenuation board every four hours, and a supplementary board of a few FVs of interest. The brewhouse controller had to be let away for his "piece". Every week the troops received their pays in brown window

envelopes: as you sat in the brewery office afterwards, you waited until you heard steps coming, and there was Alphonse. "Brewman, my pay is two pence short." A coin is found to keep him happy.

And ceaseless monitoring of the process, the cleanliness and maintenance of the plant, and most pleurably, the team itself, who were like family.

Assuming a full roster, one week in four you could expect to be on normal office hours (8 till 6) on project work, but in particular, preparing the weekly and daily brewing and pumping lines for execution. The brewhouse could mash 60 brews a week and often did. Everybody knew where the jog button was which would allow a mash transfer to initiate a few minutes earlier than the automatics would have done: that was a good way to keep to time.

Ale brews were scheduled at intervals of 2 hrs 30 mins, Harp Lager at 3 hrs.

The brewhouse produced a range of, then normal, sweet and lightly hopped Scottish ales:

PA: 1030 Youngers Pale Ale
720 Brls brew length

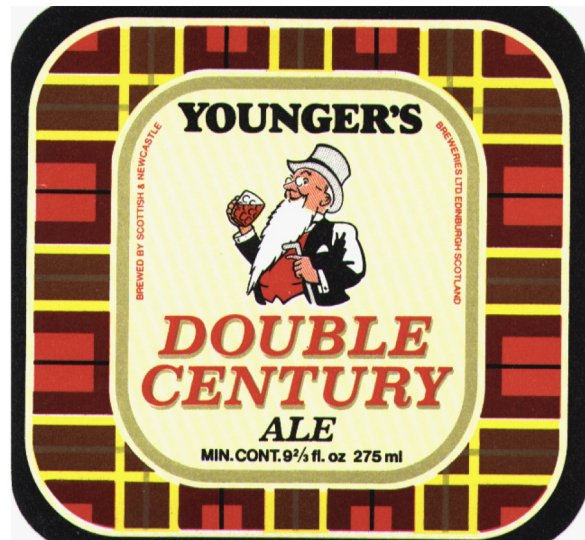
K5A: 1030 McEwan's Pale Ale
much darker than YPA and a favourite in the West of Scotland (and a favourite of the brewery as we could inject more reprocessed beer into the darker brew) 720 Brls brew length

XXPS: bottling 1036 Youngers Tartan Special 600 Brls brew length



M5/B: 1043 (later 1042)
McEwan's Export 480 Brl brew
length

DCA: 1050 Youngers Double
Century Ale, a dark sweet ale
to which significant quantities
of caramel and lactose were
added at the Grant in the
brewhouse. 240 Brls



3BR: A 1090 dark strong ale
nearly always brewed with a XXPS or K5A gyle (which was blended
away), and brewed in batches of three at the end of a brewing period
(usually at the weekend). This beer was prized as it was sent to
Antwerp to be bottled and sold by John Martin: you can still get this
"scotch" beer in Belgium, served in a distinctive thistle-shaped glass.
This beer would be simple to brew if you had a mash filter, but our
Balfour brewhouse with its ancient coppers struggled to get the
gravity up, especially to overcome any flush liquor left in the wort
mains. The brewing required the addition of significant quantities of
syrup and sugar for gravity purposes, with blocks of Irish Moss
added to the coppers, and a bottle of ferrous sulphate added to the
finished beer before it was loaded into demountable 120 Brl frame
tanks for shipment to Belgium.

Harp Lager: 1032 lager brewed as a decoction with a proteolytic 56C
stand and, like the ales, a 64C conversion stand, and I seem to
remember a third beta-amylase stand at 76C. Saaz and Styrian hops
were used: the ales were mostly hopped with the traditional varieties
from Kent and Hereford, though pelletised hops and even hop extract
might be used if the price was right. The smell of the hop store in the
copperheads was one of the great joys in life.

The Harp Lager worts were diverted before the Ale Paraflow room and sent on a long journey to the Milton House lager brewery. To keep Uncle Arthur (Guinness) happy a small proportion of the hot wort was filtered through a 170 Metafilter before being fermented for a week and matured in horizontal MV's for 2-3 weeks. The lager brews were programmed to be ready in the whirlpools when the Harp dayshift started at 6 am. Normally Harp worked double day shifts Monday through Friday.

MCL: McEwan's Lager. S&N struggled to compete with other keg lagers, especially Tennent's Lager. Our Sales force dismissed (a polite word) Harp lager as rather wet water, much to the fury of the Board. The Laboratory made proposals for a bottom fermented brew to be known as Brand X and a top fermented light coloured beer called Brand Y. The exothermic reaction from the Excise to the news that we were producing brandy in the brewery was a joy to behold. MCL was a favourite of the brewing staff, and a testament to the skills of the brewing staff in the widest sense.

The brewery itself depended on the reliable delivery of materials from all over the UK. Barley malt from nearby East Lothian, maize grits from Canada via Trafford Park, Hops from Hereford in pockets, Bavaria and Styria in dense ballots. And maize flakes to use in the first brew of the week, as these were already effectively gelatinised and could be added direct to the mash mixer, thereby removing the delay of cereal cooking.

With the exception of six 600 Brls conical fermenters, the brewery tuns were sized for the old brewhouse, not the much larger brewhouse, one which produced 84 quarter brews yielding 600 Brls at 1036. This reduced to 76 quarters off peak as HB removed wort syrup from the grist to save money. Barley malt was typically 75% of the grist.

The core brew-planning document was the weekly production programme, which was produced each Thursday. The programme had its starting point in the brewhouse and its end point in the Park Stores keg plant MVs. Sequencing of the brewing programme was an art in itself. The first task was to look at each fermenter to determine when it would pump. For planning purposes, conicals would empty after 6 hours compared with 72 hours for open tuns. Then the required brews had to be allocated to available tuns day by day and then by time slot.

