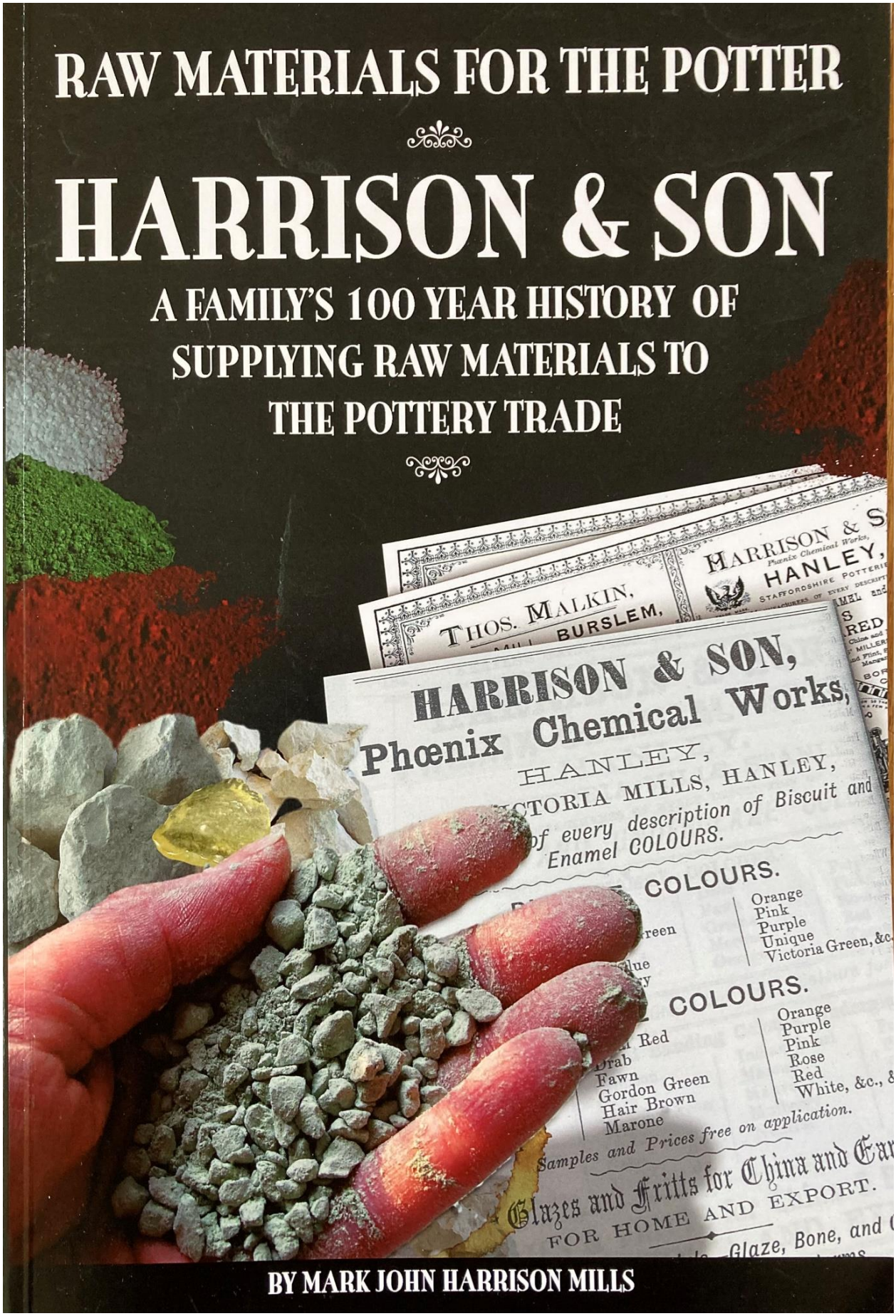
RAW MATERIALS FOR THE POTTER
HARRISON & SON
A FAMILY'S 100 YEAR HISTORY OF SUPPLYING RAW MATERIALS TO THE POTTERY TRADE
THOS. MALKIN, BURSLEM,
HARRISON & S
HANLEY,
HARRISON & SON,
Phœnix Chemical Works,
HANLEY,
of every description of Biscuit and Enamel COLOURS.
COLOURS.
Orange
Pink
Purple
Unique
Victoria Green, &c.
COLOURS.
Orange
Purple
Pink
Rose
Red
White, &c.,
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Gordon Green
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Samples and Prices free on application.
Glazes and Fritts for China and Ear
FOR HOME AND EXPORT.
BY MARK JOHN HARRISON MILLS

Raw Materials for the Potter

HARRISON & SON

A family's 100 Year History of supplying raw materials for the pottery trade

by

Mark J. H. Mills

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With Compliments

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CONTENTS

ACKNOWLEDGEMENTS

Having been retired for some fifteen years, I had received many suggestions that I should write down something of the history of the family business. My initial reactions were to dismiss the possibility through the lack of both material and inclination. However, two people maintained a degree of persistence, first my friend and old work colleague John Booth and second my cousin Sarah Jealouse. I am indebted to them for their persistence. John Booth has great interest in all things "Hanley" since he was a past Chairman of the Potteries Postcard Society and had already received many old photographs relating to Harrison & Son previously in my possession. He has also now been the author of three greatly illustrated historical books about Hanley and its environs. Hence I am pleased to retrieve from him many of the photos for this book and to tap in on his experience of publishing books; as well as his interest and knowledge of the Harrison family business.

Two ex "Harrison" colleagues and occasional "pie-and-pinters" who have offered encouragement and assistance to locate and remember other Harrison folk are Bernard Whittaker and John Bailey; and another with much information and experience for me to tap into is John Bebbington, still living in Victoria House where he was born at what was Stanley Mill. But also my thanks to those others contacted, who have written down and given me various contributions as included in Part II of this book.

I have also to acknowledge and thank my wife Vivienne, not just for putting up with the blank moments, me at the computer, but also for checking over my grammar and many of the frequent nonsense bits.

For a source of interesting and valuable information, as well as providing a vast eclectic background to The Potteries, I have to thank Steve Birks for his amazing website www.thepotteries.org . Not only for the information gained and material included in this book but also for many of the other items I have been able to peruse, giving me an excuse to wander elsewhere instead of getting on with my task in hand.

The Author
Mark John Harrison Mills

I was born in1938 just before the start of the second world war. There are many things I recollect from early childhood, but the significance of most was not realised until much later into adult life and beyond. Mother was a vegetarian (never knowingly ate meat during the whole of her 100 years), as were two of her three brothers. Influenced by their mother Nina Harrison (nee Pidduck), who was greatly troubled seeing cattle and other livestock being herded to an abattoir near Shelton in Hanley. I am sure that I would have loved my grandmother, but sadly she died from some form of throat cancer the year I was born.

My awareness of war manifested in so many ways. Ration Books (and to a small boy the importance of sweet coupons); occasional food parcels received from friends in Australia; the brick built air-raid shelter in the garden (we lived in Sandy Lane, Newcastle), where we were considered to be particularly vulnerable to German bombs destined for Shelton Bar; men removing iron railings to go for the war effort, and no doubt many others I could recall.

My parents had built their house on land adjacent to my grandfather which had been part of his property, a large Victorian house on The Brampton. I knew of "the family business" making colours and glazes and of "The Potteries" at a very early age. My father was exempted from call-up, and acted as an air raid warden based at Keele! He worked for the family business in Hanley, Monday to Saturday; though Saturday was normally till lunch time; as did my grandfather, Arthur Harrison. My mother's three brothers were enlisted to fight during the war. Another early recollection relating to the proximity of German bombing raids was that my parents rented a small cottage in Ashley. If a raid was likely or forecast, then we would drive to the cottage or sometimes spend the weekend there. This of course had to be carefully organised due to the rationing of petrol. The cottage was very basic with a privy down the garden and water from a pump by the back door. I think it must have been on a farm complex because I remember an assortment of several farm animal types, particularly chickens everywhere, though I don't think they actually came into the cottage.

The close proximity of my grandfather's house and its gardens was an amazing luxury I did not, as a very small boy, appreciate at the time. I would spend hours riding my tricycle in the grounds and playing in the bushes. My grandfather had married again and my step grandmother was long suffering and kind to my running in and out of the house.

I was one of eleven grandchildren for my grandfather, of whom three were boys. Somehow as time progressed I was the only one who showed any inclination towards going into the family business. However, having gone through schooling, university and then national service, by 1962, the time I started with Harrison & Son (Hanley) Ltd., the family was in the process of selling to what eventually became Cookson Group plc.

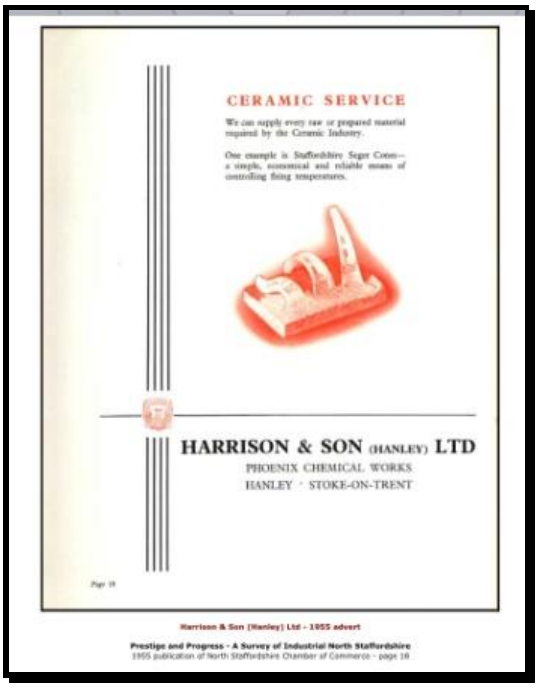
My own career started with so many people who were, in some cases, long serving employees and loyal servants of the Harrison family. I learned much of what the business involved and soon realized the complexity of so many inter-related activities to service the needs of "the potter".

From the mid 1960's, our parent company was Goodlass Wall which was more widely known as paint manufacturers. Other major activities within the then holding company involved non-ferrous metals, principally lead smelting and reclamation, hence the name soon changed and became Lead Industries Group. In Stoke-on-Trent other ceramic supply companies were merged into LIG. E.W.T.Mayer, Podmore, Wenger, Ramsden's, Hargreaves Mill, George Edwards. This gradually meant that what became the Ceramic Division was spread throughout the Potteries, occupying and operating on many different manufacturing sites. A new green-field twenty acre site was developed on what was the aerodrome at Meir, and many, if not all of the various activities, were brought together. For Lead Industries Group "lead" (being increasingly linked with it's poisonous effects), in health and safety circles, was becoming a dirty word. Hence, the body corporate changed it's name and became Cookson Group. Roland Cookson had been LIG chairman, and his family business processing antimony had been one of the original group activities.

I spent several years as manager of the Joiners Square factory. Processes included flint calcining, crushing and milling raw materials, preparation of various Pottery Body and a large department smelting a range of ceramic frits. From 1973, I moved to developing and setting up a modern new factory in Italy, making colours and glazes. I remained there permanently for three years before returning to the Meir Works. Later, I became interested and involved in the liberating energy markets, principally in the UK. I was eventually given corporate appointment from head office in London, as Group Energy Advisor. This also involved setting up and negotiating substantial group contracts for gas, oil and electricity.

I gained an early retirement in 1997.

My children are Paul and Kirsty, also Katie and Georgina. I hope this bit of background to their family history will be of interest and value for them.



Harrison & Son (Hanley) Ltd - 1955 advert

Prestige and Progress - A Survey of Industrial North Staffordshire
1955 publication of North Staffordshire Chamber of Commerce - page 18

Preface and Introduction

There are many books written about Pottery. It's history and development throughout time; from ancient times through the middle ages and to the Industrial Revolution and mass production. North Staffordshire in particular became the centre of excellence for British pottery, and much has been recorded about a large number of pottery manufacturers. One major aspect of support to the making of pottery, of which little appears to have been written about or published, is of the raw material processors and the suppliers who enabled many of the later potters to set up in manufacturing. Most of the larger potters from early in the 18th century set up and developed their own requirements in this respect. However, as the production of pottery-ware became more sophisticated through a wider use of raw materials, having to be imported from outside the area, many of these materials essential to developing techniques, needed specialist preparation.
There were several such suppliers throughout The Potteries and most were identified as “Suppliers of Colours and Glazes”. But there were also needs for calcining, crushing and grinding of materials essential for the preparation of the various ceramic bodies. Though many potters prepared their own clay body - invariably with closely guarded and secret formulation - others would go to specialist suppliers for some or all of their body needs.

THE HARRISON FAMILY BUSINESS FROM circa 1860's in it's early beginning, up to 1963, was one of the larger suppliers, in Hanley. In 1962, the family sold out (as a successful fully operational activity) to Goodlass Wall. Goodlass Wall was later to become Lead Industries Group and then later still Cookson Group. With the acquisition of several other similar businesses in Stoke-on-Trent, Cookson built a new state-of-the-art factory at Meir on some twenty acres of the old aerodrome adjacent to the existing Staffordshire Potteries. The new plant became operational in early 1970's and traded as one of the largest suppliers for the next twenty years, leading to merge and joint venture activity with Johnson Matthey, as Cookson Matthey. Sadly by 2000 business failed and the Meir site closed and has now been cleared.

This book will document the developments of a family, and it's business activities, relating to the supply of raw materials to the Pottery industry, over a period of almost one hundred years, up to the early 1960’s.

Until the early 1700's those early potters producing their wares in whatever form would each have been largely sourcing and preparing their own material needs on a local basis. Early English pottery decoration was limited to the skill of individuals using a relatively small range of clays, glazing method and colouring agents. Apart perhaps from various limited colouring oxides, principally from lead, iron and copper, the use of more ambitious colours and decorating technique was being influenced from abroad. With the rapidly increasing demand for pottery wares, the Industrial Revolution put pressure on the potters to concentrate on their art to satisfy the demands of their customers.

Pottery Manufacture & Industrial Growth in North Staffordshire

It is well known that the making and use of pottery items can be traced back to primitive existence of man. Shaping clay mixed with water into useful items. Cups for drinking, bowls for eating, or bricks and tiles for building; all of which when baked by heat, retain a level of permanent shape for their practical use. The type and consistency of the clay and the application and level of heat treatment are critical to the quality and type of the finished shape. The infinite variety of the clays and other raw materials lead to both the simplicity and to the complexity of pottery production through the ages.

Prior to the eighteenth century, pottery making had occurred in many parts of Great Britain. There were variations according to the local availability of raw materials, and of the fuel to fire the pots. Local knowledge and tradition also played great influence where medieval governance dictated the environment of the artisans and their creative developments. New ideas and techniques brought changes with the experimentation of different materials. Then, as now, once the finished articles were achieved as desired, all further reproduction demanded both consistency of raw materials as well as method and conditions of making.

There is a notable difference from simple or artistic pottery, through to the other end of the spectrum to industrial and mass produced pottery. On the one hand the whole process is an art where every individually produced piece is subtly different from the next. Whilst moving towards industrial and mass production there is a demand for consistency of product, where the process is developed with close control techniques and the whole operation tends to become nearer to a science. But no matter how much potters have tried to maintain a control over their raw materials and the conditions pertaining to manufacturing process, pottery making has never succumbed to pure science. For pottery, in whatever it's final shape or decoration, the artistry has invariably predominated.

Art pottery is easily and well defined as unique to the artist potter, and the materials and conditions from which it is created. Articles such as vases, bowls, statuettes, and in more modern times all sorts of abstract shape, are usually made in an artisan environment and are easily handled. In this sense every item produced is unique. Other types of pottery manufacture can include tableware, ornamental ware, sanitary ware, wall tiles, roofing tiles, bricks, industrial and electrical porcelain. Here the object of the potter is to produce volume of ware with closely controlled physical property and identical shape and colour match. Again there are many variables in the type and make-up of the pottery or ceramic body. For example, earthenware, chinaware, bone china, stoneware, ironstone and porcelain.

Wherever in the world pottery has been made, in earlier days two factors predominated. First the type of ware will have been dependent on local clay materials and the means to decorate. Secondly, on the availability of fuel. For the firing or heat treatment necessary to the process, so fuel is needed, along with some sort of device or construction in which to place the items and create a space of high temperature in which to "cook" the pots. More recently we are familiar with technically efficient, controllable and environmentally friendly use of fuels like oil, gas and electricity. However, it was not so long ago, when the only option was to fire the pottery in brick built kilns, by using a ready supply of wood or coal. In very early primitive times, shaped items were baked in the direct heat of the sun which might have given a short-term rigidity, but would not be sufficient to change the physical and chemical structure of the pot for a permanent and practical use. So it was that the ingenuity of man devised all sorts of pottery kiln or oven.

Much has been written and recorded about the establishment and growth of the pottery industry in North Staffordshire. Various marl and clay deposits were there near the surface to dig up, along with high quality coal deposits to provide the heat for the kilns. Several early entrepreneurs (Josiah Wedgwood comes firstly to most people's mind), but many others were there from the late seventeenth century; each with their own particular style and renown.

The quest to grow and expand brought finer and whiter clays transported from Devon, Dorset and Cornwall along with other bulk requirements such as flint pebbles, sea washed from coastal regions. Also for the more sophisticated pottery-ware developments, natural quarried minerals such as stone, quartz and feldspars. The latter were transported as quarried rock and needed to be mechanically crushed to a granulated size and thence wet milled to the powder size, suitable to mix and integrate with clay to make a pottery body for shaping, glazing and decoration. So it was that the potential and opportunity developed from the early days of the yeoman farm potters. Rapid growth through the ”industrial revolution” lead to a formidable concentration of pottery producers in North Staffordshire as existed towards mid to late 1800's.

Thus it was by mid to late 1770's canals (Trent & Mersey and Caldon) facilitated demands to import these raw materials to the area. They also provided a safer and much needed means of expediting finished goods to other parts of the country, or more importantly to Liverpool for export abroad, particularly to North America. As rail transport developed, more or less at the same time as canals, rail links were also built which helped facilitate the demand for increasing tonnages to be moved. Perhaps there was an element of competition for business between rail and canal, but since most of the owners of the railways also owned the canals it was the speed and increased mechanisation at the railheads that finally dictated the commercial demise of the canal barges in the 1950's.

Similarly, coal mining had taken great strides, because of the demands, not only in North Staffordshire for the Potteries, but generally, and in coal fields in many other parts of the country. The demand for coal was also driven by power stations for the increasing use of electricity.

Up to the 18th century, potters would procure their raw materials as were available, to make their wares. It was not generally until early 1800's when the crushing and grinding of the wider range of material requirements gradually became a specialised industry that early entrepreneurs set up to supply different customer potters.

For those readers who have no real knowledge or concept of making pottery, it should be pointed out here that the raw materials can be considered in three separate (though interlinked) types:-

Body materials, where clay (e.g. ball clays & china clays) are mixed with ground filler and fluxing materials (e.g. flint & stone or feldspar) to make the body shapes.

Glaze, which is the impervious glass layer coating. Glazes can be transparent or opaque, where colour may be white (hundreds of different "whites") or cream, or coloured with colouring agents included in the prepared glaze before application.

Decorating materials. Colouring oxides applied by a myriad of technique to give a desired result. Processes for decorating may be as underglaze, or on-glaze (enamel colour), or as in-glaze (coloured glazes).

- o - o - O - o - o -

My book is presented in three parts:

Part I relates specifically to the Harrison family business, from is beginnings and the involvements leading to a growth to become a major supplier both locally and worldwide. From a sizeable family there were also family developments. The turbulence brought about through two world wars had interesting and mixed fortune in developing interests – not always with harmonious result.

Part II is devoted to Recollections and Reminiscences. As it implies, some of the people employed by or who knew Harrisons' prior to 1961, have made a contribution. Had I started this, year's earlier, there would have been so many others who would have gladly made contribution, so I am grateful to the dwindling few.

Part III covers all the aspects of the raw materials used and their preparation. Changes in process and environment have taken place over the years and developments with time are indicated. But the essential processes for making pots remains the same as it was for those early potters. It should be appreciated, however, that many of the changes have been driven by the need to improve "health and safety" of both the pottery workers and the general public using the products made.

Mark Mills

PART I

Harrison & Son.

This Harrison, was William Richard Harrison, born (in Spalding, Lincolnshire) November 1820. His father was a draper. In August 1843, he married Elizabeth Williams Neale, daughter of Thomas Clarkson Neale, who had the distinction of being the first governor of Chelmsford Gaol (still operational nearly 200 years on), a post he held remarkably for forty years. Thomas Neale was also instrumental in the creation of the Chelmsford Museum, which is still popular and active today. The circumstances of William Harrison meeting with Elizabeth Neale are not known, but it can be assumed that they were married in Chelmsford and first lived together there, since it was the birthplace of their first child, Thomas William on 22nd August 1844.

William Richard Harrison progressed as a successful business man, initially as what was then known as a "dry salter" (*– a dealer in dyes, gums and drugs).* Later, his dealings were more as a supplier of chemicals for a range of various activities, including pharmaceutical requirements. It was recorded from the census in 1851 that he lived with his family in Dorking, in Surrey, with his occupation as a "chemist/druggist". It is interesting to see, that later in the census for 1861 (age 40) he was living in Banbury and referred to himself as "Wholesale Druggist Soda Water Maker, employing 4 people." In a later census he gave his occupation as "Estate Agent". His financial successes evidently lead to him acquiring property.

His life as tracked through census records show:-

Census.	His age.	Location.	Given occupation.
1841.	20.	Queen's College, Oxford.	Scholar
1851.	30.	Dorking, Surrey.	Chemist / Druggist
1861.	40.	Banbury, Oxfordshire.	Chemist, Druggist, Soda Water Maker
1871.	50.	Uxbridge Rd., Chelsea.	Estate Agent
1881.	60.	Tottenham.	Manufacturer

A further indication of his movements relate to a silver tea service on which is inscribed:-

"W.R.Harrison Esq., on his resignation as Deacon & Treasurer of Oaklands Church, Shepherds Bush. December 14th 1877"

It is likely. that his continued business activities, lead him to move himself and his family to London in 1870. They had a sizeable house in Uxbridge Road, Chelsea, thus not far from Shepherds Bush. Also noted, is that his 78 year old father William Wakefield Harrison, was living with them and shown as a retired Draper.

William and Elizabeth Harrison had 12 children:-

Thomas William	b. 1844 – 1909	Died age 65	born in Chelmsford.
Susan Elizabeth	b. 1847 – 1858	Died age 11	
Richard Neale	b. 1849 – 1849	Died in infancy	
Neale	b. 1850 – 1918	Died age 68	born in Dorking
Emily Mary	b. 1852 – 1925	Died age 73	born in Dorking
Helen Margaret	b. 1853 – 1858	Died age 5	
Alice	b. 1855 – 1858	Died in infancy	
Charles Wakefield	b. 1857 – 1947	Died age 99	born in Brixton
Edith Sarah	b. 1858 – 1869	Died age 11	
Frederick Ashall	b. 1859 – 1940	Died age 81	born in Banbury
Arthur	b. 1861 – 1862	Died in infancy	
Frank Edward	b. 1863 - c1900?	Died age < 40	born in Banbury

*Family tree of descendents of William Richard Harrison – **Appendix I**

Thus, his eldest son, Thomas William, was the “Son” in **Harrison & Son**

Of their twelve children, six only reached adulthood. Frank, the youngest, also died before he was aged 40. He was known to have married Eliza Riddlesdell and they emigrated to Australia. In the 1881 census he was living with his parents aged 17 and his occupation shown as "traveller". Frank and Eliza had two children, then, whilst in Australia, a third was born, before what must have been his tragic early death. His widow Eliza, returned to England with her three children, then eventually moved and settled in Canada.

It is known that Thomas William, after leaving school, went to work in Ipswich, for the uncle of Leonard Grimwade, who was of similar occupation to William Harrison. Leonard, though much younger than Thomas Harrison, later became notable in the Potteries and was known to have similar views and political leaning. It is thought, that Leonard followed his older brother Sidney, to Stoke-on-Trent. The Grimwade brothers later started their pottery business, Winton Pottery in Stoke in 1865.

Thomas William Harrison, probably moved from Ipswich to Hanley in 1863, when he would have been aged 20. It is recorded, that he worked for or with John Gerrard in Bath Street, Hanley. John Gerrard would have been aged 70 at this time and identified his occupation as Colour Maker. Previous reference shows John Gerrard not only as a colour maker, but also as a Flint Grinder, at Bucknall Mills. It can reasonably be assumed, that John Gerrard taught Thomas Harrison all aspects of milling, grinding, colour and glaze making.

At Bath Street, in Hanley, there existed a sizeable factory premises making colours and glazes. It is noted that John Gerrard lived with his wife and daughter at 9, Bath Street. Also it is known that Thomas Harrison lived at 21, Bath Street, situated by the work’s lodge and entry to the works premises. Housing on Bath Street was terraced. No. 21 was one of the larger ones since it extended over the lodge and works entrance. Thomas continued to live there, with members of his family and until after he was married (1869) until 1874. It is logical to assume from copy of an original document (fig. shown), that the factory belonged to a Mr Joseph Wooliscroft Goodwin, where John Gerrard was Colour Maker. It is likely that through his business activities William Harrison had already made connections in the Potteries, part of which were for his son's accommodation and apprenticeship.

Whilst initially in Hanley, as a young man, Thomas involved himself in various activities. But his non-conformist religious background as a Congregationalist, lead him quickly down the road to the Tabernacle Church in Hanley. There he became what we would understand, as a lay preacher and a keen instructor, working with some of the young people. He also joined the Hanley Liberal Association. It is possibly through his contacts there, that he met and became a close friend of Spencer Green, son of Thomas Green, who was Chairman and owner of Crown Staffordshire Porcelain Co. of Fenton. He became a friend of the Green’s and it was through this that he developed a relationship with Mary Ann Green, sister to Spencer.

[Later in 1903, the Green family business was incorporated as a limited company and became Crown Staffordshire Porcelain Co. Ltd., with Thomas William Harrison as Chairman.]

During Thomas's three to four years of what might be assumed to be, a time of apprenticeship, William Harrison was evidently preparing the way to buy the business. The works and premises in Bath Street was called the **"Phoenix Chemical Works"**.

It is recorded and known, from the following document, here shown, that William Richard Harrison bought the “Phoenix Chemical Works” from Joseph Wooliscroft Goodwin along with the rights and activities relating to the Stanley Forge Mill, adjacent to the Caldon Canal near Stockton Brook. His intention was that his oldest son Thomas, living locally, was to take on the day to day running of the business, which would later provide employment for his other younger sons, as they became of age.

HARRISON & SON [Copy of wording from the original document of indenture. 1867]

Memorandum of agreement made and entered into this fifteenth day of February One Thousand Eight Hundred and Sixty seven between Mr Joseph Wooliscroft Goodwin of Bath Street - Hanley of the first-part-and William Richard Harrison of Neithrop Villa Banbury Oxon. of the second part.

The said J.W.Goodwin agrees to sale and the said W.R.Harrison agrees to purchase the Business of a Merchant dealer & Manufacturer of Potters Colours and Glazes both Wholesale and retail in Hanley and elsewhere and the Grinding Business at his Mill Called Stanley Forge Mill upon the following terms and Conditions - For the Lease of the House & Goodwill of the said Business and all recipes used by the said J.W.Goodwin in his Business and to instruct the purchasers therein and in all other matters relative thereto to the best of his ability for the sum of One Thousand pounds - Fixtures Erections Machinery Tools Kilns and fittings. Horse Cart & Dog Cart (but not the Phaeton) at a Valuation to be made on or before the twenty fifth day of March next - the stock in Trade to be valued by the parties themselves the machinery and plant to be valued by two parties appointed by the vendor and purchaser and in the event of their disagreement by their umpire - It is agreed by the said parties that the amounts of Goodwill and valuation shall be paid in the following manner by the said W.R.Harrison - One Thousand pounds upon taking possession and the balance of Goodwill and Valuation by an acceptance falling due twelve months after date of taking possession. It is also agreed by the said J.W.Goodwin to grant and by the said W.R.Harrison to accept a Lease of the Stanley Forge Mill with Cottage and paddock adjoining for the terms of 7, 14 or 21 years terminable at the option of the said W.R.Harrison at either or any of the above dates by a notice given to the said J.W.Goodwin his Exors. advisors or Assigns or left at his last known place of residence six months previous to the expiration of either term of 7 or 14 years at a yearly rental of £120 - the said Mill with Machinery such as Pans, Engine and Boiler to be completed and finished at J.W.Goodwin's expense the outside of the said Mill and premises to be kept in repair during the term of the said Lease by the Landlord and the inside by the tenant. The expenses of Agreements Leases etc., shall be equally borne by the said J.W.Goodwin and the said W.R.Harrison.

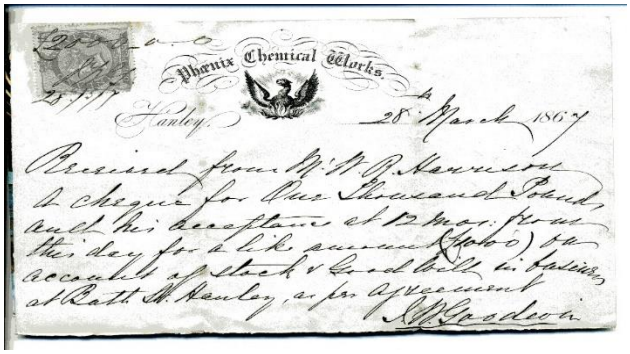
The said J.W.Goodwin agrees not and shall not at any time during the term of the said Lease on Mill either directly or indirectly whether by or for himself or his Agent or as Agent for others carry on or assist in carrying on the Business as a Manufacturer or Grinder of or Dealer in Potters Colours and Glazes at any place within the United Kingdom of Great- Britian, and shall not during the same period divulge or communicate to any person or persons whatsoever than the purchasers any recipe for or mode of making any of the articles manufactured in the said Business.

The said W.R.Harrison has paid to the said J.W.Goodwin as a deposit on acceptance of One Hundred Pounds falling due the twenty fifth day of March next, which sum of One Hundred pounds shall form part of the One Thousand pounds agreed to be paid upon taking possession.

So it appears from the Lease held by Mr J.W.Goodwin upon the premises in Bath Street that he cannot assign or underlet the Lease or premises in Bath Street without the consent in writing from the Lessors, the said J.W.Goodwin agrees to obtain a fresh Lease (upon the same terms) of seven or fourteen years from the Lessors for the said W.R.Harrison. Each of the said parties binds himself to the other for the performance of this Agreement to which they have hereunto set their hands this fifteenth day of February On Thousand eight Hundred & sixty seven.

Document signed by each party. Witness:- Albert Boak

See also a photo of the original receipt for initial payment of £1,000 signed by J.W.Goodwin.



The Phœnix Chemical Works - Bath Street, Hanley

Victoria Mill, Stanley (previously known as “The Stanley Forge Mill”)

~ 1867 - 1890

So it was that **Harrison & Son** came into being and that the business, both in Hanley and at Stanley, near Endon, was managed principally by the 23 year old Thomas William Harrison. It is likely that in those early years he was supported and instructed by the old hands, in the like of John Gerrard at both premises. It is known that William Richard kept a watchful eye on his son and the business, though he continued to reside in Banbury with his wife and young family, leaving all day to day things in North Staffordshire to Thomas.

It is perhaps worth reference here of what transport facilities were like at this time and how people got around. Most immediate local, getting about, was on foot, but commercial transport offered the developing facility of local trams and the railway. For those who could afford, there was horse and cart or pony and trap. Any distance travelling, was by train. The North Staffordshire Railway (NSR) provided loop lines and branch lines for both passenger and goods, connecting the Potteries six towns and in other directions to Liverpool, Leek, Derby and south to London. Both the Trent & Mersey canal and the Caldon canal were an important facility for goods. Many horse drawn trams were on the streets but it was at this time that Hanley power station was starting to provide power for a growing network of electric trams.

Bath Street (which is now Garth Street), is two minute's walk from Market Square up Market Street from the centre of Hanley. Consequently, Thomas was living next to the factory and within easy walking distance of the Tabernacle Church, the railway station and all essential services. His regular journey to Stanley Mill would have depended on the weather and other circumstances, such as travelling with goods being transferred between sites taking the pony and trap, or going by train to Endon station and then the walk to the mill. There was a reference at one time of riding on horseback but this was definitely not his usual means of getting about, but it does indicate that the family were accomplished riders.

Thomas's friendship with Spencer Green is thought to have been through mutual membership of the Hanley Liberal Association. Spencer Green was a member of the Green family, who owned Crown Staffordshie Porcelain Co. in Fenton. Though Spencer was almost five years older than Thomas, it is perhaps indicative of what a personable young man Thomas was. From being invited to the Green's family home at Bank House in Fenton, he met Spencer's sister Mary Ann and although she was three years older than him, the mutual attraction was evident from an early stage. Their courtship was a very Victorian affair conducted over a very respectable period. One story, related through later family, referred to a letter written by Thomas to his parents which said ***"I think I have found a lady who is worthy of me!"*** This was often related with a degree of mirth at his own big-headedness, but it is also perhaps indicative of Victorian importance of social standing, to an ambitious young man of twenty two years old.

There were later many letters sent between Bank House where she lived, and to him at 21, Bath Street, Hanley. None of her letters to him were kept, but most of those written by him to her, she kept and these remain in family possession. They were all written in pen and ink and though his handwriting was sometimes good, if he wrote carefully, but more often they are very difficult to read. The first letters sent to her were dated from 1867 and contained sentiments of obvious fondness. It is interesting to note, that there were many written and posted from Bath Street during a morning, which were delivered, as expected, during the afternoon of the same day. Mary Ann was always known in the family as Marianne, but he had his own pet name Polly, which he used frequently as an address in his letters.

One such, from those early days, dated 6th August 1868, is indicative of their relationship and is reprinted here:-

Hanley. (21, Bath Street)
August 6th 1868

My own dearest Marianne

I had been promising myself the pleasure of writing you a letter on the happy occasion of the first anniversary of our engagement, when yours came to hand this morning & added to the pleasure. I had hoped for, that of receiving one from yourself.

I do not intend however to fill very much of my paper with a repetition of the oft told story you first heard from me on Trentham day last year, partly because I am convinced that many such assertions could not add to the assurance of my love that you already possess & partly because as I once before told you I would rather that you should judge of the sincerity of my professions if rejoined by my conduct than by my words alone ------- and yet I should fail to express the deepest feeling of my heart & withhold from you what you have a right to know. --- if I did not assure you that the love I professed towards you twelvemonths since is not only <u>not lessened</u>, but very very much <u>increased</u> by the intercourse we have had together during that time. And now my own darling I feel quite sure that little as we are able to look forward to a life without either care or sorrow we may at least expect the future to be free from anything so terrible as a coldness or warmth of confidence towards each other, for my part I feel that the past twelvemonths has given me an insight into your character which has inspired me with a confidence I could not hope for last year, & made me love you as I have never loved any other human being before & if I may only be permitted to retain your love & see you happy, I think I shall be able to bear whatever else God may see fit to send. ---------

Let us acknowledge that this as well as every other earthly joy is His good gift & seek His blessing on our love & upon each other, for only thus can the good be real & abiding. -------

I was pleased to hear of the pleasant day you had on Saturday and am <u>glad</u> you should have seen Edge Hill and the inside of Wroxton Abbey. --- I should much have liked to have been with you & tho both places are familiar to me the pleasure of showing them to you would have been new. ---------

While you are at Banbury I should like you if possible to see Woodstock (Blenheim Park & house - the seat of the Duke of Marlborough) there is nothing in the neighbourhood of Banbury which will so well repay you for a visit, you must get the right side of my Father on some favourable opportunity & get him to take you there. --------- If it could be managed during Spencer's visit I have no doubt he would like to go too. ---- Talking of Spencer's visit reminds me that there is an excursion from Stafford to Oxford & Cambridge next week & I think this would be a good opportunity for his coming over, I have a good mind to write & Father of it, but am

afraid of nasty insinuations about my having selfish reasons for interesting myself in his visit with some ulterior object in view as to whom he may bring on his return to the Potteries, <u>of course</u> you know me too well to think that such an idea could ever have entered my mind & I therefore need not fear mentioning it to you. Really Polly I do want to see you again very badly & am dismayed to think it is but eight days since I left you & that there must be a still longer time to come before my eyes rest on your dear familiar face again ----- I suppose I must console myself with the hope that you are happy & enjoying yourself & survive upon the happy reunion to come in the future. --------

On Tuesday evening I took supper at Fenton ------- Mr & Mrs Rivers were there, the former I was very pleased with, he seems a very intelligent agreeable man ------ we all miss however your music, and the evenings seem not half so jolly as when you are at home, I think I may say this for the others but am <u>sure</u> it is so with myself.

Yesterday we closed the works at Bath Street (the only day we rest during the Wakes) & Spencer & I went by rail to Rudyard. ------ the day being excessively hot we did not care to run about much, but enjoyed a quiet walk by the side of the Lake under the shade of the trees which grow by the shore. We took some sandwiches with us for dinner & ensconcing ourselves on a green bank a few feet above the water made a meal as enjoyable as many a rich banquet. We afterwards found a profusion of very large and ripe blackberries which served as dessert & what I have never before seen growing wild ----- some raspberry canes with a few small berries on them & tho not large they were very sweet.

On our return we got off the line at Endon as I wanted to call at the Mill & after a short stay, walked thence to Fenton & if you can picture to yourself a seven miles walk over the fields & across a very hilly country on a hot afternoon you will have some idea what the journey was like. Still, I enjoyed the day very much & did not at all grudge the fatigue.

Today I went over to the Mill again upon my own "Rosinante"'; as you are aware his duties are usually of a different nature, so that he is not well fitted for a hack, but I thought a bad steed better than none in hot weather & on returning was not sorry I had decided to ride for a heavy storm came on as I had reached the first half of my journey & had I been walking should have been wet to the skin before I could have reached shelter, as it was I was not so wet as to need a change of clothes on my return, however the rain will do others more good than it will do me harm so I need not grumble. I had forgotten however the folks at Trentham, there will be a few wet jackets and dresses I fear & perhaps not a few colds resulting from them.

I was much pleased to hear that Mother continues to improve but you must not allow her to be too venturesome, it sounds big to talk of getting down stairs again tell her. I shall look anxiously for news a few days after she makes her first attempt in that direction & hope she will not repeat the story of the last three or four trials. ----------

I see I have almost filled eight pages & considering it is the second letter this week think it enough to satisfy any moderate young lady ---- perhaps you will think it more than enough & be content with the first four hardly arrive this far the first day ? ! ! !

Well I must for an excuse for my prolixity say with David "out of the abundance of the heart the pen writeth (?)"

There is just room to put a little love in the corner, as much as will go without making overweight (as Pan says), so I will conclude with as much of the aforesaid commodity as you care to receive on your own account, the rest for distribution at your discretion & remain my darling Marianne

Your own true lover. Tom

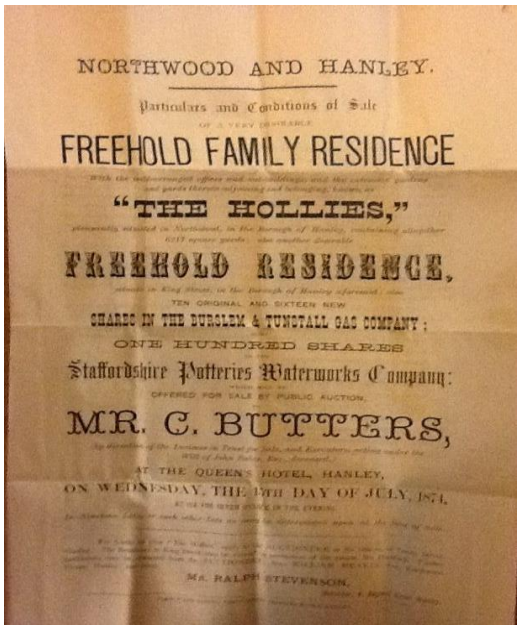
Thomas and Marianne were married in the Tabernacle Church in Hanley on 17th May 1869. She moved in with him at 21, Bath Street, where they lived until late 1874. Living so close to the factory, making colours and glazes, she became almost as much a part of it as he was. She knew most if not all, of the workforce by name and was familiar with much of the administration in day to day activities. However, family life took over, and the devotion and support they held for each other continued for the whole of their lives together.

Mary Ann Green (aka Marianne)
b. 1840 – 1923

Thomas and Marianne Harrison had 6 children:-

Sydney Thomas	b 1870 - 1953
Percival Neale	b 1874 - 1964
Edith Marianne	b 1876 - 1913
Arthur Cecil	b 1877 – 1962
Margaret Elizabeth	b 1881 - 1959
Winifred Emily	b 1884 - 1977

After the second child, it was not an option to continue to live at 21, Bath Street.


NORTHWOOD AND HANLEY.

Particulars and Conditions of Sale

FREEHOLD FAMILY RESIDENCE

"THE HOLLIES,"

FREEHOLD RESIDENCE,

TEN ORIGINAL AND SIXTEEN NEW

SHARES IN THE BURSLEM & TUNSTALL GAS COMPANY;

ONE HUNDRED SHARES

Staffordshire Potteries Waterworks Company:

MR. C. BUTTERS,

AT THE QUEEN'S HOTEL, HANLEY,

ON WEDNESDAY, THE 15th DAY OF JULY, 1874,

MR. RALPH STEVENSON.

On **15th July 1874**, Thomas went to an auction at The Queen's Hotel, Hanley (shortly afterwards to become Hanley Town Hall). He was bidding for a Freehold Family Residence in Northwood called "**The Hollies"**. Ideal for their growing family and about ten to fifteen minute's walk from Bath Street. From some documents still to hand and some pencilled figures, the bidding started at £1,000. It shows that bids went up progressively. Thomas clinched the property for £2,025. The Hollies is a large house at 127, Keelings Road, Northwood, and at the time included two or three acres of land between Birch Street and Peace Street It included stabling, a large conservatory and

extended gardens. The house is still there today, though converted into three separate dwellings.

"The Hollies" in 2012 - converted into three separate dwellings.

By this time business was good. One routine responsibility Thomas Harrison took on himself, was to make regular visits to his many important customers, and particularly those outside the Potteries, in various parts of the country. His business trips were always by train and planned in advance. It was while he was away from home on these visits that he would write to Marianne. From some of those kept letters, are to be found snippets of his thoughts and the occasional references to family. Letters started from dates in 1868 through to 1890. Trips usually ranged from four to five days away, but a few up to nearly two weeks. Whilst away over a weekend, he would always relate of his attendance to Sunday church service. Sometimes, if the sermon preached stimulated his interest, this would be related in his letters. When in a particular town, he would normally head for the same hotel and occasionally he might express dissatisfaction and find an alternative, but they would frequently be inexpensive commercial class establishments. Naturally he would meet with other people in passing, who he might refer to as interesting. It was also evident, that some of the hotel owners' and certain staff would make special effort to look after him during his stay. There was also reference to one of his pottery visits in a more remote part of Scotland, where he was offered overnight hospitality by the owner. Over the years and from over 250 letters, a record of his travels show they were in all seasons and included many circumstances of bad weather, delayed trains and abortive visits, when his contact was not there as arranged. It also included times when he would take the opportunity to look at surrounding countryside or places of particular interest. He evidently enjoyed walking on his own in order to explore. There were also times when he would relate about not feeling well, but more often would soldier on and say how much he wished to get back home to his loved ones.

One of his letters when staying in Leeds is reprinted here:-

Leeds
May 25th 1873

My Dearest Marianne,

Your letter of Saturday (& Friday) duly reached me with enclosures which are in order _____

I am very glad to hear of your being better again so soon & am inclined to think that much as you despise Dr F's nasty medicine it has done you good at all events ___ I did not write y'day having nothing particular to communicate. In the afternoon I walked over to the new park opened by the Prince of Wales some 12 or 18 months ago & spent a few hours most enjoyably ___ It is about three miles from where I am staying & though the walk was a little hilly & dusty the beauty of Roundhay Park when you get there is ample compensation ____ To compare it with places you know it is like a happy combination of Alton, Sandon and Trentham. The hills and trees of the first the sloping stretches of green to be found in the second & the lake of the third. This last was to me the great attraction, for of all the charm which nature wears so gracefully I think nothing so becoming as a fine expanse of water, especially when bordered by a wood, the trees of which covering the side of the adjacent hill reach the water's edge (as they do at Roundhay) so that you walk under their shadow & see on one hand the varying lights of the sun dancing between the green leaves & on the other the reflection of the sky overhead in the rippling waters beneath ____

The lake is much larger than that of Trentham, I should think twice the size, & on the side opposite to the wood is fringed with a row of trees & bushes just at the top from between which every hundred yards or so the lovers of fishing might be seen with their tackle & cans __ I did not see the result of their labours but was told there were numbers of pike as well as of course the smaller fish on which they feed__ At one end of the lake there is a valley & at its head the waters of the lake overflowing the wall of rock which barred their further progress precipitated themselves into the little stream which ran along its bed & formed a small but very picturesque waterfall ___ Taking a side path which led to the bottom of this valley I followed the little footpath for some distance then leaving had as <u>much</u> walking as I felt inclined for just then laid me down neath the shadow of a spreading tree on a bank of blue bells & green which reminded me forcibly of Trentham & should have been (not almost as I was) but altogether contented had you been there to bear me company & that we might have enjoyed the scene together_____ Very few of the pleasure takers in the park seemed to know of this little eden or if they knew of it to take the worth of reaching it___ I heard scarce anything but the noise of the waterfall to my right or the sippling of the stream at my feet which musically harmonized with the song of many birds & was in no way disturbed by the distant roll of carriage wheels or the faintest sound of children's voices which now & again were bourne on the breeze _____ If I had possessed anything of the poetic in me, it would have come out then but as it did nothing of the kind I must humbly confess to have nothing so exalted in my nature & yet my enjoyment was very real & genuine if less lofty than that of the poet <u>at</u> least one line from the pen of a poetic soul & a true song of nature kept repeating itself now & again in my ears as I turned to see some fresh delight.