There were fixed points.

Harp Lager brews: these had to be ready in the whirlpools when their day shift arrived at 6am.

3BR and other very strong ales such as E2B were brewed last of all because of the potential for lost time if copper boils had to be extended.

Dark brews such as K5/A and DCA were also positioned at the end of a brewing period – there were 12-hour cleaning breaks midweek and at the weekend – to avoid the risk of dark Lauter runnings held in the underback being injected into a light coloured brew.

The 600 Brls XXPSbtg brews were preferentially filled into the conical fermenters. These were much easier to fill and empty, and fermentations much quicker.

If conicals were not available, then the fall back was to fill five of the CTR 240 Brls vessels with two successive XXPSbtg brews, a task that demanded considerable skill on the part of the wort runners to ensure even filling of the tuns.

Excise duty was at collection of the wort in FV, not duty at the gate, as it is today. So beer loss in the brewery was not so much an environmental issue, as it would be now, but a straight financial one.

The Excise Officers laboured in the shadow of the Edinburgh United Brewery tax fraud and could be very pernicky. Filling five FVs from two brews evenly could be a challenge, especially if the pumping programme had not emptied five adjacent FVs. Woe betides you if the Officer found you levelling up the tuns before collection.

And of course there was the question of declaring the brew by using a dipstick to determine how many inches lay between the surface of the wort and the dipping plate located at the front edge of every FV. A gauge book was then consulted to find the relevant volume in gallons, and this and the dip was recorded in the Excise Book and the Brewing Journal.

You were taught to dry the dipstick carefully before making the dip, and to move the stick down gently until it just tapped the dip plate and to raise it smartly so that surface tension would create a meniscus around the dipstick and gain one or two tenths of an inch in favour of the brewery.

Of course the Excise were alive to this and used to check the dips and occasionally "raise you by a tenth". One day a rather humourless officer tried to do this to me on day shift. Unfortunately he did it just as HB arrived for his morning inspection. "What, what, this is a serious matter, young man", and the three of us processed to the offending FV, Henry looking at me and rolling his eyes to heaven Grommet-like: he knew what was going to happen.

A dry dipstick was summoned. HB took the stick and whacked it down onto the plate causing a sharp metallic sound, as you would expect. The stick is lifted and shown to me and to the officer. "What. What. Young man you have over-declared the tun by two tenths. A disgrace, go to my office at once and wait". And when HB does arrive, he ostentatiously moves his wedding ring back from his pinkie to the usual finger.

The Excise Office (see below) itself was situated on a bridge over the Canongate entrance to the main pend at Holyrood, and had a magnificent

view of the tun rooms and of course any unusual traffic between the tun rooms, but also all the dry goods and syrups entering the brewery. And a stunning view across to Salisbury Crag.



Many a time I would spend part of a Saturday back shift in that office having a blether and a beer (always 16 oz cans of McEwan's Export) with Frank Horton. He always thought I was trying to distract his attention from the pend, and sometime I was. Henry would raise his cap when the necessary adjustment had been completed.

And not just the Excise. It was not unusual for the beat policeman to drop by, the redoubtable PC (and later Sergeant) Jimmy Forest, an old-fashioned copper who had no compunction in giving a youngster a clip round the ear, or worse, taking the miscreant back to his mam for admonishment, especially if they had forced Jimmy to run. Jimmy was the Scottish Police hammer-throwing champion too. He must have saved a fortune in court fees, social work files, etc. Another great character in the Holyrood family.

And strangely, the fire alarms used to allow the Fire Brigade to occasionally pop by at the end of a night shift for a sharpener. They were very welcome.

One day, the phone rang. It was HB's oppo at the new and troubled computerised New Fountain Brewery at the west end of Edinburgh, which the staff at Holyrood (Younger's) referred to as McEwan's, not entirely kindly.

"Pat here, Richard. Stirling said it would be OK to call you. You know about computers, don't you? I would like to offer you a job as Senior Brewer in charge of Maturation, Filtration and Production Planning. We have a few problems to solve."

My life was about to change dramatically, and the effects continue to shape my life 40 years later. I had entered Holyrood as a child and was about to leave as a man thanks to the help and tolerance of all at the brewery. I had also left the brewery with a wife who I had courted discreetly under the noses of HB and the Technical Director. "What, what" says HB, as Jenny discreetly flashes her engagement ring at the weekly beer tasting in the bar next door to HB's office.

The place and so many of the people who worked there are sadly no more. Apartments and offices have taken the place of productive tun rooms and Brewhouses. But the spirit of Holyrood continues on, in the extraordinary number of young brewers, of both sexes, who worked tirelessly to produce the most imaginative and highest quality beers ever seen in the UK.

Beer and brewing in words

John Martin explores some unusual words associated with beer and brewing.

This collection of words and meanings that are associated with beer and breweries in Scotland have been contributed by numerous members, whose efforts are much appreciated. It includes many unusual words as well as ones which are no longer in use. The words are categorised under three headings - Beer, Brewery and Measurement - with an indication of some of the sources used.

Beer associated words

Barley wine (CAMRA web site)

Barley wine is a style that dates from the 18th and 19th centuries when the UK was at war with France and it was the duty of patriots, usually from the upper classes, to drink ale rather than claret.



Barley wine was a strong beer, often between 10% and 12%.

Dray (Collins Dictionary)

A low cart for transporting heavy goods.

Dray-horse

A horse for pulling a *dray*.

Dray-man

A man in charge of a *dray*.

Gruit

Beers of yore, the way beers were brewed using a variety of herbs for bitterness and flavour and popular before the extensive use of hops.