"Great & marvellous are the works of God in goodness had thou made them all"!

This morning I went to hear Mr Jordon & was much pleased both with him & the whole service. He is more like Mr Legge in style than almost anyone else I know though of course there are decided differences between them____

I wish I could be sure of getting home this week for although my journey is not much more than begun I have had enough but business seems good____

I hope Neale has got the mortgage deed completed. I should be glad to hear from him as to what has been done.

With much love to self boy & Neale
Your afft. Husband.,

Thos W Harrison

P.S. I want you to look once more in my desk & find in the left hand pigeon hole my little pocket book of last year. It is in there I need some references -- and send it to me by post___ Address on Monday to Treveleyan & if you do not hear to the contrary on Tuesday to Greyhound, Stockton. T.W.H.

His journeying was more often to Lancashire, Yorkshire, Northumberland and Scotland. Less frequently to Bristol and South Wales and London. But there were also some overseas visits to France and other European centres with customer interest.

Specifically letters were addressed from:-

In the U.K. :.

Huddersfield, Hartlepool, North Shields, Newcastle-on-Tyne, Gateshead, Stockton-on-Tees, Leeds, Sheffield, Darlington, Middlesborough, Glasgow, Greenock, Rothesay, Isle of Bute, Shandon, Greenoch Loch, Bo'ness, Falkirk, Alloa, Clackmannonshire, Kilkaldy, Edinburgh, Bristol, Newport, London.

In Europe :

Paris, Mons, Luneville, Stockholm, Copenhagen, Rotterdam, Dusseldorf.

At the time of his last letter to hand, Thomas was aged forty four, so it is logical to assume, that later he employed others suitable to cover visits to customers, previously taken on by himself. Prior to that, however, two of his younger brothers had come to Hanley to be involved and learn the business.

Neale Harrison started from school in about 1868/69 aged nineteen. He also lived at 21, Bath Street, and continued to do so after Thomas and Marianne married. Neale learned all facets of making colours and glazes but persuaded his father and older brother to set up his own venture. Financed by his father was the purchase of a small factory, Swan Works in nearby Elm Street, Hanley. The activity involved decorating pottery ware, but it is not known if this was acquired as a going concern. In 1871 it traded as ***"Neale Harrison & Co."***

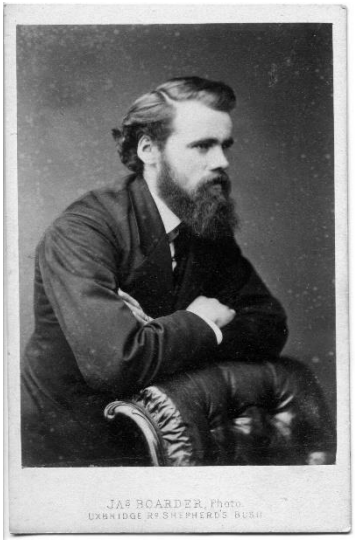


Photo: Neale Harrison b.1850

In 1874 Neale was having love-life problems. He had fallen for Louisa Shilson, who was the daughter of a farmer near Banbury, not far from his parents home. Her parents were seemingly not keen. It is not certain if the matter was resolved, but they married and emigrated to Melbourne in Australia, where Neale successfully set up as an agent for the family business. They had three daughters. Presumably, after Neale left Hanley, Thomas kept a watchful eye over the management of the business in Elm Street, until in 1885, Thomas and his father agreed that keeping the Elm Street business was not a sensible option, so it was sold.

Thomas's younger brother by nearly fourteen years, Charles, had also joined the business. He also spent time at the works, to learn all about colours and glazes.

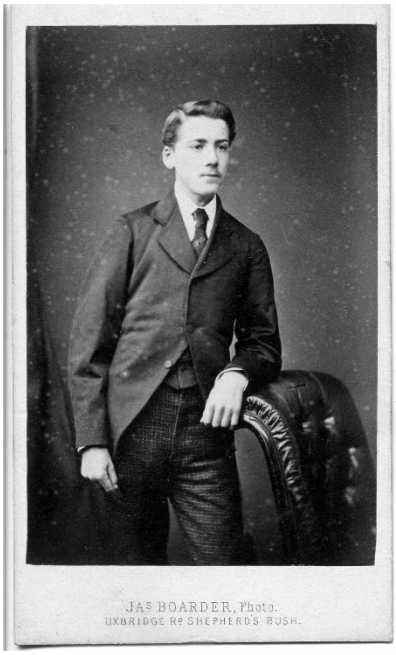


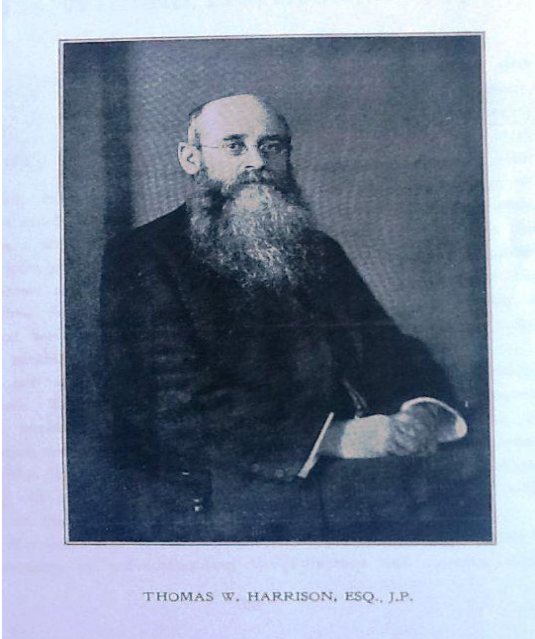
Photo: Charles Harrison b.1857

There were evidently ups and downs in business, but overall the company was expanding its interests. It is uncertain as to what the financial involvement of Thomas's other brothers might have been in the family business. Having moved to live in other parts of the world, both Neale and later Charles, remained very much part of it, but the other two younger ones, Frederick and Frank, had no direct involvement. In 1881 William and Elizabeth were living in Bruce Grove, Tottenham, and Charles, Frederick and Frank were still living with them. Charles moved to Hanley soon after. Frederick married Ada in 1884 and they moved into a home also in Tottenham and there had two daughters. In a later census, Frederick's occupation is shown as "Hardware & Furniture". It is known that Frederick later became the curator of the Chelmsford Museum, as founded by his grandfather, **Thomas Clarkson Neale.**

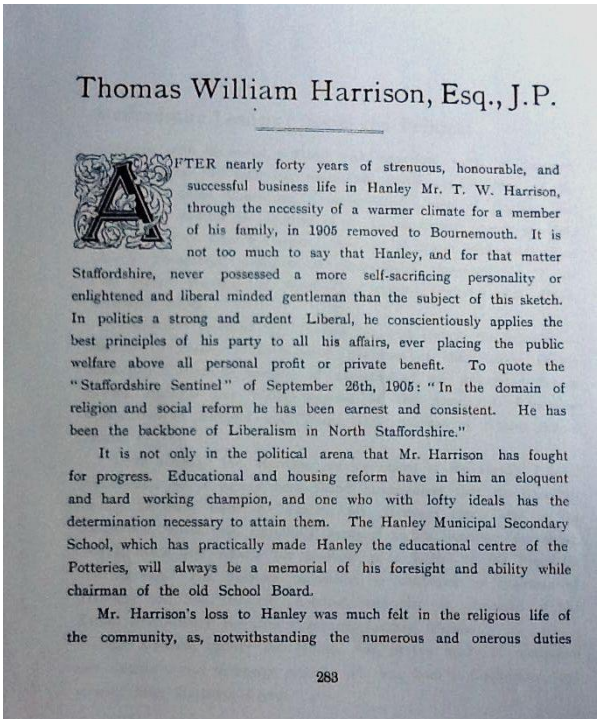
By 1885 William Harrison, aged 65 was becoming much less involved in the business, and Thomas, in trying to sort out interest in the family affairs, had difficulty in making legal settlement for Frederick and Frank.

Frank, after leaving his parents home married Eliza and also set up home in Tottenham, where they had a son William and a daughter Dorothy. He was listed in 1891 census as a "Furnishing Manufacturer" - one is lead to speculate whether Fred and Frank were in business together. In 1893 Frank and Eliza, with their two children, emigrated to Australia. There they had another son Douglas. Nothing is recorded of their life in Australia except that Frank tragically died in 1903/4. Eliza returned to England with her three children. She evidently was a woman of strong character and decided to emigrate again, taking her children to Canada, near Toronto, where she set up in business with something equivalent to a bed and breakfast.

Thomas Harrison had not only been active in running and growing a very successful business, his family (both close and extended), were a consistent priority in his life. But outside this, he involved himself in many other facets of private and public life. An interesting local role he accepted within the family, as it were, was as chairman of Crown Staffordshire Porcelain Co. Ltd. of Fenton. His brother-in-law, Spencer Green, with whom there was also close friendship, was Managing Director. On a public front, he was involved in things, religious, political, was a local Justice of the Peace and particularly in education with local government. He served as a Councillor in Hanley. All this was documented in a "Staffordshire Who's Who":-



THOMAS W. HARRISON, ESQ., J.P.



Thomas William Harrison, Esq., J.P.

AFTER nearly forty years of strenuous, honourable, and successful business life in Hanley Mr. T. W. Harrison, through the necessity of a warmer climate for a member of his family, in 1905 removed to Bournemouth. It is not too much to say that Hanley, and for that matter Staffordshire, never possessed a more self-sacrificing personality or enlightened and liberal minded gentleman than the subject of this sketch. In politics a strong and ardent Liberal, he conscientiously applies the best principles of his party to all his affairs, ever placing the public welfare above all personal profit or private benefit. To quote the "Staffordshire Sentinel" of September 26th, 1905: "In the domain of religion and social reform he has been earnest and consistent. He has been the backbone of Liberalism in North Staffordshire."

It is not only in the political arena that Mr. Harrison has fought for progress. Educational and housing reform have in him an eloquent and hard working champion, and one who with lofty ideals has the determination necessary to attain them. The Hanley Municipal Secondary School, which has practically made Hanley the educational centre of the Potteries, will always be a memorial of his foresight and ability while chairman of the old School Board.

Mr. Harrison's loss to Hanley was much felt in the religious life of the community, as, notwithstanding the numerous and onerous duties

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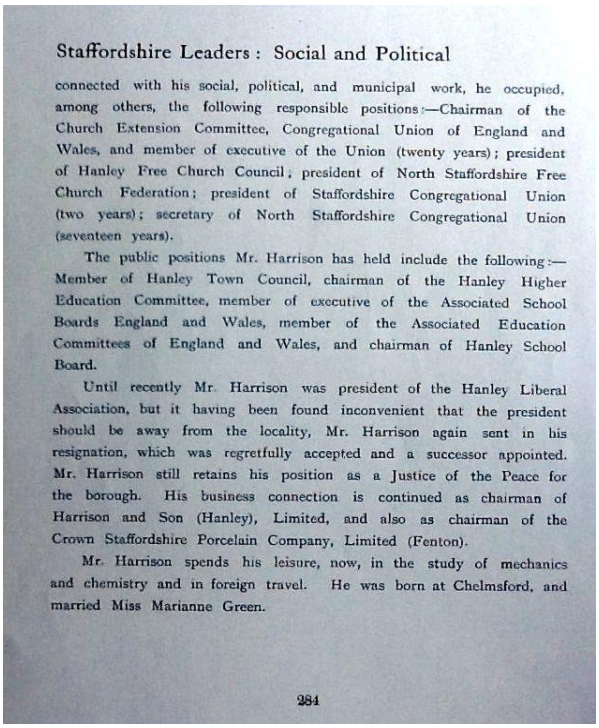

Staffordshire Leaders: Social and Political

connected with his social, political, and municipal work, he occupied, among others, the following responsible positions:—Chairman of the Church Extension Committee, Congregational Union of England and Wales, and member of executive of the Union (twenty years); president of Hanley Free Church Council; president of North Staffordshire Free Church Federation; president of Staffordshire Congregational Union (two years); secretary of North Staffordshire Congregational Union (seventeen years).

The public positions Mr. Harrison has held include the following:—Member of Hanley Town Council, chairman of the Hanley Higher Education Committee, member of executive of the Associated School Boards England and Wales, member of the Associated Education Committees of England and Wales, and chairman of Hanley School Board.

Until recently Mr. Harrison was president of the Hanley Liberal Association, but it having been found inconvenient that the president should be away from the locality, Mr. Harrison again sent in his resignation, which was regretfully accepted and a successor appointed. Mr. Harrison still retains his position as a Justice of the Peace for the borough. His business connection is continued as chairman of Harrison and Son (Hanley), Limited, and also as chairman of the Crown Staffordshire Porcelain Company, Limited (Fenton).

Mr. Harrison spends his leisure, now, in the study of mechanics and chemistry and in foreign travel. He was born at Chelmsford, and married Miss Marianne Green.

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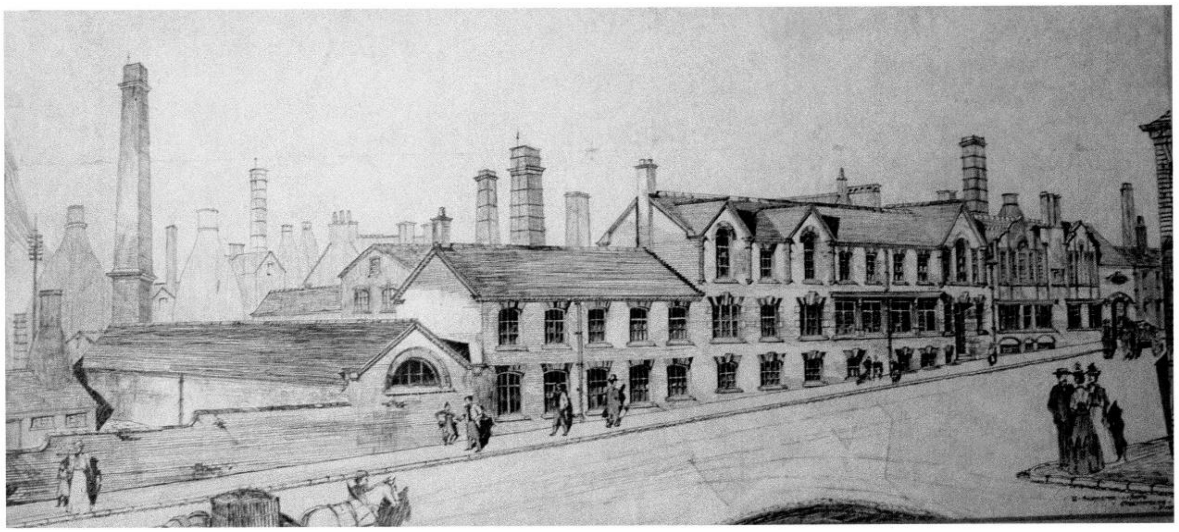
The family, living at The Hollies, in Northwood, were active Congregationalists and regular attendees and supporters at The Tabernacle Church, situated a short distance from the centre of Hanley. Sydney and Percy were born whilst they were living at Bath Street, but when Percy came along, it was getting tight for space, hence the move to The Hollies. From 1875, they had four more children spanning the next ten years, Edith, Arthur, Margaret and Winifred. Their education and upbringing was thorough, and without going into detail, Sydney naturally oriented to becoming involved in the family business. Percy, however, showed a leaning towards religious convictions and followed a life being ordained into the church as a Congregationalist minister. Arthur, like his older brother Sydney, showed a natural inclination to go into the family firm. The three girls never married. Edith remained living with her parents and suffered bouts of poor health. It was on the medical advice that she needed to live in a warmer climate that Thomas and Marianne eventually

retired from the Potteries and moved to Bournemouth. Edith died in 1913 aged 36. Margaret was provided with a comfortable income as a substantial shareholder in the business. Winifred also lived comfortably and she set up and ran an Arts and Crafts school in Highgate. She later moved and lived near Welwyn Garden City.

The photo, taken at some stage from a high vantage point on the premises at Bath Street, shows the Tabernacle to the right and on the left is the St.John's parish church. The Tabernacle was a magnificent building. It was built in 1784, then in 1883, it was re-built and extended on the other side of what was then High Street. A descriptive account from The Potteries (illustrated) at the time:

"The Congregationalists possess one of the finest buildings in the town known as the Tabernacle Church, to which are attached a lecture hall, schools, vestries, and class rooms. The buildings, which are situated in High Street, are in perpendicular style of architecture, erected with red brick and stone. In the centre rises and embattled tower, with octagonal stair turret and pyramidal spire, attaining a total height of 100 feet. The lecture hall, which is a very spacious apartment, has a richly traceried window of seven lights. Below the chapel is a large hall, around which are placed the various school and class rooms, and a library."

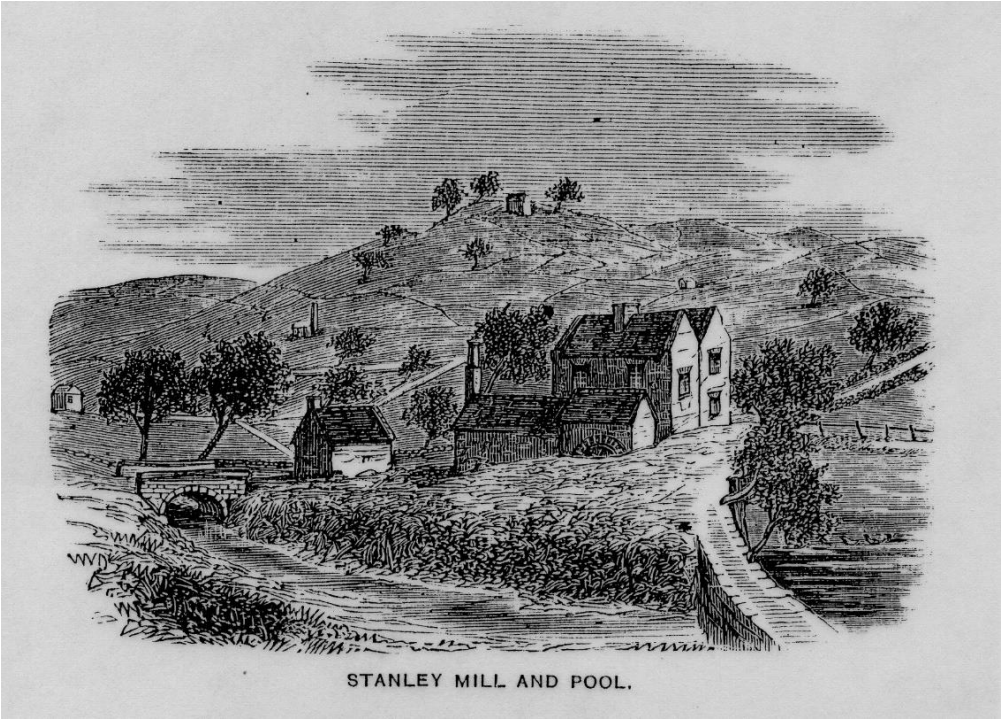
Through lack of support and high running costs it was closed in 1964 and later demolished. It was here that Thomas Harrison taught and helped with many of the poorer children of Hanley and led him later, as a town councillor, to fight for and establish greatly improved educational facilities in the town.



Architects drawing of Harrison's new office frontage and extension.

Business expansion continued apace during the 1880's. Acquisition of land in the Bath Street area, included a substantial tract of land from what used to be known as The Old Hall Manufactory (Earthenware). It was also at this time that Thomas Twyford vacated premises on Bath Street in the move to his new factory at Cliff Vale, so Thomas Harrison took advantage to buy land and some of those buildings becoming available. Plans included building an impressive office, reception and show rooms. Also extended stabling for horses (later garage and vehicle maintenance), and warehouse space.

Naming of the various separate activities at this time and chronological developments did raise subtleties which historically may create some confusion. The factory at Bath Street (later renamed Garth Street), also bordered on Wilson Street, and with the new reception, offices and showroom, was generally known as "The Phœnix Chemical Works". Similarly the milling operation at Stanley, was by now called "Victoria Mills" (and the local manager living at Victoria House).



In the early 1800's premises at Stanley was known as Stanley Forge, as indicated on an earlier reference map as shown. But an even earlier picture, above, depicts a charming rural scene.

Upstream from Victoria mill, by some four to five hundred yards, there was the small milling unit called Hercules Mill. Originally the machinery was water driven but later, as others, converted to electrical power. Raw materials to be milled on both sites at Stanley would have arrived originally, in any quantity, by canal barge. An unloading wharf would have been the short distance directly adjacent to the mill and it is believed, as possibly indicated on the map above, that a simple rail track ran from the wharf up to the mill. During the 1860's a branch-line from the North Staffordshire Railway, running the other side of the canal, was constructed to bring raw materials on railway wagons. From the branch-line they had to cross the canal to bring loaded wagons up into the mill yard. For this, the canal was widened and an ingenious "swing bridge" constructed to facilitate both rail and canal traffic. The line from the bridge passed some 500 yards, complete with sidings to manoeuvre loaded and empty wagons. For this also Harrison's had to purchase a suitable locomotive to do the job. This was specially

constructed to order, and was steam powered. The new line to the Victoria Mill was opened in November 1867.

The following pictures here indicate something of how it worked:

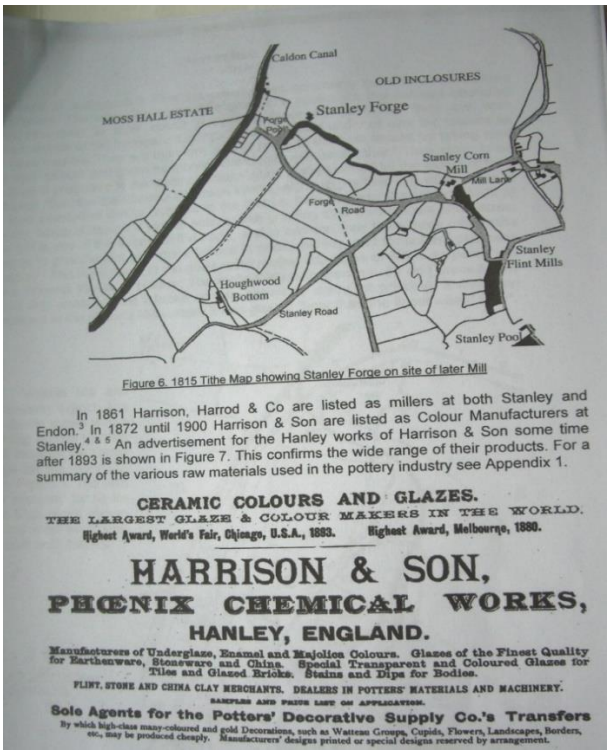


Figure 6. 1815 Tithe Map showing Stanley Forge on site of later Mill

In 1861 Harrison, Harrod & Co are listed as millers at both Stanley and Endon.[3] In 1872 until 1900 Harrison & Son are listed as Colour Manufacturers at Stanley.[4 & 5] An advertisement for the Hanley works of Harrison & Son some time after 1893 is shown in Figure 7. This confirms the wide range of their products. For a summary of the various raw materials used in the pottery industry see Appendix 1.

CERAMIC COLOURS AND GLAZES.
THE LARGEST GLAZE & COLOUR MAKERS IN THE WORLD.
Highest Award, World's Fair, Chicago, U.S.A., 1893. Highest Award, Melbourne, 1880.

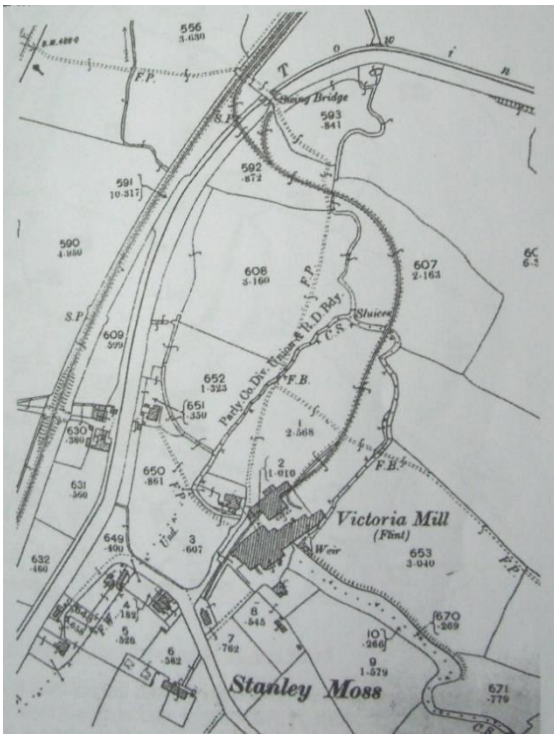
HARRISON & SON,
PHŒNIX CHEMICAL WORKS,
HANLEY, ENGLAND.

Manufacturers of Underglaze, Enamel and Majolica Colours. Glazes of the Finest Quality for Earthenware, Stoneware and China. Special Transparent and Coloured Glazes for Tiles and Glazed Bricks. Stains and Dips for Bodies.

FLINT, STONE AND CHINA CLAY MERCHANTS. DEALERS IN POTTERS' MATERIALS AND MACHINERY.
SAMPLES AND PRICE LIST ON APPLICATION.

Sole Agents for the Potters' Decorative Supply Co.'s Transfers
By which high-class many-coloured and gold Decorations, such as Watteau Groups, Cupids, Flowers, Landscapes, Borders, etc., may be produced cheaply. Manufacturers' designs printed or special designs reserved by arrangement.

An earlier map of the area refers back to 1815



Map dated 1920 shows, canal, railway & branch-line.

Bridge 27 Swing Bridge

Left: Looking towards Hanley and the Potteries

Below: Looking towards Leek

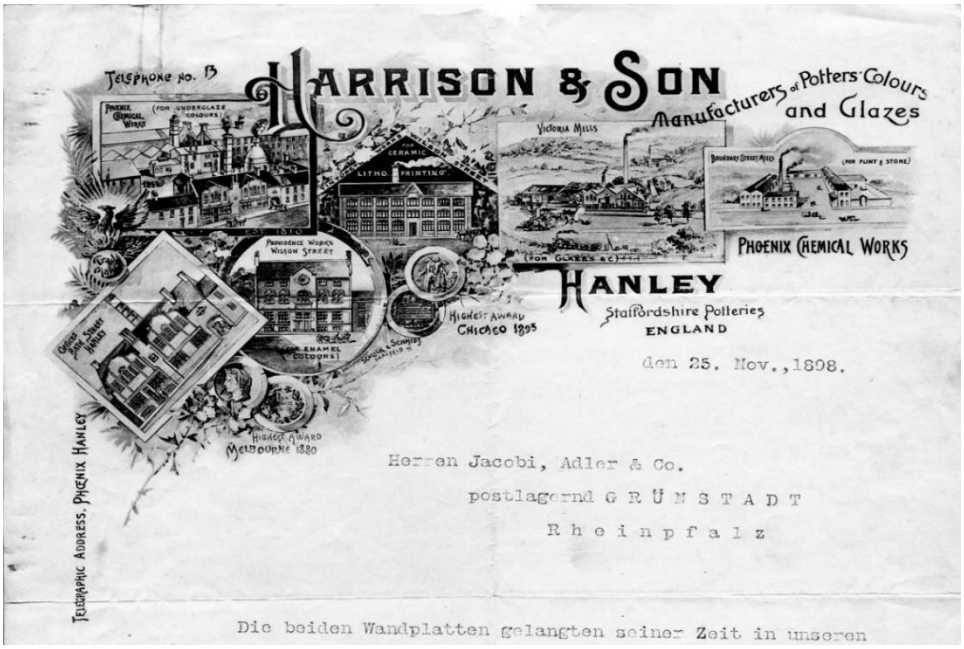
When the bridge was rotated into position for the locomotive, the central pivot point bore no weight as the bridge rose slightly. The bridge had then to be levered off the metal pads with a bar before it could be swung back to the parallel position for canal traffic. Edward Kilfoil was the engineer/fitter who dealt with the mechanics of the swing bridge.

Apparently the crane (left) was used to lift China/Cornish Stone out of the boats, and to lift larger rocks directly into the railway trucks.

The loco driver, Dick Mountford, with the later electric engine unit. As can also be seen in the photo, problems had to be overcome from time to time, such as clearing snow from the bridge.

~ 1890 - 1910

The letterhead dated 1898 identifies six separate activities:



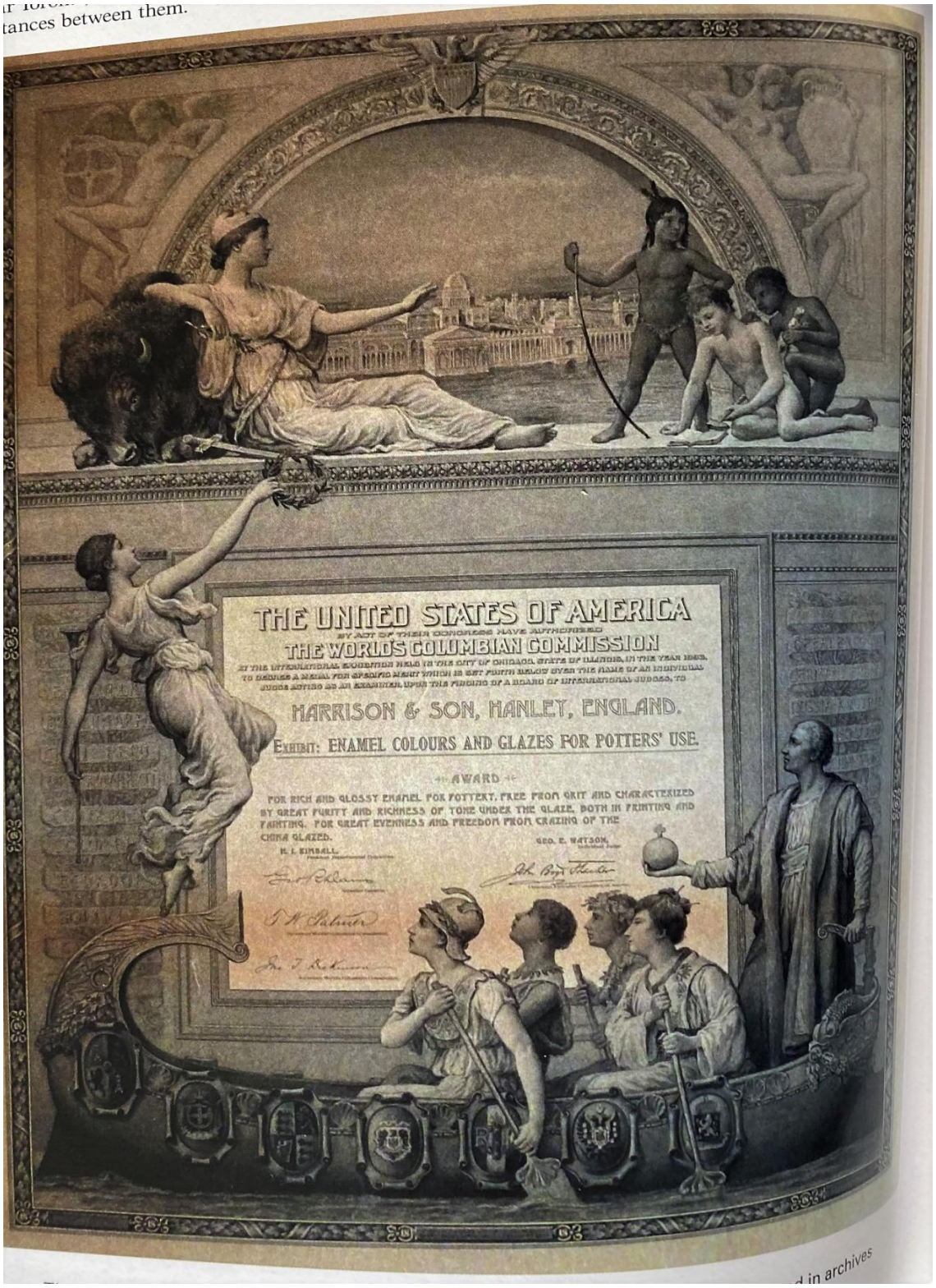
The Phœnix Chemical Works
(for Underglaze Colours)

- **Offices, Bath Street, Hanley**
- **Providence Works, Wilson Street**
  (for Enamel Colours)
- **Tintoretto Works, Wilson Street**
  (Ceramic Litho Printing)
- **Victoria Mills**
  (for Glazes)
- **Boundary Street Mills**
  (for Flint & Stone)

Four of those indicated on the letter-head were on the Bath Street works site, whilst Victoria Mills were at Stanley. Little is known about the Boundary Street Flint Mill, either of its acquisition or disposal. It is assumed that the continuity to supply the mill materials, was tied up with the later acquisitions of premises and works at Joiners Square after 1908. At some stage, though research has not indicated when, Harrison's had acquired the flint and stone milling operation in Boundary Street, Hanley. Their involvement with the supply of milled flint and stone was evident from an early stage. An article reprinted here dated 1893, refers to two other flint/stone milling activities. One of these may have been the Hercules Mill at Stanley. Early reference to the ownership and operation of the Bucknall Flint Mill by John Gerrard, was also probably tied in with Harrison & Son for the supply of milled flint.

In 1893, The World Columbian Exposition was held in Chicago. It was an enormous undertaking and represented international art, industry and technology. That Harrison & Son had a stand there, alongside some of the world class potters, was a major achievement. There were several established potters in North America, and also at that time new businesses, some

probably known to Harrison's as people emigrating from the Potteries in North Staffordshire. At that time Charles Harrison was aged 36 years, and he was largely instrumental in setting up and handling the business generated. It was probably around then that he decided to remain in the USA. He had purchased a bachelor apartment in East Liverpool, Ohio, where he lived for the rest of his life. When his widowed sister-in-law, with her three children moved near Toronto, he took surrogate interest in her family and maintained continued contact, in spite of the distances between them.



The original certificate as given to the company, shown above, has been retained in archives.

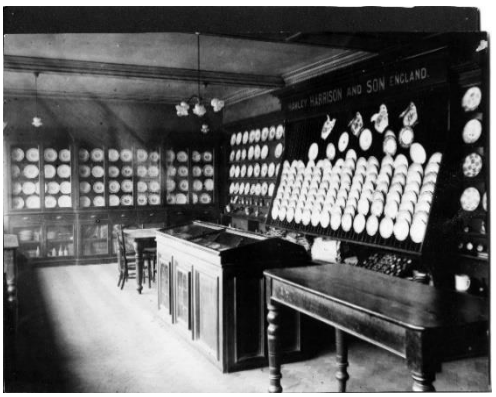
During 1893, the new offices, reception, showroom and warehouse at Bath Street had been completed and a major advertising article had been printed in a local magazine "The Potteries – Illustrated". Not only is the content of interest to read, but also the style in which it was written. It is obvious that it should extol the virtues of the company, but what it also does is to provide an historical snap-shot. That it also tried to explain some of the processes involved to lay readers, is also relevant, where most of the people in North Staffordshire knew of, and were much more familiar with the names of the potters themselves and the wares they produced, than anything printed in the article. It is reproduced here:-

MR. THOS. W. HARRISON.

MESSRS. HARRISON & SON,
PHŒNIX CHEMICAL WORKS, HANLEY.

In the Staffordshire potteries, as in other centres of our staple industries, there are found clustering round the principal manufacture of the district, subsidiary and dependent manufacturers having as their *raison d'être* the production of some adjunct necessary to the staple trade. Such a manufacture is that of the potters' colours and glazes, articles indispensable to potters, and perhaps more largely in request in Staffordshire than in any other part of the world. Of the various local firms producing these goods, the largest and best known is that of Messrs. Harrison and Son, of Hanley, whose productions are not only in great request in Staffordshire, but are known and used in almost every part of the world where the hum of the thrower's wheel is heard. The business conducted by Messrs, Harrison was commenced on the premises occupied by them (now called The Phoenix Chemical Works, Bath Street) in the first decade of the present century, but the last twenty-five years have witnessed a marvellous growth in the business of the concern, the extensions and additions made during that period having so transformed the place that the original founder, could he revisit the scene of his toils, would hardly recognise it in its altered appearance. The firm's latest addition is that of the enlarged offices and show-room and warehouse, a handsome red brick building, the frontage of which, forms the entrance to the factory proper. A visit to the show-room gives some idea of the production of the firm. The colours and glazes are in every instance displayed as they appear when applied to the various kinds of ware for which they are intended, after they have been fired in the ovens or kilns. The first to attract our notice are the enamel colours, which are remarkable for their splendid brilliancy and variety. To give the ceramic artist an idea of the effect of the colours in actual use landscapes and flower pieces are shown painted in monochrome on plaques and tablets of china and earthenware, so that the power of each colour to represent light and shade is fully tested. These pictures are so well painted as to be themselves worthy of exhibition, and do much credit to Mr. L. Rivers, jun., the talented artist employed by the firm for the purpose. Of course the primary object is to show the colours, and only incidentally to produce pleasing pictures. We may therefore notice the extraordinary purity and richness of many of the tints, especially the blues, browns, and greens; of these there is an almost endless variety, so that we should think it difficult to find a shade that not here be matched. The staple manufacture, however, so far as regards bulk of colour produced, is found in the underglaze or biscuit colours. Here the firm enjoy the highest reputation. These colours, if less brilliant than the enamels, are almost equally varied, and possess the great advantage of durability. Applied to domestic or other ware required for daily usage, this is a most important point. The speciality in this department is the colour known in the trade as mat blue. It is used for printing and banding, and we cannot see how anything can be finer than the specimens of this colour shown by Messrs, Harrison. The term "mat" is French, and signifies opaque. It is used to distinguish this blue from the clear cobalt blues with which we are familiar in the common willow pattern plate. There are also some beautiful specimens of underglaze painting. Only a practised eye can distinguish

these plaques from enamel, the artistic treatment cleverly displaying the effects which may be produced by this method of colouring. The majolica colours are mostly exhibited on tiles, for the decoration of which these colours are being largely and increasingly used. No doubt one reason of the success attending Messrs, Harrison in their colour trade has been the fact that they are also the



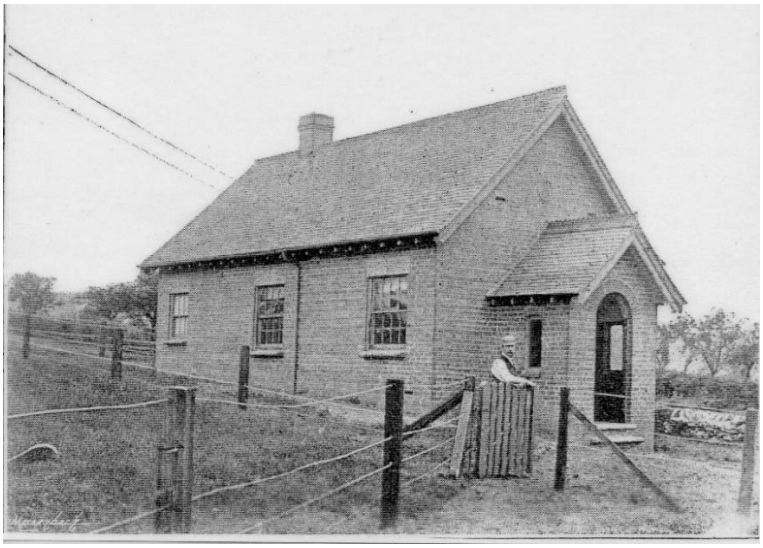
manufacturers of the transparent glazes which are used under or over the colours, as the case may be. They are therefore able to produce the best results by taking care that their colours and glazes harmonise chemically with each other. Practical potters will appreciate the importance of this; it only remains to add that the velvety richness of surface and clear transparency of the samples exhibited cannot be beaten. Messrs. Harrison claim to be the largest producers in the world of potters' glazes. The extent of their factories seem to justify this claim. Besides the Phoenix Chemical Works, alone larger than any other place of the kind devoted to similar purpose in the district, they possess the Victoria Mills at Stanley, which is occupied almost entirely with grinding their own colours and glazes. This mill is the largest in the trade, and in addition they have three other mills devoted to grinding flint and stone for use in glaze making, and for potters' purposes generally. The process of fritting (*i.e.* of melting into glass or fritt the ingredients of the glaze) is very interesting. The furnace or fritt kiln is constructed of fire brick bound or bunted together with huge iron castings to prevent its destruction by the intense heat. The floor of the kiln consists of two

inclined planes meeting in the centre, and arched over with fire brick. Upon this floor the ingredients of the fritt (which in this stage appear as a white powder) are shovelled through holes in the arch forming the roof of the kiln. The flame from the furnace plays over these materials for several hours till the whole is melted, and the fritt runs to the bottom of the kiln, where it remains in a molten state till ready to be drawn. As the plug is removed the melted fritt, dazzling in its brightness, and giving off intense heat, runs a river of fire into a huge iron receptacle, where water is immediately poured upon it to cool and break up the mass into fragments ready for grinding. Those who have seen the running off of a furnace of pig-iron will have a fair idea of the operation of fritting, only for the latter the heat is more intense. That this is so may be believed when we say that the flame of this furnace is over seventy feet long, and that day and night, without intermission the week through, this roaring, tearing flame beats upon the successive lots of fritt as they are passed through the furnace. The fritt, now ready for grinding, appears in blocks of glass, clear and transparent, of a slightly bluish tinge, but before it can be used by the potter it must be ground finer than the finest wheat flour. We follow it to the Victoria Mills, which are admirably equipped with powerful modern machinery for grinding. Here we find a number of grinding pans of various sizes driven by two powerful steam engines. The pans resemble a huge drum standing on end. The bottom of the pan is paved with stones, over which great blocks of chert or limestone are driven by revolving arms, the fritt being crushed between the runners and pavors till it is of the required fineness. The glaze ground in water, when finished resembles cream more than anything else in appearance. We notice at the entrance of the mill a handsome building which might be taken for a school-house or chapel. This is the club room where the workpeople take their meals, and in winter evenings assemble for social intercourse, and to read their paper.

The Stanley Mills

Bath room and lavatory in the rear conduce to their comfort and cleanliness. This room, as well as the whole of the mill, is lighted with electric light. Notable characteristics of the firm's works are the scrupulous cleanliness and order which prevail in every department. The need of this virtue is, of course, imperative in the manufacture of such delicate material as colour, in which the intermixture of any foreign matter might result in serious loss to the user. To assist this, the warehouse is

lined out with glazed bricks, the floor is of concrete, and the roof and beams carefully prepared to shew and to admit of the easy removal of dust. The result is that the firm have the satisfaction of knowing that the warehouse is with a minimum of labour kept in an ideal state of cleanliness, and is also one of the brightest and pleasantest of workrooms, and as healthy as it is possible to be. In every other department the same order and system prevail, and reflect no little credit on the staff who so loyally co-operate to carry out the firm's wishes. Another pleasing feature is, in these days of change and unrest are the long periods of service with the firm that many of the staff and employees have spent. From the grey-haired foreman, with his forty or more years of service, we find not a few workmen who have been eight, ten, twenty and twenty-three years in regular employment at Victoria Mills or Phoenix Works.



The Victoria Mill Club House, Stanley

This, whilst speaking volumes for the good relations between master and man, is doubtless of great advantage in carrying out the operations necessary in the manufacture of the colours and glazes produced by the firm. For it must strike the most unobservant that in the preparation of materials where so much depends on the care of the workmen, long practice and technical experience must contribute to the predictions of a regular and reliable quality of goods. Parliament and the country have recently had their attention called to the risks run by working potters from the deleterious character of the glaze in ordinary use. These risks are more especially incurred by dippers, dippers' assistants, male and female, and glost placers. The evil arises from the presence in the glaze of free lead, that is, carbonates or oxides of lead ground up in the glaze but not actually combined with it. Nearly all manufacturers of earthenware have been at great trouble and no little expense to provide methods of protection for their workpeople, the injury done being very serious, affecting the teeth and mouth, producing in serious cases general paralysis and the well- known "painter's colic," and too often inducing premature death. In spite of all rules and regulations, both Imperial and local, that familiarity breeds contempt so affects vast numbers of the workers that they cannot be induced to take the necessary precautions for their own protection. This has naturally lead to the demand for a non-poisonous glaze. The Messrs. Harrison are in the happy position of having solved this difficulty, and are able to offer manufacturers a glaze quite innocuous to the workpeople, and of equal purity and even greater brilliancy than their regular and well known production. It is of interest to know that this valuable improvement will not increase the cost. On the recent visit to the Potteries of the Committee appointed by the Home Secretary to enquire into the matter, the head of the firm had the honour of being invited to give evidence on this important and difficult question.

Decorated sample plates, as referred to in the article, are shown in the photograph below. Painted decoration signed by Mr. Len Rivers, and the plates shown were of special note as being beautifully glazed with some of the first “leadless glaze” produced by Harrison.

Also shown here is the reverse of one of the above pieces.

Below the sample number are the initials JB - for John Bebbington.

From 1890, Sydney aged twenty and under guidance of his father, would have been spending time learning all aspects of the business. Probably also some arrangement with one of their customers to spend time learning what happens on a pot-bank. As well as the close family connection with Crown Staffs China, the original connection and friendship was maintained with the Grimwades' who had set up Winton Pottery in Stoke; and no doubt there were many others. Since Percy later followed a career in the church, it is not thought that he ever took any direct interest in the family business. With Arthur, on the other hand, though some seven years younger than Sydney, it is evident that as a boy growing up he became much more involved in what was happening at the factories in both Hanley and at Stanley. But at that time Arthur was away at school and then at Owen's College (later to become Manchester University), so did not join his father and older brother till 1896.