Heavy (Scots Dialect Dictionary)

A type of beer roughly equivalent to English bitter.

Howf (Scots Dialect Dictionary)

A much frequented tavern.

Inker-pinker (Scots Dialect Dictionary)

A small beer .

Inkie pinkie (Inveralmond Brewery web site)

An old Scottish term for light or small beer, which originated in Stirlingshire around the end of the 18th century.

Middle moy

Middle beer, an 18th century name used in Stirlingshire.

Quaff (Scots Dialect Dictionary)

A draught. To drink one's health.

Rumtumbling

Strong beer, an 18th century name used in Stirlingshire.

Shive (Collins Dictionary)

A wide cork or wooden bung; the stopper for an opening in a cask.

Skeechan (Scottish National Dictionary)

An intoxicating malt liquor produced in the later stages of brewing ale and formerly used by bakers in place of yeast; sometimes mixed with treacle or molasses and sold as a kind of beer (see also the short piece at the end of this article).

Spile (Collins Dictionary)

A small peg or plug, used to stop a hole; to make a small hole in a cask and drive in a peg (soft or hard peg)

Sting and ling (Scots Dialect Dictionary)

Sting and ring means to carry with a long pole resting on the shoulders of two people, while *ling* means to walk quickly with long steps. So perhaps the two expressions were brought together.



Wee heavy (CAMRA web site)

A Scottish term for a *barley wine*.

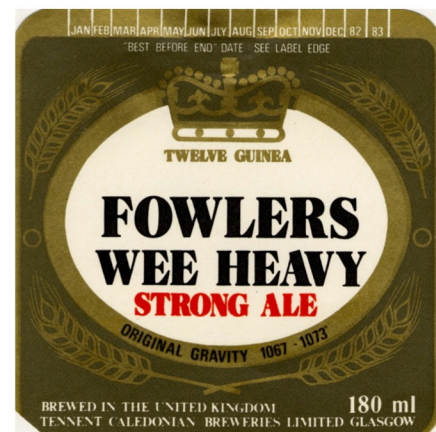
Yill (Scots Dialect Dictionary)

Old Scottish word meaning ale

Brewery related words

Brewster-wife

An ale wife.



Browst (Scots Dialect Dictionary)

A brewing, what is brewed at a time; an opportunity for drinking; a booze. This appears in many of Sir Walter Scott's novels, e.g. *Waverley*, *Redgauntlet*, and *Old Mortality*.

Browster

A brewer.

Cundy (Scots Dialect Dictionary).

A covered drain. The hole covered by a grating for receiving dirty water for the common sewer. This a term frequently used in the brewery, as in "wash the *fancy* down the *cundy*."

Flocculation

The phenomenon wherein yeast cells adhere in clumps and sediment rapidly from the fermenting wort in which they are suspended or rise to the top surface. The cells remove themselves from the fermenting medium either by going up the way into the yeast head or down the way and are sedimented out. You want this to occur after most of the fermentable material has been converted to alcohol. Some yeasts are low *flocculators*. Isinglass (finings) when added, aids *flocculation* by clumping with yeast cells to clear the beer.

Gauntrees or *gantress* (Scots Dialect Dictionary).

A wooden stand for barrels. The word *gantry* is derived from this and means a support for a barrel lying on its side.

Gyle (Scots Dialect Dictionary)

Wort; the vat in which wort is fermented; a tun dish.

Gyle house

A brewhouse.

Kimmen, Kimmin (Scots Dialect Dictionary)

A large shallow tub used in brewhouses

Parti-gyle

Splitting of strong, medium and weak worts to various fermentation vessels to produce variable ABV beers.

Pundie or *pundy* (Scottish National Dictionary - 1968)

A strong type of beer, the residue of the beer vats; a measure of beer, usually three pints, given free to brewery workers by their firm during working hours. The *pundie* quantity issued did vary by brewery, and the practice of serving *pundie* during working hours was discontinued by the 1970s.

The *pundy* was a stronger cousin of the later *skeechan* that was a popular refreshment on Sunday mornings:

"They drink baith punch and *pundie*". (1841)

"Nane were seen gaun doon the brae, to imbibe the cursed *pundie*". (1876)

"He's had owre muckle *pundie*". (1923)

Pundie-house

A brewery or the building where the *pundy* was dispensed.

Pundler

Various meanings, one of which is the instrument employed for weighing malt, meal, beer, oats and other gross and weighty commodities.

Scutcher

A paddle to stir the brew and sometimes used to beat down the fermenting head of strong ales, which tend to have a vigorous growth. One of the definitions in the Scots Dictionary is the purpose of separating the grain from the straw; beating out the grain, in place of pressing, or rubbing it out. A *scutcher* is represented on the crest of the European Brewing Convention.



Solid beer

Solid not because it is frozen but is under sufficient pressure to prevent the carbon dioxide from breaking out of the solution. This is important when moving beer and frequently occurs due to cavitation in the pump causing foaming.

Ullage (Oxford and The Free Dictionary)

The amount by which a container falls short of being full; loss of liquid, by evaporation or leakage; a brewery term for returned beer.

Velincher (commonly called a *flinch*)

Long metal tube used for sampling draught beer from fermenting vessels prior to racking into casks.

The following words were unique to specific breweries:

Beals dome

A trap (toadstool shaped) to stop yeast when emptying a fermentation vessel.

Common shore

Beer put to drain.

Fancy

Foam or froth.

Horn beer

Beer allowance or *pundie*.

Jack-back

Holding tank in a racking line.

Kimble

Dustbin shaped and sized vessel used for laboratory scale fermentation.

On-cost

A low strength Pale Ale.

Sinker

Chain operated sampling device.

Measurements

A. Imperial units of measure

Not all of the following measures were used regularly in the brewing industry, but many were required in official documents such as the Customs and Excise brewing book.

Beer Measures (after 1803)

Pin = 4.5 galls

Firkin = 9 galls

Kilderkin = 18 galls

Barrel = 36 galls

Hogshead = 54 galls

Hogget - a hogshead, a large cask or barrel

Butt = 108 galls

Dry Goods

4 Forpits = 1 Peck

4 Pecks = 1 Bushel

8 Bushels = 1 Quarter

Grain - A very small unit of measure. It was originally the weight of a grain of wheat or barley.

Weights

16 Ounces = 1 Pound (Lb.)

14 Lbs. = 1 Stone

2 Stone = 1 Quarter

8 Stone or 4 Quarters or 112 Lbs. = 1 Hundredweight (cwt.)

2240 Lbs. or 20 cwt. = 1 Ton.

B. Standardised Scottish measurements for fluids (Scotland's People web site)

Standardised measures were in place from 1661 in Scotland and were replaced by Imperial measurements in the 1824 Act of Parliament.

Chopin

Equivalent to about 1.5 imperial pints or 0.84 litres or 2 Mutchkins.

Mutchkin

Equivalent to about 0.75 imperial pints or 0.42 litres or ½ Chopin.

Nip

A small quantity or sip of liquor. A *barley wine* or *wee heavy* was usually packaged in a *nip* size bottle and contained about 6 fluid ounces (or 170 ml) and was close to a third of a pint.

C. Other measures, and drinking vessels

Golden gate

The same volume as a *hogshead* (54 galls) but more robust and was fitted with a *cran*, instead of the smaller *shive* hole. It was used for transporting bulk beer for bottling, prior to the use of the larger tankers.

Horn (Scots Dialect Dictionary)

A drinking vessel; a draught of liquor.

Pint-stoup

A vessel for holding a Scots pint. A Scots pint is equivalent to about 3 imperial pints or 1.7 litres or 2 Chopins.

Tappit hen (Scots Dialect Dictionary)

A Scottish quart measure of ale or claret; a measure containing three English quarts; a large bottle of claret holding three magnums or Scots pints.

Tass, or *tasse* (Scots Dialect Dictionary)

A cup, glass, a goblet.

Tassie

A small cup or glass.

Endnote

This article on *skeechan* appeared in the Edinburgh Evening News in 2011.

It was a Canongate institution, with sawdust on the floor and boxing posters on its walls. The Snug Bar, better known as the skeechan shop, was only open on a Sunday and closed in 1956 - but is remembered by many.

Here, Willie Struthers, 75, of Saughton, recalls the Sunday drinking den started by his grandfather and continued by his father, both also called Willie.

"It was started between the wars by my grandfather. It was opposite Moray House. It had a boxing ring in the back - the prize fighters from the El Dorado stadium in Leith used to come when there was nothing doing there for private bouts."

Later the shop opened at smaller premises, without the boxing ring, at Wilson's Court, opposite Canongate Kirk.

"There were no clubs or pubs allowed to sell drink on Sundays then, but the men wanted somewhere to go, to talk about the football and sort the world out. Skeechan was an actual brew, a very raw brew, but it wasn't

alcoholic enough to be termed an alcoholic drink. We made it and bottled it on a Tuesday and sold it on a Sunday."

The shop only opened on a Sunday - Mr Struthers' father was a window cleaner the rest of the week - from 9 am to 6 pm. The skeepan, which cost 6d a pint, was brewed using sugar, yeast and soap bark, which was bought from Napier's.

"That's what gave it its head," explains Mr. Struthers. Liquid yeast came from the brewery next door. "You got quite a nice brew. We bottled around 200 dozen bottles and it was hard work."

The shop closed in 1956 when Mr. Struthers father died at the age of 53 from cancer, although by then trade was declining as Sunday licensing laws had changed.

My memories of Craigmillar

Bill Brown provides part one of a fascinating insight into the brewing archipelago of Craigmillar.

Introduction

History, whether international, national or local, is often looked upon as academic, having little or no consequence in this day and age, but when you think about it, what has happened in the past has shaped our current day life-styles: who we are, where we live, what we eat, social interactions, recreation, entertainment, our plans for the future and so on.

From the era of the Craigmillar neolithic "Standing Stone" right through to the present day, history has left its mark on Craigmillar. The name Craigmillar can be traced to the Scots Gaelic "Craig Mol Aird", or Big High Cliff, taking its name from the 14th century Craigmillar Castle, one of Scotland's most impressive mediaeval buildings.

In and around Craigmillar

Wauchope and Niddrie, familiar street names within the area, relate to the Wauchope family who for generations owned the Wauchope Estate and Niddrie House, (also known as Wauchope House) which occupied the grounds in and around the Jack Kane Centre. Wauchope Estate would have been the "Downton Abbey" of its day and for generations owned and controlled the mining and farming rights in this area.

With the massive changes pulsating through the veins of society, especially in the early part of the 20th century, Wauchope Estate, as with many other great estates, gradually deteriorated and fell into disrepair; after a fire in the 1950s Niddrie House was demolished to make way for housing. Included in the Wauchope Estate were: the Mausoleum, Burial Ground, Ice

House, the family Chapel, scenic waterfalls and a natural pond, though sadly much of this is now gone.

Another familiar name in the area is Peffermill, which means a "mill on a dark and muddy stream", the stream being the Braid Burn. In Sir Walter Scott's novel *The Heart of Midlothian* Peffermill House of 1636 is said to be where the Laird of Dumbiedykes lived.

Another landmark within Craigmillar, now restored to its former glory, is the "White House". This art deco styled building was built in 1936 as a roadhouse, being one of many built during that time, including the Maybury at Corstorphine. These roadhouses, built and furnished to a high standard, provided patrons with "state of the art" surroundings, a variety of good quality beverages and food, along with the provision of games and entertainment including dances to live bands.