A particular event recorded in a letter written by Marianne to her 14 year old daughter Margaret in October 1895, relates to them hosting three African chiefs, and others, for a night at The Hollies. The African chiefs were in Hanley, at a meeting at the Victoria Hall, organised through The London Missionary Society. The details of the meeting were reported in The Evening Sentinel and is re-printed as **Appendix II.**

Copy of a letter from Marianne Harrison to her daughter Margaret (aged 14), away at school.

The Hollies,
Northwood,
Hanley, Staffs.

Nov 2nd 1895

My Dear Margaret,

We shall be anxious to hear how you managed in your visit to Uncle Franks, you did not say whether it was for the day or the week end & so we were unable to write to you, but trust you have had a pleasant visit. You will be astonished to hear of our doings this week. The visit of Three African Chiefs came off on Wednesday, & they were our Guests on Wednesday night, only eight! Including the missionary Mr. Willowby. Did you see the account in the paper I sent to Uncle Frank of the Great Meeting in the Victoria Hall. It was crowded about 4000 people present. When it was over they came down in Carriages to the Hollies and Edith & I received them. We were at the Meeting but left before it was over. At Supper I had Khama on one side of me & Sehale the other, Bathoen sat next to Khama & his mother in law next to Sehale, then their attendants & Mr.Willowby, with Mr.Fennell & Mr.E.J.Pidduck made up the party including ourselves.

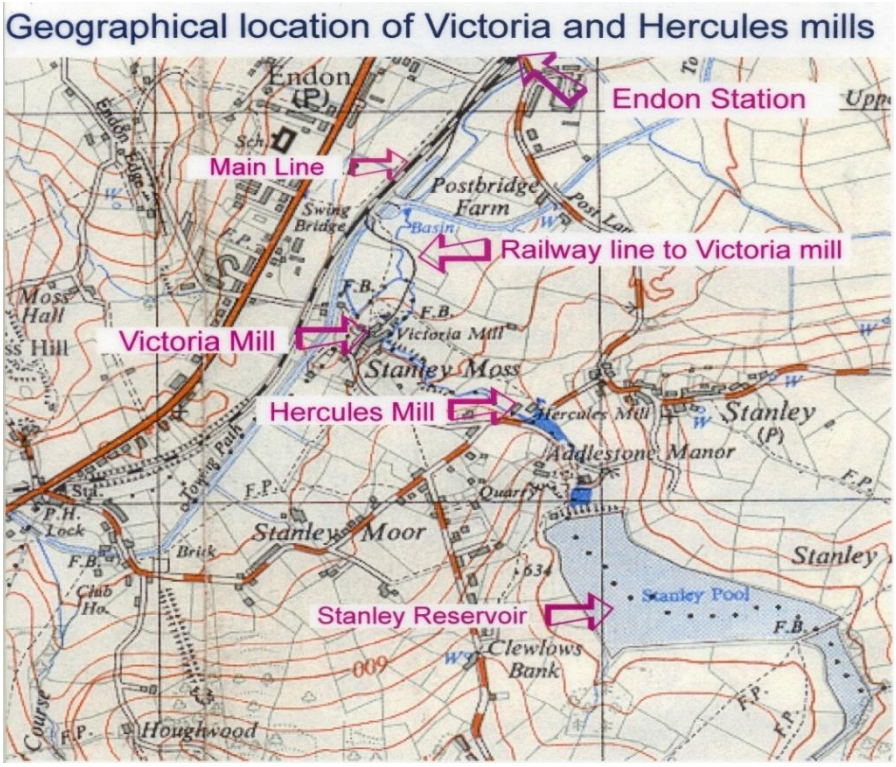
You will be sorry to hear that Winifred came home from school on Wednesday morning poorly, she has been in bed ever since with an attack of Influenza & has been out of it all. She had promised to go to Mrs Moores to hear & go with them to the Meeting but it was not possible, she has been in a high state of fever, but she is much better to-day, the doctor said she was to stay in bed till he had seen her on Monday. We got on very well with our Coloured friends and enjoyed having them here, but it gave us plenty of work to do, to get ready for them, particularly as Legge is still away ill, it is doubtful whether she will be able to return. You will wonder where we put them all. Khama had my bedroom and his attendant the bed Arthur used to occupy, in my dressing room. Sehale in the spare room, Bathoen in Edith's, his mother in law in Sydney's, Mr.Willowby in Percy's and the others in attendance in the Cook's bedroom. Your father & I were in your room & Winifred & Edith were to have occupied Arthur's, but in consequence of Winifred's illness Edith had to have a bed made up on the Dancing Room Couch and Sydney slept at Mrs Grindey's. It is something to be able to say we have entertained three Kings, of Course Khama is the favourite.

When you write you must copy the address, as at the head of this letter, your last letter to Edith you only put The Hollies, Northwood & it was more than a week on the way. You must spend more time writing home. We shall like to hear how you are getting on with your studies, & with other girls and teachers. With much love from all at home, especially from your loving mother,

M.A.Harrison

Family ages (approximate) at the time:-
Thomas: - 51 Marianne: - 54
And their children
Sydney: - 25
Percy: - 21
Edith: - 19
Arthur: - 18. Margaret: - 14 & Winifred: - 11

Activity at the Stanley Mill and at the little upstream Hercules Mill, was then milling mostly colours and glazes. The bulk of incoming raw materials, after the railway siding facility, came mainly by rail and consisted largely of stone and felspar. Hence it was that milling the colours and glazes tended to revert and be concentrated at the Hanley works.



Some of the information with regard to the branch-line, swing bridge and rail facility at Stanley Mill, was gained from a publication:

"Industrial Locomotives of North Staffordshire" by Allen C Baker, page 101. This also records the locomotives used by Harrison's. The description of this is given in ref. E42, figure below. The last loco referred to, operating from 1925, was Electric, being powered by rechargeable batteries. It was given the name "NINA", as engraved on a smart brass nameplate, after the wife of Arthur Harrison - referred to later.

HARRISON & SON (HANLEY) LTD
VICTORIA MILL, Stanley, near Endon E42
f. Harrison & Son SJ 925524
prev Thomas William Harrison

A firm of potters' millers situated near the Caldon Branch of the Trent & Mersey canal, just south of Endon Basin. The works were connected to the NSR Leek branch (opened 1/11/1867) by a short line approximately ¼ mile in length. This line crossed the canal by a small and very unusual swing bridge which pivoted in the centre of the canal. The line was later operated on the overhead electric wire system between 1900 and 1925, including the section over the bridge. The mill dates from the mid-18th century and was owned by others before Harrison, who did not come to the area until 1865. The rail connection dates from around 1884. Rail traffic ceased in 11/1961 and the track has since been lifted and the mill demolished. The company also had a plant, not rail connected, in Hanley, the Phoenix Chemical Works, located alongside the Caldon Canal at Joiners Square.

Gauge: 4ft 8½in

-	4wVBT G	Harrison & Son	c/1884	New	
	Rebuilt 4wWE	Harrison & Son	c/1900		(1)
NINA	4wBE	Elec	W172 1925	New	(2)

N.B. In 10/1904 W.R.Renshaw & Co Ltd, of Phoenix Works, Cliff Vale, Stoke-on-Trent, undertook repairs to the home made locomotive. It may be therefore that they had been involved in either its original construction or its rebuilding as an electric locomotive.

(1) scrapped c/1925.
(2) to Brookfield Foundry & Engineering Co Ltd, California Works, Stoke-on-Trent, 11/1961.

Harrison's Electric Locomotive "NINA"

As employers, Thomas and the Harrison family generally had a good reputation for being fair and making attempts to look after their employees. From an early stage the company would buy domestic properties in the location of their works and would rent them out on favourable terms to members of the workforce. The management of these properties was always an additional chore, but a loyal workforce and an increase in value of the properties remained a good investment. Another perk, which became an annual jolly for the workforce, was an outing to some place of interest, paid for by the company, usually during the annual works close of the "wakes week". Initially it was a question of travel by train, often to Blackpool. Later in 1950, a fleet of charabancs would transport everyone to Southport.

From the late 1890's, Thomas was content to hand over more of the responsibility of the day to day running of the business, to his two sons Sydney and Arthur. Whilst keeping a watchful guidance, he was able to devote more time to his family and to his religious and public commitments.

From January 1900 the name **"HARRISON & SON (HANLEY) LIMITED"** was incorporated.

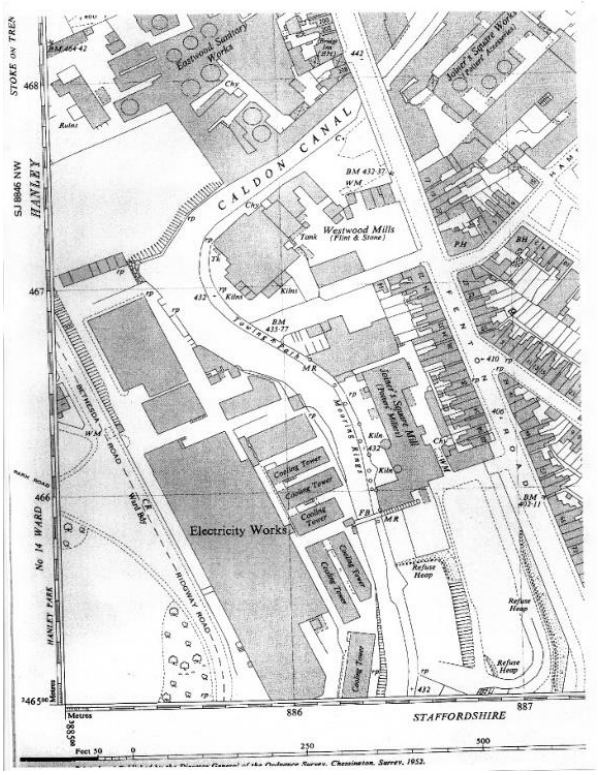
Sydney married Minnie Bonfield and they bought Enderley House in Basford. They had a son, Thomas Stanley, born 1899, (always called "Stanley") who turned out to be their only child. They later relocated to an old Victorian house called May Place on The Brampton, near Newcastle. Arthur on the other hand met Hannah (Nina) Pidduck, whose father Fred Pidduck was a local well known jeweller and fellow town councillor and friend of Thomas Harrison. They got married in April 1903 [Wedding photo shown Appendix III] and lived at the premises at 21, Bath Street. Whereas Sydney, as the much older brother, enjoyed his position as Chairman in running the family business, it was Arthur who had a far greater hands-on involvement with regard to products, their development and the running of the works generally. Arthur and Nina, whilst living in Bath Street had their first two children, Bernard (1905) and Molly (1907). Although the business was running successfully, before this time, Thomas was looking to retirement. He and Marianne were very concerned for the health of their daughter Edith. She had long suffered, from time to time, from chest and breathing difficulties, and it was on specialist medical advice from a London consultant that she should live in the somewhat warmer climate on the south coast. Consequently they had bought property near Bournemouth. So it was that they left Hanley in 1904 and Thomas left the running of the business to his two sons.

All this was fraught with one major problem. They had put The Hollies up for sale, and although there was limited interest, they could not find acceptable terms for a sale. One of the difficulties seemed to be that there was too much land connected with it. Logic was that with a growing family, Arthur and Nina should move in, but it was always known that Nina disliked it intensely. One story passed down through the family, was that on occasion, when staying there, she had gone into the kitchen to see dozens of cockroaches scuttling away under the units. It is interesting to note, however, from many letters between Thomas and his son Arthur, that the management to sell, or even lease The Hollies was taken on by Arthur rather than Sydney. By 1906, with The Hollies standing empty for so long, it was becoming a liability for upkeep, security, and particularly heating during the winter. Thomas decided to separate off much of the land and lease it under a written agreement [copy reproduced, as in **Appendix IV**], to a Mr Allen Gardner, who is believed to have been one of their workers at the factory. Arthur, in the meantime with their two children, and Nina again pregnant were feeling the pressure to move out of 21, Bath Street. Whilst on the lookout for a suitable property they agreed to move into The Hollies until it could be sold.

Thomas, living in Bournemouth, had suffered failing health, he died in 1909 and consequently the sale of the Hollies was left entirely to Arthur. Their family sojourn in the big house in Northwood was evidently no more than a few months, when by early in 1911 The Hollies was sold and Arthur moved his family to Field House in Alsager. This proved a convenient move with a short walk to Alsager station and regular train service to Hanley.

Early transport at the Bath Street factory entrance, note the road weighbridge platform. Door, right to 21, Bath Street, with family accommodation over.

Although he was chairman, there is little evidence of input into the family business from Sydney at this time. He was becoming more widely involved with product sales and the customer base. Certainly he knew and mixed with many of the major potters at that time, and whilst business was growing throughout the Potteries locally, as well as elsewhere, it was important to have greater milling capacity. Harrisons' were limited at the Boundary Street works over the increasing demand for ground flint and also needed somewhere to make prepared body. Opportunity to resolve this, came about with the acquisition of an operating factory bordering the Caldon canal at Joiners Square, in Lichfield Street, Hanley. In 1908 they bought this existing factory from Morris & Co. On the map it shows Joiners Square Mill immediately behind a row of terraced houses, and on the opposite side of the canal, the electricity works with its very distinctive and prominent wooden clad cooling towers.



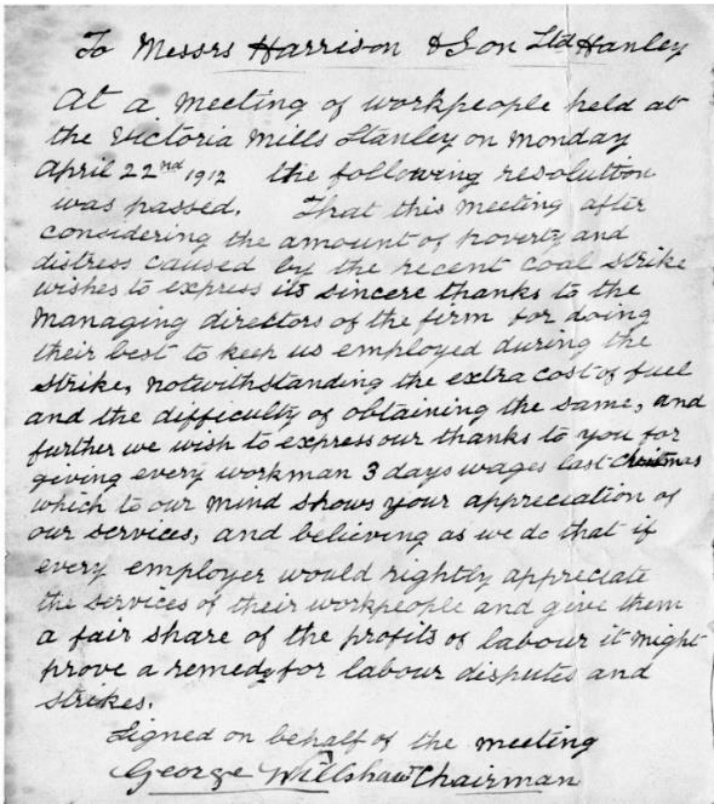
It is interesting to see that on this old map, it shows Lichfield Street as Fenton Road, so the name of Lichfield Street was extended from Albion Square to Joiners Square, probably in 1950's during the renaming of so many local streets. Also shown on the map is Westwood Mills (flint & stone), but this works belonged to George Goodwin & Son and never became part of Harrison ownership (photo shows where the electricity works can be clearly seen in the background). The property, adjacent to Westwood Mills, bought by Harrisons' was on land with interesting topography, where the Caldon canal passed at higher level and the land dropped between a strip of land to behind a row of terraced houses on Lichfield Street.

The mill owned by George Goodwin, in the photograph, adjacent to the canal abutted the land bought by Harrison, but was never actually owned by or part of their Joiners Square Works.

George Goodwin & Son, Westwood Mills, Hanley
in the foreground are the railings of the bridge over the Caldon Canal
in the background is Hanley Electric Works

The Joiners Square factory, at this time, provided a variety of facility. The canal-side extended from an unloading wharf with limited yardage and hard- standing. There were flint calcine kilns and milling facilities which were largely able to utilise sloping ground for production flow. Water for all the production and milling activities was extracted directly into a high level storage tank from the canal. Adjacent to the mill, was an operating clay- body preparation plant, with clay storage yard and a full slip-house. It was strategically placed where all the required milled materials were easily pumped directly from the mill next door. The building which enclosed the slip-house appeared to have slightly strange configuration and amazingly thick walls. Suggestion was that it had originally been a tea-pot factory. The covered clay storage yard had a narrow access road from Lichfield Street, where the often large tipper lorries needed to back-in off the main road to deliver their loads.

~1910 – 1965



To Messrs Harrison & Son Ltd Hanley

At a meeting of workpeople held at the Victoria Mills Hanley on Monday April 22nd 1912 the following resolution was passed. "That this meeting after considering the amount of poverty and distress caused by the recent coal strike wishes to express its sincere thanks to the managing directors of the firm for doing their best to keep us employed during the strike, notwithstanding the extra cost of fuel and the difficulty of obtaining the same, and further we wish to express our thanks to you for giving every workman 3 days wages last Christmas which to our mind shows your appreciation of our services, and believing as we do that if every employer would rightly appreciate the services of their workpeople and give them a fair share of the profits of labour it might prove a remedy for labour disputes and strikes."

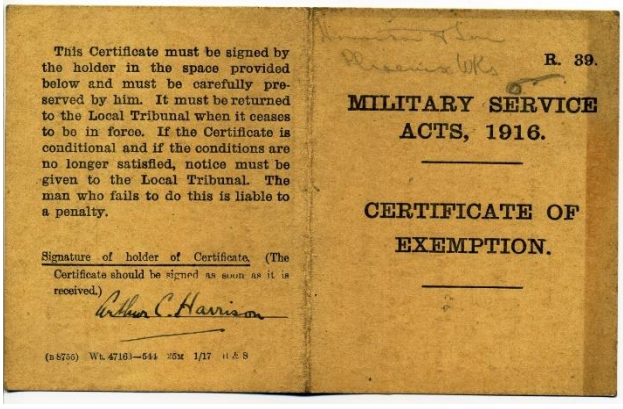
Signed on behalf of the meeting
George Wilshaw Chairman

To suggest that things were easy, with businesses growing within the Potteries at this time, was in general true. However, there was still a big divide between employers and their workers. Working conditions and wages were an ongoing contention throughout the country. For the Potteries, the dependence on coal was absolute, and during the coal strike of 1912, hardship was experienced by many. It is interesting and indicative of the feelings held by the employees of Harrison & Son (Hanley) Ltd., from a letter recorded here, of an attitude at that time, towards their employers.

These were times of the First World War. At Joiners Square opportunity for expansion was on offer with 5 parcels of land being made available for sale. These included a further strip between the Caldon canal to the end of Lichfield Street. Then along Leek Road the operating Central Mill Company (flint calcining and milling) and The Hanley Mill Co. (pan mills and drying beds), including further old buildings and land. Whether Harrisons' were the only people as prospective buyers is not known, but the purchase by them on each of these lots went through in 1914/15, where as chairman of the company, Sydney Harrison was signatory.

By the outbreak of war in 1914, big changes were experienced in the pottery industry. As throughout the country, many of its young men were easily persuaded to join their local regiments. Thus a great number of problems and set backs were experienced throughout, but as far as possible business was continued as normal. The demand for pottery reverted to plain utility-ware, not decorated or fancy items. It is thought that with the additional capacity at Joiners Square (since there is no further reference to hand), that the Boundary Street factory was sold.

Sydney Harrison was in his mid forties and with no military experience or background, there was no pressure for him to become directly involved in fighting the war. Arthur, however, was in his late thirties and as war was not being concluded as originally hoped, under the Military Services Act 1916, he had to gain exemption from call-up. It was shown that as an industrial employer and with a poor health record, his contribution to the war effort was better left to keep the family



This Certificate must be signed by the holder in the space provided below and must be carefully preserved by him. It must be returned to the Local Tribunal when it ceases to be in force. If the Certificate is conditional and if the conditions are no longer satisfied, notice must be given to the Local Tribunal. The man who fails to do this is liable to a penalty.

Signature of holder of Certificate. (The Certificate should be signed as soon as it is received.)

Arthur C. Harrison

(B 8736) Wt. 47163—544 25m 1/17 H & S

R. 39.

MILITARY SERVICE ACTS, 1916.

CERTIFICATE OF EXEMPTION.

business running soundly. However, his exemption was closely monitored – see photos of certificate. The only family member, as it were, to join up was Nina's brother, Norman Pidduck. He, though much younger than his brother-in-law, Arthur, had also been educated at Mill Hill School, where Officer Training Corp was part of normal curriculum; hence following his basic army training he was raised to the rank of 2nd Lieut. His first assignment to the "western front" was as a unit commander in the Machine Gun Corps. He was killed on 1st July 1916, at the Battle of the Somme, aged 20 years. The effect on the family, and particularly his parents, was devastating. His body was never recovered. This is another story, but the knock-on effect in later years, was that the second son of Arthur and Nina, Neale Harrison, rather than join the family business "Harrison & Son (Hanley) Ltd." instead went into the management of the family jewellery business "Henry Pidduck & Sons Ltd."

Stanley Harrison had been educated at Tettenhall College, near Wolverhampton, and in view of his father, his progress into the family business naturally followed, which would have been around 1918. Similarly, though some five years younger than Stanley, Arthur's eldest son Bernard, also progressed logically into the business. Bernard's upbringing and education had been much fragmented, where his parents had frequently been worried by his progress. The relationship between the cousins was close, where Bernard looked up to his older cousin and was happy to follow and be influenced by Stanley. The initial working environment for both boys was that each should "start at the bottom" to learn the business. Stanley's personality was one of self assurance and his head-start probably made the situation one of increased difficulty for Bernard, not only to learn the workings of the business but also to establish any authority or standing within the pecking order. More of Bernard shortly.

After the conclusion of the 1914-18 war the industry tried to resume to business as usual but it was proving to be a difficult time. Many smaller companies were being taken over by larger ones and it was sometimes difficult to know where and with whom the controlling interests lay. However, Harrison & Son (Hanley) Ltd. continued to prosper as a major supplier. Developments, changes and acquisitions featured during these post-war years.

Major changes at The Phoenix Works in Bath Street were limited by space so the increasing demand and range for milled materials concentrated on The Victoria Mill at Stanley and the recently acquired Joiners Square Works. Two items of note at Stanley were the increase in power supply to site, which enabled more electric motors to the mills. This meant they could eliminate the central steam engine and lower the tall chimney stack, which had so long been a landmark in the area. Also a newly constructed electric shunting locomotive was put into operation at Stanley in 1925, which Arthur named "NINA" after his wife.

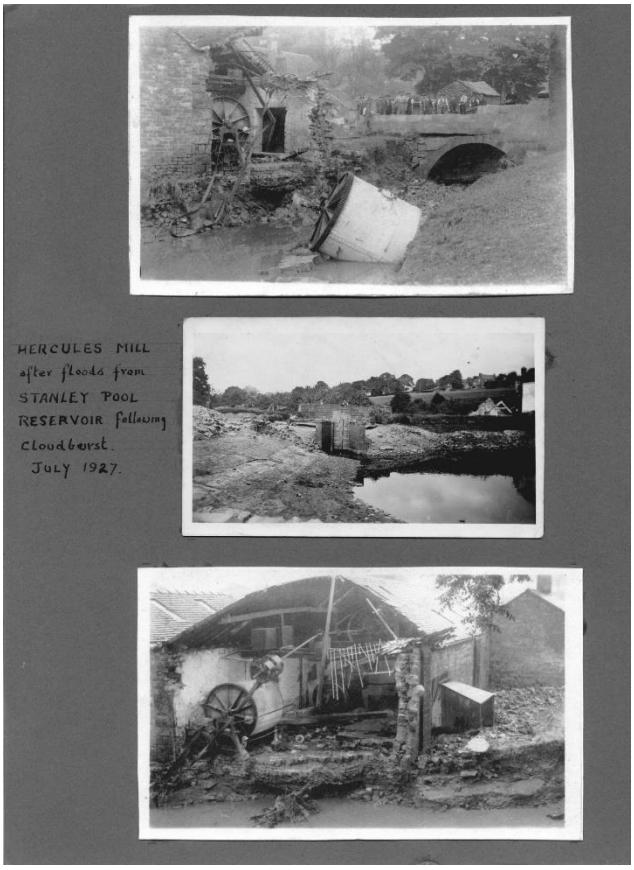
A major incident is recorded in an article in a local newspaper:-

"The Staffordshire Advertiser".

Saturday July 16th 1927

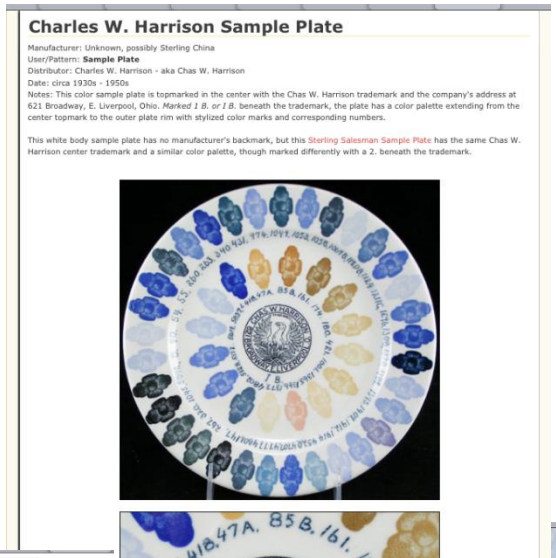
Thunderstorm in the Midlands

The worst damage was done in the Stockton Brook and Endon districts where the water from the hillsides flooded the area and caused the banks of Stanley Pool, the canal reservoir, to collapse, with devastating effects. The wild rush of water carried all before it. Roads were torn up, trees were uprooted, wooden buildings were smashed to pieces and large pieces of masonry from walls, bridges and houses were carried away into the swirling waters. At Messrs Harrison's Mill a portion of the building was demolished and part of the machinery dislodged and hurled on one side. Many of the residents had terrifying experiences and only managed to escape the flood with their lives. A portion of the railway near Stockton Brook station received the full force of the torrent and the embankment on which the permanent way runs was washed away for a distance of 200 yards causing the railway service to be completely suspended. Many of the roads were impassable and both pedestrians and drivers of cars and lorries found themselves marooned for several hours.



Major damage at Hercules Mill where a ball mill is ripped off its mountings and dumped in the stream.

Family overseas connections were still ongoing. Neale living with his wife, Louisa and their three daughters in Melbourne, Australia, continued as an agent to supply some business. Charles, who remained a bachelor, was living in East Liverpool, North America. For Neale, the contact was not as frequent, and there is no record of his ever returning to the UK. There were letters indicating the difficulty in being able to secure new business as well as references that he did not enjoy good health. His death is recorded in 1918 aged 68 years. Charles, on the other hand, was bringing some considerable business for the family. Since the success of the Chicago World Fair 1893, he had travelled extensively in the USA as well as the conscious effort to return to the UK for a period every year. His trips back to the UK were, however, made impossible during the two periods of WWI and then again during WWII.

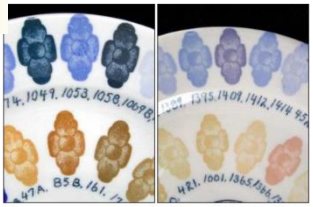


Charles W. Harrison Sample Plate

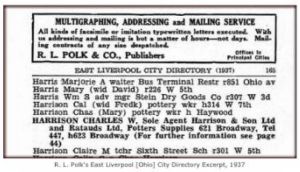
Manufacturer: Unknown, possibly Sterling China
User/Pattern: **Sample Plate**
Distributor: Charles W. Harrison - aka Chas W. Harrison
Date: circa 1930s - 1950s
Notes: This color sample plate is topmarked in the center with the Chas W. Harrison trademark and the company's address at 621 Broadway, E. Liverpool, Ohio. *Marked 1 B. or I B.* beneath the trademark, the plate has a color palette extending from the center topmark to the outer plate rim with stylized color marks and corresponding numbers.

This white body sample plate has no manufacturer's backmark, but this Sterling Salesman Sample Plate has the same Chas W. Harrison center trademark and a similar color palette, though marked differently with a 2. beneath the trademark.

No Manufacturer's Backmark



No Manufacturer's Backmark



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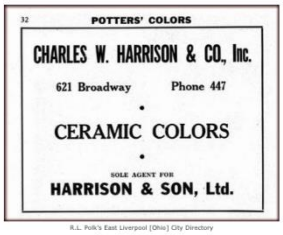
R. L. POLK & CO., Publishers
Offices in Principal Cities

EAST LIVERPOOL CITY DIRECTORY (1937) 161

Harris Marjorie A waiter Bus Terminal Restr r651 Ohio av
Harris Mary (wid David) r226 W 8th
Harris Wm S adv mgr Stein Dry Goods Co r307 W 3d
Harrison Cal (wid Fredk) pottery wkr h214 W 7th
Harrison Chas (Mary) pottery wkr h Haywood
HARRISON CHARLES W. Sole Agent Harrison & Son Ltd and Ratands Ltd, Potters Supplies 621 Broadway, Tel 447, h623 Broadway (For further information see page 44)
Harrison Claire M tchr Sixth Street Sch r301 W 8th

R. L. Polk's East Liverpool [Ohio] City Directory Excerpt, 1937



32 **POTTERS' COLORS**

CHARLES W. HARRISON & CO., Inc.

621 Broadway Phone 447

•

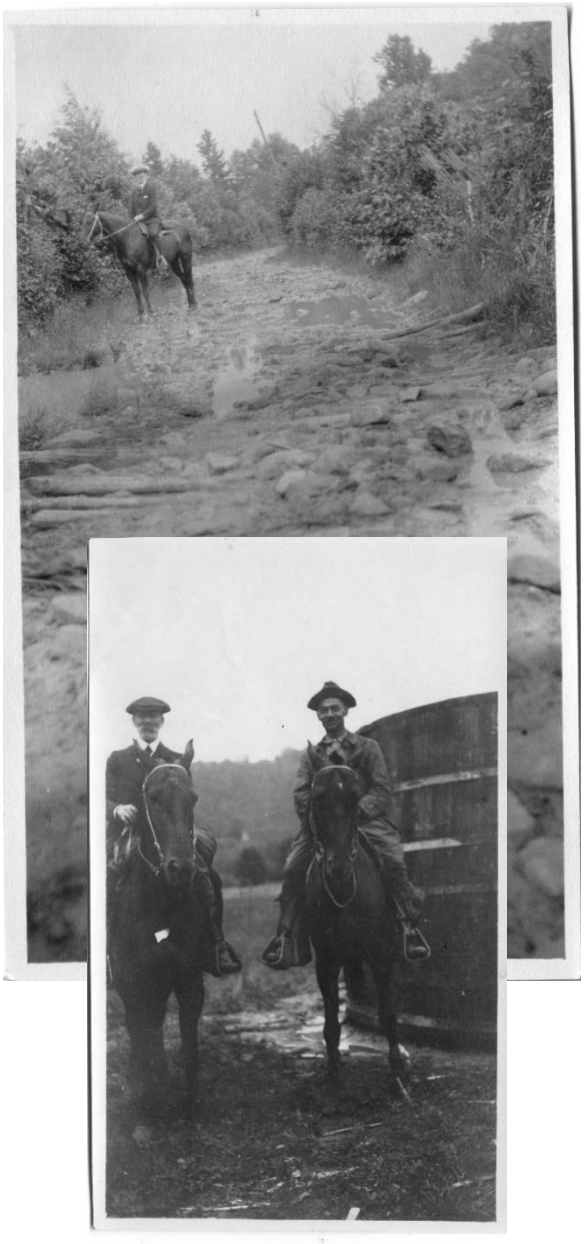
CERAMIC COLORS

•

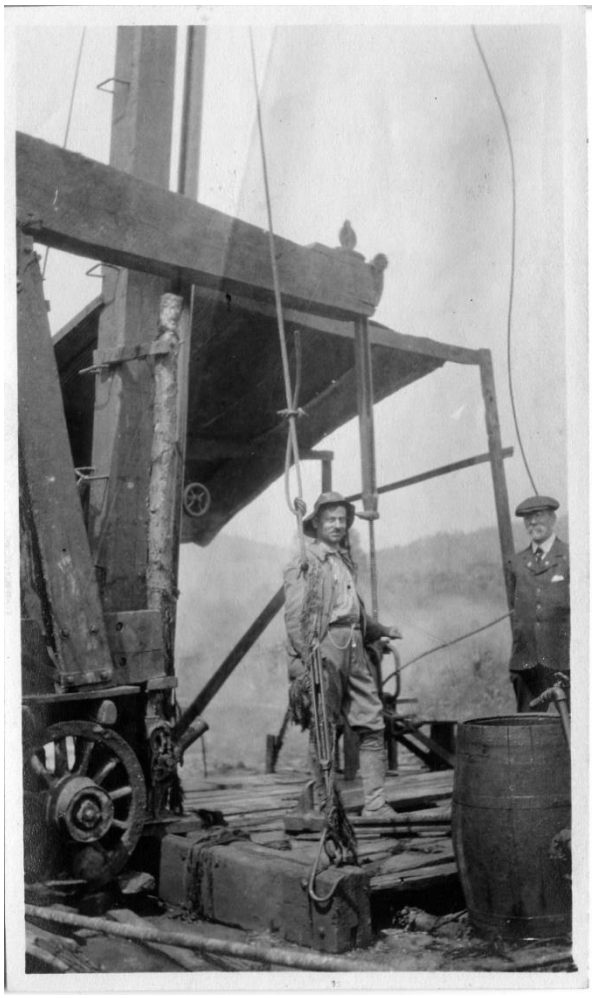
SOLE AGENT FOR
HARRISON & SON, Ltd.

R.L. Polk's East Liverpool [Ohio] City Directory
Buyers' Guide Excerpt, 1949

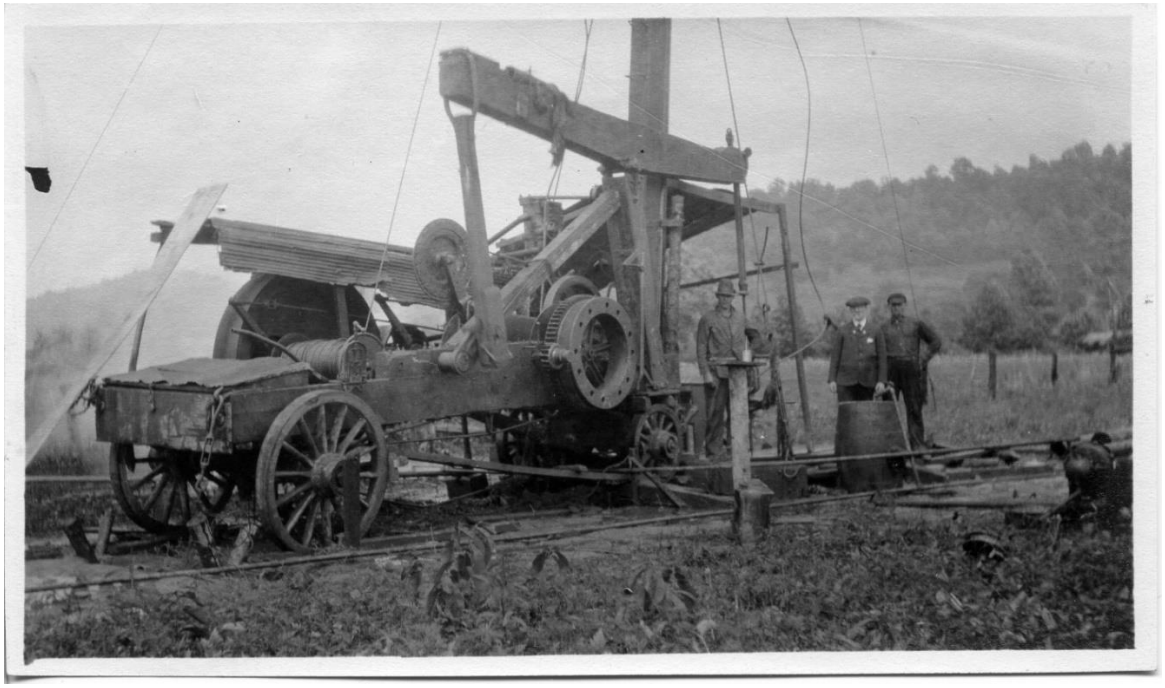
Charles Harrison's life in The States was taken up with a love of the outdoors and particularly horse riding. He was involved in several speculative land and property deals. Many were successful, but he suffered some equally bad losses. He did buy some land in the country where he built a cabin retreat. This was known as "the camp grounds" and evidently gave him great pleasure. With all his deals he did better than break even, but he never became a wealthy man. Later in his life he found it increasingly difficult, whilst living on his own and managing his business affairs. By 1942, his niece, Dorothy had been widowed and was living with her daughter's family in Toronto. He persuaded her to move into his apartment, to look after him and help run the business. The arrangement was good for both of them. Dorothy learned the business and continued to run the agency till well after her uncle Charles died. There was a close working relationship with her cousin Arthur, in Hanley.



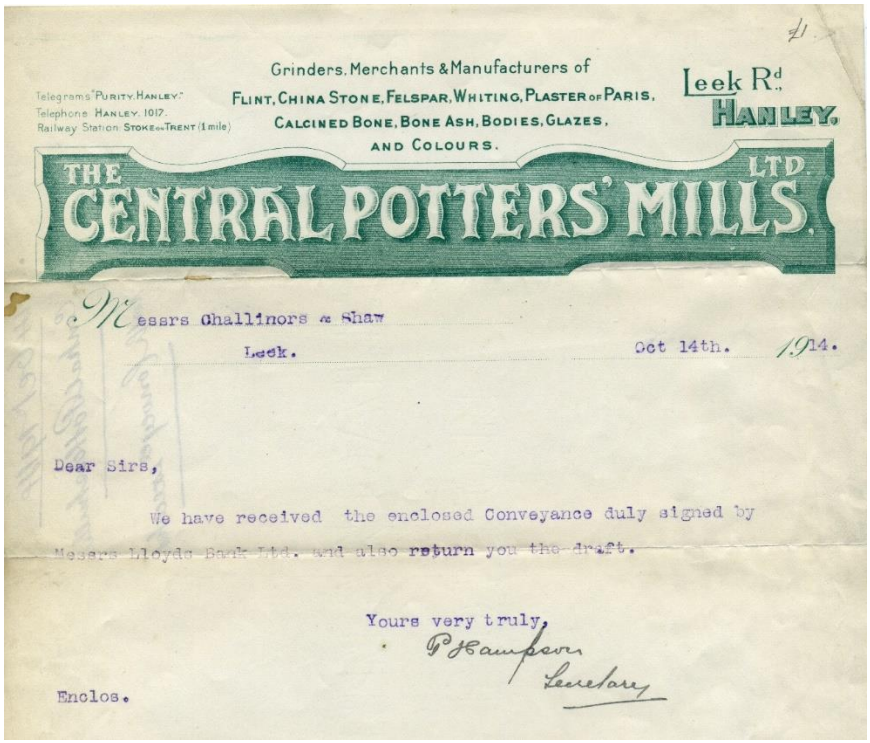
Some earlier photographs show him with an interest in oil drilling in Kentucky, though it is not thought to have lead to anything.



There were many letters (most still to hand), written from America. Too much to include here, but they provide dialogue of ongoing family and business affairs. Two of which, sent during war-time are copied in **Appendix VII & VIII.**



At an early stage he became a vegetarian. He was active as an "anti-vivisectionist" and also an "anti-vaccinationist" and had strong humanitarian views generally. In 1945, aged 88 he wrote *"I have recently been elected a vice-president of the American Antivivisection Society and my name is on their list adjoining those of The Duchess of Hamilton and Miss Lind of Hagely and I don't think I have done anything to deserve such an honour and their head quarters is at Philadelphia which is such a long way from here that I cannot attend their meetings very well."*



Grinders, Merchants & Manufacturers of
FLINT, CHINA STONE, FELSPAR, WHITING, PLASTER OF PARIS,
CALCINED BONE, BONE ASH, BODIES, GLAZES,
AND COLOURS.

Telegrams "PURITY, HANLEY."
Telephone HANLEY. 1017.
Railway Station STOKE-on-TRENT (1 mile)

Leek Rd.
HANLEY.

THE CENTRAL POTTERS' MILLS LTD.

Messrs Challinors & Shaw

Leek. Oct 14th. 1914.

Dear Sirs,

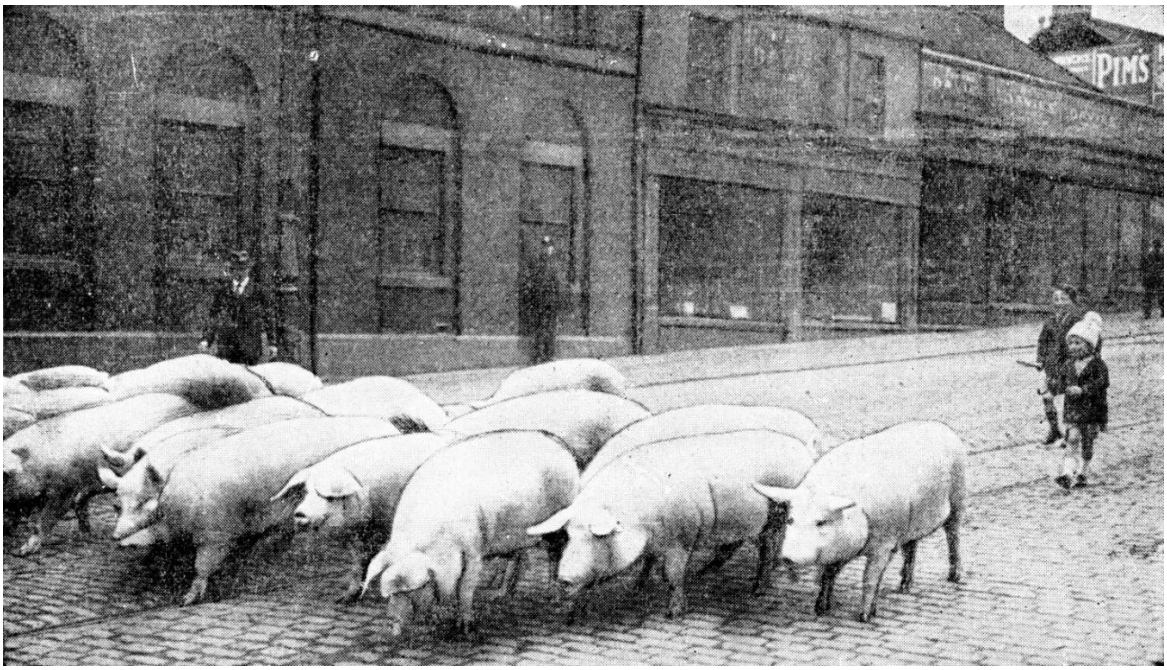
We have received the enclosed Conveyance duly signed by Messrs Lloyds Bank Ltd. and also return you the draft.

Yours very truly,
P Hampson
Secretary

Enclos.

At Joiners Square, the war had put on hold any planned activity for development and extension on the plots of land acquired adjacent to the flint mill and clay-body making plant. Raw materials continued to arrive at canal level by barge, and the additional flint calciners and milling continued on the recently acquired Hanley Mill Co., and Central Potters Mills.

Sydney was starting to demonstrate a diversity of interest from the core business. On a personal basis, he initially became financially involved and then in 1933, directly involved, using the company interest in the management of the pottery business in Stoke of George Jones & Sons Ltd. As chairman and managing director of the family business he had no difficulty of initially persuading other family shareholders to use "Harrison money" in his ventures, though old letters indicate Arthur's misgivings from the outset.



Pigs for Slaughter – Broad Street, Hanley

It is relevant and of interest to relate here something of Arthur and Nina and the raising of their four children. Each came from a background of strong "family support and values", and each, though supportive of the other, had a strong outlook on right and wrong. When Bernard was born in 1904 he was a difficult baby (often poorly and cried frequently). When Mary (Molly) came along in 1907 she was a placid baby, but by then Nina had resolved, from seeing so many animals being herded to the local abattoir in Shelton, that she and her children should be vegetarian. Whilst Arthur continued to eat and enjoy his meat dishes, he didn't oppose his wife's convictions. For Arthur, he felt that his son should be raised with all educational benefits available. This resulted in Bernard being dispatched to a boy's boarding school in Norfolk, "Snettisham" at age ten years in 1914. It proved to be a disaster. He hated it. In a letter to his mother, Bernard pleaded to be able to go to a school nearer to home. Arthur conceded and Bernard was eventually sent to Tettenhall College, where his cousin Stanley had been. So Bernard remained there until 1918 aged fifteen, when he was then to go to his father's old school, Mill Hill. His education was thorough, but disappointingly for his father, his achievements were below average. For his siblings, however, education could not have been more diverse. Neale had been born in 1909 and Dennis much younger in 1912. Nina's influence prevailed and all initial schooling was through the employment of a governess. The compromise between Nina and Arthur was that later, each of Molly, Neale and Dennis were sent to the very avant-garde mixed boarding school, Bedales, near Petersfield, Hampshire. Out of all this, it is not surprising that Bernard succumbed against his mother's convictions and gave up as a vegetarian. The other three lived their lives until they each died, never knowingly having eaten meat. Perhaps the most remarkable of this, was when Neale and Dennis were called up during the war and survived on rations provided, but still adhered to their principle to remain vegetarian. Molly and Neale were healthy and robust enough throughout their lives (Neale died aged 90 and Molly died aged 100), but Dennis often had bouts of illness and during his later years was diagnosed with multiple sclerosis to die at age 79. An early photograph of Nina and her daughter Molly is shown in **Appendix III** .