Industrial Craigmillar

Through the Industrial Revolution Britain became the powerhouse and workshop of the world, ruling an Empire on which "the sun never set". To quench the Empire's thirst the demand for quality beer soared during the 19th century. Due to an abundance of a natural underground water supply, Craigmillar became a major centre for the production of beer.

It was coal - "black diamonds" - that powered and fed the Industrial Revolution, but it was the railway that was the catalyst in all of this, enabling the market place to be extended with the speedy and reliable mass transportation of goods. The Edinburgh Suburban Railway, a subsidiary of the North British Railway, was connected directly to the East Coast Main Line, and, without this network of railways, Craigmillar as a centre of brewing and industry would not have thrived. Craigmillar was connected to the rail network in 1884. Two years later the first Craigmillar brewery was built.

In addition to the breweries and railway, there were other industries and businesses in the Craigmillar area, with many operating three shifts a day, and included the Klondyke Coal Mine and the Craigmillar Creamery.

The Klondyke Coal Mine (formerly known as the Ben Hur), a brickworks, a large coal depot, a coal bagging plant, were integrated and supported by an extensive railway network. There was also a quarry supplying raw clay to a nearby fire clay factory. In addition, Steels factory specialised in bathroom fittings and other ceramic products. In support of these industries there were many smaller to medium size businesses including blacksmiths, joiners, painters, and roofers.

The Craigmillar Creamery opened in 1855 (now the site of Lidl's supermarket) and one of their high-quality products was called "Apple Blossom" margarine. The coming of the railway to Craigmillar enabled the creamery to extend its horizons and take advantage of a much wider market. Apart from local custom, the bulk of the creamery's output was transported and delivered by rail. The Craigmillar Creamery was taken over by the famous Wall's Ice Cream Company but sadly after many years of providing high-quality produce and creating employment for local people, the creamery was closed in 1961.

However, during the 20th century it was the breweries that shaped Craigmillar.

The breweries of Craigmillar

Why Craigmillar, you may ask? Craigmillar was identified as an ideal site for breweries with its established railway connections, abundant supply of local coal and most importantly the availability of "hard" water, a must for Scottish beers, from the artesian bore wells. In addition to this was the added bonus of clean air, well away from the smoke and smells of "Auld Reekie".

As a result, seven breweries were built in Craigmillar, all during a 16 year spell and all located in an area of about one square mile. These were:

1. Murray's Craigmillar Brewery (later named Murray's No 1 Brewery)
2. Drybrough's Craigmillar Brewery
3. Deuchar's Duddingston Brewery
4. Murray's No 2 Brewery - The North British Brewery
5. T.Y. Patterson's Pentland Brewery
6. Maclachlan's Castle Brewery
7. Raeburn's New Craigmillar Brewery

In 1886 William Murray built the first of the seven breweries in Craigmillar and over the next few years, along with the Holyrood, Canongate and Abbeyhill Breweries, the area occupied by Edinburgh brewing clustered around Arthur's Seat became known collectively by brewers as the "Charmed Circle".

During the period up to the 1930s brewery workers travelled to Craigmillar mainly by train. However, with the ever-increasing demand for Craigmillar beers the desirability of workers living locally became obvious. At that time, and right up to the early 1960s, brewing was very much a labour-intensive process.

This need was met between 1930 and 1934 with the re-development of the St. Leonards area in the south side of Edinburgh and at the same time a huge housing development programme was taking place in Craigmillar. One of the planned outcomes arising from these developments was the relocation of part of the St. Leonards population to Craigmillar and with it a local labour force to man the breweries. In 1930 H.R.H. Princess Mary presided over the opening of the Niddrie Mains Housing Scheme.

At its height the combined brewing capacity of the Craigmillar breweries was approaching one million barrels a year or, to put it another way, 790,000 pints of beer each day, and that is a whole lot of beer. At that time,

the number of people employed directly or indirectly in the Craigmillar breweries would have been in the region of 2,000.

Entering the 1960s just about everything from fashion to steel was going through major changes and in 1964 the then new Prime Minister, Harold Wilson, described its effect on the economy in his "white heat of technology" speech. The brewing industry did not escape and, in what became known in brewing circles as "merger-mania", Craigmillar took a direct hit. Many of the closures were due to takeovers by other brewing companies and by 1970 only one brewery remained, Drybrough's. In 1987 Drybrough's (see below) was also closed and signalled the end of an era.



Today the industry, which dominated the Craigmillar community for so long, is now a thing of the past. The Craigmillar and Duddingston district

was renowned for its products the world over and produced a range of beers unrivalled for quality anywhere in the world.

Pattisons Ltd.

In 1895, Walter and Robert Pattison expanded their existing wine and spirits business into brewing and built the "Duddingston New Brewery". Although the Pattison Brothers stake in the brewery lasted only four years, their story was certainly unusual. The brothers were well known for their flair, showmanship and aggressive marketing techniques. Initially the brothers' entry into brewing appeared to be very successful, with annual figures backing this up, keeping the shareholders happy.

In general their marketing and advertising was head and shoulders above their rivals, but they also produced some dire material. One of their gimmicks was to provide their travellers (salesmen) with specially trained grey parrots that would squawk the praises of Pattisons ales.

Here is an advert that they placed in the 1896 Victuallers Trades Review:

| | |
|---|---------------------------|
| North, South, East, West, | South, North, West, East, |
| Pattisons ales are the best, | Pattisons at every feast, |
| East, West, North, South, | West, East, South, North, |
| Pattison's beer in every mouth. Pattison's calling praises forth. | |

Another outrageous and expensive marketing ploy adopted by the brothers would be to miss the Edinburgh train from Peebles deliberately and then hire a "one-off" special to convey them to the City. All of this was designed to squeeze out every ounce of publicity they could muster, with of course the press and media being informed well in advance.