So with Neale going directly into Henry Pidduck's jewellery business after his schooling, the last family member to come into the business, at this time, was Arthur's youngest son Dennis. He was some eight years younger than Bernard, so would have come fresh from his boarding school education at Bedales in 1930. Again, like the others, he would have been expected to learn the business from the bottom, as it were. He was given specific areas of activity under the guidance and tuition of his father.

From late in 1919, Arthur and Nina moved house from Alsager to a large Victorian house near Newcastle, on The Brampton called 'Rosendale'. Coincidently, his brother Sydney was living in a similar property, some two to three hundred yards away; almost neighbours.

Sydney Harrison, from 1930, was evidently concentrating his efforts and time more and more with George Jones & Sons Ltd. In spite of initially arranged favourable supply terms for all raw materials by Harrisons to the George Jones business, the company had announced a series of operating losses; big changes in both the running and the ownership were ongoing. Sydney retained his role as chairman of Harrison's, but soon handed over as managing director to Arthur. Stanley went with his father and relinquished any of his previous involvements in Harrison & Son Ltd. Changes were also happening at George Jones which inevitably brought big problems there. One of the other main players, Harold Robinson, suffered stress and ill-health and resigned in 1936. It was then, that at the age of 35, Stanley Harrison was appointed chairman and managing director of the amalgamated companies in the George Jones Group.

Previous names within the group were :-

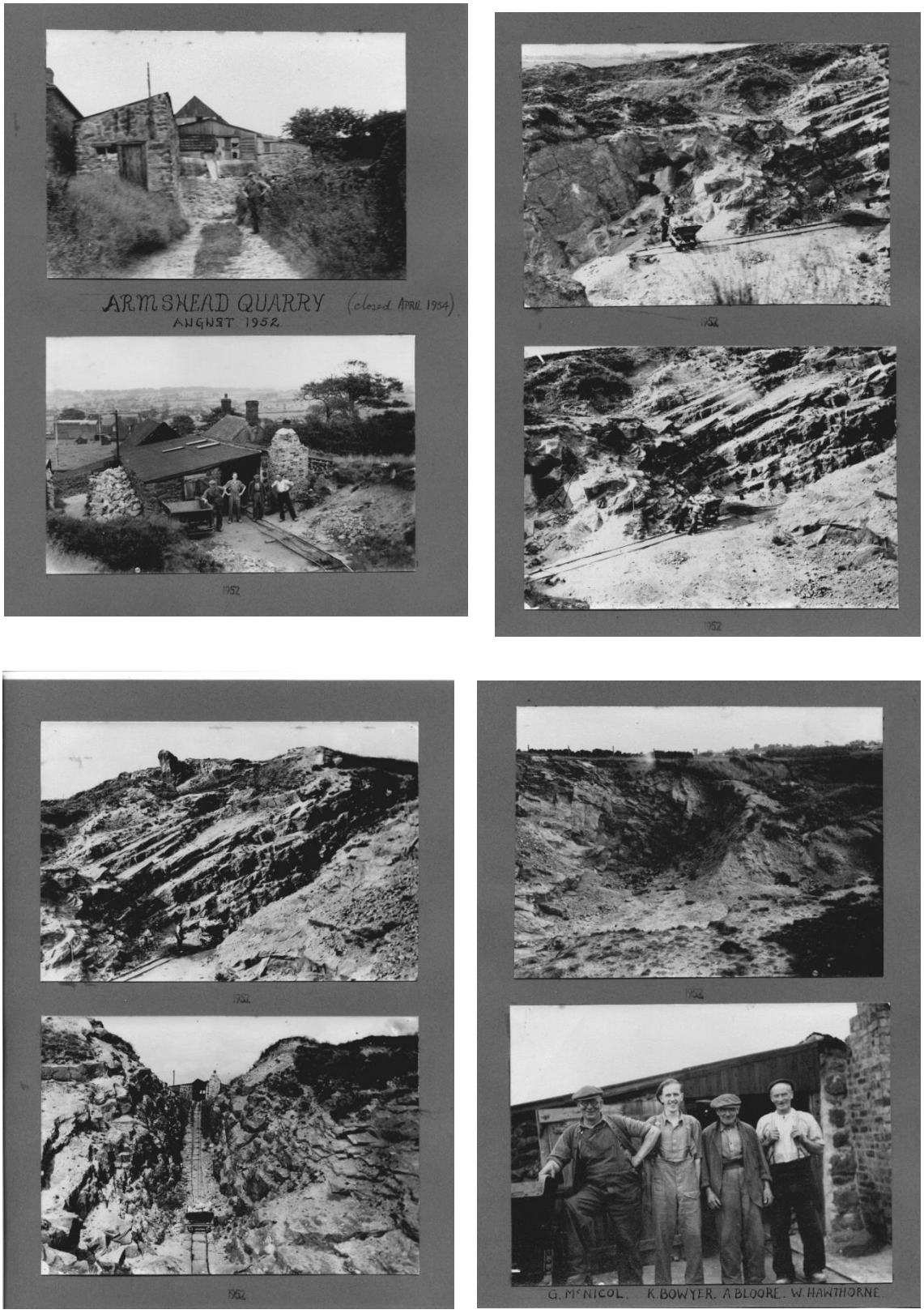
Charles Allerton & Sons.	Bakewell Bros.
Bishop & Stonier Ltd.	Cauldon Potteries Ltd.
Coalport China Co. Ltd.	Goss China Co. Ltd.
George Jones & Sons Ltd.	Swansea China Co. Ltd.

At the outset Sydney had drawn up an arrangement with the “Harrison” involvement in the George Jones venture, for the supply of raw materials, colours and glazes, to be at cost for a period until such time George Jones would make a profit. This, Sydney had estimated would be after one, or at worst, two years. This didn't happen, and the situation worsened with the onset of war in 1938.

Arthur's original concern over his older brother's ventures was well founded, and apart from no return on supply of all raw materials, as a major shareholder, Harrisons were liable to continued losses. Arthur felt a great responsibility and demanded frequent reports from his nephew on progress. Sadly successive report of accounts and scrutiny by their accountants, offered little or no hope of improvement. It is very difficult to judge the relationship between Arthur and his older brother Sydney, but as time progressed, there was no evidence of either concern or involvement by Sydney.

The lead up to the out-break of war, was a time of continued demand and improvements for the supply of raw materials for the pottery industry. Many improvements for maintained supply and production were introduced and being planned on the existing and available land at Joiners Square. At some stage Arthur had negotiated to extract stone from a local source at Armshead, near Werrington. Again, some of the details are somewhat sketchy but the Armshead Quarry became a significant source of suitable stone for the pottery industry. The quarried and crushed rock was transferred largely to Joiners Square for further crushing and grinding. This continued in operation through until 1955, after which the quarry workings were largely filled in and the area is now to be seen with residential dwellings. Hence there now remains little evidence of a stone quarry, under what is now regenerated scrub and meadow.

Stock-pile of Stone at Joiners Square Works

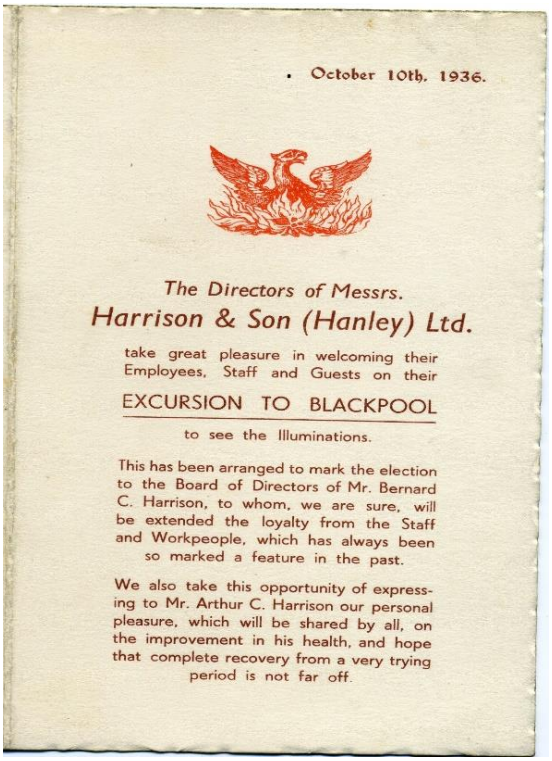


Armshead Quarry, Werrington

A small workforce of three men with a foreman.
All were transferred to work at Joiners Square after the quarry ceased working.

~ 1935 – 1950

Works outings continued to be arranged by the company for the workforce and their families. It was intriguing to find the notice and details, printed for the excursion arranged for all to go and see the Blackpool Illuminations in October 1936 :



October 10th. 1936.

The Directors of Messrs.
Harrison & Son (Hanley) Ltd.

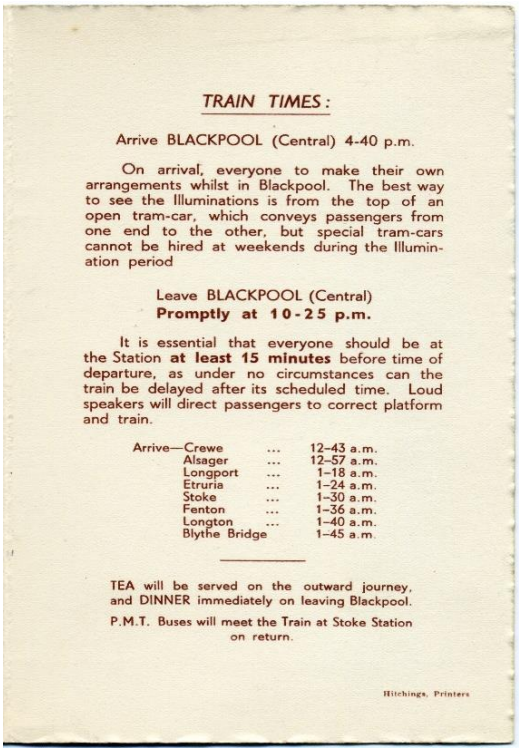
take great pleasure in welcoming their Employees, Staff and Guests on their

EXCURSION TO BLACKPOOL

to see the Illuminations.

This has been arranged to mark the election to the Board of Directors of Mr. Bernard C. Harrison, to whom, we are sure, will be extended the loyalty from the Staff and Workpeople, which has always been so marked a feature in the past.

We also take this opportunity of expressing to Mr. Arthur C. Harrison our personal pleasure, which will be shared by all, on the improvement in his health, and hope that complete recovery from a very trying period is not far off.



TRAIN TIMES :

Arrive BLACKPOOL (Central) 4-40 p.m.

On arrival, everyone to make their own arrangements whilst in Blackpool. The best way to see the Illuminations is from the top of an open tram-car, which conveys passengers from one end to the other, but special tram-cars cannot be hired at weekends during the Illumination period

Leave BLACKPOOL (Central)
Promptly at 10-25 p.m.

It is essential that everyone should be at the Station **at least 15 minutes** before time of departure, as under no circumstances can the train be delayed after its scheduled time. Loud speakers will direct passengers to correct platform and train.

Arrive—Crewe	...	12–43 a.m.
Alsager	...	12–57 a.m.
Longport	...	1–18 a.m.
Etruria	...	1–24 a.m.
Stoke	...	1–30 a.m.
Fenton	...	1–36 a.m.
Longton	...	1–40 a.m.
Blythe Bridge		1–45 a.m.

TEA will be served on the outward journey, and DINNER immediately on leaving Blackpool.

P.M.T. Buses will meet the Train at Stoke Station on return.

Hitchings, Printers

For Arthur and Nina, within three years from 1932, they were to see each of their four children married.

By 1938 there were worries and rumblings over more war in Europe. As difficult as this might have been, apart from Arthur trying to keep the business problems at bay, Nina was being greatly troubled with an ongoing bad cough. Consultations with doctors eventually lead her, in August 1938, to a London hospital for an operation to her throat. Tragically she died during the operation.

Nina's death in 1938 must have compounded a terrible time of worry and stress for Arthur. The situation continued through the difficult times of the war and was made even more of a worry, when his three sons were called up to fight. Bernard went into the RAF and Neale and Dennis into the army. The vivid memory of his brother-in-law, Norman Pidduck, killed during war in 1916, must have also been a burden for Arthur relating to his own sons.

It was a time fraught with much hardship and considerable personal difficulties, but in spite of his own worries, Arthur evidently made himself approachable to listen and react to the hardship of others – often in circumstances not expected. A letter written in pencil on rough notepaper which he kept in a personal file has survived to be transcribed here:-

Letter from a Mr Harold Hambleton :-.

June 5 / 1938

Dear Mr Arthur Harrison,

Just a few lines to you and I hope they will find you in good health. I am still working at King & Barrett, Burslem and I am going to stick to my work. I am working very hard and I have only a little Pleasure on Sundays. I should have paid you my Account only My Sister as had to Pay 3 County Court Orders this last few months.
Dear Mr Harrison I had to lend My Sister my suit of Clothes to Pledge to help pay these Orders or My Sisters Husband would have had to have gone with the Bailiffs. She as been unable to get my Suit of Clothes out of Pledge.
This is honestly with my Word of honour that I will make no more Appeals to you for help. I am saving on a Card enough for a holiday at Stoke Wakes since I came from the War. Dear Mr Harrison I am asking you very kindly to please get my Suit of Clothes out of Pledge it is only 12/-. I promise you faithfully to come to your Home every Saturday Night with 2/6^{d} until you are Paid every penny I owe you. I will give you my Promise as I did in 1929 when you saved me from Prison that I will be a Man and honestly Pay you back.
I am very happy with My Sister and I shall not leave her, and I shall stick to my Work. I am now in a Insurance Club and shall be able to draw Insurance Pay when I am ill. This is my last appeal and I shall be faithful to you and Pay you back. I will come and see you with my Suit on next Saturday Night if you kindly do me this last good turn. You can rely on what I say, so I wish you Good health and Good Luck.

Yours Faithfully
Mr Harold Hambleton.

C/o Mrs E. Twemlow
301. Furlong Road.
Tunstall.
Stoke-on-Trent.....

Stanley Harrison, though of call-up age, did not go into active service. He was apparently exempted due to a period of ill-health and he volunteered for the ARP (Air Raid Protection). He was also kept busy with the George Jones operations – still not doing well and made worse in time of war.

At each of the manufacturing sites and in all the different departments most activities were continuing in much the same way as they had done for years. For Arthur, the running of the business fell back to the many loyal staff and workers, though he tended to throw himself into business affairs. Letters to hand do indicate that he did spend time and was given support from his sisters Margaret and Winifred. Living almost next door to his home, 'Rosendale', was his daughter Molly and her family. She was able to keep an eye on him and helped as much as he'd let her. Molly had married Jack Mills, who at the time worked with his father in the clothing industry in Leeds. Soon after their marriage, Arthur had offered his son-in-law a job with the family firm in Hanley, which Jack was happy to accept. Jack had minor health conditions and was not called up for active service. Hence during that time there was family support for Arthur at work if he wanted it. His other relief and support was his religion and connection with the Tabernacle church in Hanley. One particular person there, on the organising committee, with whom he had worked and became very fond, was Margaret Davey. Their relationship grew and they got married in 1941.

The situation relating to the involvement of Harrison & Son (Hanley) Ltd. being caught up in the George Jones Group of potters was difficult. Perhaps best explained here in Arthur Harrison's own words, from a very long letter written to his brother Sydney:-

Rosendale
21st February 1941

My Dear Sydney,

There are certain matters about which I feel that I must write to you, though I hate to worry you, for I know that you are an old man (I am not so young myself and I don't think it is good for me to have to bear so heavy a strain as I am doing). I cannot believe that you do not feel a heavy sense of responsibility for the effect upon our family fortunes which has followed the sterilizing and possible loss of H&S liquid assets, on so vast a scale, in the G.J&S Pottery Business (which is as you know, an entirely different type of business from H&S, on which our family fortunes were built), and in addition the absorption of a very large part of H&S profits year after year, in making good the losses of the Pottery.

To have transformed an almost impregnably strong position, such as that held by H&S years ago to the position as it is today, as shown by the auditors' reports of the two companies (I wonder whether you have studied them), is no light matter.

But, I don't want to rub that in unduly. Along with you I rejoice greatly in the improved prospect of a reduction in the losses that has emerged as a result of placing Bullock in charge of the earthenware end of the works, though I realize that, in these days, factors which are beyond his control may nullify his efforts, and, in the absence of a miracle, I cannot see any prospect of the business earning a return on the immense amount of Capital which has been sunk, I fear irretrievably.

In any case, no recovery in the distant future (and it must take many years of a very successful trading to recover the enormous Capital losses and begin to make proper reserves and a distributable profit on the venture, perhaps after we are dead), could possibly compensate for the embarrassing reduction of income and the crushing burden of worry and anxiety of recent years.

What I do want, however, is to try to persuade you to see what an extremely rough deal I and the other shareholders are getting from you, in view of the <u>facts</u> of the situation. Have you ever tried to visualize what would have been your reaction supposing that your position and mine had been reversed?

Try to imagine that you and I together, having over a long period of years, built up one of the finest and strongest businesses, for its size, in the country; that then I, through having formed an unfortunate association, had initiated taking up, as a side-line, first with some of my own money, and then with increasingly large sums of the firm's money, an interest in an entirely different business, that this had eventually developed into:-

(1) Taking over the whole business and all its obligations,

(2) Releasing Bernard to run this business, his salary being paid in full for 5 or 6 years by the H&S business, which you were mainly running,

(3) That this new side-line, under Bernard's management and mine had lost annually for 5 years sums varying from ten to twenty five thousand pounds, thus absorbing the main part of the distributable profits of the H&S business.

What would you have said to me? Would you under such circumstances have been content to have your life's work dissipated in a branch business over which it was impossible for you to pretend to exercise any effective control, and at the same time to have me increasing my proportional interest in the assets of the main business?

That, reversed, is the position as it is today, and it is your response to my proposal "***that the declared dividends for last year should be paid in cash*"**, that has impelled me to write this letter.

The large part that I am taking in running the H&S business makes me regard any debts of H&S, or loans to H&S, as a personal responsibility, and I recognise that loans to the company constitute a prior claim to the rights of the shareholders. I am of the opinion that it is not in the interest of the Company.

I maintain further that the acceptance of money, in the form of loans is a matter for decision by the whole board of directors, and is not under the control of any one Director, not even the Chairman of the Company.

I want you to note further, that my proposition re dividends followed your repudiation, at the previous meeting, of the undertaking which you gave at the annual meeting in Nov1939, when, as you will remember, I registered a strong protest at the way in which H&S financial position was being undermined and its reserves liquidated in making up the losses of the subsidiary company. I then made a further protest at the manner in which, on your instructions, H&S was being bled, year after year, by simply withholding payment for goods supplied to G.J&S. (Last year's unpaid invoices, including Hanley Mill Co., amounted to over £14,500, giving an accumulated total of nearly £43,000 on top of nearly £100,000 in respect of prior loans and mortgage). I think that this does not include the original purchase cost of the business. In response to my protest you charged me with being a pessimist, and asserted your confidence that the corner had been turned, and in order to prove your faith, you undertook that there should be no further demands for Capital advances, and you further gave your personal undertaking that in future, at least fifty percent of the account should be paid.

Naturally, I concluded that you would implement your undertaking by giving Read instructions to transfer the requisite amount from your undrawn dividend account, month by month, if payment from G.J&S were not forthcoming.

You must imagine my astonishment when month by month went by, and you failed to honour your bond, and still more when, at our annual meeting with the firm's auditor in December, you repudiated having given any such undertaking, and calmly informed us that you had a perfectly clear recollection that what you said was "that you hoped that G.J&S would be in a position to pay for half of their goods in future.

If it was simply a matter of “hoping”, I don’t see why you should not have said that you ‘hoped’ that they would be able to pay for all their supplies, and also to commence repayment of the huge accumulated debt and to pay interest on the loans and mortgage.

But, really Sydney, you can’t expect three responsible businessmen, such as your co-director, the auditor and the secretary of the company to accept an entirely different version from you against their clear recollection of what was said, confirmed by notes taken at the time, not to mention those others who were present at the meeting.

It is, I think, generally accepted that a Harrison’s word is as good as his bond, if I remember right, and you made some such claim for yours when, at the meeting, Bernard suggested that you should put your undertaking on record in the form of a written memorandum.

It seems to me that the very utmost you can now say is “I do not remember saying what you all say I said, and if I did say that, I misled you as to my intentions”.

Here, I want to make clear to you that it is not a question of your foregoing your ultimate claim to the money that is at present standing to the credit of your undrawn dividend a/c. You have said repeatedly that you are confident that Jones’s will ultimately become a profitable business and it seems to me that your reluctance to take a share (and it is only a share that you undertook to carry), makes one wonder whether your confidence is as real as you make it out to be.

And then again, I sometimes wonder how far you realize on what slender threads our family fortunes are now hanging! Do you ever think of the future, try to visualize the situation that must arise if you and I were laid aside before this matter is straightened out?

I am not too sure that we may not find ourselves very much up against things even if our health is maintained, there are so many danger spots; but it makes me shudder to think of the possibility of those two boys having the responsibility of running these two businesses, and of each of them being dependent upon the success or failure of the other. Honestly, I cannot see them being very grateful to us for leaving them such a terribly complicated tangle to deal with. In fact, I am certain that they have neither the experience nor the stability of character that would be called for if the job is to be done successfully.

There is one other matter which, to my mind, gives ground for considerable anxiety for the future, and that is the possible effect upon Stanley of his bearing the responsibility, for all these years, of running a business which, year after year, has gone on losing money, hand over fist, whilst he continues to maintain a social position and style of living such as can only be properly attributed to a successful business man, meanwhile drawing the income wherewith he maintains his position from another business in whose conduct he has no part.

The net cash result of the whole of Stanley’s and of a large part of your work during the last five years is the loss of over Seventy five thousand pounds of Harrison’s earnings, as follows:-

1936	£13,972	
1937	£25,140	
1938	£10,132	
1939	£15,239	
1940	£11,211	£75,694

I wonder what people would think if they knew the facts!

You may remind me that when we took over the business you said that it might take four to five years to put the business on to a sound footing, but you didn’t tell us that you

contemplated it losing money on that scale. If you had done, we would have had something to say about it.

In reference to the £5,000 which you have hypothecated to the Bank from your personal bank balance, I cannot see that this has as yet cost you anything, though I can appreciate that in the event of the Jones business being wound up when the overdraft was up to the limit the Bank would presumably lay claim to it. I do not know the exact terms of your agreement with the Bank, but I suppose that if the Jones account with the Bank were to become stabilized at £25,000 or under, the Bank would at any time release you from your bond. It's a poor "look-out" if they can't keep within that limit if they are to continue to pay nothing for their supplies of materials. On the other hand, if in spite of the immense sacrifices that have been made, it should become impossible to carry on the business without further drain on the H&S business and failing other means of financing it we were compelled to wind it up, I do not believe that your sense of honour would allow you to retain any of the undrawn dividends standing to your credit, but that you would feel morally compelled to release the whole amount towards the discharge of Jones's obligations whether to H&S or elsewhere.

The outlook for the business today is, I feel, interesting but very uncertain.

I believe that the potting is now very much better and that the production losses are now satisfactorily low, that we now have several very interesting lines which ought to show a good margin of profit, and that it is a great gain to have cut out many of the unprofitable lines (which ought to have been scrapped years ago); but in spite of all this I have an open mind as to whether, as the business is now constituted and in the way it is now being run, it is going to show a profit or even to pay its way over a number of years working. At the best, I feel that it will take many years to wipe out the past losses, though, for the moment I shall be content if it will pay its way and show sufficient margin to pay Stanley's salary, and a fair one to Dennis.

But, whatever results the future may show, which is all uncertain, this letter mainly refers to what actually has happened and <u>is certain</u>.

In reference to my own loan from the H&S Company, I would like to point out to you that this has been one of the best investments that the Company has made (some others having turned out "duds" and against the total schedule of which substantial reserves have had to be made), that the Company has had about one third of the loan back by way of interest, that about one third of the loan has been repaid, that most, if not all, would have been repaid but for the reduction in the rate of dividends due to G.J&S, that the ultimate repayment of the loan is assured, and that it has never been suggested that it is necessary to provide a reserve against it.

In view of the known facts, I regard the reduction of the rate of interest as no more than simple justice, though, nevertheless, I appreciated your ready acquiescence to my request.

I know, to my sorrow, that I have made some pretty bad mistakes about interests which I have allowed myself to be drawn into outside of the H&S business, but, for such mistakes as I have made I have paid in full myself, and no one outside of my own family can say that they have been made to suffer by them.

I cannot help feeling that you should take some little extra share in carrying the burden which has been created through your being, in the first instance, drawn into taking up an interest in the Bishop & Stonier business. You surely will not say that you would have led us into this business if you had realized how terrific a loss it would involve.

As it appears to me, you have led the family into a financial blizzard, and I don't find you keen to take your place in the vanguard in meeting it.

In conclusion, I want to say that I would infinitely prefer that there should be a friendly and brotherly relationship between us, as business partners, but your apparent satisfaction in pretending that the rest of us have no need to be concerned, simply because you yourself are not seriously hurt, makes it difficult for me to feel anything but sore and aggrieved.

I wonder whether what I have said may lead to some modification of your views about things!

Yours ever,

Arthur

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Following dispatch of this letter it would seem that Arthur had no immediate response. He had kept a full handwritten copy in a notebook, which he sent to his sister Margaret, living in Devon. Her letter of reply (still to hand) is equally illuminating of the situation and is copied here:-

'Heemstede'
Manaton
Nr Newton Abbot.
April 21 1941

My Dearest Arthur,

Very many thanks for the nice long joint birthday screed and special thanks to Margaret for her share of the family news. It was very good of you both in these busy and anxious days to remember such a thing as a birthday - ! This will only be a brief line which I hope may catch the early post to acknowledge receipt of the book which I will return as requested by registered post later on.

You have certainly explained the situation very clearly and I am terribly sorry that things are so difficult and complicated for you - it certainly does seem a very hopeless situation and impossible to tackle successfully - and yet something must be done. Don't you think it would be a good thing to make an answer to your letter inevitable as it has not been given voluntarily? Sydney has had plenty of time to think it over and I should suggest that you ask him to a meeting of Directors, when Bernard is at home if possible - but anyhow with Mr Ledsum and Mr Read present and that you say you must have an interview on purely business lines. Then you can deal with the points one by one until you can arrive at some satisfactory agreement.

It certainly appears to me very just and sensible that the undrawn dividends should go into the subsidiary company, also that the shares available in H&S - due to the death of Mr Eccleston - should be offered to all of you and by common consent transferred. But what a pity you didn't forestall them by bringing up the question earlier! Anyhow it seems only right that

you should first give your consent - and you have the right to insist.

Of course where a company has outside shareholders this would not be possible would it - there are always pro's and con's! I think you would be far wiser to take up these questions at <u>once</u> without any delay - also thrash out the other matters.

Now you have clarified the position by writing it all down, you would have it at your finger ends - so do arrange a meeting with both Sydney and Stanley present and Bernard - or if you like Sydney and yourself alone, with Read and Ledsum first, and then a further meeting with the two sons to come to some definite agreement later on as to future plans.

Couldn't you possibly get a Pottery company floated now that business is more promising and have it on a really business basis? Anyhow the whole thing is hopeless unless you all act together and in harmony. On further consideration I feel by far the best course for you to take, is to ask Sydney the very first time you see him, if he has received your letter, because you have not had an acknowledgement of it. This I should tell him you <u>must</u> have, otherwise you will be compelled to call a formal meeting and thrash the matter out. On receipt of his reply (either verbally or written) you leave yourself free to decide whether it will be necessary to call in the others - but a reply you <u>will</u> have or otherwise it will be made public! Whatever you do Arthur, <u>don't</u> let Sydney get out of it by being conciliatory for the moment - now you have begun you must carry on and get a satisfactory reply, otherwise you will have created a smouldering animosity but with no satisfaction, and will have put yourself in a foolish position with both him and Stanley.

It is a rotten position for you as I know you hate as I do family controversy - and Sydney has his good points - but I do hope he will meet you in these questions and deal with them in a way that you feel fair and are willing to accept.

We are unfortunately obliged to leave here at the end of April but are moving to 'Half Moon Cottage' next to the PO on the village green and are hoping to be comfortable there as we have been here. Gwen is very busy doing farm work and has planted a few thousand potatoes lately. I think she is a little better, but still very worried about family affairs.

Mr & Mrs Weeks are coming here for a holiday next Tuesday. I wish the newswere better and that we could all feel more happy, but we must go on keeping on and not be too down hearted. I wish we knew where poor old Neale is now, but I trust you will get news before long. I'm so glad the children are all flourishing. With heaps of love and very many thoughts and good wishes to all,

from Margaret.

There is little evidence to indicate exactly how things were resolved. By 1947, however, Harrison's became disassociated with the Pottery businesses and Sydney, with his son Stanley, took over their complete ownership.

In the post war years the situation did not improve for them, but for Arthur Harrison, he was able to concentrate on the activities of the family business. Further historical background is given in books written by Sir Compton McKenzie and Robert Cluett, with relevant extracts from each shown in the **Appendix V and Appendix VI.**

Much of this was not central to the Harrison family business, though relative to the story and to the course of events. Sydney died in 1953 aged 83 and his son Stanley died in 1959 aged 60.

Work continued effectively on all three sites. Improvements were being made for employees with respect to changing, washing and canteen facilities.

With motorised transport developing rapidly the horse and cart was rapidly phased out so at Bath Street the stabling was converted and garage maintenance set up to service the growing fleet of lorries.

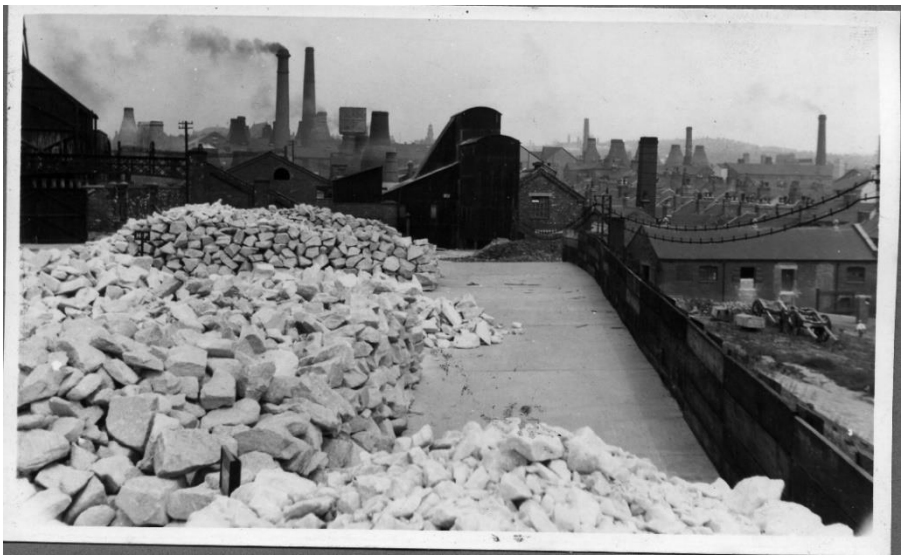
After the war and all the upheaval of events, it was with much relief that Arthur's three sons each returned home to their families.

At Joiners Square, at the old Hanley Mill Co. two of the old pan mills were still in operation used exclusively for grinding bone. Although a more expensive process compared to conventional ball mills several bone china manufacturers insisted that pan milling produced a better quality of milled bone. It was thus that these old pans which had probably been in operation for well over 100 years remained active until 1960's.

Joiners Square, canal-side

The picture, done in pen and ink, was one of a series *"The Changing Face of the Potteries"* by John Stoddard in 1949.

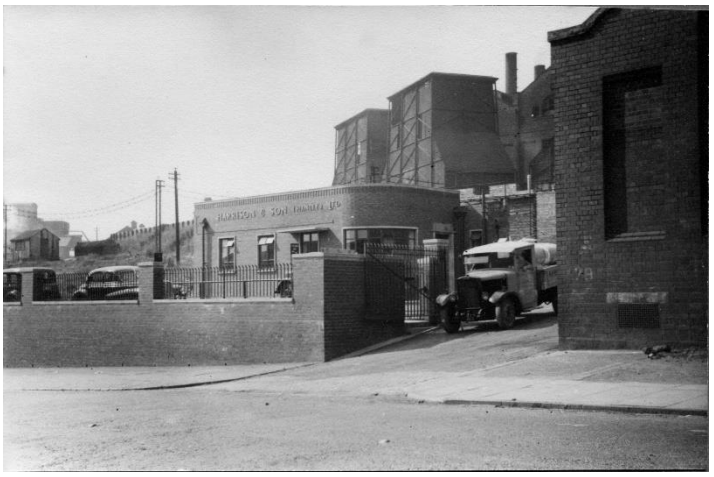
It shows the cooling towers to the electricity power station, left, and the canal wharf where raw materials, flint, stone, felspar etc., were unloaded and stored, to the right. It is also interesting to point out the bridge over the canal, which carried the main power cables through Harrison's premises to a sub-station.



In the photograph below can easily be seen the water tower and chimneys, as in the picture above.

Also Joiners Square stockyard, adjacent to the Caldon Canal wharfage. Late 1940's. Looking towards the lower level entrance onto Lichfield Street where later, new buildings were to be placed.

One of the first things to be addressed at Joiners Square under Harrison ownership was the increasing transport of raw material by rail and road. The whole storage yard area on site could only be accessed easily from the canal. By late 1940's improvements and extensions at Joiners Square were well underway. These generally involved improved internal road access through to the old Hanley Mill Co. on Leek Road and integration with the old Central Mills. The main gate access from Lichfield Street was already well established, so from there, a road weighbridge had to be installed. Alongside was built a smart lodge reception with two offices. Behind that were constructed a spacious changing and wash room for the workforce, above which was a canteen. Also a boiler room to supply hot water for washing and heating. Soon after all this, over the next five years, they built a "new mill" with four large batch mills, extra crushing plant, storage hoppers and a rail system for charging the mills. The finished mill materials were then pumped into agitator tanks sited over a garage area adjacent to the lodge, where the tanker lorries would load slip by gravity.



Two views of the entrance from Lichfield Street and the completed Lodge with road Weighbridge.

View left
1949

To access the higher level yard area a substantial curved reinforced concrete ramp was constructed. It is thanks to the forethought of the day, that this was made strong enough and wide enough that in later years it could still be used by large articulated trucks carrying well in excess of 30 tons. Work on the ramp started in 1949 and was completed during 1950.

Same view 1951

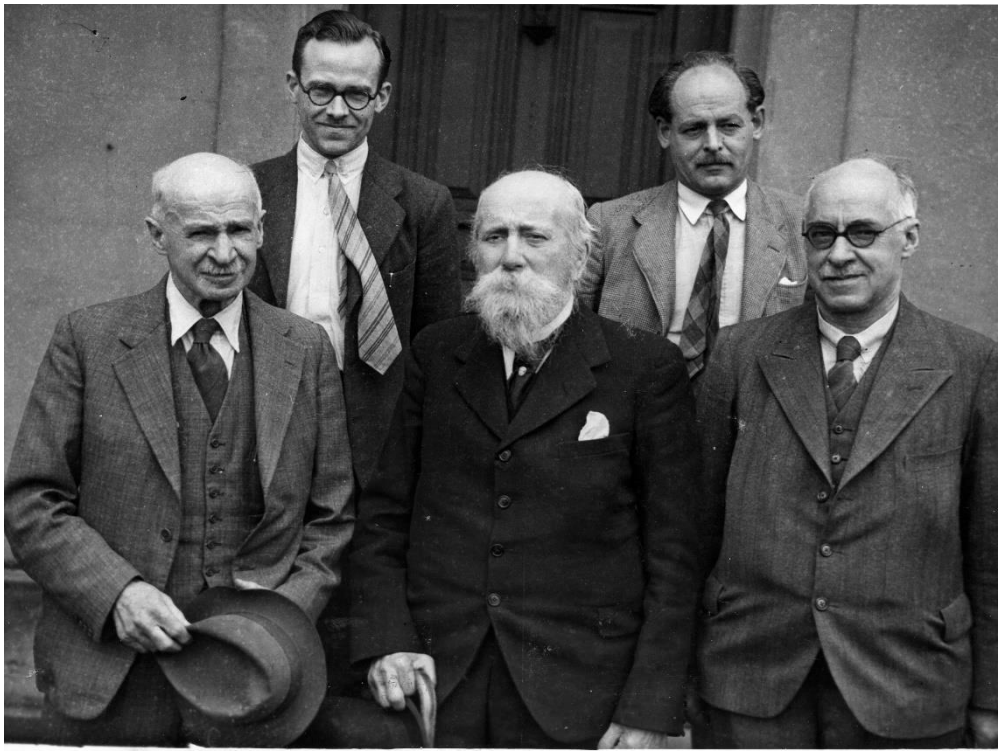
Same view 2012

Note, where the wooden cooling towers were, now there are two blocks of flats.

There were also developments brought about through changing product demands and improved technology. One such area was through the making and demand for frit. The frit furnaces at Bath Street had becoming unable to supply increasing requirements and the major project to

build a complete new modern facility at Joiners Square was a big investment. The planning and building of the new Fritting operation at Joiners Square Works was a much needed and a major engineering project. It included raw material silos and storage bins, all strategically placed for weighting out and transfer to a mixer/blender. Hopper storage for the mixed charges to be loaded by gravity into one of six rotary oil fired furnaces. Kiln discharge and transfer of finished frit was mechanised into one of several storage areas. The onward transfer of frit was mostly loose, again gravity fed onto tipping lorry to go to Bath Street or elsewhere. For sales direct to distant customers it could be bagged and palleted, to be loaded for delivery. The location for this was to the south of the Joiners Square Works and was always known and referred to as **"Southend"**. Many of the photographs in Part III of this book refer here.

The ongoing contact and family business agencies being run in both Australia by Neale and U.S.A. by Charles still brought many useful orders. Leading up to the war the Australian connection petered out and Neale died in 1918. There were occasional trips back to the UK by Charles who being a bachelor was more able to make the time for such visits. The war years prevented him from travelling and a letter dated Oct 1940 is shown in **Appendix VII.** Then a later letter dated Jul 1945, also shown in **Appendix VIII**. The latter indicated his intention to travel to the UK which he did in 1947 in his 90th year. However, on his return to New York, his worst fears were realised and without a vaccination certificate, he was detained on Ellis Island. Though his connections got him through fairly quickly, the experience was too much of a trauma for him and soon after his return to East Liverpool he died.



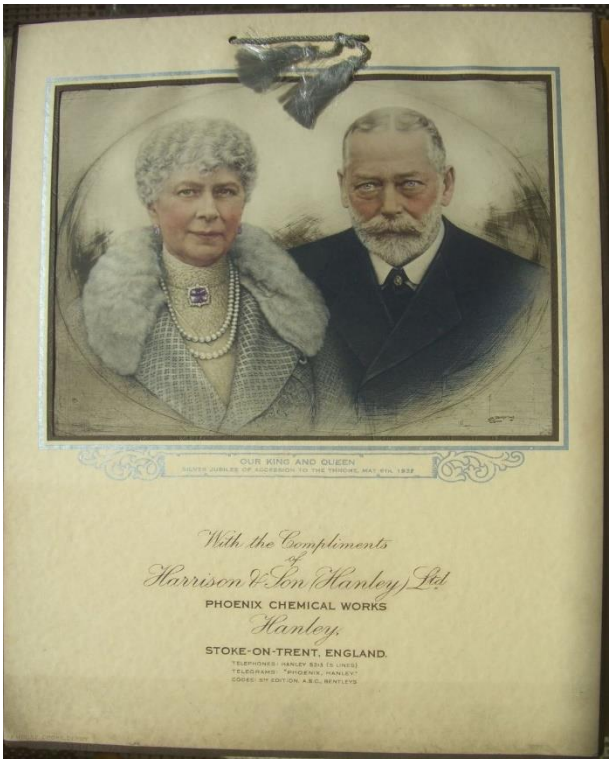
Dennis A.Harrison **Bernard C.Harrison**
Sydney T.Harrison **Charles W.Harrison** **Arthur C.Harrison**

Photograph taken by "The Sentinel" on the occasion of his last visit to U.K. during 1947

After the war, Bernard and Dennis returned to the business. During the war, at all three sites, there had been a holding exercise. Hence they were able to pick up and continue with projects

much as before they left. For Bernard, his father wanted him to concentrate on the developments at Joiners Square. Dennis, on the other hand was to develop and set up for a niche in the market towards the manufacture of Seger Cones (the pyrometric heat control devices, used widely in pottery kilns).
Prior to the First World War (1914-18) all the Seger Cones used in the Potteries were imported from Germany. When war broke out in 1914, all trade with Germany ceased and the pottery industry faced a major crisis. Realising the industry could not survive without Seger Cones, the Governors of the Central School of Science and Technology (which became the North Staffordshire Technical College in 1926) held an emergency meeting. They decided to manufacture the cones at the school on a commercial basis. A science laboratory was turned into a workshop and Dr. Joseph Mellor the head of the school's ceramics department was put in charge of production. From this Harrisons' became the major manufacturer of North Staffordshire Pyrometric Cones.

A regular tradition that occurred every year during the run up to Christmas was where the raw material suppliers would present freebies to their customers. This would be in various ways and method according to the would-be recipients, and their likely influence to maintain business commitment. Harrison's always went to great efforts to hand out diaries of quality which contained a section of related ceramic information giving pertinent conversion statistics. These became sought after item for many pottery managers. Other obvious items ranged from bottles of whisky, sherry or wine and then cigarettes and possibly cigars. Every year there was the Harrison Calendar. Perhaps one of the most kept was that for 1935, pictured here, to commemorate the Silver Jubilee of George V and Queen Mary.



Over the years there were also stamped gifts, mostly desk ornaments, but these also were sought after and prized by the recipients. A couple of examples shown here:-

1950 - 1962

The last "Works Outing" was held on 23rd Sept 1950 reported in The Sentinel as **"The staff and employees of Harrison & Son (Hanley) Ltd. together with their wives husbands or friends, were taken on an outing to Southport to celebrate the 50th anniversary since incorporation of the company. The party, totalling 600, were accommodated in 18 coaches."** There was a sit down lunch at the Floral Hall. Toasts were "The King", "The Staff & Employees – proposed by Mr. Bernard Harrison", "The Guests – proposed by Mr. A.Dickson (Secretary)", "The Company –proposed by Mr. C.E.Walker (senior production manager)" and "Response by Mr. Arthur Harrison"

A Harrison and Son (Hanley) Ltd works outing to Southport on September 23, 1950.

Sydney had long since left all aspects of the family business to Arthur and had retired to Bournemouth where he died in 1953.

Arthur had lived very much in the image of his father, as can be seen clearly in retrospect. He had been dedicated to the family business and to ensure support and well being for the extended family, if it was needed. He supported and was active to encourage furtherance of social and religious activity within the local community. He had been a JP since 1924, as was his brother Sydney, and he was a founder member and very active in the Hanley Rotary Club, he was an elder of the Tabernacle Church in Hanley and an active member and one time President of The League of Nations Association. He also, like his father, became a notable and respected personage in the Potteries. He enjoyed many of the trappings of good living, as a result of his own efforts, but there are many instances of his awareness and support to the needs of those in hard times. Though never critical within any aspect of his family he had times of disappointment and heartache. The loss and support of his beloved wife Nina was a major blow to him. In her place, he went with his son Neale to the Flanders Fields to pay homage to her brother Norman, killed in the Somme and commemorated on the Thiepval Memorial. Towards the end he remained concerned over the continuity of the family business, for both Bernard and Dennis. Dennis had done well in setting up and creating his own particular domain in running "the Cone Department". However, his health had never been robust and when he became diagnosed with having a form of multiple sclerosis, this was yet another hardship for Arthur to reconcile. Thus the onus lay squarely on Bernard. Arthur was still active to influence all decision making at the time of his 80th birthday in November 1957.

The ongoing activities and developments on the Joiners Square site, covered a major investment for the company. During these years, much of this was under the supervision and eye of Bernard Harrison. How much of a personal impact he might have made was not so much in evidence. Bernard was not in the mould of his father or grandfather. He was in no way involved in any community activity and also tended to distance himself and his own family, from those of his siblings. During these years he also appeared to be content to be under his father's bidding and at no time did he involve in interaction with customers.

Where the supply of raw materials was becoming increasingly specialised and a widening range of materials were being imported from overseas, Colin McNeal Limited, became incorporated into the Harrison business. They had a small office in Fenton and had been in business as Pottery Material Suppliers and Agents since early 1900's. This provided a major step forward for the Harrison name. A small business that was being run by Douglas McNeal. They joined Harrisons' in 1950's. Douglas McNeal later became Sales Director.

An additional outlet to its products, to be set up and developed, was to sell colours for use in the ever
growing plastics industry. Though this was a competitive area, the Harrison expertise in the making and the application of colouring oxides, found this a potential in the market. A new department was set up in a factory unit in Hillchurch Street, which was located at the north end of Garth Street (was Bath Street but the city fathers saw fit to change many of its street names in the early 1950's). This was overseen by Clifford Hall, who had been with the company for many years and had at this stage been appointed a director. The manager was Barry Kinsey.

In writing a history such as this, about an industry so closely related to it's customers, producing pottery and ceramic wares, where processes and inter activities become so complex, each topic can become a book on its own. For Harrisons' as a family business, much is recorded here about the origins and the family itself as well as the changing industrial processes and environment in The Potteries. It would be wrong not to pay tribute to so many of the employees, at all levels, who gave through their own character and ability, to the success of such a business. The one thing throughout, demonstrated time and time again was loyalty. Their support and contribution to the well being of the business, in these times was very much in evidence at all levels of operation. Some had involved families, where sons and daughters were on the payroll. There were family names like the Bagnall’s and the Bebbington’s, the Kilfoils, Bill Edge and his daughter Margaret, Douglas Oulsnam and his son Donald and many others. Amongst the senior management latterly, were Cyril Foster (Glazes), Alan Reid, Sid Smith, (Colours), Jim Cox (Works and Transport), Reg Bachelor (Technical and Research), Stanley Bebbington, known by all, running Victoria Mill at Stanley and Jim Jones quietly overseeing the production at Joiners Square. Tom Evans, Stan Titterton and David Buttle, Norman Gallagher (engineers to keep the wheels turning) and many others, some also shown in the picture who maintained office and commercial backup.

There is record of some of the long serving achievements which individually, let alone collectively, indicate the incredible work ethos of those years, compared with the present day. September 1958, death of Charles A. Leach,aged 74, who rose from office boy to senior Sales Representative and a Director, over 60 years. November 1957. Mr Howard Wright, presented with a gold watch after 50 years service. Mr Douglas Oulsnam, also from office boy to Company Cashier with 60 years of service. October 1962, retirement of Mrs A.E.Goodhill looking after office management at Stanley Mill after 54 years service. Also at Stanley Mill after 50 years Edward Kilfoil and Richard (Dick) Mountford.

11th November 1957 was an important date for the company as being the 80th birthday of Arthur Harrison. Not only in his position as Chairman and Managing director of the family business, he was to be congratulated and applauded by all the other local activities, with which he had been associated and done so much for. The events were recorded and reported particularly by "The Sentinel" being the major local newspaper.

ARTHUR C. HARRISON, J.P.
(1877 – 1962)

Item as published in "The Pottery Gazette"

80th Birthday Dinner

The senior staff of Harrison & son (Hanley) Ltd., manufacturers of colours and glazes, held a complimentary dinner in honour of their Chairman and his wife, Mr & Mrs Arthur C.Harrison, on Nov. 14, at the North Stafford Hotel, Stoke-on-Trent. Mr Harrison celebrated his 80th birthday on Nov 11, and the dinner was the climax to a series of dinners and other similar functions, including the 75th annual general meeting of the company, all of which Mr Harrison – still an active force in the business – had attended.

Prompted by Mr. C.E.Walker, manager of the majolica department, the staff took wine in groups according to length of service, with their Chairman, who had himself served the company for 61 years. Aggregate service of all persons present was 1,180 years. Speeches were made by Mr. Walker and Mr. J.P.Hewitt (a senior district representative) on behalf of the staff, and by Mr. And Mrs Arthur Harrison. Mr Harrison referred to the exceptionally happy and friendly relations existing within the firm, and it was because he appreciated that so much that he felt it worthwhile carrying on. He was certain that it was the friendly feeling inside the business that had enabled Harrisons to be so successful and to render useful services to the pottery industry, and he looked forward to a continuation of those happy relations for his sons Mr. Bernard and Mr. Dennis Harrison.

Arthur Harrison with his four children, Dennis, Bernard, Neale, and Molly.

Left, with wives and Molly's husband Jack Mills & right, with his eleven grandchildren

By 1961 the interest from Goodlass, Wall and Lead Industries Group to acquire the Harrison family business was becoming an active reality. Most of the negotiation was conducted by Bernard Harrison being the Chairman and Managing Director, but his brothers Neale and Dennis were also involved. The acquisition was not completed until 1963. Arthur died in March 1962 aged 84, after a period of illness. It is easy to speculate that he knew what was happening and would have been relieved to know that his sons and other family might capitalise on both the worry and labours of his own lifetime.

Part II Recollections and Reminiscences of HARRISON & SON (Hanley) Ltd.

Barry Simpson

My time at HARRISON & SON LTD.

It was an early summers day in 1957 whilst still a school boy when I walked into reception of Harrison & Son in Bath Street, Hanley, named the Phoenix Works.The receptionist was a lady named Margaret Hemmings. I asked her if I could see the Managing Director for the purpose of a job as a Laboratory Assistant. He was Mr Bernard Harrison, son of the Chairman of the Company, Mr Arthur Harrison. He agreed to see me and granted me an interview subsequently sending for the Laboratory Manager, Mr Ron Proctor. He took me along to the laboratory which was situated in an old hospital called Twyford Building. I was introduced to other laboratory staff, mainly Mr Douglas Holdcroft, who was also the owner of Holdcroft Bars. There was also Mr Fred Oakden and Mr Tony Ainsworth. There was also an elderly Scottish gentleman by the name of Mr Jock Brown, who was the gofer and general handyman. Indeed he was a great character, who for some reason called me Harold Larwood after the cricketer.

I was offered a job and started work on 17th August 1957.

During the early days of my employment I was introduced to amongst others, notably the long serving Senior members of works staff, ie; Messrs, Jim Cox, Jack Mills, Cyril Foster, Alan Reid, Clifford Hall. There were also other long serving office staff, ie Mr Joshua Jones, Mr Oulsnam, Mr Arthur Hawley, Mr Albert Jackson, Mr Alf Heath, Mr Maurice Rose, Mr Jim Ratcliffe to name but a few.

The highlight of my time in the laboratory was a requirement to go to the mill at Stanley to test the materials as they were being produced. This visit involved catching the service bus to the village of Stanley, near to Endon, alighting at the Rose & Crown and walking through the fields to the mill. The manager of the mill was Mr Stanley Bebbington , an extremely loud man, with a wide vocabulary of swear words. Whenever I told him that the material was not on speck, he would rant and rave at me but in the end he calmed down and took remedial action. However, I truly liked him and found him to be a really nice man. Incidentally, his son Mr John Bebbington who also worked for the Company, still lives in the old Mill House.

After about 12 to 18 months I went to work in the laboratory at the Joiners Square Works testing the various materials as they were being produced. One of the requirements was to go to the far side of the works to collect the samples of milled material walking through the drying beds which was like an obstacle course of a very narrow precarious path through a curtain of thick steam.

After a short while I was transferred back to the Phoenix works into the White Glaze production dept to work with the manager Mr Derek Hughes. Today's Health and Safety would have had a field day in that it was a noisy, dusty, cold and poorly lit working environment. The only method of heating during winter was several strategically placed coke burning braziers. The office where we worked had no daylight emitting windows. It was a case of all hands to the pumps whenever there was anyone absent, this included discharging, charging and weighing out materials using No. 10's shovels, which was very heavy work. Another requirement was the tub-wash where tubs returned from customers were thoroughly washed out using cold water

situated on the coldest and bleakest part of the factory. I even did some of that procedure when short staffed.

People I remember

White glaze personnel:-

George Davies, Ernie White - No 1 Mill
Jack Tunstall, Bill Cordall - No 2 Mill
Charlie Goode, Mick Davies - No 3 Mill (Large Cylinders)
Fred Wrench, Jim Rowley - No 3 Mill (Small Cylinders)
Arthur Hewitt, Ted Lawton, Bill Mayer – No 4 Mill
Cecil Turner, Clarence Francis, George (Stinker) Jones - Dryers
Harold Dobson, Charlie ? - Despatch/Set Up

Other personnel who joined the team included:-

Arthur Rowley (No 1 Mill), Albert Thomas, Arthur Rowley (No 3 Mill small cylinders), George Seddon
Charlie Goode later became my assistant when Derek Hughes became so involved in the planning of
the new factory at Meir.
Joe Carr, Albert Sims, Arthur Hudson - Boilermen.

Some other works personnel I can remember were:-

George Bagnall, Stephen Bagnall, Graham Bagnall (All Related)
Harold Finney (Gold Dept) father of Cyril Finney (Salesman/Rep) who died suddenly whilst at work. Bill Edge (father of receptionist Margaret Hemmings). Barry Kinsey, Bill Edwards, Bill (Tish) Osbourne, Mr Alec Robertson (Lodgeman)
Frank Bailey, Frank Barnett, Norman Woodward, Eddy Broomhall (Transport)

Barry Simpson

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Fred Oakden

Harrison & Son

I joined Harrison's in December 1950 as assistant to the manager of the Cone Dept. in October 1952 I had to do my National Service. On completion I returned in October 1954.
I reported back and said I would return to work on Monday which I did. I was sent for by Mr. Arthur and told I would not be going back to the Cone Dept., I would be going to work in the lab. I would learn all about the rest of the departments while there and was to take over from whichever manager retired. Luckily, for the first manager to retire was the manager of the Cone Dept. This made me happy and I think also for the staff of the Cone Dept.
One week I was not in a very good mood and after a few days my boss, Dennis Harrison sent for me and asked what was the trouble. I told him my son was ill and the doctor did not seem to know what was the trouble. He left and half hour later he came back and told me to go home and get my wife and son. A car will pick you up and take you to the City General to see Dr

Dathan at 2 o'clock. This we did and the doctor examined him and told us he would operate that afternoon on a large abscess on his neck. This was paid for by Mr. Dennis.
Much later in years Mr. Dennis came to see me and say he had a paper for me to sign. It was a ten year contract and I could not get dismissed unless I did something stupid and I could not leave to go and work for someone else within a 20 mile radius of Stoke town hall. Six months later Harrison's sold. Later the activities of the Cone Dept. we're sold and transferred to Allied Insulators and I was also included in that.

Fred Oakden.

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Bernard Whittaker

Harrison & Son. - some memories and recollections.

My first knowledge of Harrison's was as a small boy. My family moved to Stanley and I made contact with other local children. They introduced me to a mill at Stanley Moss - open sided, no fences, what a grand place to play at weekends when nobody was working. It had a shunting engine, trucks and a railway line to the nearby canal. We knew the layout of the mill and had seen the huge ball mills revolving; fortunately we never ventured near them. What would Health & Safety inspectors say nowadays?

We were bellowed at occasionally by a Mr Kilfoil. I am sure he knew us but as long as we ventured no farther than the storage sheds I don't think he was particularly concerned. On Sunday mornings Mr Bebbington the mill manager allowed us to play football on a small field near his house; his son John played with us. Incidentally, John spent all his working life at H & S (Harrison & Son) and at what followed under Cookson.

It was at the end of the war; we had to use a tennis ball. Then one day, one of the boys arrived with a caseball (football) - fantastic. As time went by, it's leather absorbed moisture, it became heavier and stretched, so it became harder to kick more than a few yards. We were all under the age of eleven or twelve. However, Mr Bebbington's coaching advice on kicking a caseball was to toe-end the top half of the ball: no coaching manual would advise this. Mind you, when he kicked the ball and it hit you it felt like being butted by a billy goat.

That was my introduction to Harrison's. Little did I think that after my National Service I would become one of Harrison's employees.

In 1953, interviewed by Mr Bernard Harrison, I joined the Company. All junior staff were given time off to attend Stoke technical college. I became manager of the Coloured Glaze department and eventually in 1966 I left the company when H & S was sold, having received a very good grounding for my future career.

However, my recollections are of the many characters, incidents and Harrison's sporting activities.

One, Joe Heath, a worker in my Department, was not averse to saying what ought to happen to me if I pushed him a little too hard, but he also did the job - a great worker, broad Stoke accent, clog wearing, heavy Woodbine smoker, given to telling all and sundry his thoughts. On one occasion, when the other workmen were within earshot he claimed in broad Staffordshire:

"There inner any virgins in Stoke-on-Trent". One of the fathers took exception: "Do you mean my daughter is not a virgin"? Joe replied "Ow ould is her - thray"?

Joe did not turn up for work one Monday morning - most unusual. I received a phone call from his brother. Evidently Joe did not go out on weekdays but hit the town hard at the weekends. I decided I would do some tracing of his weekend adventures. In those days Harrison's owned many houses adjacent to the works, which were rented to the workers - a very tight community using the local pubs. Sure enough, Joe had found himself a girlfriend: I was given information about where she lived and knocked on the door. Yes, Joe was there, but in bed upstairs poorly. I duly reported my findings to his brother - nothing to worry about, etc. Joe came to work a couple of days later. "Dust know", he said, "I spent five years during the war in the Royal Navy - I was bombed, torpedoed, shot at, nearly drowned and nobody gave a xxx!. I am away from work for two days and they send the !*x?!x! Marines out". I had a lot of time for Joe.

Technical staff signed a contract not to work for a competitor for six months if they left; this was to protect Harrison's know-how. However, one incident occurred; a recipe book belonging to the manager of the White Glaze department disappeared in a room containing various chemicals, all of them coded so only the relevant staff knew their properties. A recipe book would only be of use to a competitor who knew the codes. The police were called and nobody was allowed to leave the factory. All the various containers, etc., were emptied and the area completely searched. I remember it so well - November 1961. After some hours I asked the police inspector if I could be allowed to leave because my wife was about to give birth to our first child. There were no mobiles and few land lines to private houses in those days. I was frisked and allowed to leave. The book was never found. Suspicious events did occur with one of our competitors and approximately one and a half years later one of our staff did join them, which raised a few eyebrows.

On another occasion, one of the laboratory juniors did not feel well. I told him to find somewhere to lie down. The Garth Street factory was full of empty rooms and cellars. He made himself comfortable on some benches in one of these. On looking around more closely he saw a TV set. Evidently some of the lads enjoyed watching the horse racing. I made a few noises and the set disappeared the next day.

And so to H & S sporting activities. A cricket team was formed by the perfect example of an English gentleman cricketer, P.S.S.Briggs. We played over 20 evening matches. In 1954, Phoenix cricket team won the Kidsgrove knockout cup by one run. Mr Arthur Harrison was approached and asked if he would allow one of the H & S fields at Stanley to be used for Saturday matches. He was quite agreeable and very supportive. However, some of the evening players were already committed to Saturday teams so unfortunately it fell through, but those that turned up had some fun times.

H & S had a table tennis room, internal league matches were played and two teams played in the Potteries leagues. Northwood Park was well maintained and during lunch breaks, some would play bowls, others were very keen on tennis. There were thriving lunch time football matches played at Sneyd Green recreation ground, on ash surface; the soccer markings were by cobble stones. A good idea when first laid, but as the ash wore away it left the stones standing proud - many a bruised toe. To get to the ground was a problem; on occasions we piled onto the back of a lorry and had to lie flat and stare up into the sky until we arrived. Sometimes if the lorry stopped for a few moments ("We're we there"?) pedestrians must have wondered what on earth was happening when heads appeared over the side boards.....

Happy Days.

* *

Tony McNicol

Memories of the Quarry

My father used to be the foreman at the quarry along Almshead and when I was a lad I used to go along sometimes during the school holidays to help the men to quarry the stone.

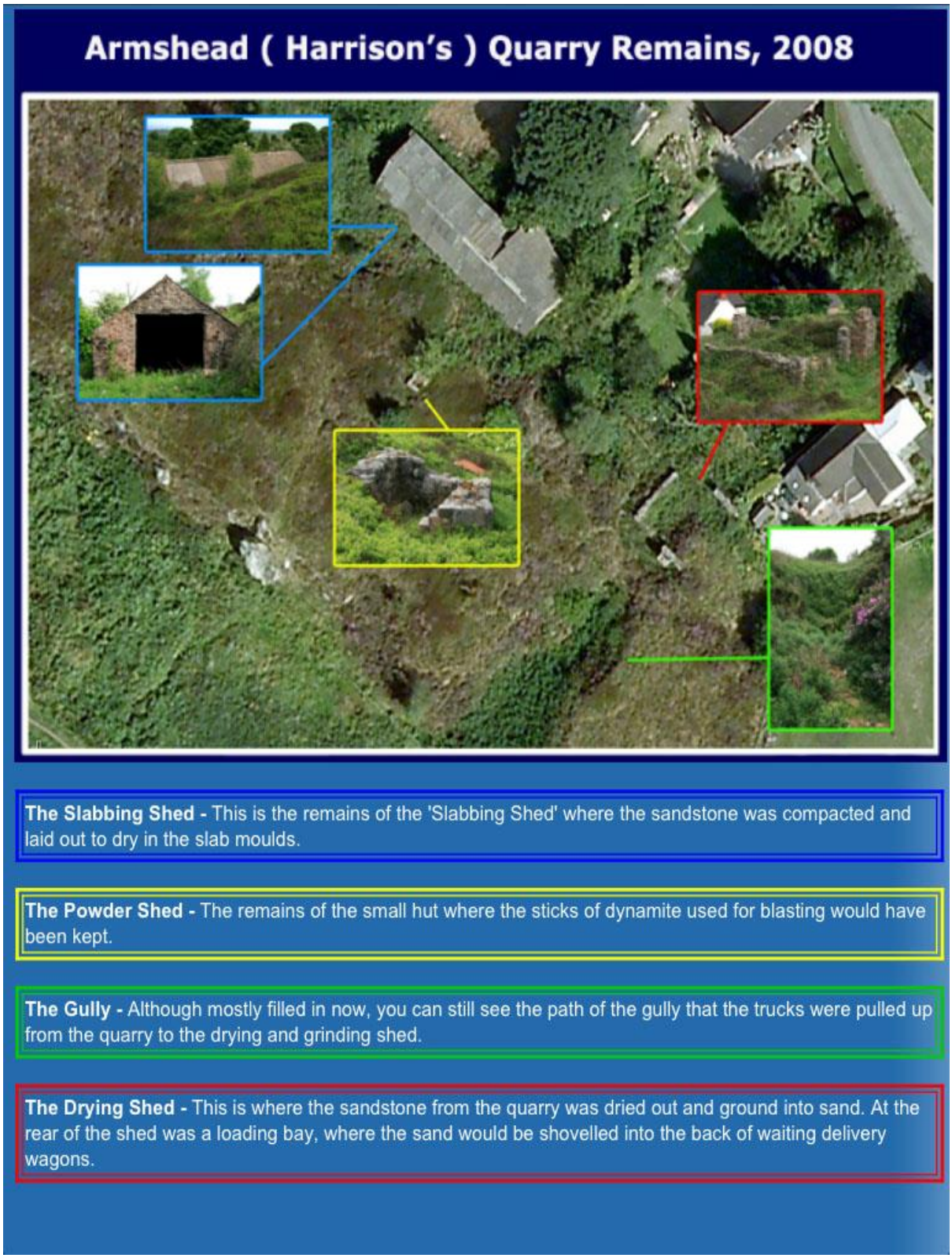
It was blasted out from the rock face (whilst they were blasting a man had to go into Almshead road and stop traffic because small pieces of rock would sometimes land on the road). After it had been blasted out the stone was loaded into small railway trucks, which were then hauled up a 'gulley' from the quarry by a steel rope connected to a winch engine into the drying shed at the top of the slope.

The stone was then piled onto some very large – long metal plates, which had a fire under them and left there until it was dry. It was then put into a machine with large metal rollers which crushed it into very small stones, then into another machine of the same kind which crushed it into sand.

The sand was then shovelled into a storage bay until a lorry came to collect it. The lorry reversed right up to the storage bay, then it was shovelled onto the back of the lorry (the storage bay was situated higher than the backs of the lorries so the men had to shovel the sand 'down' onto the backs of the lorry). Then it was taken to Harrison's in Lichfield Street in Hanley for making pottery.

There was another very long shed running east to west that was used for making of flagstone and concrete ornaments (a few of which I still have around the yard) and a very small shed near to the big rock, and away from any of the buildings that was used for storing the dynamite for blasting.

The quarry has now been filled with refuse and then levelled out so that you cannot tell that there was ever a quarry there. I estimate that the height from the top of the quarry to the bottom would be approximately 30 to 40 feet. I know that there are three old cars buried there that a relation of mine dumped whilst the council were dumping refuse there, A Mk2 Jaguar, a RoverP4 and a Standard Pennant.


Armshead (Harrison's) Quarry Remains, 2008
The Slabbing Shed - This is the remains of the 'Slabbing Shed' where the sandstone was compacted and laid out to dry in the slab moulds.
The Powder Shed - The remains of the small hut where the sticks of dynamite used for blasting would have been kept.
The Gully - Although mostly filled in now, you can still see the path of the gully that the trucks were pulled up from the quarry to the drying and grinding shed.
The Drying Shed - This is where the sandstone from the quarry was dried out and ground into sand. At the rear of the shed was a loading bay, where the sand would be shovelled into the back of waiting delivery wagons.

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John Booth
Harrison & Son (Hanley) Ltd.

I left school in 1958 age 14 and went to work in the Fitting Shop at Geo Wooliscroft Ltd. Melville Street Hanley. I used to cycle about one mile every day to have lunch with my Nan and it was during one of these lunch breaks that my Aunt Joan was there too. Aunt Joan was the telephonist for Harrison and Son and had worked there for some years. She told me that the Chief Engineer at Harrison's was a gentleman name Tom Evans and that he wanted a young man to train as his assistant to take over from him when he retired. I asked Aunt Joan if there was a chance that I could have in interview for the job. She said that they had been interviewing over the last few days but would see what she could do. The following week I was asked to see Mr Evans so on the arranged day I entered Garth Street reception in my best suit and was sent over the road to Eggerton House to see Mr Evans and Mr Bernard Harrison, the Managing Director of Harrison and Son. Eggerton House was where Mr Bernard and Mr Evans had their offices and where the company board room and staff canteen were. I remember going into Mr Bernard's office on the ground floor and nervously answering their questions. A week later I was asked to go back for a second interview. As the interview came to an end Mr Bernard asked me how much I was being paid by Wooliscroft's. My reply was "two pounds a week sir" to which he replied "oh I think we can do better than that, how does two Guineas a week sound to come and work for us". They told me that they expected me to sign an apprenticeship agreement tied me to the company until I was 21 and attending North Staffs Technical College to attain a recognised Engineering qualification. I was to have a small office on the first floor of Eggerton House situated between the Drawing Office and Mr Evans office. I was to work a 48 hr. week spending one or two days a week with Mr Evans, one day at college and two days on the shop floor learning each of the factory maintenance trades. Another part of my job was to go with Mr Evans when he visited the Joiners Square and Stanley Mills. I remember Mr Bernard telling me that my job would not be easy but the rewards of being his Chief Engineer would be worth it. He asked if I wanted to talk it over with my father and I told him no and that I would be proud to come and work for him. I signed the paperwork and started my working life with Harrison's on 1st April 1959 age 15. It was hard in the early days as it meant my North Staffs Technical College was one whole day and the same evening until 9.00 pm. plus homework. It was fun working with each of the maintenance people during that first year. The maintenance workers when I started were Mr Stan Titterton who was the Chief Electrician and Cliff Williams the works electrician. They had a small room just off the main central factory yard with Mr Titterton's office built inside an old bottle oven. In a cellar under the main office block was Howard Wright the plumber and sieve mender, he had an apprentice I think. At the bottom end of the factory site was the Fitting shop, Joiner's shop and Cooper's shop. In charge of the Fitting shop was Mr Reg Kilfoil and with him was his nephew Fred Kilfoil. In the Joiner's workshop were two brothers, Bill and Reg Butler and in the Cooper's workshop were Frank Evans, Bill Butler and another whose name escapes me. Outside and at the end of the Fitting Shop, situated near to the Cooper's shop, was a special tub cleaning and steaming room. This room was occupied by a wonderful old soldier who I only knew as Gunner. He took snuff which he kept in his waistcoat pocket and he was a real character. He knew I went fishing most week-ends and on a Monday often asked if I'd caught anything. He used to say that what I needed to tempt the fish was a "bit out of my waistcoat pocket", a saying that has stuck with me even today. I asked him why people called him Gunner and he just said that it was from his army days but he wouldn't talk about those times to me. It was after he had died that I learned he was awarded the Military Cross in the First World War.

As part of my training I also had to work in the fitting shop at Joiners Square and at Stanley Mill for spells of two or three months in each to familiarise myself with other aspects of the company.

After the first year and because my college work was predominantly mechanical engineering Mr Evans assigned me to work in the fitting shop so I got to know how all the ceramic equipment worked and how to maintain the machinery. During this time I also got to know Reg and Fred Kilfoil very well. Reg was a lovely man who always bought me a Hot Cross Bun at Easter while Fred was an ex-Navy man and always up to some harmless scam or other. I was about 18 when Tom Evans died suddenly and Mr Bernard asked me to go to his office to discuss my future. He explained that I was too young to take over from Mr Evans and introduced me to Norman Gallagher, the new Chief Engineer. All through my early years I had always got on well with Mr Bernard who would often stop me to ask how my college work was going on and he seemed genuinely upset that his plans for my future had come off the rails slightly. About twelve months later in 1963 Harrison's was taken over by Goodlass Wall. It was also this time that Mr Bernard retired to live in Devon. A week after Mr Bernard left Norman Gallagher asked me to go to his office where I met the new company MD, Dr Sandison. They told me that they didn't want an assistant engineer as such but as I was tied to an apprenticeship they were going to honour it and send me down to Joiners Square as Site Engineer for experience. I never really became Norman's assistant; we never worked together as such.

I gained engineering qualifications at North Staffs Technical College which later allowed me to join the Institute of Plant Engineers (which I gave up when I retired) and the Institute of Diagnostic Engineers (which has a retired Member section) and I have letters behind my name but I rarely use them. When my apprenticeship officially ended I was Works Engineer at Joiners Square and I stayed there until the new factory opened at Meir. The Garth Street equipment was being transferred to the new site so I asked if I could be transferred to Meir and it was agreed as long as I gave up my staff job.

Though I worked for the same company for 45 years through various name changes I have always held a great affection for Harrison's and ever grateful to Mr Bernard Harrison for encouraging me to acquire qualifications.

Frank Evans Retirement 1967 (John Booth front left)

John S Booth MIDiagE

* *

Brian Kent
Recollections - My early days at Harrison & Son(Hanley) Ltd.

I joined Harrison's straight from school in 1957 at age 15, to serve apprenticeship as an electrician. The company electrician was Mr Stan Titterton. He was responsible for all the Harrison sites so we would often be sent to do jobs on the different Harrison properties.

But before I start, I must pay homage to the best man I have ever known, Mr Clifford Williams. He was much more than an electrician. Under his tutelage I leaned about all aspects of electrics, from installation to fault finding/panel-building/circuitry/design/motor repairs and many more. In my opinion he should have been chief engineer. Not only was he a brilliant electrical engineer he was an inspiration to me, he made sure I was always on top of my work. So much, that later, at the age of 22, I was given the chance to take charge of the electrical dept at a the E W T Mayer factory after the takeover in 1965. He is much loved and revered.

Soon after I had started working at Garth Street my boss Mr Titterton sent me to the fitting shop with a list for nuts & bolts. I didn't realise at the time, but Mr Reg Kilfoil, in charge of stores, had the onset of Parkinson's and I thought he was saying "no" by shaking his head. When I went back to my boss and told him, he let out an expletive at my misunderstanding and shot off down to the fitting shop to apologise to Reg.

The maintenance team were also responsible for the upkeep of all Harrison properties belonging to the company, which included the domestic dwellings. As a company electrician I was responsible for various electrical installation and repairs, i.e. lights, sockets, etc. Similarly, the joiners for doors and windows, plumbers for taps, pipes and so on. There were also times when we went to the houses of Mr Arthur, Mr Bernard, Mr Dennis, Mr Peason and many more. I did lots of work at the Tabinacle Church in Town Road, Hanley, since Mr Arthur was a big-wig there. When I was an apprentice most of the houses owned by Harrison's had only got lighting (no sockets or cooker points), the irons were plugged into an adaptor which was then plugged into a lamp holder. Somewhat dangerous by today's reckoning. I went around to those houses which had no sockets and installed them and was also responsible for all repairs such as new lamp holders/switches/fuses etc. The Tabernacle required similar, though the wiring was capped and cased in wood, so I needed to develop joinery skills. The capping and casing was on the surface so it had to blend in with the decor of wood. It was beautiful inside the church and had taken a lot of skilled men a long time to complete.

Many times we had to go to do jobs at Stanley Mill near Endon. The manager was Mr Stan Bebbington, he was a larger than life character.

Sometimes when working on a job, equipment would go missing. Pilfering was something we had to expect from time to time. One time we went to start a new installation, and as usual we went there by transport with all the materials drawn from the stores at Garth Street. At Stanley we unloaded our equipment under the lodge window, which included 400 feet of conduit. We went to change into work clothes then on return found that the conduit had disappeared. Not a trace and nobody saw a thing. Another time myself and Bill Turner were working outside on the crushing plant. It was the middle of winter and so cold we had to work in shifts, one outside, one inside warming up. At one changeover, I came in and by the time Bill went out, all our gear had gone missing. It was so cold we didn't spend much time looking for them.

There were many other things I can recall, which had varying significance at the time. One day myself and John Booth were sent on a breakdown at Wilson Street. It was a main drive

unit, motor gearbox. We took it out and had to work on it all day replacing the bearing and reassemble. It was getting close to home-time but it had to be refitted so the mills could run overnight. Fred Kilfoil, John's boss, stepped in and sent John home so he could have the overtime. John was gutted. At the age of 72 Howard Wright snr climbed up the steeplejack's ladders for a bet. They were fixed to the square chimney on the top yard. He walked around the top twice and back down. I hope the bet was worth it! Then the time Howard Wright jnr had a job to red-lead paint the inside of the guttering to the office block factory side. We had no ladders to reach three stories, so to be able to reach, he tied two double extensions together, which still would not reach, so he stood them on the back of a lorry and went up and did the job. Health and Safety then was not always considered as important as getting the job done. He would have been sacked now. But accidents were not always whilst doing the job. One I recall, involved two lodge lads and the parcel lift to the packing department. For safety reasons the control buttons on the lift could not be used while the gate-door was open. I had seen the two lads taking turns to ride up the three flights of stairs, by one getting in the lift and the other one closing the door and operating the control buttons. I told them in no uncertain terms what would happen if they were caught again. Two days later they were at it again but this time with serious consequences. The lad riding the lift had his foot over the inside platform, so when the lift cage entered the shaft the front half of his foot was severed. I heard the screams and knew what must have occurred and rushed up the stairs. I isolated the lift, climbed on top and lowered by hand. He was rushed to the hospital, spent 6 hours in the operating theatre. I don't know the outcome.

There were many out-of-working hours of social get-togethers. I remember playing the annual cricket match against an Endon cricket club team. After the game in The Holly Bush pub at Stockton Brook, Mr Douglas McNeal ordering 40 pints of Joules bitter. But back at Stanley Mill most of the workers disappeared around 3.30pm to get the cows in for milking.

There is so much more of those early working days for me, that I could call to mind. But it was the people, the work mates and the managers, who I also remember. So many characters, as well those who just came and went, but got on with the job. Though I obviously don't remember all of them, those that I do I would like to name here: .....

Maintenance team:
Tom Evans, Norman Gallagher asst, David Buttle, Edward Kilfoil.
Electrical dept.:
Stan Titerton, Bill Turner, Cliff Williams, Brian Kent.
Fitting shop:
Reg Kilfoil, Fred Kilfoil, John Booth, Harry Grindey.
Coopers shop:
Frank Evans, Jim Murry, Bill Beaston.
Joinery dept:
Bill Butler, Reg Butler, Tony Yarwood.
Plumbing dept:
Howard Wright snr, Howard Wright jnr, Sid Wright nephew.
Bricklaying dept:
Sam Twemlow (snr bricklayer), Frank Evans, Bernard Bagnall.
Garage:
Frank Wilcox (snr mechanic), Ike Salt, Charlie Goode(Mr A Harrison chauffeur), Brian Smith, Ken Mayer,
Peter Powell.
Boilermen:
Joe Carr, Albert Simms, Arthur Holdcroft.
Painting dept:
Charlie Eaton, Brian Mould, Ken Holdcroft.
Factory / Office / Lab:
Albert Adams, Billy Adams, Harold Aston, Stan Briggs, Frank Bradshaw,
Harold Bently, Stephen Bagnall, George Bagnall, Graham Bagnall, Eddie Broomall,

Frankie Bailey, John Bayley, Reg Batchelor, Dennis Batkin, Peter Bailey, Jim Cox, Arthur Chadwick, Len Chadwick, Ernie Colcough, Peter Cartlidge [father], Peter Cartlidge [son], Dave Cartlidge, George Chevins, Gordon Deeks, Mick Davies, Stan Davies, Bill Edwards, Harry Holdcroft, Bill Edge, Margret Edge [daughter], Clarence Francis, Cyril Foster, Jack Gilford, Terry Giblin, Bill Hill, Arthur Harnett, Wilf Hand, Derek Hughes, Frank Hollister, Albert Hancock, Dickie Hewitt, Arthur Hewitt, Barry Holdcroft, Kingsley Harding, Albert Hammersley, Albert Jackson, Roy Jackson, Horace Jones, Harry Jones, George Jones, Josh Jones, Jim Jones, Jeff Jones, Barry Kinsey, Clive Kelsall, Albert Lanigan, Teddy Lawton [father], Brian Lawton [son], Les Littlejohn, Tommy Mangam,

Albert Mason, Jack Mould [snr], Stan Mould, Len Newman, Bill Osboune, Fred Ogden, Douglas Oulsnam (father), Donald Oulsnam (son), Leslie Pennall, Graham Oxford, Ron Proctor, Alf Pearson [Co secretary], Jim Ratcliffe, Peter Ratcliffe, George Roley, John Robertson, Alan Reid, Barry Simpson, Roger Shaw, Ken Sharvel, Arthur Selwood, George Shenton[shineno], Bill Smith, Sid Smith, Albert Thomas, Chris Thomas, Percy Turner, Bill Vickers, Eric Warrilow, Bob Dring, Cyril Finney, Ron Davis, Tom Woodcock, Norman Woodward, Stuart White, Sam Wilding, Harold Heath (flash), Cyril Finney, Maurice Buckley. –

obviously there were many others, but between the three working sites these are many of the names and faces I recall. If in conversation someone were to say "do you remember so and so?" I'm sure I would. I know there are many I have missed.

Brian Kent

* *

Bill Rhodes

Notes by W.G.Rhodes on Harrison's Colours & Glazes.

I joined Harrison's in approx 1961 as a Technical Sales Rep covering the local area, selling all products. When I joined, the senior reps were Jim Ratcliffe, Cyril Finney and Mr Arthur Johnson. I dealt with the smaller customers to start with and went to a lot of small individual potters. Also a few others who were not already customers of Harrison's at that time.

The production staff I dealt with were:

Coloured Glazes	Bernard Whittaker
White Glaze	Derek Hughes
Enamel Colours	Roy Bruce
Underglaze Colours	Mr Alan Reid & Ron Davies
Glaze Technical Manager	Mr Cyril Foster

The sales director Mr Douglas McNeal tended to let you get on with the job and we had regular sales meetings to discuss problems. Our principal competitors were Hargreaves, - white glazes, E.W.T.Mayer, - coloured glazes, and Blythe Colours for on-glaze and underglaze colours.

The firm was a typical friendly family owned business and working for them was very enjoyable. I learnt a lot about white glaze from Jim Ratcliffe and was eventually given the task of trying to persuade people who were making their own glaze, to try our products which we could make and supply cheaper than they could make themselves. The main companies I was given to deal with were Simpsons Potters, Weatherbys, and Wood & Sons. They were all privately owned companies with family directors who were totally against buying products which they could make for themselves. Underglaze colours featured prominently in their

productions and so we had to formulate glazes the use of the existing colours. It was a struggle but after many months I succeeded in getting Mr Tom Simpson, Colonel Paul Wood, and Mr Weatherby to try 28lbs slop samples. After a few alterations and many meetings we succeeded in persuading each of them to move on to our glazes and to save themselves a lot of grief and money. I tell this story because there was a reticence in the opinions of the older potters to trust anyone with such a basic raw material as glaze, since they thought that the old methods and recipes handed down could not be beaten.

The industry started to change with various takeovers and mergers, and the weaker companies started to fail and close. We struggled to keep up with our competitors in the production of enamel on-glaze colours and Blythe Colours obtained some very big orders, particularly with Grindley Hotel Ware and Dudsons, who manufactured a lot of aerographed decoration.

Harrison's also made pigments for colouring plastics, where Mr Leslie Pennel and Mr Maurice Buckley built up a good business in this industry.

I left in 1967 to pursue a career in the heavy clay industry and eventually run my own business.

Bill Rhodes

* *

John Bebbington

I was born in 1939. My father was the manager of Stanley Mill as owned by Harrison's of Hanley. We lived at Victoria House adjacent to the works where I and my older sister Anne were brought up. The area is now greatly changed, with many residential properties at Stanley Moss; all where the Stanley mill and stockyards once were. I still live at Victoria House, where I was born.

The Bagnall/Bebbington connection with Harrison & Son started right at the very beginning of the company. My great grandfather, John Bagnall, was the first member of the family employed by the firm. To the best of my knowledge he was a manager/chemist at Bath Street, Hanley. His initials are to be found on the two plates as were coated in the first commercial leadless glaze, produced in 1899. He lived in Northwood and had a small laboratory, set up in his back yard. One story connected with him was that a close relative of his, who lived in Bagnall Village and always walked to work, arrived about two minutes late for work and so was told to go back home by my great grandfather. Indicative, perhaps, of an expected discipline towards time keeping.

Some years later his eldest daughter (my grandmother), Ellen Bebbington, joined Harrison's in the offices and was mainly in charge of company wages at all sites. It was a job she held for many years before she retired. Her husband was a master tailor and had a shop in Church Street, Hanley, where two of her sisters were employed predominantly repairing overalls for the company.

My father, Stanley Bebbington, joined the company in the mid 1920's as assistant manager at the Victoria and Hercules Mills at Stanley, where Mr. Charles Green was manager. He was present when in 1927 there was a cloudburst, which caused a breach in the dam at Stanley Pool. This caused major damage to Hercules Mill and ripped some of the machinery out of the building and included much substantial structural damage.

My father became manager in early 1930's. This position meant that he was not called up for active service during the Second World War, because the mill was producing materials for use in telecommunications and other essential components.

For many years the mill was the biggest employer in the area and a lot of the workers had farms or small holdings locally. One man, Freddie Parkin, who lived in a small bungalow at the top of Clewlows Bank, was classed as a tobacconist and was therefore the provider of Woodbines and Park Drive cigarettes to the men.

There was an electric sub-station in the Mill compound and inside there was equipment able to charge up the old type glass accumulators (batteries). Provided principally for recharging the loco at night. But this was also a "god-send" to a lot of people in the area. Many of the local houses, still without electricity, would set up simple lighting, run from these rechargeable battery units.

The mill was supplied with the raw materials by various modes of transport during its existence. Firstly by canal barges at a wharf on ‘The Moss’. Later by rail where the mill had its own battery powered loco (always called the "DIDO"), with a private line down to Endon station, via a turntable bridge over the Caldon canal. I can also remember the use of a horse and cart belonging to the Firkins family, as used when there were problems with the railway. The mill itself contained large areas for the storage of raw materials, such as flints, stone, quartz, felspars, sands, porcelain pitchers, etc. Wherever necessary these were these were crushed down to a manageable size and then ground. At one time in pan mills, but later in either Hardinge mills or batch cylinders, and then sold and transported in either slop or dry form - from Stanley. I remember it as being mostly as dried materials.

Living and growing up so close to the mill we were in constant drone of the mills, night and day, seven days a week. So much so, that during the wakes week close-down and at other such holiday times, the silence made it almost impossible to get to sleep. I do also remember well, that my mother had to go round the house to dust the furniture twice a day due to the close proximity of the mill and the dusty environment from the daily activity.

Every Friday Mr. Arthur Harrison used to come in person to check on the mill and to bring the men's wages. One of the things I remember he used to do; when he arrived just past the canal bridge at Stockton Brook, he would let his pet dog "Nobby" out of the car, which would then run behind the car till they reached Stanley Mill. There was a large garden and a greenhouse at Stanley with a full time gardener in attendance which gave much needed produce during the war years. Mr. Arthur would often be given a box of produce to take away with him. On one occasion an old plum tree surprisingly produced one plum, which Mr. Arthur looked at every time he visited. Then one week he came and the plum had vanished. Everyone said the culprit was myself, although to be honest, I don't remember.

People used to comment on my father speaking loudly. This was no doubt due to him having to make himself heard over the noise of the heavy machinery for so much of the time. He was a good manager and a fair man in his dealings with the men. He had a reputation which extended throughout the Harrison company.

I continued into the same line of business, though by the time I started working, the Harrison family had sold to what eventually became Cookson.

John Bebbington.

* *

Roy Jackson

Roy Jackson. - Joined Harrison's in 1959.

I was in charge of the laboratory for physical & chemical testing of raw materials and manufactured products.

I remember Mr Arthur Harrison was the company chairman. He used the boardroom as his office in which there were many large display cabinets and a large table, all of which were full of materials in labelled packets, jars and trials, many of which had been retained for many years. Mr Arthur seemed to be able to locate any trial without reference to any record ledger.

Milling machinery was belt driven from a central steam engine which gave a constant clicking sound which could be heard all over the factory and even in the offices. Every Friday, late afternoon the engine was stopped for service & the works became eerily quiet for a while. This engine is now on display at the Gladstone Pottery Museum. It is a real work of art and must be over 100 years old.

Harrison & Son was a good & happy workplace. *R.Jackson*

* *

John Bailey

My initial experience working for Harrison & Son Ltd., was as a temporary employee, back in 1954. As a 16 year old leaving school, I was to follow a profession as a footballer for Stoke City. However, I needed temporary work before this and Bernard Whittaker was able to arrange the office job for me. As I had not been required to have an initial interview, my first sighting of the Garth Street factory was during my first day of employment. Entry to the offices was by means of a small reception area, which lead directly into a long corridor, from which all manner of offices and services were available.

The very large general office, which was to become my specific place of employment, was the home of the 'district', 'outside' and 'foreign' departments, together with the cashier's desk. More than somewhat "Dickensian" in appearance. The area contained a number of huge "Victorian" type desks, high stools, assorted ledgers, ink wells and numerous writing materials. All the office staff were neatly dressed males, older, and to a 16 year old boy, clearly of a different generation.

I was working with helpful and very protective colleagues at the 'district' desk and it soon became evident that certain codes of behaviour were being observed. It was clear that, in the close proximity of the office junior, language should be sensibly moderated, and, oddly, Christian names used less frequently. Similarly, the female secretarial staff, who were all unmarried and of a certain age, were referred to, by surname only and always prefaced with the word 'miss'.

Dress codes were very strictly adhered to. Shirts ties and jackets were compulsory items for the men, irrespective of office temperatures - casual attire was never permitted.

From the office, the preparation of order and delivery instructions for each of the manufacturing departments enabled much of the site production systems to be observed. There were frequent occasions when I would need to go onto the factory to deliver paperwork. Production methods and machinery was always of interest, but the 'belt driven systems' held a fascination that remained throughout my working career.
Amongst many recollections from this time, mention perhaps should be made of the many very pleasant occasions upon which members of the 'Harrison' organisation met outside of work to indulge in 'social activities'. Evening cricket games at Rhode Park and Woore were hugely enjoyable during summer months. As were lunchtime interests which included football, crown green bowls and tennis, performed in the public parks adjacent to the factory.

Truly a time fondly recalled, ever remembered and often recounted amongst old work colleagues in the bar at some pub.

John Bailey.

* *

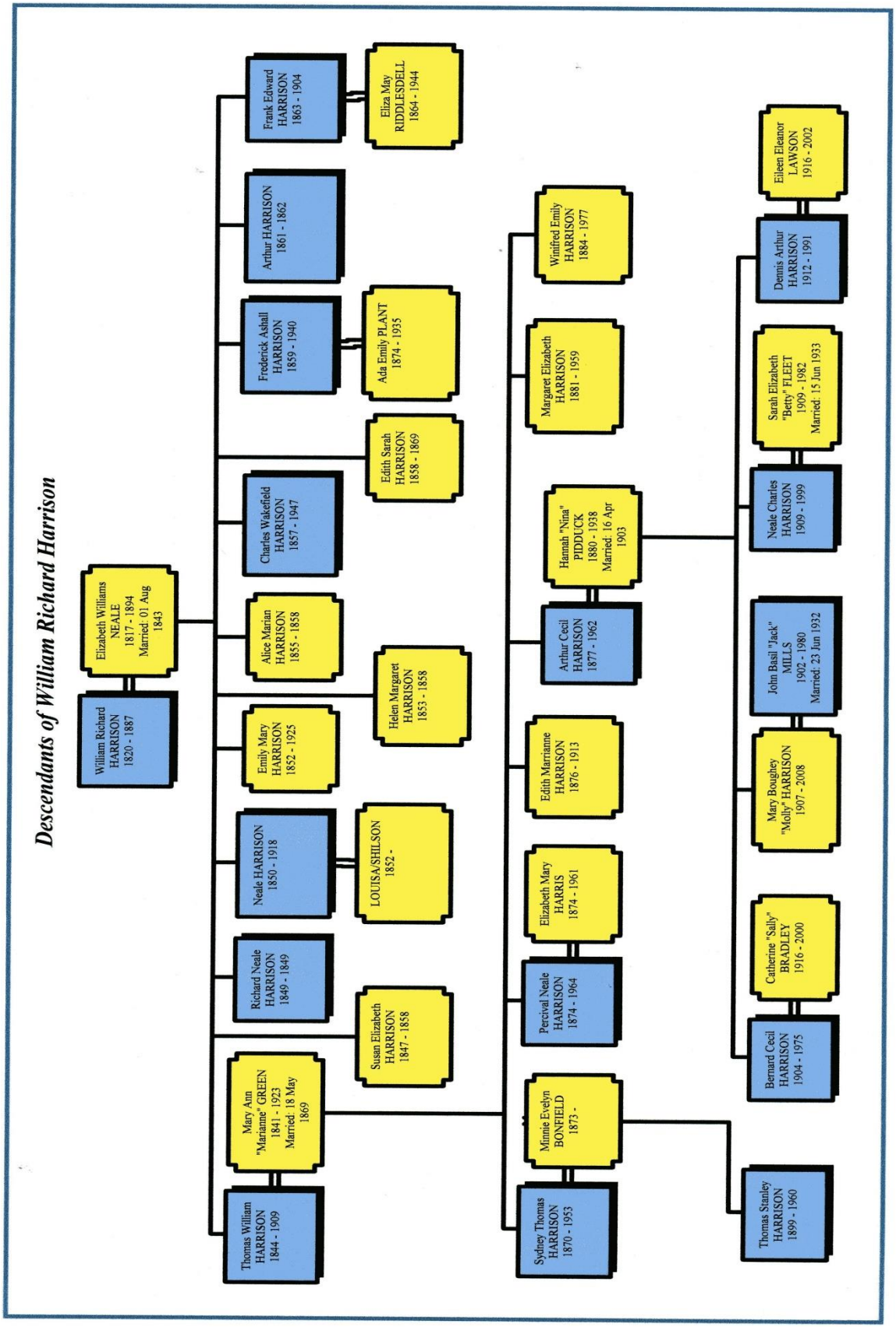
Further note by Mark Mills:-

John's recollection, as above, was largely prior to his later permanent employment. He soon left Harrison's and then later had to complete National Service in the army. On his return he was offered permanent employment, initially as a wages clerk. One story, in the context of his recollections, I was amused about, was the time he recalled during a particularly hot summer day when the office environment was sweltering. John ventured to remove his jacket, which was noted by the office manager, Mr Douglas Oulsnam. He quietly walked down the office and reminded John that it was not acceptable to remove an item of clothing during working hours. How times have changed!