The brothers lived "the life of Riley" occupying huge mansion houses, (Robert at Kingsmeadows near Peebles and Walter at Clovenfields near Galashiels) and entertained on a lavish scale. If the brothers had been

around today, the media would have given them headline treatment and pride of place.

In business Robert and Walter placed a great deal of emphasis on trade and customer relationships, and in pursuit of this designed within the brewery a Customer Reception area, known colloquially as the Sample Cellar, that had a Mediterranean feel to it and was fit to grace a Persian Palace. The roof consisted of a glass dome, supported by carved oak beams, allowing maximum daylight to be reflected into the room.

The walls were covered with ornate green glazed tiles with subtle intricate patterns bouncing off the incoming light, even on a dull grey day. In the centre of each of the four walls were high gothic-style arches encased with tapered amber coloured tiles. Of the four arches, one was mock, one was an open fireplace and the other two were entrance doors, one leading from the external driveway and the other from the racking cellar.

The flooring was a colourful mosaic that sparkled and reflected the light from above. On each corner of the mosaic floor there was a large letter "P" for Pattison, and in the centre of the floor was a circular pool about five feet in diameter with a free-flowing fountain that reflected the light from all around the room, giving the water a coloured appearance.

And if that was not enough there were four palm trees, in blue/greenish pots in each corner of the room, and placed between the palm trees were carved gantries supporting firkins (nine gallons) for each of the beers brewed, with their contents ready to delight customers.

Today, all of this, from parrots to fountains, may seem amusing, and certainly unconventional. However one must keep in mind that all of this took place at a time when business and life in general was very much subdued compared to that of today. Like any race or journey, starting off at too fast a pace can lead to the danger of running out of steam and sadly, that is what happened to Walter and Robert.

The annual results for the first three years of trading indicated a successful organisation securing the further raising of capital through successive rights issues, and all seemed well. However, unknown to the shareholders during this time, Pattison's had in effect been running a company that was overtrading, always owing more to others than was due to them. In other words, for quite some time Pattison's had been insolvent.

They got away with this for a few years but in the late 1890s there was a recession and, as with all recessions, unstable organisations soon became exposed, which is what happened to the brothers. Rumours started to spread about their financial stability and in 1899 these rumours materialised: a petition was filed and the Pattison brothers were declared bankrupt.

At trial, in addition to the bankruptcy, the brothers were found guilty of paying dividends out of shareholders' subscriptions and were subsequently jailed for fraud.

Robert Deuchar Ltd.

At the bankruptcy auction of Pattisons Ltd. in 1899 Robert Deuchar bought the brewery with all its advertising rights, lock, stock and barrel for the sum of £30,000. Robert Deuchar already had a flourishing brewery business in Newcastle and with his astute business acumen transformed the Craigmillar business into profit. In addition to the brand new brewery, he quickly spotted the attraction of the Pattison's promotional and advertising material.

Deuchar retained all the promotional and advertising material, changing only the name. He replaced the name Pattison with Deuchar and here is an example of this.



Deuchar also decided that the Customer Reception area should be turned into a general office, the palm trees were stripped out, the fountain dismantled and the pool cemented over. The huge lettering on the malting's rooftop that could be read from Arthur's Seat - R &W Pattison Ltd, Famous Duddingston Ales, was simply changed to Robert Deuchar Ltd, Famous Duddingston Ales. As was done with all other Pattison advertising material, a crafty move. After all of this, the only trace of Pattison that was left was the lettering "P" on the corners of the mosaic floor. Deuchar had no intention of wasting money on a new floor covering, and it lay there until the building was eventually demolished in the 1980s.

Following Robert's death, he was succeeded by his son Farquhar, who became the major family shareholder, and on his death in 1950 his shareholding was passed on to trustees. Numerous attempts were made to purchase the company, but in 1953 The Newcastle Breweries Ltd. (NBL) made a successful bid. Although under the ownership of NBL, Deuchar's continued to trade under its own name until 1960 when NBL and Scottish Brewers Ltd. merged to become Scottish & Newcastle Breweries Ltd. (S&N). after which the "writing was on the wall".

Towards the end of 1960 Colonel J.H. Porter, the Deputy Chairman of S&N and the creator of Newcastle Brown Ale (launched in 1927), came to reassure the workforce that all would be well. Standing on a barrel the colonel said with a very posh and plummy accent: "There will always be a Robert Deuchar!" There was loud cheering with bonnets being tossed in the air, and all seemed well. Colonel Porter's promise was sincere, but market forces beyond his control were to prevail and brewing ceased at Deuchar's some six months later.

The general office, complete with, sloping desks, inkwells, high stools and various partitions remained in place right up to 1962 when S&N closed the brewery. The maltings operation continued until 1970 and a few years later, apart from the office buildings, everything was demolished. Welcome Inns (part of S&N) occupied the office buildings until the mid 1980s when the entire site was sold to become part of the Peffermill Industrial Estate.

The seven Craigmillar breweries – gone forever but not forgotten:

On many occasions we have heard of the old saying "things come and things go" and this is certainly true of Craigmillar as a centre of brewing and industry.

Gone forever are:

The aroma of malt and hops wafting in and around the air.

The thick black smoke coming from the chimneys of the coal-fired boilers.

The constant hammering noises from the cooperages.

The constant movement and noise of the brewery lorries and beer tankers ploughing up and down the roads emitting petrol fumes.

The oily smoky smells belching from the steam trains, and the numerous wagons thundering up and down the screeching rails 24 hours a day.