I am so thankful to all those people above, who have given time and thought, to contribute and to add their own particular snapshot; of times before the Harrison family sold the business.

Appendices

Appendix I



Appendix II

THE STAFFORDSHIRE SENTINEL, THURSDAY, OCTOBER 31, 1895

THE AFRICAN CHIEFS AT HANLEY

GREAT MEETING AT THE VICTORIA HALL

THE GOVERNMENT OF SOUTH AFRICA

PROTEST AGAINST THE CHARTERED COMPANY

The three African chiefs, Khama, Bothoen, and Sebele, of the South African tribes, Bamangwato, Bakwena, and Bangwaketse respectively, who are visiting the country chiefly with the object of protesting against the transference of the government of their country to a chartered company and of endeavouring to secure British public opinion in their favour attended a great meeting, promoted in connection with the London Missionary Society, held last evening in the Victoria Hall, Hanley. Mr.W.Woodall M.P., presided, and was supported on the platform by the Mayor of Hanley (Alderman E.J.Hammersley), the Revs, E.D.Boothman, W.S.Knowles, W.Lansdell, J.Hilton, W.Barrett, J.V.Rogerson, G.Buckley, S.Nutton, J.Currie, and J.Roberts; Messrs, T.W.Harrison, J.R.Cooke, J.T.Harris, J.L.Cherry, J.Wilcox Edge, George Ridgway, C.Daniel, J.L.Hamshaw, W.Boulton, E.Jones, R.Gilman, R.H.Gilman, J.Lowe, George Riseley, T.Eyton, W.Winstanley, E.Grimwade, L.Grimwade, H.Fennell, J.H.Ball, J.Billingsley, R.Tew, E.J.Pidduck, and S.H.Bayley.

On arriving at the Town Hall, prior to the meeting, the Chiefs, who were accompanied by the Interpreter and Mr.Woodall M.P., we're received by the Mayor (Alderman E.J.Hammersley) and other gentlemen, in the Mayor's Parlour. In a brief speech, the MAYOR tendered them a cordial welcome to Hanley, to which the three CHIEFS duly replied.

The spacious hall was crowded in every part, about 4,000 people being present. The African Chiefs were accompanied by the Rev. W.C.Willoughby, who acted as their interpreter.

The meeting was opened by singing, the reading of Scripture by the RECTOR of SHELTON, and prayer, offered by the Rev. W.S.KNOWLES.

The CHAIRMAN, in his opening remarks, observed that they were assembled that evening under the auspices of The London Missionary Society, and although that society was now dependent upon the support of one religious body – though its original constitution was more comprehensive – he rejoiced to see on the platform assembled in such great numbers, representatives of all Protestant communities. (Hear, hear.) Nothing was farther from missionary spirit than the employment of force, yet it appeared as though it were impossible for us to conduct our great evangelical operations without being exposed from time to time to disturbances involving civil and military operation which retarded, as they had done in Madagascar and China, the good work in which we were engaged. He directed their attention to South Africa, and particularly to Bechuanaland, remarking on the heroic missionary work rendered by Dr.Moffatt, followed by Dr.Livingstone; and he mentioned the efforts of the Rev. W.C.Willoughby, a missionary who was stationed when at his work in the country of King Khama. Now it had so happened that this territory of Bechuanaland was occupying at the present moment deservedly a very large amount of attention and public opinion in this country. It was a vast territory – he supposed, about half as large again as the United Kingdom. It extended from the frontier of Cape Colony, from the Orange River on the south on the Zambesi on the north. Large parts of it were arid plain, but other parts were so cultivable to excite - would be, he said - the cupidity of outsiders. Thinly peopled as the country was, it came within the sphere of the influence of Great Britain. The southern portion of it had been for some time past under British rule, and was known as British Bechuana. The northern and largest portion of it included Maslionaland, the land of the Matabele and other tribes, which had been within recent years brought under the Government of the trading company. The history of that country had been very complex. In 1882 and 1885 Mr.Gladstone's Government recognised the duty of accepting a certain responsibility in regard to it, and an intimation was made to it to the German Government and to the Government of the Transvaal that we were prepared to accept the responsibility. At that time King

Khama intimated his willingness to live under the rule of the Queen of England – to make over that territory with natural reservations and with proper conditions to be ruled by English laws and the representatives of the English Crown. The offer at the time was declined, but since then the British Protectorate had interfered, though it was limited to a line which intersected Khama's country.
In 1888 all of the country was declared within the sphere of the influence of Great Britain. The following year a charter was granted to the British South African Company, by which large powers were conceded to it – powers to organise the administration, the monopoly of the right to negotiate concessions from the native chiefs. What was called British Bechuanaland had been for some time a Crown colony, and there was little doubt, under the guidance of Mr.Rhodes, it would be shortly annexed to Cape Colony. In the extreme North-east, as he had said, the Chartered Company had been active in administering affairs, in directing wonderful enterprises for the development of the country which was conquered from the Matabele, Mashonaland and some other territories adjacent to Khama's country, which was intersected by an uncertain line. At present it would remain for Mr.Chamberlain in the exercise of his responsibility as Secretary of State for the Colonies, to determine the matter which was left unsettled by Lord Ripon – a matter of such infinite moment as concerning not only the interests of this most interesting tribe, but the honour and reputation of the English name for justice. (Cheers.) He ventured to say that their earnest hope was that, in any new scheme of the Government, an honourable place would be found for the rule of the native races by their own chiefs in accordance with their own laws, so long as that rule was proved to be honourable and consistent with those conditions of civilisation which it was our business to enforce. King Khama, according to the veracious record they had before them, was an ideal Christian ruler. (Cheers.) He had never read a story more full of manliness and magnanimity than that told of him, because -– it must be borne in mind – he was born of a race which for centuries had been bred and lived in savagery and heathendom, cruel, bestial, and superstitious, looking only to its wizards, medicine men, and rainmakers for anything like a spiritual guidance. He had adopted Christianity, and lived up to it in a way which he was afraid they must admit the lives of many Christians of our own country could not make any comparison to. By his fidelity to the Christian faith he had been exposed to great hostility, he had refused to treat the vanquished according to their rules of war, he had refused to have more than one wife, and thus deviated from the wise policy among native races of the chief marrying the daughters of influential head men and winning them over in this way to his support. He had defended his lands like a brave soldier against the raids of the Matabele, but when he conquered and drove them back he would not retaliate by invading their country in turn. For twenty years he had been seated as the ruler of the Bamangwato tribe; his rule had been wise, benevolent, and tolerant. There were limits to his toleration in one direction. Having seen the ruin wrought among his tribesmen by the vile intoxicants introduced by unscrupulous traders, he had determined to put a stop to it. (Cheers.) Khama was a prohibitionist. (Cheers.). He had begun by forbidding the sale to his own people. Bold in the simpleness of of his purpose he had determined to do what was right for the safety and salvation of the fatherland he loved, and he implored them that night to help him resist the curse before which his race would disappear; as other native races had done in the same part. The three chiefs were present that night as the representatives of peoples who were rightfully in possession of the lands they occupied, and while willing to live under the rule of the Queen they had no sympathy with the proposal to hand them over to the trading company, whose interests, however wisely they might be promoted, we're mercenary and commercial. He ventured to say they would all join in the the hope that the Government would be animated by a right and wise spirit of just consideration for the interests of those people who were not merely settled as they had seen in a country to which they were passionately attached, but who had shown such exceptional capacities for the management of their own affairs, and they would hope that the Government would succeed in devising some plan by which the English name, rule, and civilisation might be built up in a splendid edifice, the foundations of which would be laid in equity and the top stone in righteousness. (Cheers.)

The CHAIRMAN at this stage introduced the three sable visitors to the audience, who rose and cheered them heartily, the chiefs bowing in acknowledgement.

SEBELE, who spoke first, his utterances being given in a clear and melodious voice, was interpreted as follows: I am glad to stand here before those who have greeted me, and to tell them what it is that has brought us to this country, and to this meeting. We still continue in the friendship of the English people. (Cheers.) We were fond of missionaries when we were dwelling in our land; they found us to be a nation that did not know God or the Book. Dr.Livingstone came and found us thus.

(Cheers.) He taught amongst our people. He was thus my teacher. (Cheers.) Dr.Moffatt taught also in our country, and he went with his teaching into Matabeleland. We rejoice too live in friendship with the English on account of the teachers which the English had sent to teach us. (Cheers.). We went forward beautifully in teaching, and whilst we were continuing to life in peace and in the government of our people we saw papers that arrived at our towns. They came to us along with certain words that came to us at the outset by the mouth of Sir Charles Warren. At first we heard what was the will of the English people, because it was told us by Sir Charles Warren, and now we have come to this country that we may find out what was the truth of the words that were written in these newspapers. Because Sir Charles Warren said "You must enter in under the shadow of the Queen," and we lived nicely after we had heard those words, and after we had believed them. But after we found what was written in the newspapers we said, "We will come here, because it was said to us you are to be taken out of the hand of the Queen and put into the hand of the Company." And we decided to come here and place before you that we do not like to be taken out of the hand of the Queen in order to be put into the hand of the company." (Cheers.) Because we have lived nicely hitherto in the friendship of the English people, and under the rule of the Queen. – (cheers) – and we object to come forth from her protection and to pass under the rule of the company. We came also to speak concerning your liquors, to say you must hinder this liquor from running throughout our land -- (cheers) -- because liquor is a thing that is strong, and a thing which is bad. (Cheers.) The chief who sees it cannot govern his people right; the people who drink it cannot listen to the words of their masters --(cheers)-- and if it is indulged in, even the oxen may not be possessed well, and the very land will be destroyed. (Cheers.) We came with pain in our hearts chiefly to say that we wish to continue living under the direction of the Queen and not to be given to the company. (Cheers.) Besides, when we found these things stated in the papers, we said "We are not cattle to be given away. (Cheers.) We are people; and that thing which is done amongst people must be told to the people," (Cheers.) And if a person objects he can say I object, I do not like it and that is just what we say now. We object to be given to the company --(cheers)-- and we pray to you asking that you will help us so that we may not go forth from the shadow of the Queen and may not be given to the company --(cheers)-- that we may be able to govern our own lands, as we have hitherto done. We pray that God will help us, that you may listen with all your hearts to the thing we have said, and so that you may help us just as we have asked you to help us to-day. (Loud cheers.)

BATHOEN, who was heartily applauded on rising to address the meeting, spoke to the same effect as Sebele. Interpreter by the Rev. W.C.WILLOUGHBY, in the course of his remarks he explained the object of the visit, and mentioned the work of three missionaries, one called Willoughby, another "Williams," and another "Good." In 1883, said Bathoen, wars arose **in** our part of the world – a war between the Dutch and the Baralong, and they fought with one another for a considerable time. Then in the year1885 Montswa, the chief of that tribe, sent to the English to ask help. He said to the Queen, "Help me, for the Boers are spoiling my land." So it was that the Queen sent out Sir Charles Warren; he found that the Boers had seized the land of Montswa, and Sir Charles Warren took this land from the Boers and gave it back to the Montswa. (Cheers.) Then we saw a second time help that came from the English. Sir Charles Warren said it is the Queen's wish that all wars should end now, and all the people's should live in peace; and the wars were finished as he spoke. Said he, now you are living under the shadow of the Queen, and the Boers shall not molest you again --(cheers)-- and verily the Boers put an end to fighting when they heard the word of the Queen. Bathoen went on to explain the object of the visit, and to protest against being transferred to the company, expressing the desire to live under the protectorate of the Queen. They did not know whether the company was able to give them safety, because they would make new laws which would cause them (the African races) pain. They had had an example of this in Matabeleland. As to the importation of spirits in their land they objected to their introduction. You must know, said Bathoen, through his interpreter, that the liquor of the white man destroys people, and also that it is impossible for men to believe in God if they have this drink. Again, they do not know how to hear, to see, to speak, and if it be simply a case of walking, they do not know how to walk. (Laughter.) May God help us altogether. (Loud cheers.)

King KHAMA also spoke though his interpreter in similar terms. I am pained, he said, because I do not know your speech, and cannot address you in it; still I will try and tell you some of the little words that brought me here to England. When we heard that the Government had given our land and our people to the company we were startled and said, "Are we then like people who are sold and no word is spoken of their selling?" (Cheers.) And when it was said the company would take the land we

said, "we will go and speak to the leaders of the English nation and tell them that the company must not take our land, because if they take our land they take that whereby we live." (Cheers.) Because our land does not resemble the land of England — our land is land that lacks rain, and a land that is eaten by the sun. There was a time when we lacked rain for nearly four years and our oxen and people perished, and we said if the company takes our land and sell it in farms we as we increase shall find ourselves without land, and then we shall certainly perish, because it is the land that gives us our life. We should have no gardens to plough and no means of sustenance. I feel pain because they talk of taking away the land upon,which my cattle graze. I do not know where I can put my cattle or where the cattle will find food to sustain them. Another thing that caused me to fear was this -- I know they are people who like fighting, and they delight to cause dissentions in the land. I like peace and I fear them --(cheers.)-- and I said war is a thing which destroys people, war is a thing which causes the land to perish. I know the works of the company, because when it entered our land at first, I rendered it assistance, and went into Mashonaland with it. They said to the Mashona "We will help you and you will no longer be harassed by the Matabele," but now I see the Mashona feel great pain, they do not like the people who are living among them, and they themselves are scattered. When the company went into the Matabele War I was with them and helped them. The work of the company caused me pain. I do not like to enter into their land, because they have no safety wherewith to save a man. Their work is work which causes dissention. In conclusion, King Khama expressed thanks for the reception given them. It is good, said he, to help one another in this world, both those of us who are black, and those of us who are white. (Cheers.) Oxen are not all alike, but have each its own colour, some are black, some are piebald, some red, but they live all in one kraal, and they are headed by one herdsman. I know well enough that in your land you have men who work wickedness, but you have also men who love goodness, and the good must overcome the bad, and if God helps me to return to my own land I shall delight to tell my people the works I have seen in this land and the goodness I have found amongst the people. I shall not mix up the good with the bad and cause pain to the hearts of my people --(hear, hear)-- and may God give you safety and joy that we may agree together nicely in agreement on that which is just and right. (Loud cheers.).

Mr WILLOUGHBY then spoke. He mentioned that of the two main divisions of Bechuanaland, the Crown Colony, had already been transferred to Cape Colony a week or so ago. It was the Protectorate he would like to speak of. The was a great deal of misunderstanding as to the way the Protectorate was at present governed. He had seen it stated in some, even of their best newspapers, that no white man entering into this territory could be expected to be content with the rule of a native chief, however good and just that chief might be. There was no necessity for his being content with that rule, since he was never subject to it. There was no white man but had a British court of justice to appeal to, while the rule of the chiefs apply only to their own tribal affairs. Speaking of the progress these native tribes had made in civilisation, he mentioned that he had found Khama's people more honest than the people of Hanley and Stoke. (Laughter.) The chairman doubted whether it were possible; but he might mention that while among them he scattered all over the place things which he never would dream of leaving outside the doors of his house if he lived in Hanley, and yet they were safe. (Cheers.) The whole tribe, heathens as well as Christians had been elevated in this respect. They had left off all such former cruel practices as abandoning their children and aged parents to perish in the woods, and cow stealing; they had made progress in regard to clothing; but not much as regarded furniture. He himself had seen many a Hanley mug in the houses their people dwelt in. (Cheers) He then explained the reason of the visit of the three chiefs to this county, which was their objection to being placed under the rule of the Chartered Company. He contended that the country could be administered on its own income, and mentioned that the chiefs had made an offer to collect the taxes themselves, and hand them over in a lump, but the Government refused this. They rejected the tribute, and then taunted these man by saying that the country was being administered at a loss annually.

Mr. HAMSHAW moved this resolution :-

"That this meeting of the inhabitants of Hanley and neighbouring pottery towns, including representatives of various sections of the Christian Church, hereby tender to chiefs Khama, Bathoen, and Sebele, a cordial and respectful welcome to this country rejoicing in the report that has reached England of the progress of Christianity in Africa and of the blessing of God which has rested on the

work of the various missionary societies, acknowledging with a special satisfaction the wise, enlightened and just rule of Khama under circumstances of great difficulty, and his tried friendship to this country."

Alderman COOKE seconded in a short address, and the vote was passed.

Mr. T.W.HARRISON moved a resolution, to be forwarded to Mr. Chamberlain, desiring that the unanimous request of the inhabitants of the territories in question would be taken into favourable consideration, and that he would see fit to advise her Majesty and her Ministers to refuse the subordinating of the wishes and interests of the people of these territories to the Chartered Company.

The Rev. W.LANSDELL seconded, and this resolution received unanimous support.

The MAYOR of HANLEY, seconded by Mr. GRIMWADE, moved a vote of thanks to the chairman, which terminated the meeting.

The African chiefs were the guests for the night of Mr. T. W. Harrison, at Northwood.

[A letter dated 2nd Nov. 1894, written by Mrs Harrison to her daughter Margaret, relates of hosting the three African chiefs.]

Appendix III

The Wedding of Arthur Harrison & Hannah (Nina) Pidduck - 16th April 1903

Nina Harrison with her daughter Molly

Appendix IV

With Respect the to the Lease of Land and Buildings as Part of Property belonging to "The Hollies" of Northwood, Hanley (to be sold separately).

Memorandum of an agreement made and entered into,this Twenty Fifth day of October, nineteen hundred and six, between Thomas William Harrison of Branksome Park, Bournemouth, hereafter called the landlord and Allen Gardner of 2, Birch Street, Northwood, Hanley of the other part, hereafter called the tenant. Hereby the landlord agrees to let, and the tenant agrees to take the garden and greenhouse (except the cowshed) attached to The Hollies, Northwood, upon the following terms and conditions.

The tenancy to be from year to year commencing from the date hereof.

The rent to be Two pounds Ten Shillings for the period from date hereof to March 25, 1907, and thereafter at the rate of Twelve pounds per annum paid quarterly on June 30, Sept 29, Dec 25 and March 25 in each year.

Rates and taxes, except property tax, to be paid by the tenant.

The tenancy may be terminated by either party giving to the other six moths notice to expire at any quarter day not earlier than March 25, 1908.

The tenant will maintain the Stall by the greenhouses in good condition and will paint the woodwork thereof outside at least once in 3 years and inside at least once in 5 years.

The produce of the garden and plants now upon the land or in the houses shall be the property of the tenant who shall have the full use of the lawn mower, roller and other garden tools as a grant upon the property, the tenant having use of same without charge shall take reasonable care for maintaining them in order (fair wear & tear excepted) delivering them up.

Again, at the expiration of the tenancy _____ the tenant shall not remove plants, vines, trees, shrubs or other belonging to the landlord or property without permission of the landlord.

In witness thereof the parties have set their hand on the day and year before written.

The tenant duly paying the sum stipulated above and fulfilling the, other conditions of this agreement shall employ uninterrupted occupation thereof during the continuation of the tenancy but in the case this not being paid for 21 days after the due date whether same shall or shall not be legally demanded, the landlord shall be at liberty to resort and take possession of the itemised property.....

Appendix V

Extracts from **"The House of Coalport 1750-1950"** by Compton Mackenzie (Collins 1951)

Coalport Goes to Stoke.

The Cauldon Potteries which bought the Coalport China Company from Charles Bruff and his associates in 1925 was an old establishment in Cauldon Place, Shelton, founded by Job Ridgway, a former apprentice of Wedgwood's. He took his sons John and William into partnership, but died in 1814. From that date until 1830 John and William remained in partnership. Then they separated because John thought William too wildly speculative. William took over another works, and John stayed soberly at Cauldon Place until he retired in 1858.

At the time the Coalport China Company was acquired by Cauldon Potteries the latter was controlled by Mr H.T.Robinson and his associates, in 1932, and in a few years it went into liquidation. Then through a director of the firm The Coalport China Company bought Cauldon Potteries. Four years later the Coalport Group was acquired by George Jones and Sons, Ltd., and it was moved to the Crescent Works, Stoke-upon-Trent. The latter business since 1932 had been mostly owned by Harrison and Son (Hanley), Ltd., of whom more anon. In 1947 the Harrison company became disassociated from George Jones and Sons, Ltd., and Mr S.T.Harrison and his son, Mr Stanley Harrison, became sole proprietors of the Jones Group including Coalport China Company.

George Jones who founded his firm in 1850 had served his apprenticeship with Minton's and soon built up a good reputation for himself as a maker of fine bone china.

Sydney T. Harrison and his son, T.Stanley Harrison, who now own George Jones and Sons, Ltd., Cauldon Potteries and the Coalport China Company are not potters, but their firm for years has produced many of the materials required in the manufacture of pottery – ceramic colours, stains and oxides, and many kinds of glazes; they go back for the origins of their business to the year 1810.

A large slice of Hanley, including the present site of the Phoenix Chemical Works, the headquarters of Harrison and Sons, was once known as Hall Fields, and in 1728 this land was owned by Thomas Smith. In 1806 John Smith, the great-grandson of Thomas, sold a portion of his estate to George Fox of Burslem, a colour maker, and again in 1808 and 1809 two other plots. The land which George Fox bought was set back a little from Market Street with a frontage on a street that was not yet built, now Bath Street. By 1811 George Fox had erected buildings on the land he had acquired.

George Fox died in 1829, after which the land passed through the ownership of several colour makers until some time between 1859 and 1860 it came into the possession of Joseph Wooliscroft Goodwin, colour maker.

A few miles to the north-east of Stoke-upon-Trent, a short distance from the main road between Stone and Leek lies the ancient village of Stanley whence came at the end of the twelfth century the first Stanley in the great line of the Earls of Derby.

At the foot of the steep hill on which the village stands there is a valley down which runs a stream, the head of which was dammed in 1840 to form Stanley Pool as a reservoir to feed the canals system. At the foot of the dam was a small mill used for grinding flint by water wheel. In the middle of the valley was another water corn-mill known as the Stanley Mill. Four hundred yards farther down the stream was another water corn-mill known as the Walk Mill

which was later converted into a flint mill and as such in 1856 was acquired by Joseph Goodwin.

William Richard Harrison was a wholesale chemist in Banbury whence he used to supply all the chemists within range of a pony and trap. In 1868 he went to the potteries and bought for £800 the Bath Street property in the occupation of Goodwin from the Trustees of the Manchester and Liverpool District Banking Company.
Later in the same year he bought from Goodwin the Walk Mill for £1,355. This was now described as a Stream and Water Colour Mill. In 1871 William Richard Harrison took his eldest son Thomas William into partnership with him on a fifteen years' agreement. William Richard Harrison never went to live in Staffordshire and the whole responsibility for the development of the business rested upon Thomas William Harrison who during the 'eighties and 'nineties of the last century had the help of two of his younger brothers – Charles and Neale. By 1884 the Stanley Water Cornmill had become two cottages with a flint mill adjoining; this T.W.Harrison bought from the Alton Mill Company together with the top flint mill. In 1887 he had extended it and renamed it the Hercules Mill. In 1884 he had also acquired two water meadows and in the following year entered into an agreement with the North Staffordshire Railway Company to construct the siding from Endon Station to Victoria Mill, the new name given to the old Walk Mill. Four large mills now grind raw materials for the Ceramic Industry to the requisite fineness. These materials include flint, stone, felspar, whiting and quartz.

In 1870 T.W.Harrison built the Providence building in Wilson Street, Hanley, and in 1897 he pulled down a number of cottages in Wilson Street and in partnership with George P. Rataud, and his son, S.T.Harrison, built on the site of the Tintorex Works, forming themselves into the Potters Decorative Supply Company. The Tintorex Works was burnt down in 1904, and the land passed into the possession of Harrison and Son (Hanley), Ltd., in 1906.

In 1905 the Old Hall Porcelain Company, Ltd., which had works covering the whole of the Bath Street site, some of whose land had been bought by T.W.Harrison in 1900, passed out of existence. A portion of their land was owned by Gaspard Jakober, a colour manufacturer, and when he died his heirs sold the land to Harrison and Son. In 1919 the remaining ground down to Hill Street was purchased from the Old Hall Estate Company, Ltd. Finally more land was bought at Joiners Square between 1907 and 1929; that consisted in part of the site of the Trent Pottery. Such in brief is the history of the site on which the Phoenix Chemical Works now stands.

T.W.Harrison had a tremendous struggle to build up what is now one of the largest firms of colour makers in the pottery industry. Every property and piece of land he bought was at once mortgaged, and sometimes re-mortgaged. The last major mortgage was paid off in 1908. T.W.Harrison retired to Bournemouth in 1906 and died in September 30th, 1909. His sons, Sydney Thomas Harrison and Arthur Cecil Harrison and his grandsons, Stanley Harrison, and Bernard Harrison, son of A.C.Harrison, carried on with equal vigour a great tradition of enterprise through four generations of a family. In 1936 Mr Stanley Harrison took over the control of the Crescent Works on behalf of the firm of Harrison and Son, Ltd., until, as previously mentioned , he and his father became sole proprietors of the business in 1947.

Appendix VI

Further Notes – George Jones / Cauldon Pottery:

With references taken from:-

"George Jones Ceramics 1861–1951" by Robert Cluett (published: A Schiffer Book for Collectors 1998)
&
"Staffordshire Pottery – Majolica, Transfer Prints, Flow Blue, Fine Bone China from Cauldon 1858 - 1962" by Rober Cluett (published: A Schiffer Book for Collectors 2004)

Cauldon Potteries were established in 1774 and produced some of the finest china and earthenware which has ever been made in England. However, within a few years of 1926 they also were in dire trouble with the trade depression and went into liquidation. In 1936 both Coalport and Cauldon were moved from Shelton to the Crescent Potteries of George Jones and Sons Limited, in Stoke. The business was owned mainly by the Harrison family who are well known colour manufacturers and millers. Here Coalport still maintained its individuality in every way and once again prospered, but then came the Second World War. At this time there were 1,100 people at the Crescent Works. With the demands of man-power for the three services and for war work the number of operatives dwindled to but a few hundred.
The Crescent Works covered a site of over five acres. Many of the buildings were very old and antiquated and after the war this huge factory became more of a burden than an asset with the result that in July, 1958, Mr Stanley Harrison decided to close the factory down.
However, Coalport was to change ownership again, for in October, 1958, it was taken over by E.Brain & Co.Ltd., an old family business, whose Foley China Works had been founded in 1850. Within a few years it became apparent that due to the resurgence of Coalport more space and more production were needed to meet the increased demand. The Old Crescent Potteries had already been disposed of and a new more compact factory bought with room for further expansion but nevertheless this was still not enough and so, after much heartsearching, Mr Brain took the decision to cease production of Foley China, with which his family had been connected for four generations, so that their factory could also be made available for Coalport. In 1967 Coalport was acquired by the Wedgwood group, which is now one of the biggest manufacturers of fine bone china in the world. Since joining the group, Coalport has undergone large-scale development and modernisation to meet increased demand from world-wide markets. In 1969, Mr E.W.Brain, who had increased the business seven-fold in eleven years retired as chairman and managing director.

George Jones & Sons, Ltd.
George Jones was born in Nantwich, Cheshire on 27 June 1823. He was the youngest of nine children. His family had no connection with the pottery industry, his father, Samuel, being a maltster. At an early age he went to live in Hanley, where he finished formal education and was then at age 14 years began a 7 year apprenticeship with Minton's, Stoke. In 1844 he went to work for Wedgwood & Boyle of Etruria. Under Francis Wedgwood he acted as a commercial traveller. His employment circumstances changed and by 1850 he had established his own business as a commission agent and earthenware broker in Liverpool Road, Stoke. The business expanded rapidly, as did his own family, and his activities moved into premises in Stoke, Bridge Works, when manufacturing activity began in 1962, though his wholesaling business continued. Development and expansion continued and he acquired further premises in Stoke, The Trent Potteries, in1865. In 1873 George Jones was 50 years old and he created a family partnership by handing over the running of his works to his two eldest sons, Frank Ralph and George Henry Jones. From 1891-94 running of the business was to set up as George Jones &

Sons, Ltd., but sadly George Jones died in 1893. Activities progressed through changing and sometimes difficult times up to and through the First World War. Original family partners had died and after difficult trading times by 1930 Jones family sold all remaining family interest and the company was run under the same name by Walter Bakewell. From 1933 to 1951 there were several changes of ownership and involvement. Walter Bakewell retired through ill health in 1933. His place as managing director was taken by Mr E.F.Ecclestone. Over recent years activities had been concentrated and moved to the site of the old Trent Potteries, renamed Crescent Works. The majority of the shares of George Jones & Sons, Ltd., were now owned by Harrison & Son (Hanley) Ltd. who had bought them from Walter Bakewell. Harrison & Son were not potters, but their family business which went back to 1810, was concerned with the manufacture of colours and other materials used in the manufacture of pottery. Movement of several other similar activities were concentrated on to the Crescent Works including Bishop & Stonier, Cauldon, and Coalport. It was then that the running of activities was taken on by Sydney T. Harrison and his son Stanley. From the outbreak of the Second World War activities became greatly affected through the consequential reduction in the labour force. At this time, firms registered as belonging to the George Jones Group producing wares at Crescent Potteries were:-

Charles Allerton & Sons;	Bakewell Bros.;
Bishop & Stonier;	Cauldon Potteries Ltd.;
Coalport China Co.Ltd.;	Goss China Ltd.;
George Jones & Sons, Ltd.;	Swansea China Ltd.

By 1943, only a few hundred people were employed on the whole site, compared with over 1100 before the outbreak of war. The rest of the employees had had to leave to either work at the munitions factory at Swinnerton, or to join the armed services.

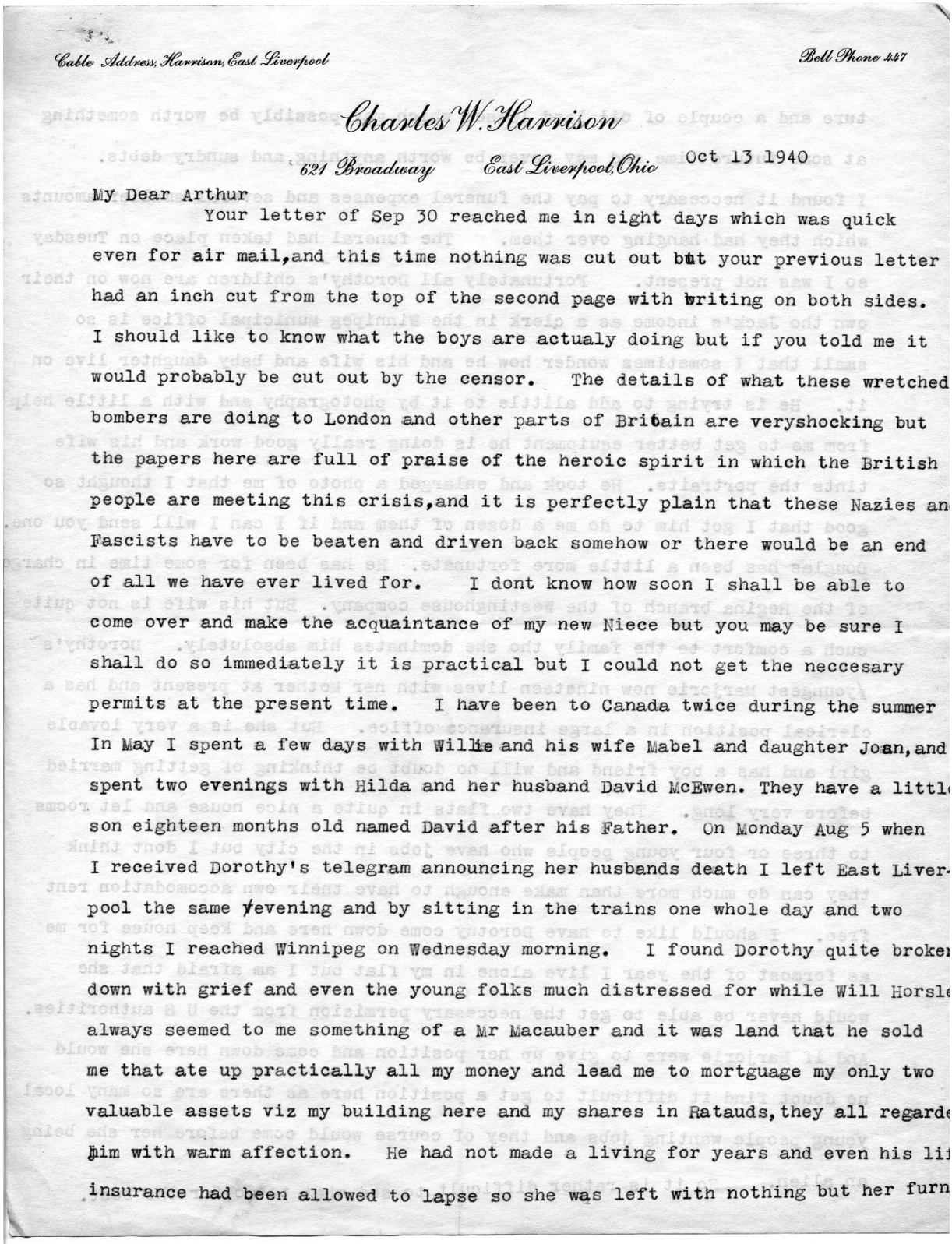
Under the new ownership from 1936, running of operations appeared on the surface to be prospering; but, in actual fact, George Jones & Sons, Ltd., were being heavily subsidised by the parent company, Harrison & Son (Hanley) Ltd. Sydney Harrison had persuaded his co-directors to provide his ventures into pottery manufacture with the supply of his needs for colours, glazes and raw materials, at cost, for the limited period until the business might show a profit. Sadly, for whatever reason, this never happened. Up to early 1941, the losses incurred by Harrison & Son (Hanley) Ltd., as attributed to George Jones Group of Companies, was over £75,000. The Harrison company was a wholly owned family business and grave concern within the family occurred due to the dire financial situation they had been drawn in to.

After the war ended in 1945, the pottery manufacturers still remain restricted with regard to the types of wares they could produce for the home market. By 1947, the Harrison company, which had wholly owned George Jones & Sons, Ltd. since 1936, became disassociated. Sydney Harrison and his son, Stanley, took over the proprietorship of the George Jones Group, Stanley Harrison retaining his position as chairman and managing director.

The Crescent Works were largely reorganised in 1949 and its facilities were modernised with the installation of the latest type of plant and machinery. All the old and familiar bottle kilns were demolished and replaced with electric kilns. However, the losses under its existing management continued until in 1951, when the trade name of George Jones & Sons, Ltd. ceased to be used. However, the Crescent Potteries continued to produce mainly Coalport & Cauldon wares until 1959, when Coalport was bought by E.Brain & Co.Ltd. The Crescent Works were then closed for good and partially demolished. Sydney T. Harrison had retired as chairman in 1947, he died in 1953. His son, Stanley, continued as chairman and managing director of Cauldon, until his death in February 1960. He died bankrupt.

Appendix VII

Letter from America 13th Oct 1940 - Page 1



Cable Address, Harrison, East Liverpool Bell Phone 447

Charles W. Harrison

621 Broadway East Liverpool, Ohio Oct 13 1940

My Dear Arthur

Your letter of Sep 30 reached me in eight days which was quick even for air mail, and this time nothing was cut out but your previous letter had an inch cut from the top of the second page with writing on both sides. I should like to know what the boys are actualy doing but if you told me it would probably be cut out by the censor. The details of what these wretched bombers are doing to London and other parts of Britain are veryshocking but the papers here are full of praise of the heroic spirit in which the British people are meeting this crisis, and it is perfectly plain that these Nazies an Fascists have to be beaten and driven back somehow or there would be an end of all we have ever lived for. I dont know how soon I shall be able to come over and make the acquaintance of my new Niece but you may be sure I shall do so immediately it is practical but I could not get the neccesary permits at the present time. I have been to Canada twice during the summer In May I spent a few days with Willie and his wife Mabel and daughter Joan, and spent two evenings with Hilda and her husband David McEwen. They have a littl son eighteen months old named David after his Father. On Monday Aug 5 when I received Dorothy's telegram announcing her husbands death I left East Liver- pool the same evening and by sitting in the trains one whole day and two nights I reached Winnipeg on Wednesday morning. I found Dorothy quite broke down with grief and even the young folks much distressed for while Will Horsl always seemed to me something of a Mr Macauber and it was land that he sold me that ate up practically all my money and lead me to mortguage my only two valuable assets viz my building here and my shares in Ratauds, they all regarde him with warm affection. He had not made a living for years and even his li insurance had been allowed to lapse so she was left with nothing but her furn

Letter from America 13th Oct 1940 - Page 2

ture and a couple of oil land leases which may possibly be worth something at some future time and may never be worth anything,and sundry debts. I found it neccesary to pay the funeral expenses and several smaller amounts which they had hanging over them. The funeral had taken place on Tuesday so I was not present. Fortunately all Dorothy's children are now on their own tho Jack's income as a clerk in the Winnipeg Municipal office is so small that I sometimes wonder how he and his wife and baby daughter live on it. He is trying to add alittle to it by photography and with a little help from me to get better equipment he is doing really good work and his wife tints the portraits. He took and enlarged a photo of me that I thought so good that I got him to do me a dozen of them and if I can I will send you one Douglas has been a little more fortunate. He has been for some time in charg of the Regina branch of the Westinghouse company. But his wife is not quite such a comfort to the family tho she dominates him absolutely. Dorothy's youngest Marjorie now nineteen lives with her Mother at present and has a clerical position in a large insurance office. But she is a very lovable girl and has a boy friend and will no doubt be thinking of getting married before very long. They have two flats in quite a nice house and let rooms to three or four young people who have jobs in the city but I dont think they can do much more than make enough to have their own accomodation rent free. I should like to have Dorothy come down here and keep house for me as formost of the year I live alone in my flat but I am afraid that she would never be able to get the neccesary permision from the U S authorities. And if Marjorie were to give up her position and come down here she would no doubt find it difficult to get a position here as there are so many local young people wanting jobs and they of course would come before her she being an alien. So it is rather difficult to see what to do for the best.

Letter from America 13th Oct 1940 - Page 3

Cable Address, Harrison, East Liverpool Bell Phone 447

Charles W. Harrison

621 Broadway East Liverpool, Ohio Oct 13 1940 (3)

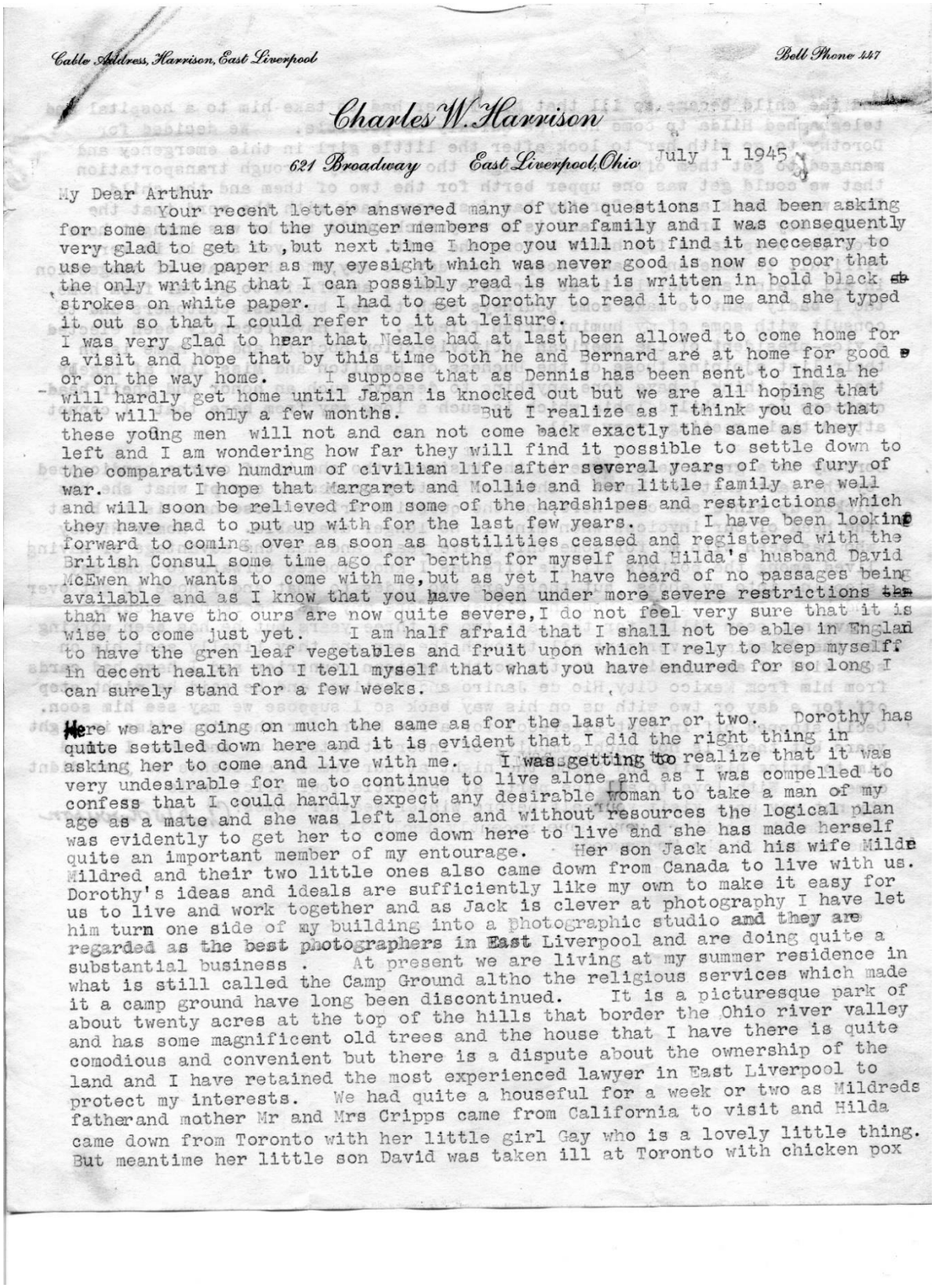
I suppose you know of the difficulty I am having with the customs officers over the valuation of the gold colors. It is very exasperating as they have absolutely no reason for their present action. Indeed they admitted to my lawyer that if we had not raised the question when the prices of the gold colors were revised at the beginning of the war they would not have done so. I see now that it was a fatal mistake but was done in perfectly good faith on the suggestion of my customs broker Mr Swearer. He is a very good friend of mine and above suspicion but he was mistaken in advising me to call the attention of the customs officers to the revision of the prices. I am afraid the issue depends largely upon what reply Sydney makes to my lawyer's request that he make a statement or affidavit on the subject. But what I am even more concerned about is the fact of there being a mortgage of five thousand dollars on this building and the prospect that if there were any hitch or if anything happened to me that the building and all its contents might be sacrificed for a mere nothing. I have a piece of land at the town of Newell just accross the river just near the big Homer Laughlin China Cos works which should bring enough or nearly enough to wipe out the morgage but so far there has never been a possibility of selling it. I wish you and Sydney could see your way to let me pay off the morgage with some of the money due you and transfer the morgage to Harrison & Son. There would then be no one to dispute your control of it in the event of my falling out. I think I could do this without interfering with the stipulation to liquidate current invoices with dollars at the official rate of exchange. Well I must conclude this rigmarole with love

Your wedding cake came to hand & when I am there next half yearly fruit piece semi last I shall consume it with appropriate sentiments.

Your affct Uncle
Chas W Harrison

Appendix VIII

Letter from America 1st July 1945 - Page 1



Cable Address, Harrison, East Liverpool — Bell Phone 447

Charles W. Harrison

621 Broadway East Liverpool, Ohio July 1 1945

My Dear Arthur

Your recent letter answered many of the questions I had been asking for some time as to the younger members of your family and I was consequently very glad to get it ,but next time I hope you will not find it neccesary to use that blue paper as my eyesight which was never good is now so poor that the only writing that I can possibly read is what is written in bold black strokes on white paper. I had to get Dorothy to read it to me and she typed it out so that I could refer to it at leisure.

I was very glad to hear that Neale had at last been allowed to come home for a visit and hope that by this time both he and Bernard are at home for good or on the way home. I suppose that as Dennis has been sent to India he will hardly get home until Japan is knocked out but we are all hoping that that will be only a few months. But I realize as I think you do that these young men will not and can not come back exactly the same as they left and I am wondering how far they will find it possible to settle down to the comparative humdrum of civilian life after several years of the fury of war. I hope that Margaret and Mollie and her little family are well and will soon be relieved from some of the hardshipes and restrictions which they have had to put up with for the last few years. I have been looking forward to coming over as soon as hostilities ceased and registered with the British Consul some time ago for berths for myself and Hilda's husband David McEwen who wants to come with me,but as yet I have heard of no passages being available and as I know that you have been under more severe restrictions than we have tho ours are now quite severe,I do not feel very sure that it is wise to come just yet. I am half afraid that I shall not be able in England to have the gren leaf vegetables and fruit upon which I rely to keep myself in decent health tho I tell myself that what you have endured for so long I can surely stand for a few weeks.

Here we are going on much the same as for the last year or two. Dorothy has quite settled down here and it is evident that I did the right thing in asking her to come and live with me. I was getting to realize that it was very undesirable for me to continue to live alone and as I was compelled to confess that I could hardly expect any desirable woman to take a man of my age as a mate and she was left alone and without resources the logical plan was evidently to get her to come down here to live and she has made herself quite an important member of my entourage. Her son Jack and his wife Milde Mildred and their two little ones also came down from Canada to live with us. Dorothy's ideas and ideals are sufficiently like my own to make it easy for us to live and work together and as Jack is clever at photography I have let him turn one side of my building into a photographic studio and they are regarded as the best photographers in East Liverpool and are doing quite a substantial business . At present we are living at my summer residence in what is still called the Camp Ground altho the religious services which made it a camp ground have long been discontinued. It is a picturesque park of about twenty acres at the top of the hills that border the Ohio river valley and has some magnificent old trees and the house that I have there is quite comodious and convenient but there is a dispute about the ownership of the land and I have retained the most experienced lawyer in East Liverpool to protect my interests. We had quite a houseful for a week or two as Mildreds fatherand mother Mr and Mrs Cripps came from California to visit and Hilda came down from Toronto with her little girl Gay who is a lovely little thing. But meantime her little son David was taken ill at Toronto with chicken pox

Letter from America 1st July 1945 - Page 2

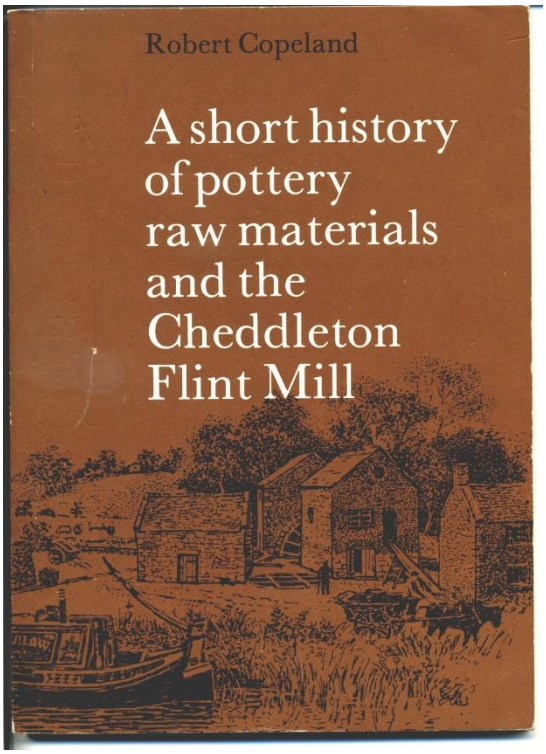
and the child became so ill that his father had to take him to a hospital and telegraphed Hilda to come home as quickly as possible. We decided for Dorothy to go with her to look after the little girl in this emergency and managed to get them off the same night tho the only through transportation that we could get was one upper berth for the two of them and the child. That was a week ago and Dorothy has just come back with the word that the little boy has brain fever and is a very sick child tho he was brought home from the hospital a few hours before she left. So you see it is very difficult to make any plans except from day to day, and the state of congestion in all trains and hotels is so terrible that I am afraid to go far from home, tho I badly want to make some journeys both to see business customers and to consult with some of my huminitarian friends. I have recently been elected a vice-president of the American Antivivisection Society and my name is on their list ajoining those of the Duchess of Hamilton and Miss Lind af Hageby tho I dont think I have done anything to deserve such an honor and their head-quarters is at Philadelphia which is such a long way from here that I cannot attend their meetings very well.

Dorothy is a great help to me in the business tho she is of course handicapped by the fact that she knows nothing of pottery processes except what she has picked up since she came here, and the question arises whose name is to be at the head of our invoices when mine is no longer available. Homer Richey who has been with me for some thirtyfive years and has the advantage of having lived among the potters all his life has I know looked forward to some day stepping into my shoes, but there are two sides to that and I hope to get over and have some talk with you and Sidney before any such emergency occurs. I have not seen Willie for the last two or three years but he has been working for the Canadian government all through the war and they finally sent him on some kind of an expeditian to the south American countries and I have had cards from him from Mexico City, Rio de Janiro and Santiago and he said he might stop off for a day or two with us on his way back so I suppose we may see him soon. Cecil stopped off in East Liverpool for a few hours for the first time in eight years but there is not much comunity of interest between us and when I asked him to bring his wife and spend the night at our summer residence he just didnt come. With love to all the party at Newcastle Your affct Uncle

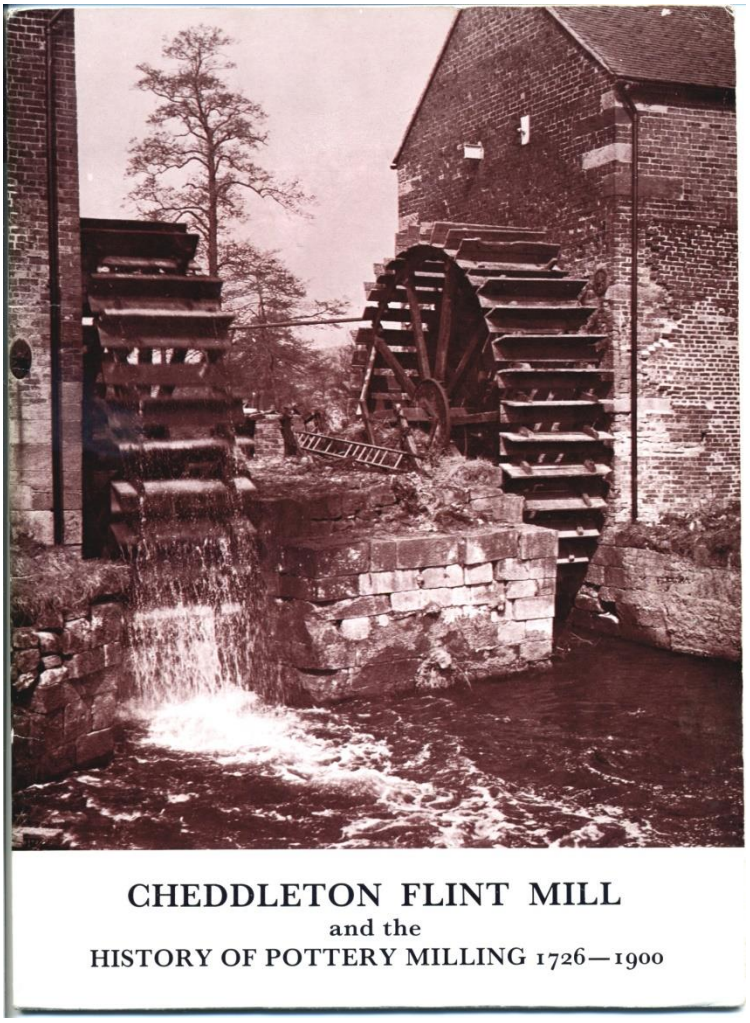
Why not pay us a visit yourself before winter weather comes? Chas W Harrison

Some English potters were here recently including one or two of the Wedgewoods .

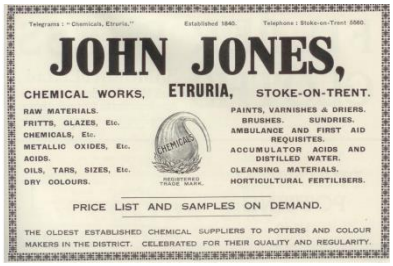
Appendix IX

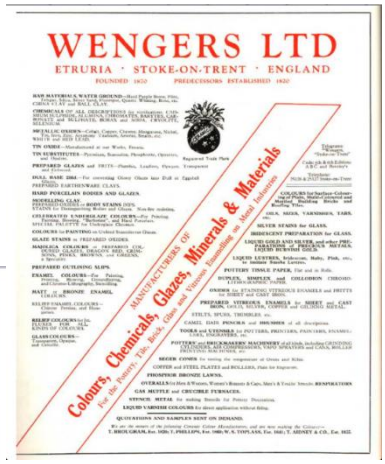


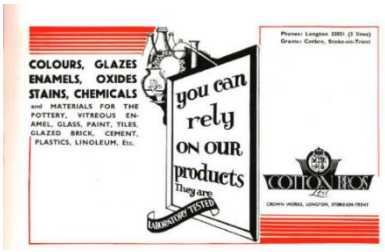
Published by the Cheddleton Flint Mill Industrial Heritage Trust. Near Leek, Staffordshire.
© Robert Copeland, 1972

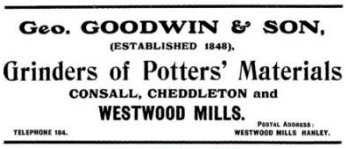


Also written by Robert Copeland. Cover Illustration - Cheddleton Flint Mill on the River Churnet, Summer 1968. South Mill wheel turning.



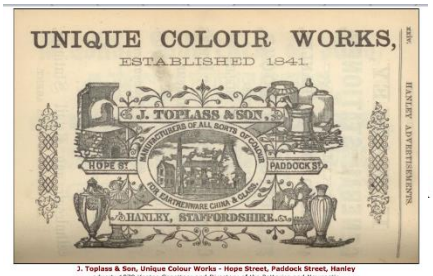




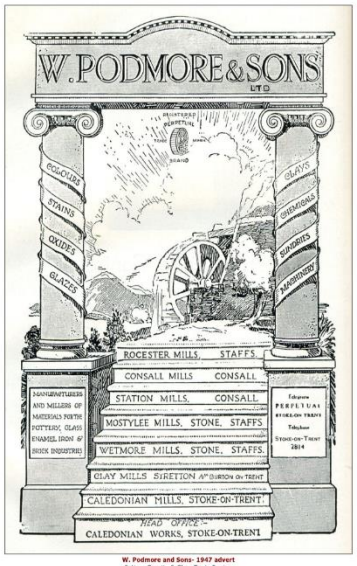


Geo. Goodwin & Son, (established 1848)
Grinders of Potters' Materials
Consall, Cheddleton and
WESTWOOD MILLS

advert from: 1907 Staffordshire Sentinel 'Business Reference Guide to The Potteries, Newcastle & District'



J. Toplass & Son, Unique Colour Works - Hope Street, Paddock Street, Hanley
advert: 1879 Keates Gazeteer and Directory of the Potteries and Newcastle



W. Podmore and Sons- 1947 advert
Pottery Gazette & Glass Trade Review

H. J. Cyples, Longton Colour Works, Normacot Road
sole agent for Dr. Möckel's celebrated liquid gold and silver

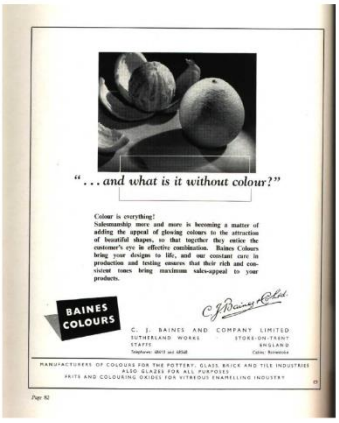
potter's colour maker and dealer in liquid gold

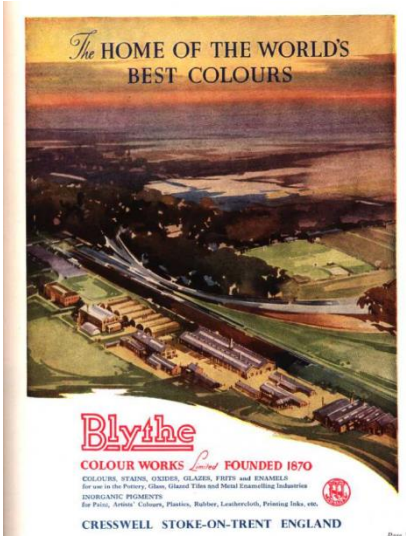
advert from.....
1907 Staffordshire Sentinel 'Business Reference Guide to The Potteries, Newcastle & District'

Jesse and Henry Shirley, Etruscan Bone and Flint Mills, Etruria

advert from.....
1907 Staffordshire Sentinel 'Business Reference Guide to The Potteries, Newcastle & District'

Bernard Moore, Stoke / Geo Goodwin, Hanley / Vaughan & Co, Burslem





Part III

Raw Materials for the Pottery Industry

1. Brief Background

In order to understand the requirement of raw materials in pottery manufacture, it is helpful to have a general background knowledge of the various and differing pottery types and some of the processes involved. By the 18th century, the range of available materials started to increase and some of the more successful techniques became more widely used. Thus started to develop not only a broader availability and use of raw materials, but also specialist advice. Hence, suppliers of ready milled materials, colours and glazes; though some of the larger potters preferred to keep elements of this in-house.

The various materials for the production of pottery are initially brought together and mixed in fine particulate combination. Whereas clay deposits taken from the ground for making pottery already have fine particulate structure, through glacial erosion and other such geological activity over millions of years, other mineral ingredients do not. Sand from the beach, for example, is much too coarse and needs to be ground or processed further before it can be incorporated into the making of pots. Early pottery was made by taking clay straight from the ground, adding water to give workable consistency, making into shapes, dried, and then placed into whatever form of heat treatment to render physical change to give permanent rigidity. Over many years, developing sophistication and techniques involved introducing other minerals, but whilst mixing the clays to make body, all other components had to be finely ground to similar particle size so that the physical changes during the firing cycle might be uniformly effective. Potters began to realise that control of the degree of fineness would also contribute to the quality and appearance of finished product. Clever means were successively developed to measure and control fineness of particle size. Rather like the corn millers making flour for bread, they would very accurately determine the correct fineness of the flour by rubbing between fingers and thumb, hence the term *"miller's thumb"*. So it was with early potters, as a technique to determine fineness of materials they were working with. It was quickly realised that fineness of component materials before mixing together was critical to the strength and quality of the finished product. Judgement of the experienced potter was certainly a major factor but with industrial growth and the need to reduce losses of spoiled ware, increasing sophistication in control techniques were adopted. In the Potteries during the early 1800's the growth of commercial pottery businesses, as well the expansion of the well established ones, was remarkable. So it was that many specialist raw material suppliers became established.

2. Types of Raw Materials for Processing

Materials to be ground into fine powder come from rock or sand deposits. Silica is one of the main ingredients for making pottery body and glaze material. Quartz, quartzite, sandstone, sand, flint, chert, granite and many other types of rocks contain high levels of silica. More often than not the mineral rock has to be quarried and transferred through a crushing process to reduce to granulated form, whereas sands have already been reduced to size by geological processes

covering millennia of years. A major form of silica, as an essential raw material to be processed for the pottery industry, as well as the rock or sand deposits, is flint. Flint occurs as nodules or

lumps in chalk or limestone rocks. Commonly seen as pebbles on beaches from coastal limestone erosion. Limestone is a raw material for making cement, which is always in demand for building. The flint nodules have to be separated during quarrying and are of little or no use to making cement, so the pottery industry has been a good outlet for the spoils of cement making. Originally, flint pebbles were obtained by collecting from coastal beaches, though as time passed this was not always acceptable. So, a fortunate liaison was made from the quarrying of limestone. A further important aspect in the use of flints for the preparation of raw materials is their use as grinding media.

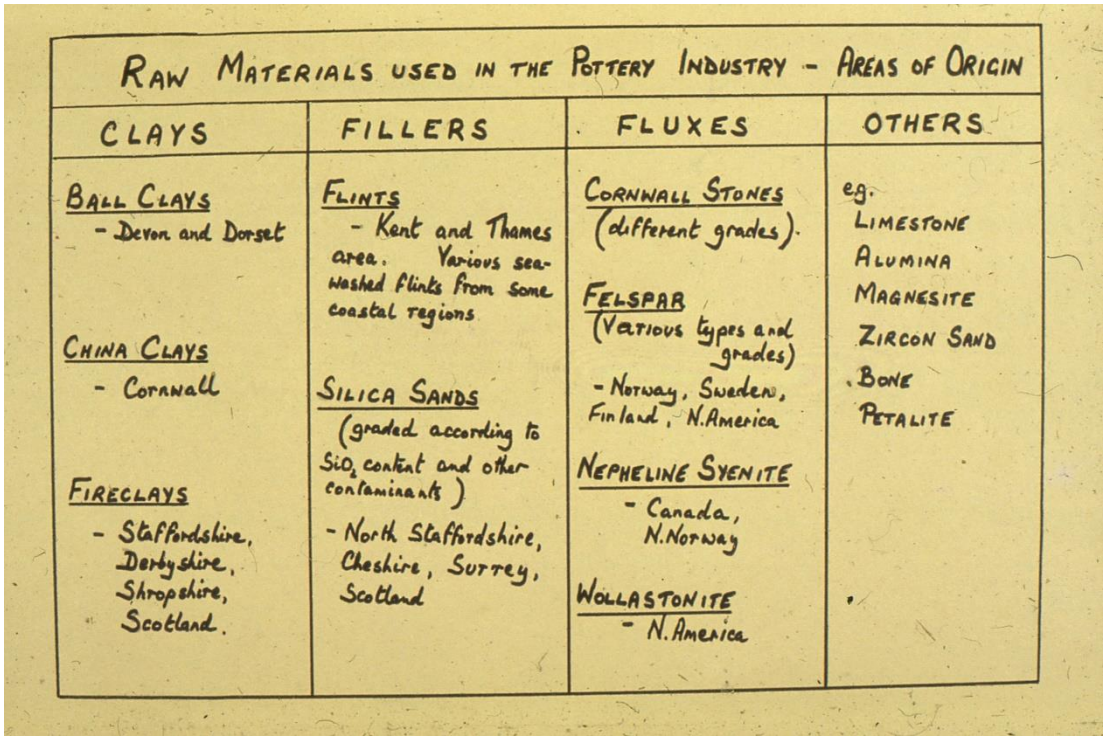
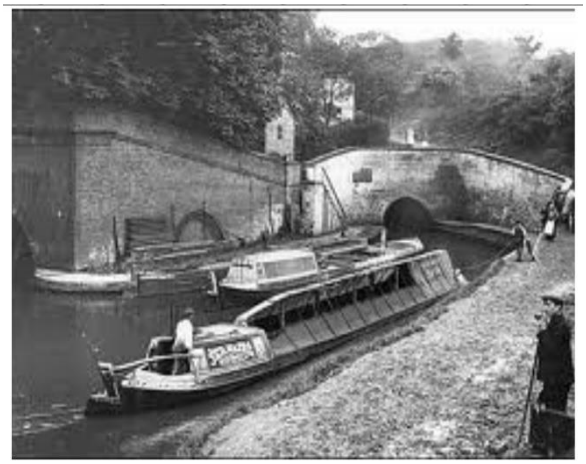


Figure 1. A general classification of Raw Materials and where they may occur.

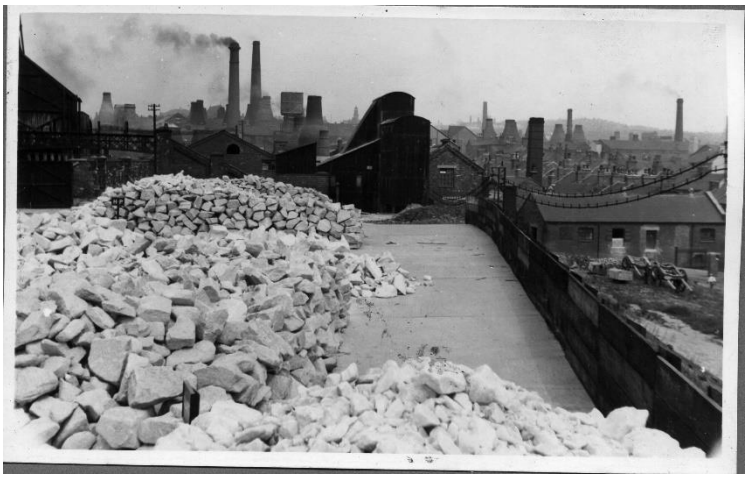
As the flint nodules occur in the chalk rock, they are very very hard. When continually washed from coastal sea erosion they become naturally smooth and rounded in the form well recognised on many of our coastal beaches. So as well as being heat treated (calcined) then crushed and ground, the raw flint pebbles are used in rotating mills to grind the mill-batch to required fineness - but more of that shortly.

Transportation of materials to The Potteries would have been done originally by horse and cart, but when demand increased many of the materials from the south and coastal areas were shipped by boat to Liverpool and then by barge on the Trent & Mersey canal; and then later, also the Caldon canal. For the construction of the canals the first sod for the former was cut by Josiah Wedgewood in 1766 at Middleport and loaded barges were carrying by 1777. The Caldon canal was started in 1776 and working by 1779. Hence the canal system provided the means to bring the raw materials into The Potteries and also to carry finished pottery ware to the docks for shipping to customers abroad, principally North America.



The barge operators were numerous and many were run by families with permanent living on their vessels.

There was close competition between the ownership and operation of the canals and of the developing local North Staffordshire Railway. For shipping goods in and out of the Potteries, each had particular advantages. However, over several years traffic gradually reverted from the canals to the railways. Much depended on the commodity in transit and the location of start or final destination. The canals continued as commercially viable through both the first and second world war years, until all commercial activity petered out in the 1950's.



With regard to bulk materials for milling, a substantial storage yard is needed. Originally these would have been open yard areas as close to the mills as possible. Depending on type of material, for example rocks or sand, some were better dropped in covered areas as opposed to open storage, thus being provided with protection from heavy rain. Also, as mechanisation improved, yard storage needed a concreted surface to eliminate mud. Materials arriving by barge were manually shovelled or winched from the hold of the vessel and generally transferred by wheelbarrow. Where the storage was immediately adjacent to railway wagons the transfer was somewhat less manually laborious, which was an obvious advantage of railway over canal. Labour saving methods of material transfer were continually being tried, tested and improved upon. Where storage yards were distant from railway delivery yards, road transport was needed using the best method, mechanised or manual, to transfer the loads to the place of process. Other changes came with time, particularly soon after the axing of so many of the rail facilities during the 1960's. Since then, most has been transported by road. An example of major modern improvement and cost saving is with bulk sands, which is mostly now processed relatively dry at source (less than 3% moisture), loaded onto large bulk tankers, then on delivery transferred pneumatically into a closed storage silo, as in the next photograph.

Figure 2. Comparative colour of sands without & with iron content.

Sands - Some Typical Analysis

	A local sand	Cheshire	Surrey	Dutch	Scottish	A processed sand	Calcined flint
SiO_2	96·7	96·6	98·8	99·2	99·6	99·0	98·2
Al_2O_3	1·42	1·49	0·07	0·16	0·14	0·50	0·82
Fe_2O_3	0·20	0·13	0·08	0·07	0·02	0·02	0·04
CaO/MgO	0·52	0·05		0·27	0·25	Trace	0·52
K_2O	0·84	0·09		0·03	0·02	0·30	
Na_2O	0·40	0·10		0·04	0·02	Trace	
Loss on Ign		0·10		0·11	0·06	0·10	
Unground Colour	Reddish Brown	Coffee Brown	Off white /yellow	Off white /grey	Near white	Near white	

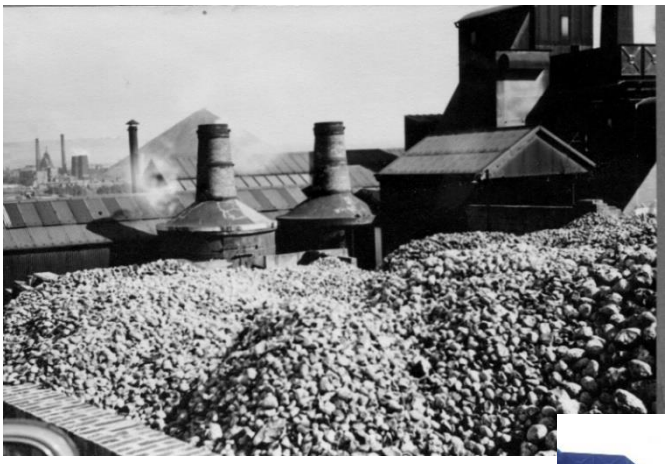
Figure 3. Some typical analysis of Sands compared with Flint.

Figure 4. General appearance of Flint, before and after calcination.

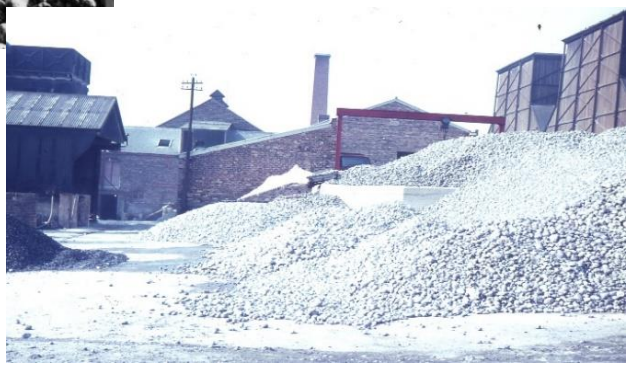
3. Calcining and Crushing

Once the raw materials were ready on site for process, they would need to be prepared for milling. Sand, already small granules, could be loaded directly into the mill. Rock shaped lumps, stone, quartz, feldspar, etc., would need firstly to be crushed by feeding through a mechanical jaw crusher and sized until small enough to be milled. Raw flints, however, are too hard to be mechanically crushed, and the silica form is not suitable for pottery body or glaze. It was discovered in 1720's that when heated to a high temperature the flint became brittle and chalky and could be ground into a paste, which when used in making pottery enhanced its quality. Hence the need to **"calcine"** (heat to high temperature) the flints first. By the 1830's flints were being brought to the Potteries in notable quantity from beaches around the coast, as sea washed pebbles. As already indicated, later the supply was satisfied as *chalk* flints, which are separated from the extraction of chalk (mainly in south east England and Belgium) where the chalk limestone is used for making cement. In the raw form the flint nodules could be in a variety of shape and size up to 9 inches across and are much too hard to crush. So the raw flints are first put through heat treatment, to over 700º centigrade. This **"calcination"** process changes the form of the silica such that the flint pebbles become almost chalky and very brittle (see Fig 4). They can then be crushed and granulated ready for milling. Flint calcining is now processed through a vertical furnace where the flint pebbles (nodules) pass through a gas fired zone and the brittle calcined flints are withdrawn mechanically from the base to be crushed and ground. Prior to modern calcining methods, as adopted in 1970's, the process was carried out in bottle shaped kilns, where a wood and coal setting was laid on a cast iron fire-grid. The flints were then shovelled in from above, carefully intermixed with coal and/or coke. When fully charged, the fire would then be lit at the base and over a period of sometimes two or three days the fire would permeate through the flints to calcine them. The size of flint kilns would vary but could each contain several tons ranging from 10 to 20 or even up to 30 tons. This process required considerable skill to ensure that the heat burned uniformly throughout the set. A misfire would prove to be very very expensive. Hence the man entrusted to oversee the calcinations process was always an experienced and trusted individual.

For a complete story on the history of flint, a unique opportunity would be to make a visit to the Old Cheddleton Flint Mill. It was working as a water-powered mill processing flint for The Potteries from 1720's up to the 1900's. It is presently maintained by dedicated volunteers as a museum. Located on the Caldon Canal 6 miles North West of Hanley and 2 miles South of Leek.



Left: Flint pebbles stock-piled after delivery by canal (c. 1950). Calcine kilns, middle ground.



Right,: Flint pebbles stockpile (same place) after delivery by road (c. 1965)

In Part I, the story of the Harrison's, Victoria Mill, adjacent to the Caldon Canal and Cheddleton Flint Mill is some 3 miles further along the Caldon Canal.

Reference: "A Short History of Pottery Raw Materials and the Cheddleton Flint Mill" written by Robert Copeland (Nov 1972) - **Appendix IX.**

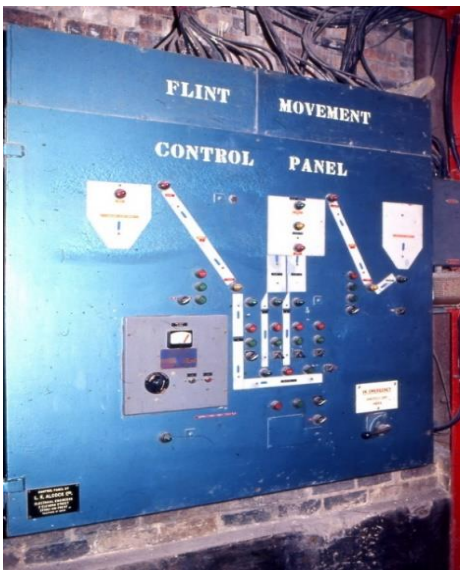
Charging the flint kiln mechanically (c.1965) instead of the old method of men with wheel-barrows. Note the man by the door who shovelled in layers of coke.

Later comparison to calcining flint - from intermittent kiln to a continuous vertical gas fired kiln

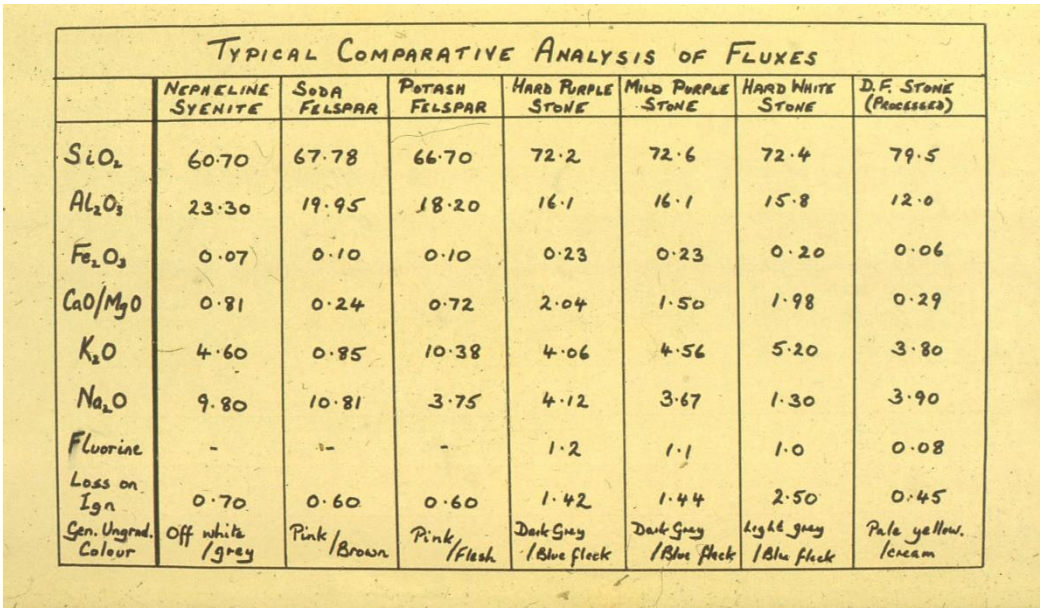
Showing intermittent kiln in foreground with the new continuous plant to the rear,

Hoist bucket, raising raw flints to the top of the vertical kiln shaft.

← Into the receiving hopper at the top.



Control panel to the new plant →



TYPICAL COMPARATIVE ANALYSIS OF FLUXES

	Nepheline Syenite	Soda Felspar	Potash Felspar	Hard Purple Stone	Mild Purple Stone	Hard White Stone	D.F. Stone (Processed)
SiO_2	60·70	67·78	66·70	72·2	72·6	72·4	79·5
Al_2O_3	23·30	19·95	18·20	16·1	16·1	15·8	12·0
Fe_2O_3	0·07	0·10	0·10	0·23	0·23	0·20	0·06
CaO/MgO	0·81	0·24	0·72	2·04	1·50	1·98	0·29
K_2O	4·60	0·85	10·38	4·06	4·56	5·20	3·80
Na_2O	9·80	10·81	3·75	4·12	3·67	1·30	3·90
Fluorine	-	-	-	1·2	1·1	1·0	0·08
Loss on Ign	0·70	0·60	0·60	1·42	1·44	2·50	0·45
Gen. Ungrnd. Colour	Off white /grey	Pink /Brown	Pink /Flesh	Dark Grey /Blue fleck	Dark Grey /Blue fleck	Light grey /Blue fleck	Pale yellow. /cream

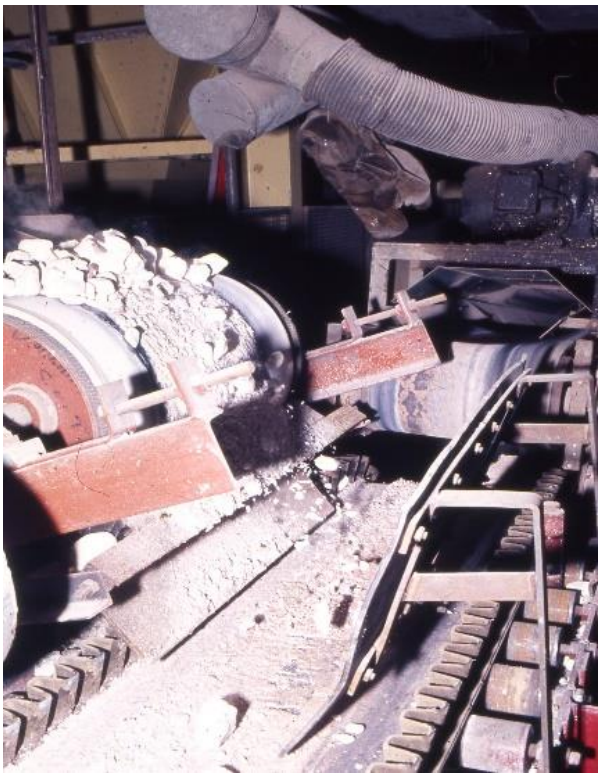
Figure 5. A range of fluxing materials and their analysis.

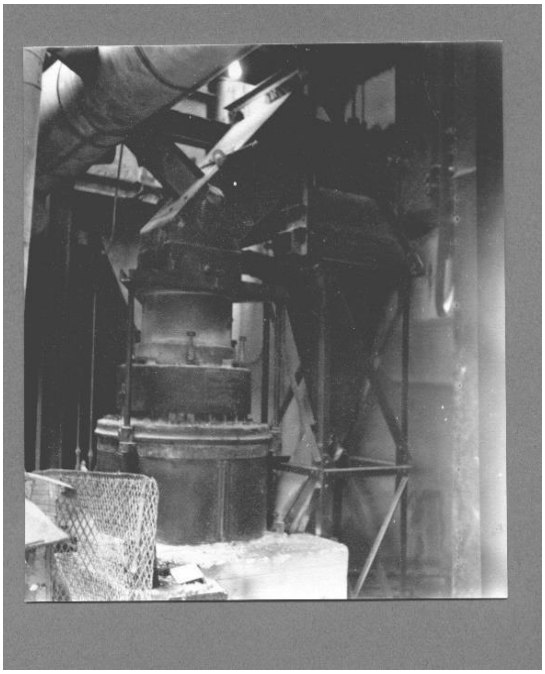
Figure 6. Appearance of some unground fluxing materials.

Figure 7. Felspar in two forms imported from Norway.

Crushing the rock materials is a mechanical process, where the large lumps are fed through a jaw crusher. The rock splits up into smaller pieces and often a large amount of smaller granular pieces, all of which drop through the jaws. The jaws are adjusted to an appropriate size of opening at the bottom. Sometimes the quarried rock would arrive in lumps too large to fit into the jaws of the mechanical crusher. The only recourse there was for the larger pieces to be broken up manually, by breaking with a sledge hammer. There is normally then a classification of size where the crushed material, passes over a large vibrating wire mesh, such that the fine material drops through and the rest goes on to a secondary finer crushing unit. All the then granulated material is conveyed to a finished receiving hopper. Sometimes this can be a very dusty process, where in early times operatives were subjected to the resulting dust-laden environment. Since the 1940's and Health and Safety legislation, the whole process had to be controlled within enclosed protection and conveyors covered with suitable dust extraction.

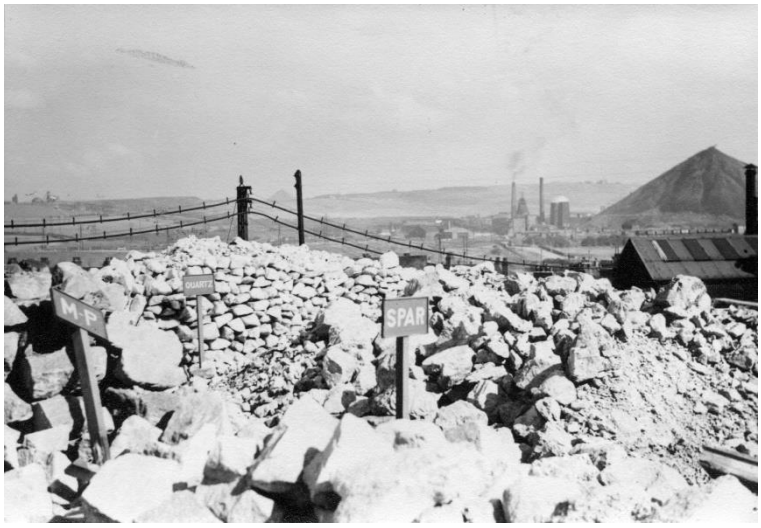
The picture on the left shows a jaw crusher, and below can be seen a replacement cast-iron jaw plate.





Above, transfer after primary crushing.
The photo, right, is of a gyratory crusher
(secondary) c. 1950

note the ducting and enclosures to contain the dust.



Stock pile of Cornish Stone and also Felspar delivered by canal (c.1950).

4. Milling

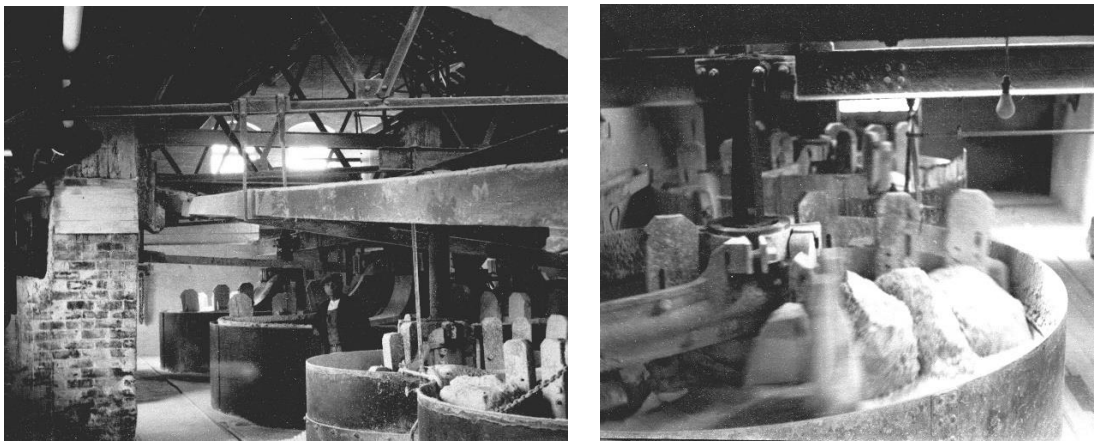
Milling, as a process is more frequently associated with milling flour from vegetable grain to make bread and prepare food. It is relatively easy to follow, and to understand how this occurs in a situation of bulk processing. Two suitable stone slabs or blocks, shaped so that one surface remains fixed, while the other moves across it. The grain is then fed between the surfaces and becomes crushed, eventually into a fine powder. By controlling how this happens and allowing the finer particles to fall away and be collected, so the process is completed. In the case of a flour-mill this would need to be kept as dry as possible otherwise the powdered flour would become a paste and not easily fall away; but as one may imagine the dry process presents a very dusty environment.

The power needed to move the grindstone could come from horse power, literally, or wind (windmills) or water, or steam engine; but with modern mechanisation, more usually electric motors.

In the eighteenth century and early nineteenth century the usual type of grinding mill used for pottery material was a pan grinder. There are variations in type of pan grinders, with wet or dry applications, but for pottery materials wet milling had to be adopted due to the harmful dust. The finer particles created risk in becoming air-borne, and if inhaled were very unpleasant and injurious to health.

The pan mills were of various size and capacity, where a central drive shaft, usually from beneath, has four arms extending to the edge diameter of the steel pan. The floor of the pan was paved with Welsh or Yorkshire chert rock. Then large heavy runner stones, also of chert were pushed round by the arms where the contact flat surfaces act as means to grind. The granulated flint or material for grinding is placed in the pan with a measured volume of water and the shaft set in motion. Grinding time would be fixed, so that the mill batch would become a slurry and then ready for discharge to allow a new batch; usually this would be a daily cycle of operation. The next photographs show a working pan mill, which in this case was milling bone.

At this stage **"bone"** may also be mentioned. As an essential ingredient for bone-china, bone was introduced into a porcelain body, increasingly from the start of the 19th century. Animal bone, after a calcination process (up to about 500 ºC) becomes bone ash (calcium phosphate); also commonly used in fertilisers and in other ways. Hence the bone ash would be supplied to The Potteries for further milling, prior to introduction into the body mix. The bone was mainly from cattle, with large quantities imported from South America.



Two views showing Pan Mills in operation.

By 1870's the ball mill had been developed and was being increasingly used as an improved and more efficient means of milling pottery materials. They were more adaptable to the use of space, more flexible to the application of power-drive and easier for a range of products and batch size. The inner lining in the steel cylinder, consisted originally of block pavers (chert or granite) tightly cemented into the barrel and end sections. Later developments used specially made porcelain or alumina blocks as lining material. More recently still, ball mills have successfully used a hard vulcanised rubber lining. With pan-grinding, the particulates are drawn between the hard surfaces of chert, so the milling action is wholly through attrition. In a ball mill, balls of grinding media are pre charged to approximately one third of the volume. Material batch is then introduced (normally with water), which takes up the void spaces between the grinding media balls. Filler plug is then tightly fastened and the cylinder started to rotate about its axis; at such speed that the media and batch are drawn into a tumbling or cascading action. Hence the particles to be ground are subjected to the impact of the tumbling media - so the milling action is through a combination of attrition and impact. The milling media used is more commonly sea washed flint pebbles (of a suitable graded size) but also, though more expensive, specially made alumina rods.

Picture shows belt driven ball mills (c.1950).
In foreground weighed glaze material in troughs ready to load into a mill.

Ball mills are usually operated as a batch process but there are also continuous versions ("*Hardinge millls*") where one end has a conical shape and a continuous feed of material and water is introduced at the wide end of the mill. Grain size of ground product is controlled by a water-pumped classifier system which returns oversize particles back to the feed end. The finished grounds are pumped into agitated storage, having the correct water content.

Modern Ball Mills – loading platform above.

Hardinge Mill – continuous throughput**.**

What happens to the material once milled and discharged from the mill? This depends on what the product is and whether it is to be used for further process on site or for supply direct to a customer. From the mill, the ground solid particles are in water and can be poured or pumped in the form of a slurry. Extracting the water and drying, as a production process, is expensive, so further process or delivery in slurry (or slop) form, is always a preferred option. Thus materials to be used in the preparation of ceramic body such as flint, stone, feldspar, bone etc., are normally retained in the slurry state. Ground material being retained in slurry state, if left to stand in tubs or other fixed type of vessel will often be at risk of settling out as ground solid, leaving the water as a separate surface layer. If this happens it becomes a nightmare problem to resolve. The settled solid becomes like setting quicksand, which is exactly what it is. Almost impossible to stir and reactivate into its slurry form. The only way to deal with it, once this has happened, is to decant as much water from the top and to dig it free, to be further dried, or either gradually mechanically mixed again with water, back to the slurry state. All this would be labour intensive and therefore to be avoided. Fortunately it has been possible to develop and introduce non intrusive chemicals into the mill batch which can arrest the setting problem. When in tubs, the operatives will use specially designed paddle-poles to stir the contents back into a uniform slurry mix, or more recently to insert a large electric mixer.

With the larger bulk mill materials, the slurry from the mill is transferred into cylindrical vessels equipped with continually rotating gates inside - ***agitators***. The continual movement prevents the slurry from settling. Such vessels have always been a common sight in The Potteries. Originally they were constructed of brick or iron, until the development of reinforced fibre-glass tanks. Where mill materials are regularly supplied in large quantity (in tanker delivery lorries) the storage of "tested" material became essential. Often there would be several large mechanically stirred tanks ("agitators"), sited to deliver by gravity directly into the tanks on the delivery vehicles. Each agitator could be large enough to hold up to 2,000 gallons (9,000 litres). Where transfer of slurry cannot be executed by gravity, specially constructed pumps need to be used.

An agitator tank, showing the revolving gate mechanism which runs continuously to keep the milled material in suspension.