For many years the combination of all of the sounds and smells created a characteristic atmosphere ever present within the Craigmillar area, but even so, the people who lived and worked there at that time would have been quite oblivious to all of it. Indeed many people I am sure will look back to this time with feelings of nostalgia, sad in the knowledge of an era that has gone forever. The neolithic Craigmillar "Standing Stone" has witnessed so many events and changes, both large and small during its lifetime – if only it could speak!

Last November an Exhibition was held in the recently refurbished "White House" in Craigmillar, Edinburgh, depicting the life and times of that area from the era of the neolithic "Standing Stone" right up to the present. From the mid 1880s to the 1980s the breweries of Craigmillar played a major part in the development of the area, and the industry was the major employer, all within living memory. To commemorate this period a request was made to the SBAA to provide information for a display within the Exhibition.

In support of the display Bill Brown submitted an article covering Craigmillar's heritage of brewing along with a brief backdrop of what was also going on at that time. Extracts have been prepared in two parts for the SBAA Journal. The first is included in this issue and the second, providing a brief history of each of the seven breweries, will appear in the next Journal. The breweries along with many other industries have disappeared. Gone too is the Wauchope Estates that for many centuries dominated the life and soul of the area. Nevertheless all of this has left its mark on the present day Craigmillar.

Many thanks go to Bill Brown who spent the first 3 of his 45 years' service with S&N at the Deuchar Duddingston Brewery. As well as Bill's personal perspective, the article draws on word of mouth, freely and gladly given from many of the then older employees. We hope that the slant on this "one square mile of brewing paradise" will be of interest.

Health and safety, or just survival?

Sam PLE Cran sheds light on the complicated question of health and safety.

Introduction

Health and safety has come a long way in preventing accidents, provided of course that it is not just a form-filling exercise. Therefore, taking due consideration of risk, training, and carrying out tasks in a safe manner help to keep the working environment free of tragedies.

For example, precautions before entering an enclosed vessel include padlocking the electrical starter motors of pumps and moving machinery, and then taking the keys in with the person entering the vessel. This is an excellent insurance against potentially dangerous machines being started inadvertently whilst someone is inside. It was not always like that and precautions have been developed resulting from learning from terrible accidents or survival after a narrow escape.

An illustration of the dramatic improvement in health and safety at work is that when a well-known Edinburgh brewery closed in the 1980s, production was maintained towards the end, with 50% of the work force being temporary. Not only did a dedicated team ensure that quality was maintained but accidents causing injuries were prevented.

Here are a few anecdotes taken from the memory tank of an ancient brewer based on the experiences of a very young naïve trainee and withdrawn from a sample cran near the bottom of the tank.

A religious experience

Sam the apprentice chemist had just been assigned to the microbiology laboratory for a spell to widen his laboratory brewing experience.

"Now that you have learned to prepare sterile swabs, take some over to the brewery and swab the chapel cooler."

"How and where do I find it?"

"Just ask a brewer and swab it right at the back and ask the brewer if it is empty."

The brewer, duly found, pointed to a set of stairs. "You'll find it at the top." And when asked if it was empty, he glanced at his watch and said "Yes." No mention was made of for how long!

The cooler was a great shining stainless steel construction, more cathedral-like than a modest chapel. A tall sloping steel roof surmounted the large shallow tray, designed as part of the process to allow the cold break to precipitate. The purpose was to allow condensation to run down into a gutter, thus preventing condensation drips from dropping into the sterile wort. This had replaced the old cooler, which was also a shallow tray and enclosed by chicken wire to keep out the pigeons. The modernisation was exactly opposite to the brewing techniques of the Belgian Trappist monks.

Better get on with the swabbing and whilst getting to the far end of the cooler the person wondered, what was the purpose of a large pipe he had just passed? Swabs were taken but then a strange roaring noise was heard. After dismissing thunder as a cause, an understanding dawned. A frantic dash back to the platform outside the cooler tray and an inelegant dive over the edge just as the boiling wort issued from the pipe, the purpose of which had now been discovered.

As Sam made his way back to the laboratory to plate the swabs and find out if the cooler had been properly cleaned he thought "this microbiology is rather an exciting subject!"

Complete sterility

Time to swab a bright beer tank. By this time Sam knew his way about and went off to find the bright-beer room supervisor.

"Oh yes, there is a clean tank for you to swab. Just go ahead yourself."

Now knowing the number of the empty clean tank, Sam found his way into the tank room and labelled the swabs, ready to climb into the tank in order to get representative samples from all parts.

There was only one small problem. The formalin lamp was still in the tank and burning. Now you may think of formalin in liquid form, with a sheep preserved in it for a gullible public to gaze upon, as an art form. Well, long before such esoteric practices, in order to sterilise a clean tank a formalin tablet was heated on a lamp to flash off a gas, which filled the entire tank with sufficient concentration to completely sterilise it. No one from the tank room staff could be found to help. To go back to the laboratory and admit to failing to get the swabs was a bit like having been sent for a long stand or for tartan paint and be the subject of mockery.

The solution was to take a deep breath and close the eyes and swab what could be reached. The eyes had to be closed tightly to stop them from nipping and watering. Then climb into the tank, lean out and take an even deeper breath and with the eyes shut feel the way to the far wall before emerging bug-free.

The results were always sterile because nothing could live in that atmosphere for long – not even young chemists. It never occurred to a gullible Sam that he could have got these sterile results without even entering the tank – but that would have been cheating!

One for the road

The Head Brewer was obsessional about checking that road tankers had been properly cleaned. After the Friday night shift had cleaned all the road

tankers the senior brewer on duty on Saturday or the shift brewer were under instruction to carry out the inspection. When it was the Head Brewer himself who was on duty he always insisted that the duty shift brewer accompanied him. The reason will become apparent.

It may be difficult to comprehend, but the tanks were cleaned by a person. Well, a man actually, because it was always a man in those days. It was before spray balls and the concept of cleaning in place had been developed. It was like climbing into a giant saucepan with a lid on and scrubbing it from the inside. The laboratory swabbed a few tankers but with the entire fleet to be examined a visual inspection was the practical solution.

Sam had moved from the laboratory by this time and when his Saturday shift coincided with the Head Brewer, inevitably only one ladder was available to get into the tankers. In order to avoid delays, which would result in a late visit to the sample room, Sam would volunteer to inspect the 60-barrel tankers. Road tankers consisted of a horizontal cylinder mounted on a chassis with an access door on the top side of the cylinder about the middle. The 60-barrel was of considerably less diameter than the 90-barrel tankers which definitely required a ladder for access but a fit young lad could drop into the narrower vessel and then haul himself out again without a ladder. The first few were fine, but as the inspection continued he would tire and really struggle to extract himself. However, he would carry on, not wanting to lose face in front of the boss.

The reason that the Head Brewer always wanted company was not that he shirked the effort of climbing in and out of the tankers. On one occasion a shunter hitched up the tanker he was in and moved it to another part of the yard. Everyone was highly amused to think of the Head Brewer travelling for some three hours to the North East of England inside a road tanker. Well, everyone with perhaps one exception!

In hell they'll roast thee like a herrin'

We are all familiar with the brewing material roasted barley but I wonder how many of you have operated a roaster? There are plenty of scientific papers on the reasons for using roasted barley in the grist but this account is more about the conditions in the dark satanic industrial processes practised more than half a century ago.

The head maltster sent young Sam to learn how to roast barley. He explained that the operator was extremely well skilled but the extract efficiency had fallen off recently. He hoped that Sam's presence would act as a challenge to show off the roaster man's skills and thus improve extracts as well as giving Sam some practical experience.

Consider a large cylinder, a very large cylinder indeed, lying more or less horizontally. Located below it a giant gas poker rather like the design of the burner in the grill of a gas cooker. The drum is charged with barley and set rotating before lighting the gas. The concept of rotating drums and heating to drive off moisture is well understood in the malting industry but the excitement comes in judging when the roast is ready. Samples are taken with increasing frequency as the optimal stage is reached. It is very easy to go over the peak and lose both extract and colour. Rubbing the corns between finger and thumb and looking for clumps of corns blistering into a hot black plastic material that burns and sticks to the fingers tells you that it is nearly ready. Things start to move fast now. A slug of cold water is introduced via a central sparge, the angle of the cylinder tilted and a lever moved to open the door allowing the now blackened barley to spill out onto the floor. Standing in the stream of hot barley wishing that his malt shoes were better insulated Sam is instructed to shovel the black steaming grains and spread it thinly over the floor. In spite of burned fingers he is motivated because if the heap gets too deep at that temperature it can all catch fire.

Now roasted barley when ground smells a bit like coffee. It is also great in beer but the fumes, which arise as it spills out of the roaster, are horrible. Acrid almost describes it but acrid multiplied a thousand times! That smell penetrated all Sam's clothing. Even on the smoky top deck of an Edinburgh bus of those days, the smell clinging to his clothes created a miasma which could leave him in splendid isolation on his journey home.

After two weeks Sam could carry out roasts by himself and the extract efficiency did improve so the objectives had been achieved. However, all Sam's working clothes went into the bin. No amount of washing could remove that smell and it remains in his nose yet.

Back issues

Back issues of the journal are available from the Secretary, 13 Park Place, Stirling, FK7 9JR

Prices include postage and packing in the UK, and cheques should be made out to the Scottish Brewing Archive Association.

| Number | Non-members | Members |
|---------------------------------|-------------|----------|
| Volume 1 | Sold out | Sold out |
| Volume 2 | £4 | £3 |
| Volume 3 | £4 | £3 |
| Volume 4 | £4 | £3 |
| Volume 5 | £4 | £3 |
| Volume 6 | £4 | £3 |
| Volume 7 | £4 | £3 |
| Volume 8 (Very limited numbers) | £6 | £5 |
| Volume 9 (Very limited numbers) | £6 | £5 |
| Volume 10 | £4 | £3 |
| Volume 11 | £4 | £3 |
| Volume 12 | £4 | £3 |
| Volume 13 | £4 | £3 |
| Volume 14 | £4 | £3 |

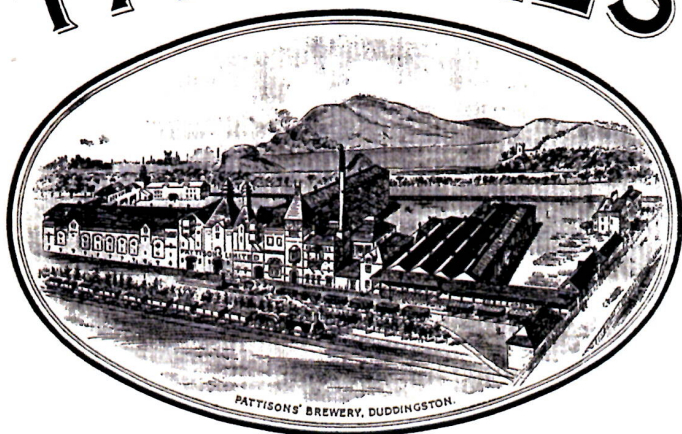


web: <http://www.scottishbrewingarchive.co.uk/index.html>
facebook: <http://www.facebook.com/ScottishBrewingArchive>
email: info@scottishbrewingarchive.co.uk

PATTISONS'

CELEBRATED

PALE ALES



AND STOUT

• PATTISONS' BREWERY •
DUDDINGSTON · EDINBURGH

£4