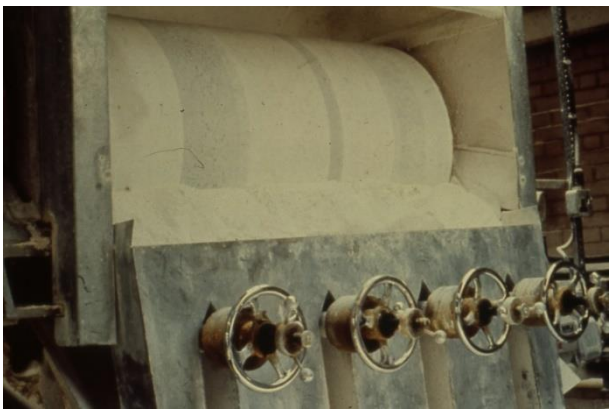
Agitator platform holding 20 such tanks - each tank has approximately 2,000 gallons capacity. This demonstrates a large tonnage throughput for a wide range of different specified materials.

5. De-watering and Drying

The main reason for drying the mill materials relates to transportation and storage. If it is to be shipped to a "distant" customer, the dried cake can be bagged and or transported without the cost of shipping the additional weight of water or the risk of setting slurry.
If wanted in a "dry" state, dewatering has been achieved in several different ways. The method will depend on the bulk and type of material. Prior to 1940's the conventional method involved pouring the slurry onto special refractory drying beds, with under flue-ducts heated from coal fire-boxes. The photo below shows steam rising from the drying material.

For smaller batch quantities, material is poured into trays placed in steam heated drying cabinets with warm air extraction.

A cabinet dryer showing trays place in an open cabinet.



As can easily be appreciated, this involves specific process and energy costs. Alternative methods have been devised and used successfully, such as feeding into special filter presses to remove the bulk of the water, followed by blowing compressed air through to remove moisture to below 3% water content. Advantages of this was that it was much quicker and the dried cake could be controlled to keep a certain amount of moisture, making it less dusty and more easily handled, either for bagging or being transported loose. Other successful method is by "drum dryer" – see photograph. Slurry material is suspended below a heated, slowly revolving drum, which picks up wet material at the base. As the hot drum revolves it skin-dries and is then scraped off the drum by blades before making further revolution.

As already stated, supply to customers abroad, or at a non local destination becomes cost prohibitive. Thus the drying process and the inherent cost is necessary. Dried material would normally be placed into suitable bags or sacks for storage and onward transfer to the customer. Depending on material and customer requirement it was sometimes expedient to transport and deliver “loose on wagon”. Once delivered, water would then be added and reconstituted to a slip or slurry as required for further process.

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6. Slop Delivery

Many of the larger pot-banks have always prepared their own body requirements with closely guarded formulations. The clays were delivered directly to site, but for the flint and stone or other milled ingredients they would be supplied from local millers, often on a daily basis in slurry (or slop) form. A very common and regular sight on the roads in The Potteries, were the uniquely developed tanker-lorries, delivering these mill materials to their customers. The tankers would be loaded from an “agitator”, if possible by a gravity filling operation. Once the tanker had loaded, the payload was weighed and calculated to invoice the "dry content" - where the customers obviously would not want to pay for water. Slop material in the tank would never be allowed time to set, and thus the delivery would be direct to customer premises, for transfer into the customer's receiving agitator. Transfer would depend on the customer’s facility, but most tankers were cast iron pressure vessels. Hence the delivery vehicle would have an inboard pressure pump to force-deliver material through the customer’s pipe-work. Alternatively, the transporting tank might not be a pressure vessel and thus suitable pumping mechanism would need to be applied to cater for the delivery. Very early delivery of raw materials, up to 1920’s, were made as one would expect, by horse and cart.

Delivery of slop materials and glazes would have entailed loading filled tubs onto the cart. For the larger quantities of mill materials, suitable containers were lowered onto the cart. Such can be seen in the photograph where the tank can be seen on the left on stilts, ready to be placed on the cart. The filling point can also be seen.

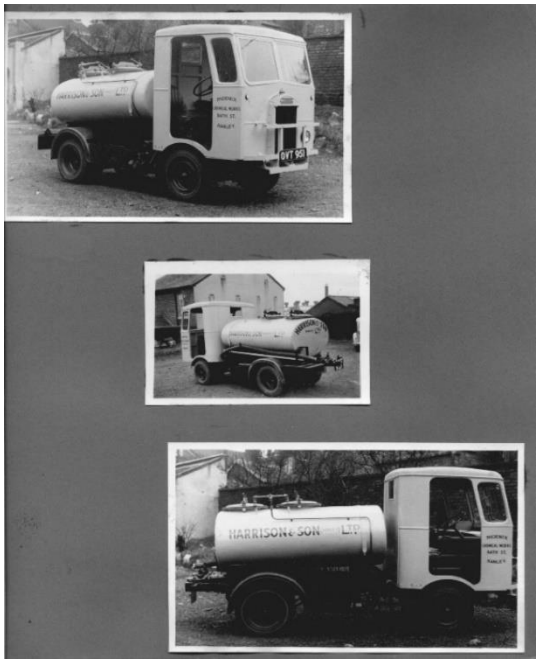
At the customer end, suitable pipework may be provided, as can be seen as example in the photograph, left.

Other photographs of tank delivery vehicles are shown next.

Right, 3-wheel pressure tanker (c.1930's)

Fibre-glass tank (electric pump delivery) (c.1970's)

Steel tank (pressure delivery)



Small pressure tanker, for local deliveries (c.1950's)

7. Pottery Body

From the early 1800's, the availability of a wider range of raw materials and the understanding to produce improved quality bodies grew. Improved production techniques also lead to better quality and a wider range of wares. Larger potters could have several ware types being manufactured, but it was more usual for each factory to concentrate and specialise on one particular body type. Different ceramic body is generally classed under the headings of EARTHENWARE, STONEWARE, PORCELAIN. Many variations and spin-offs would apply with specialist manufacture; such as bone-china, fireclay products, refractories, tiles, sanitary ware, electrical porcelain and others.

Not all pottery factories had their own sliphouse and body making facilities. Many would depend on buying their body needs from a specialist supplier. Also, some could be producing a "special" or "limited" range of ware, so that it would be cheaper to buy the ready prepared body, rather than the inconvenience and expense of changing their own sliphouse throughput. Not all potters setting up in business would necessarily have a sliphouse facility to be able to make their own body. Several of the raw material suppliers became aware of this growing market potential and set up their own sliphouse (ceramic body making) facility which would have a limited range of standard body types, Alternatively, if a customer had a special formulated need, then if quantity could be accommodated and price agreed, this was also another comfortable arrangement between supplier and customer.

8. Body Preparation - The Sliphouse

Actual body preparation for a four component mix, would consist simply of putting these four components together in predetermined dry weight proportion, and mixing them thoroughly and uniformly together. Method has varied over the years, but the process of doing this is the same now as it was in mid 1700's. Mixing is achieved by rendering each component into a slip consistency (no lumpy bits), putting them together in one big tank and stirring together till it becomes a uniform mix. Water content is then reduced until the plastic clay body can then be further applied to making the pottery.

The clay components were generally **Ball Clay** and **China Clay** which would have undergone some processing at the place of extraction. Shipped to the customer by boat, barge, train or more frequently in later times, by rail or road haulage. On delivery, the clay would be tipped into large sectioned-off bin areas, essentially covered and weatherproof. If clay in this form gets rained on and wet, it is not difficult to imagine the messy and difficult working conditions that often had to be dealt with. Before the clays can be mixed to make the ceramic body, they have to be made into a fluid slurry with added water. This is done in ***"blungers"***. The previously milled materials, as used in making earthenware, are **Flint** and **Stone**. These would be delivered by pipe, being pumped into separate agitated storage tanks in fluid or slop form within the sliphouse. Where supplied in dry form they would need to be suitably blunged into a slurry before mixing.

Whilst in the sliphouse, as it were, it is opportune to briefly describe the three distinctly different, though similar types of holding vessels. First is an ***agitator***, usually a very large upright cylindrical tank, where slip material is fed into an open top; inside is a gate which is designed and kept gently rotating to maintain the solid particle contents in suspension. A run-off valve at the bottom or in the base, all as described in the section on milling. Second a ***blunger***, made from cast iron, of octagonal section having robust beater arms inside.

Sliphouse (c.1940's).
Mixing arks below ground to the right foreground.
Plastic clay press-cakes on the pallet.
Note the amount of belt-drive machinery.

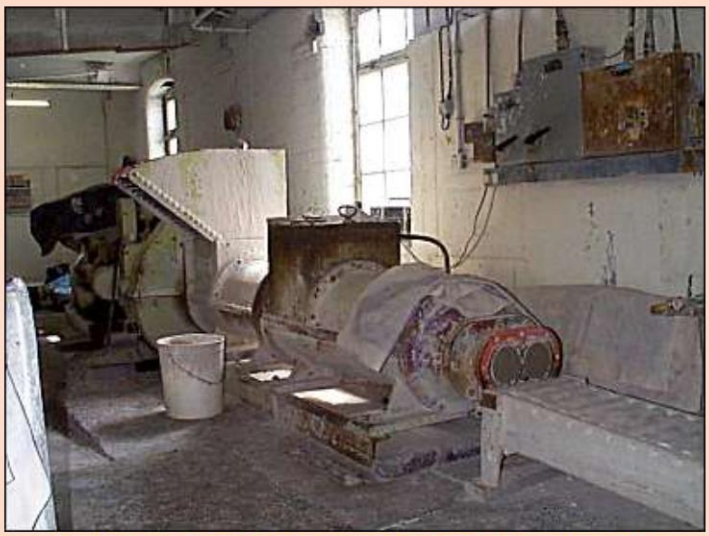
A measured amount of water is first run into the blunger, then the clay is shovelled in (originally manually but later mechanically) where the contents are beaten into a slurry and all the clay nodules become broken down. Then the last vessel is a ***mixing ark***, often constructed below ground level; brick walled and uniform section from top to bottom, also with specially designed mixing paddle. The clays and mill materials are individually introduced in proportion into the mixing ark, then stirred and blended to the desired body mix. The method of introducing the right amount of each material slip was by running each component slip separately into the "mixing ark", measuring the correct amount (in inches) marked up on a "measuring stick". All this was carefully pre calculated onto a "***slipmaker's chart***". The man responsible for doing this was the "***slipmaker***", who was always a trusted, experienced, competent and well paid employee. He would use a special copper "pint pot", where a sample of each material is taken in turn to record its "pint weight". Knowing the density (specific gravity) of the dry material, the correct volume for each material at the recorded pint weight would be taken from the chart, as a number of inches up the height in the mixing ark. So by marking off the inches on a measuring stick, each material is first introduced before the mixer blades are set in motion. Once thoroughly blended, the body slip is pumped from the mixing ark and passed over a screening system of sieves and magnets, then into dewatering presses to render a plastic form of the prepared body.

The blunger washes the clay and converts it to slip.
At one time this was an arduous manual job

Filter Press

Plastic clay from the pugmill (as seen, middleground) cut into lengths ready for delivery. Clay on the pallets is covered with wet filter cloths during storage and delivery to prevent surface drying of the clay. These days each clay wad is placed into a plastic bag.

The plastic body from the dewatering presses would be in a "cake form". Before being used in the pottery making process, a further stage would need to be completed, which involved "kneading" and "de-airing". As an industrial process the "cake" would be fed into a **"pug-mill"**. Slowly rotating blades draw the cake in and force it through a funnel section to extrude the clay out at the other end (all very similar to a meat mincer). Before the clay is shaped in the later makng processes, it is essential that any pockets of air are eliminated. If not, when the shaped ware goes through the kiln, the high temperature causes any occluded air to expand and the piece would explode. This was a common problem for early potters. Thus before using the clay from the pug, a manual process referred to as "*throwing*" and "*wedging*" had to be adopted. Prior to 1850's before invention of pugmills this was a manual process often done by children, but the use and development of the pugmill and a later de-airing facility largely eliminated the problem. By the 1900's most pugmills had a de-airing section within the barrel length, which involved a sealed chamber section, where a connected vacuum pump sucked away any possible air in the clay.



The pug mill at Burgess and Leigh did away with
the need for the air to be removed from the clay by 'throwing' it.

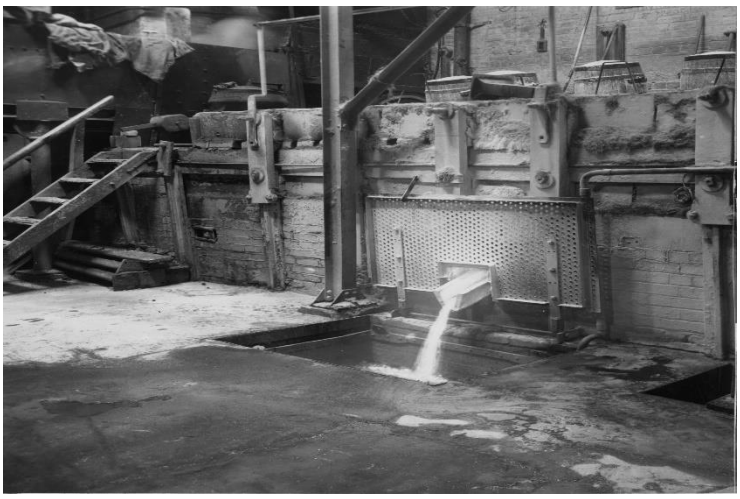
9. Frit

Frit is a generic term for a combination of ceramic materials, which when heated to high temperature (normally up to about 1,000 ºC) forms molten glass. This is then poured steadily into water, were rapid cooling causes it to shatter into a granulated form. This can then be ground further into fine powder, usually in water, and used as a glaze or as a composite to making glaze. The chemistry is complex, but in simple terms some materials required for their fluxing properties are soluble in water. The soluble form is not acceptable for the making and decorating in the pottery process. By mixing in powder form with silica, the heating process renders an insoluble component. Also some materials, if not combined with other compounds through the frit process, can otherwise give rise to later health danger in process or in the finished ware. For example lead.

Large production for glazing, is through suspending the particles in water and then dipping or by spraying the ware. The fritting process converts into a glass matrix, which renders these fluxing agents into non-soluble, or with very low soluble property. Processes throughout the glazing and decorating, using the old established art, were thus made safer and more easily controllable, for larger production and manufacture.

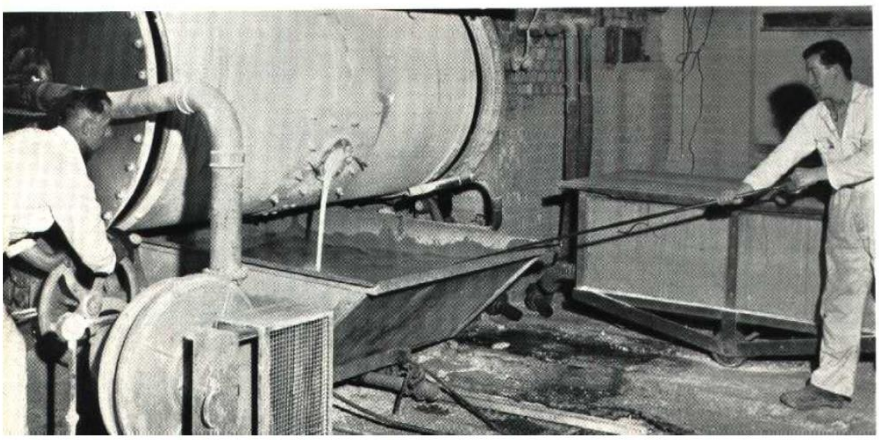
The process of making frit, is to weigh the dry powder components in designated proportion and place into a suitable mixing vessel. When well mixed, for small quantity, it is then placed into a refractory crucible which is then placed into a furnace environment ranging from 1,000 to 1,500 ºC. Time in the furnace heat depends on how quickly the physical/chemical action forms a uniform molten glass. This can be assisted by occasionally turning the crucible in the heat. When ready, the molten glass is poured slowly into water, whence it super-cools and becomes a granulated mass. The colour and granulated form and appearance will differ very greatly according to the formulation and type of frit. When sufficiently cooled, the water is poured off or drained. There are many types of frit and differing purposes for making them. They can be produced as transparent, opaque or even coloured. Larger quantities are mostly produced as a component for making glazes, though in smaller quantity lots, frit is also used for specialist enamel colours.

In larger industrial production, the furnace would either be a flat-bed reverberatory type, or a rotatory, or rotating cylinder type. After suitable time in the furnace the molten frit is poured into a special container in water which has drain holes in the bottom. Thus when lifted or pulled clear, the water is drained off.

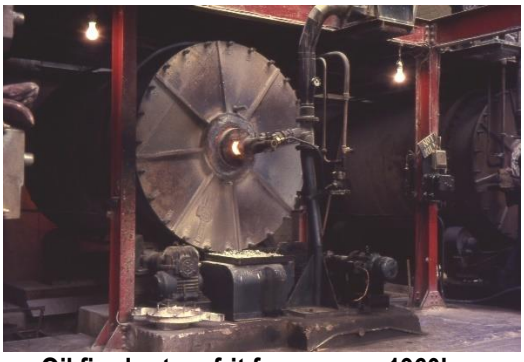


Molten frit discharging from a reverberatory furnace into the water-bath.

Similar, but being discharged from a rotary furnace.



Fuel and the technology of application in furnaces had a major influence in the developments of frits, as indeed it did throughout the whole of the pottery industry. When the only fuel available was coal, the design and use of kilns and furnaces was centred on gaining higher temperature through natural draught, thus tall chimneys and bottle kilns. Electricity allowed the development of fans, to create forced draught and air streams. But the big leap forward in kiln and furnace technology, was the availability of oil and gas as the fuel source. As frit became required in larger quantities, it was made in reverberatory type furnaces, either continuously or intermittently tapped. Then development of rotary furnaces for making ceramic frit, offered a far greater flexibility in the range and use in glazes for pottery. The rotary furnaces could be of variable dimension. Made with steel casing, refractory lined and mounted on metal tyres supported on mechanically revolving rollers. Charged with the powder mix from above, the charging hole was then sealed, with facility to rotate or revolve the furnace during the firing cycle. When fully molten, the tapping plug is removed and the molten frit is carefully discharged into the steel basket which is in water, below the furnace.



Oil fired rotary frit furnaces - 1960's.

Furnace re-line with specialised bricks.

Furnace left, with burner swung clear.

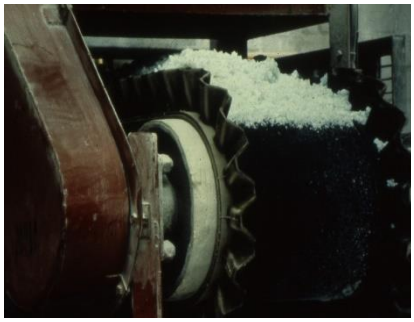
Operative commencing a pour.

Initial flow of melt.

Melt pouring through the vast amount of steam generated.

Steam fills the furnace-room environment.

Steel basket being lifted from the water-bath to allow the water to drain.



Frit on the end of a conveyor belt.

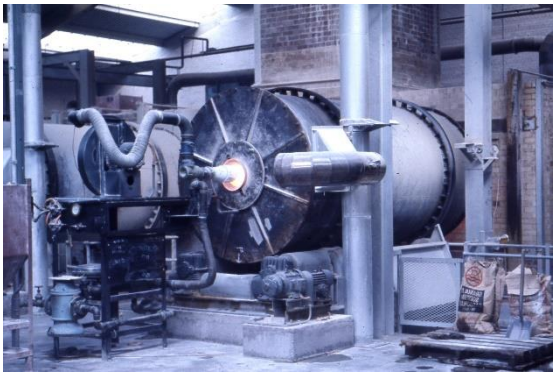
Storage in open bunkers.

Furnaces were made to varying sizes, but in a normal industrial scale were about six feet in diameter and would hold about one tonne of melt. Pouring was always spectacular, but it was also exceedingly dangerous. As the molten glass hit the water, the heat transfer had a dynamic effect where the water bath could rapidly be boiling. In order to disperse the heat and prevent localised explosion, the operator would have a long wooden pole, fitted with a large metal hoe, to stir safely throughout the container during the pour. Many stories and occasions were recorded over the years, where inexperienced or careless operators got it wrong; semi molten glass would explode and shoot sometimes several feet into the air. Operators in the line fire were badly injured and it is known of some fatalities.

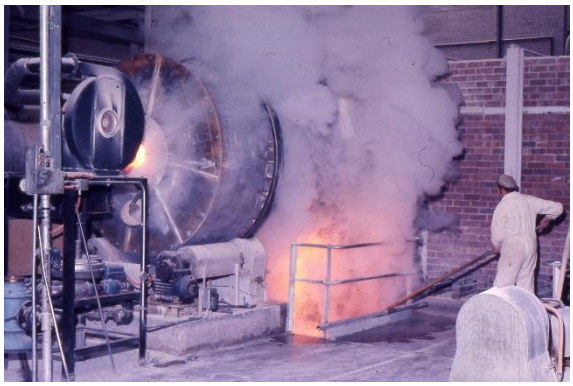
How a frit might be made will depend on the amount or quantity required. Also there were many different categories of frit. Essentially for glazes there were ***Leaded*** and ***Unleaded*** frits. Of the "leadless" type they were generally borosilicates, alumina silicates and zirconium frits. Some were very soft frits (low melting point) and also hard frits (high melting point).

Below: Rotary Frit Furnaces (c.1980's), fired with specialised Oxy-Gas burner unit, capable of temperatures around 1,400 ºC.

Furnace being charged from ground level hopper through screw conveyor,



Oxygen-Gas burner unit in operation.



Two more photo-images of frit furnaces during the pouring operation.

Returning to the problem of hazardous use of lead, it was through the production of a low soluble lead bi-silicate, as a frit, that enabled the continued use of lead to be introduced into making glazes without the previous downsides. For lead frits there were equally many formulations, but because of the harmful effects caused through high levels of lead solubility, in 1940's tight restrictions were legalised and imposed on its use for tableware. Thus a standard ***lead bisilicate*** frit became the norm. As such, it was produced in large amounts and thus lent itself to being made in continuously operating reverberatory type furnaces. Indeed, because of the hazardous environment the whole process has to be specially contained. Hence there have become fewer and fewer specialist manufacturing producers.

The use of lead and its compounds, has injurous effect on humans during handling and the environment of manufacturing, as referred to here. Of equally serious implication, but far more wide-reaching is its use in ceramic glazes and decoration. This is referred to in greater detail in the next section relating to glazes.

10. Glaze

The glazed impervious surface applied to pottery is effectively a glass layer. This can be achieved in a great number of ways, with many different materials and is, in respect to the variety of effects that can be produced, a combination of art and science. Common glass is essentially a sodium calcium silicate in composition and in the absence of other chemical "impurities", is transparent. Combinations of make-up, using materials and element oxides can render different colours, effects and physical properties. Hence the ability to produce glass or glazes of different opacity, colour and effect. One particular component, used in making glaze from early times, is lead, in it's various oxide forms. The lead gives a notable clarity to the glaze finish and also gives a brightness to colours when included as a component in the glaze. Three types of oxide of lead are generally known by their colour in powder form, as "white", "yellow" and "red". Originally glaze would have been mixed as a powder then dusted onto the pot, prior to firing. In order to ensure an even cover, it was easier to make a paste in water and then brush on, or to create a slurry in a suitable vessel so that the pot could be dipped to leave a correct layer of glaze coating; the pot would then be dried out before being put into a kiln to fire. The downside of this is that lead, and it's use in pottery manufacture as well as in many other applications has been proven to be dangerous to human health. It is thus interesting to follow the developments in glaze making, how substitutes were unsuccessfully sought; consequently strict legal measures were introduced to control the amount and type of lead used in handling during manufacturing process and for safe usage of the finished article.

It is not intended here to go into any detail of making pottery. Many of the earlier methods are still used extensively by the craft potter, but developments for industrial process and mass production brought advancement and changes in many areas of glaze application. Not only was glaze formulation important, its physical property prior to application had to be controlled through particle fineness, water content, and chemical additives to adjust fluidity and viscosity. Methods of application included many systems of spraying, waterfalls for glazing tiles, as well as the traditional dipping techniques. So it was that suppliers of glazes worked very closely with their customers in order to satisfy and retain the business. The quality of the glaze, in preparation before despatch to the customer, requires careful sieving through a robust system of (usually vibrating) sieves to remove any oversize or foreign bits. At the same time glaze is passed over magnets. Any iron (rust) contamination can leave unsightly black specks in the surface of the glaze on the finished ware. This was often a slow process and ingenious device was rigged up to make it faster. With furtherance of engineering, modern sieve units and electro-magnets overcame this particular bottle-neck.

The photographs (c.1950) show glaze being fed into tubs from the mill, after passing over sieves and magnets.

Units for sieving and magneting (c.1950's)

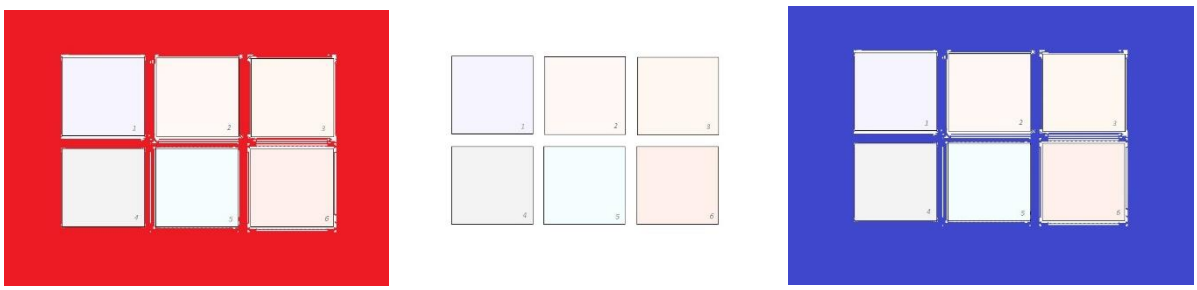
Finished glaze flowing into delivery tubs.

Glaze passing through electo-magnet (c.1980's)

Over the years of making his pots, the potter has sought to achieve a specific finish in design. For the early art potters results came through trial and error, as is often the case these days. For the industrial potter, however, reproducibility became a governing factor in design. Variation in conditions of process or of material ingredients, can render finished ware being outside a standard acceptability or with production faults. Potters were clearly responsible for the application and control within their own factory, but consistency and reliability of their raw

materials supply, was so vital to the success of their business, that a special relationship with suppliers had to exist. That relationship often started between owners, but more usually was sustained between floor managers and operatives. Regular contact was maintained from the suppliers through their technical representatives, who would visit the customer's factory on a regular, often daily basis.

When the ware varied slightly from standard, for whatever reason, the final sorting process would put aside items as "seconds". The industry was well known for producing "seconds", but obviously the amount and circumstance was carefully monitored. Terms for the types of fault with glaze were such as ***crawling***, ***peeling***, ***dunting***, ***crazing***, ***pinholes***, ***dimpled***, ***specks*** and others, as well as colour mismatch. In production terms, glazes have also been classified into various types. ***Transparent*** glaze is the most common, where all that is required on the pottery item is a colourless, impervious, glaze coat. Any decoration applied on the ware would show clearly through. But then it all starts to become complex with ***opaque*** and **coloured** glazes - white being the most obvious. But what is "white"? Particularly in pottery manufacture where it may vary from a cream or ivory range of white, to a bright blue-white, all having a variety of grey. Imagine a white tiled bathroom where one tile needs to be replaced. If the replaced tile does not have an exact match of white, the difference may only be very slight, but visually it will stand out like the proverbial sore thumb. Each of these glaze types can be subject of separate and sometimes lengthy treatise but that is not what is intended here. Looking further to some coloured glazes and various glaze effects and finishes are ***matt*** glazes and ***lustre***, ***crackle***, ***crystalline***, ***speckle***, ***coruscate***, ***marble***, ***mottled***, are all terms used in the industry as descriptive of glaze effects. When the fit between the body and the glaze are not compatible two common faults that can occur are **crazing** or **crawling** - however, there have been circumstances where these are the desired effect.



White tiles? But each of 1 – 6 are different.....!

In times past, there was a greater expectation that people could replace with exact match a damaged item, even after years of usage. For the studio or craft potters, not so critical, but for the industrial potter final results in production are critical against catalogue. Not so much these days perhaps, but especially for fine tableware there is still an expectation by the customer, that for items bought several years previously, any replacements should be able to be perfectly matched.

Mention has been made of the use of lead and it's compounds which proved to be highly dangerous, in making the pottery, as well as its later use in a domestic application. Lead and it's oxides, soluble in water, if ingested into the human body is poisonous and can cause a range of

sickness and debilitating effects. In the making process, the fine dry powders would easily become airborne and breathed in by operatives; also, if hands were not thoroughly washed

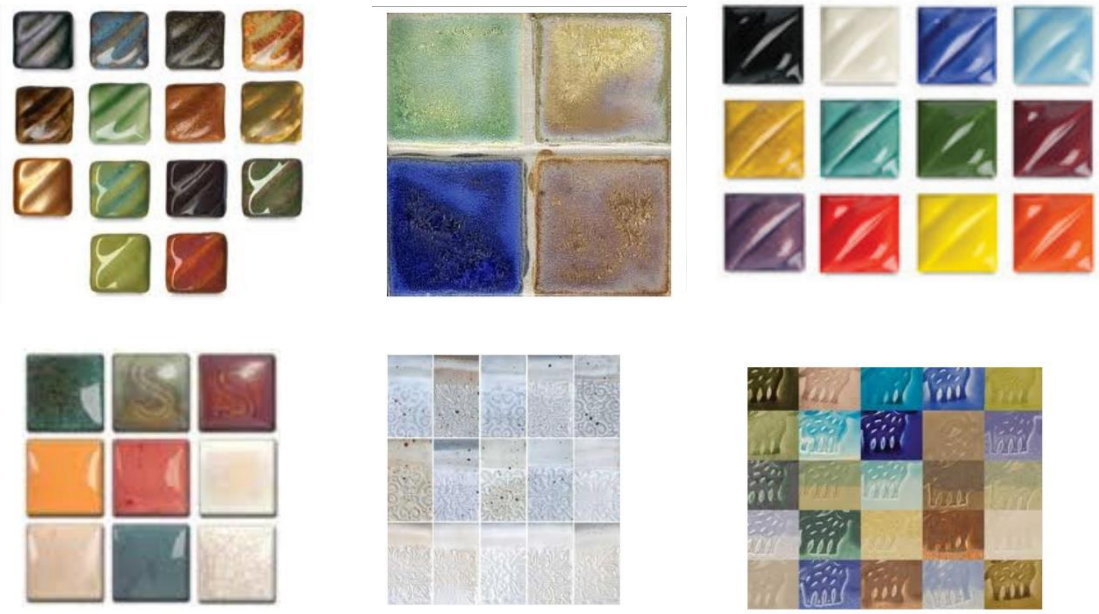
before eating. With much of the finished ware, the desired property is that the vessel would hold water. Solubility would be negligible in the water. However, when the pot was used to hold fruit juices, wine and any liquids with slightly acidic property, the lead in the glaze could dissolve and be ingested in this way. The severity of lead poisoning is cumulative, so individuals subjected would be more seriously affected from a regular exposure. For the potter this had not been the only problem to overcome. There were in fact many other similar dangers to health in the preparation of ceramic glazes and decoration of ware, which became apparent over years. For example tin and it's oxides had been used extensively. '***Delft ware***' and the famous '***cream ware***', widely produced in North Staffordshire, used tin oxide in the glaze to produce the "white" opacity characteristic to its production. Tin poisoning is not as dire as that of lead, but nevertheless enough reason to reduce its use in pottery and to find alternatives to produce similar effects. Tin was rapidly replaced in pottery manufacture by the use of zirconium oxide which created very similar opacifying effects. Zircon occurs in many parts of the world, but not in the UK. Demand for its use in the Potteries was mostly satisfied commercially through supply from large deposits and extraction in Australia.

The problems in the use of lead were not confined to pottery glazes. Also until the early nineteenth century, the number of people involved, and the means to identify such illnesses were not understood. Lead compounds have been used extensively in making paints. There was also a widespread growth in the use of lead in making lead-piping for a whole range of plumbing, and drinking-water distribution. With technical advancements and greater usage of lead, through demand during the industrial revolution, the seriousness of the problem was little-by-little being identified and the safeguards developed and gradually introduced. It was after the second world war that cases of lead poisoning in babies occurred where lead based paints were used for painting cots. Babies trying to cut new teeth on the painted bars only needed very small intake of lead into their system to have alarming effects. The use of lead-based paints for domestic use became prohibited in law, but not effective until the 1940's. The case of lead-piping was not so obvious, but was legislated against usage in any new build from as recent as 1960's in the UK.

By the late 1880's the dangers from the use of lead in pottery making had been clearly identified. Many glaze makers worked hard, with research, to find alternative glazes without using lead. This was not without some level of success. One or two glaze suppliers did offer a range of "leadless" glazes, but many established colours and decoration already in demand could not be satisfactorily matched. Some of the vibrant colours and particular decoration enabled through using lead would have been mostly lost. Many of the harmful effects in its use were, over time, gradually reduced by converting its oxides and compounds into a very low soluble form by making the specialist "low solubility" lead frits.

From the late nineteenth century, evidence of serious health hazard became widespread amongst pottery workers. Pressure was placed on pottery manufacturers to create a more healthy working environment to prevent inhalation of dust, specifically lead, but also generally the large amount of silica dust from so many of the processes involved. A big risk for pottery operatives was in contracting "silicosis" and pneumoconiosis". The larger potters came together with early beginnings to resolve some of these problems by the establishment in the 1920's of what became the British Ceramic Research Association. But the greater pressure to solve problems over the solubility of lead in glazes was directly targeted onto the glaze manufacturers.

11. Colours for Decoration



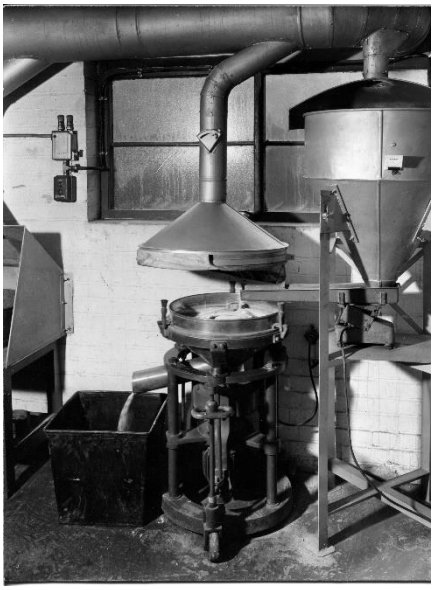
Potters and the Designers, whether with pieces of craft pottery in mind, or for something for a more commercial output, need to know how the colours are to be applied and the various manufacturing conditions might produce the desired effect. As with the body and the glaze needing to fit, so with the colours. Colours are separately made for three main different applications. ***Underglaze*** colours, as implied, are painted, transferred or applied to the biscuit-ware before applying the glaze. Sometimes, the glaze itself is coloured, hence ***in-glaze*** colours. Then lastly, the class of colours referred to as ***on-glaze or enamel*** colours. All sorts of effect can be achieved by different methods of application and also, on pottery, there can be several different instances of the ware being fired, and not necessarily for the same duration or temperature in the kiln. Enamel kilns are usually designed and constructed specially for the purpose, where temperatures are not as high, being from 600 to 850 degrees centigrade. Some decoration effects require multiple firing.

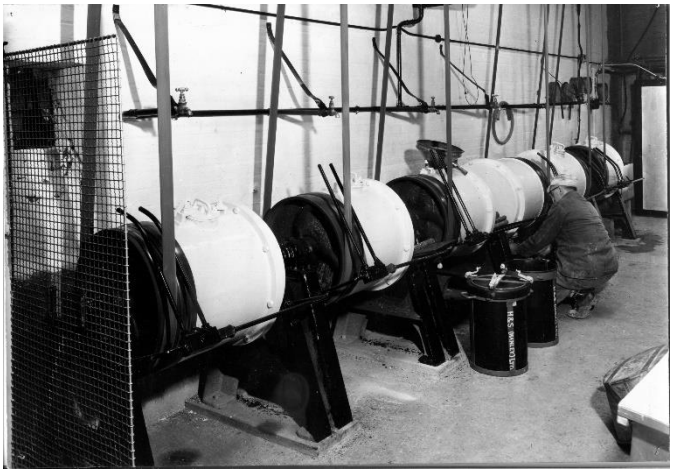
Making ceramic colours involves several stages of production. Not every colour type will necessarily go through the same process. Where a great variety of final colour and colour effects can be achieved, using the same inorganic mineral and mineral compounds, both chemical and physical processes may be involved. The amount of any particular colour being processed, depending on how it is to be used and whether a ***"base colour"***, for further mixing, will be a factor in making colours. Generally, as one would expect, the number of colour batches being prepared at any time will be considerable, though amounts are small, compared to glazes. The raw materials are finely ground, mixed, and heat treated through kilns, then they go through a series of wet and/or dry processes. The mixed powdered colour is placed into refractory saggars for firing. Firing may be in intermittent kilns or through continuous kilns. Also the saggars may be covered (a flat refractory lid) or left uncovered, relating to the atmosphere to develop in firing. The presence of any solubles in the finished colour have to be removed by a further process of washing. Normally this was done in tanks using hot water, but later, more effectively, if production quantities are large enough, by passing into specially designed filter press units and pumping the water through under pressure.

As with glazes, once a colour is finally approved it will be designated as a production standard. This means that it is given a unique code number and an amount (which may be either a few grammes or a few kilos) is put into laboratory storage and will then be used in future, as a standard comparison for later batches of production. As may be appreciated, for an established colour maker, it will involve hundreds, if not thousands, of identified colour numbers and retained standard samples.

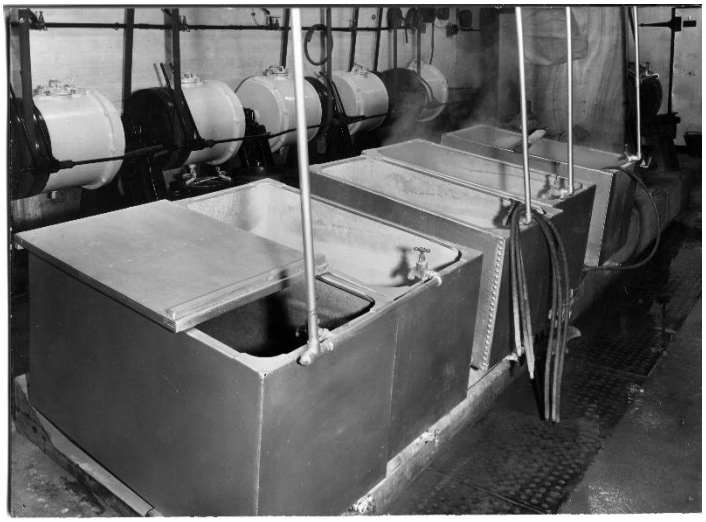
So, general processes in colour making will include, grinding, blending, mixing, firing, sieving, washing and drying.

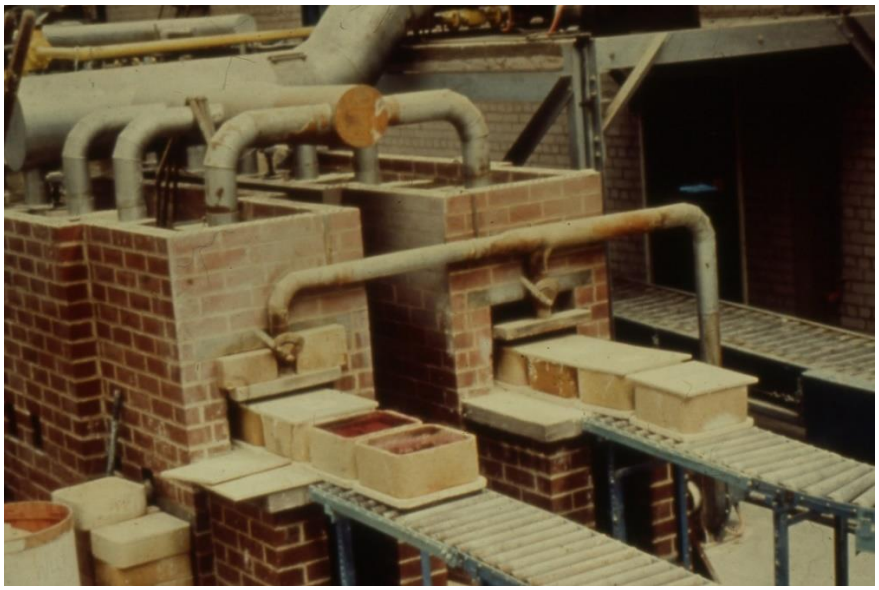
Photo right, dry colour sieving unit.





Milling colours, above and right, washing tanks (after washing the colour solids settle and surface water is siphoned away to drain) - photos c.1950's.





Dual tunnel kiln – colour saggars emerging.

Some of the colour effects can only be produced by using particular colouring oxides and the availability and cost can vary considerably. Also, there are various effects and colours which can only be achieved in a specially controlled kiln atmosphere, whilst firing the finished ware. An example of this is for rouge flambé, where a reducing atmosphere is needed. This has been done from early times by using wood as the fuel. Some old pottery brand names would even suggest that their particular ware had to be fired by using a particular type of wood.

Gold Colours.

George Jones, bone china dessert plate.

Coalport, bone china commemorative plate (Queen Elizabeth II - 2 June 1953).

Precious metals are also used in making ceramic colours. In particular **gold**. But one thing not widely appreciated, is that there are two types of gold colour. First the gold prepared and applied to produce a conventional gold effect for banding or applying as gold coloured decoration. But also where the gold is converted into its oxide or metal compounds. With what often appeared to be some applied alchemy, the colour maker can produce a series of very specialised and vivid purple, magenta, cerise or similar deep rich red effects. Gold colours are, as would be expected, very expensive.

12. Competition and the Technical Representatives

In order to sell their products, it was necessary for the glaze and colour makers to work very closely with existing customers, as well as for potential customers. This involved two things. Firstly a close working relationship, where technical representatives, and sometimes the owners themselves, would call regularly on the potters and their production managers, to seek out their needs and problems. Secondly, the glaze makers set up testing and control laboratory facilities. To support the representatives, as well as maintain a close control. All their products being delivered were tested, frequently on a daily basis as well as being trial-approved by the customers. With so many potters being located in the Potteries, it followed that all the glaze and colour makers set up their businesses in the locality. Hence their employed representatives visiting the potters', would have to work hard to get their particular glazes into production with the customer; and to ensure maintained good results on the finished ware. Once a glaze had been customised to a body and the production conditions, as long as all was going well, the pottery production manager would be very reluctant to change his supplier. A good representative, therefore, needed to know and be expert in all the pottery production techniques, particularly the firing processes.

There were also many other pottery manufacturers in other parts of the country - London, Worcester, Bristol, West Country, South Wales, Lancashire, Yorkshire, Northumberland and several in Scotland. From mid nineteenth century the material suppliers establishing themselves in The Potteries had to decide how much business there was outside the area and whether to employ representatives to chase that business. Industry was expanding and transport and shipping becoming easier. So progressing into the 1900's the bigger suppliers were chasing business opportunities in Europe, Australia and North America; though the war years did curtail much of that.

13. Recipes

From the very early beginning of glaze and colour making, it was vital to know details of ingredients and methods. Whereas method followed its own style, experience and expertise, the colour maker could never remember the ingredients and quantity of each used. Hence this was recorded in a book or in a system of card files. Each ingredient was normally designated a specific number or code. In view of the competitive nature, especially for industrial suppliers, the recording, handling and protection of recipes became very closely guarded. For the larger suppliers, only their most trusted managers would be given access to the "***recipe books***" and when not in use, would be kept under strict lock and key. Usually substantial safes were installed in the boss's office for that purpose.

14. Kilns, Furnaces and Kiln Furniture

Moving more towards the supply of ancillary materials and equipment, though greatly allied to development and usage of raw materials are kilns, furnaces and how pottery-ware is heat treated. This also includes the heat treatment and processing of many of the raw materials. In this respect, refer back to the section on calcining flint, and the preparation of frits.

Originally, when the only readily available fuel was coal or wood, the firing processes had to be devised in some form of brick made enclosure, such that an up-draft of air would maximise heat through the burning fuel and distribute it around the product. The more rapid the volume of air-flow, the faster the burn and the higher the achievable temperature. The air-flow could be increased either by building a higher stack or chimney, or by forcing an increased pressure by a mechanism of a bellows, or later with electricity by using a continuous fan. Throughout the Potteries the common sight was of bottle kilns, devised for firing the finished ware. There were however, many other types of kiln of differing size and shape allied to the local industry.

These types of furnaces and processes were in constant use and development, right through the nineteenth century and on into the mid 1900's. It became increasingly recognised, that with coal as the fuel (although on the face of it plentiful), vast amounts of wasted heat and air-pollution were being released into the atmosphere with devastatingly harmful results. Consequently, with increasing availability and supply provision for electricity, oil and gas, the technology in furnace and kiln design took on a new demand, not only for a cleaner working and living environment but also for fuel efficiency. This became a driving urgency immediately following the second world war from 1940's, and then again, the North Staffordshire area, developed further from the benefits of the conversion from town gas to North Sea gas in 1960's.

Calcination of flints, carried out in bottle, or box shaped kilns, often looked similar to the many other bottle kilns in the area. However, they were totally different internally to the conventional pottery kilns. Raw flints fed in from the top and after firing process, calcined flints withdrawn from the base. As described earlier, flint calcination was radically improved from the 1960's through advances in kiln design and the use of natural gas.

Many flat-bed kilns were in common use for drying or dewatering the differing ceramic slurries needed in a dry state. These would use coal as fuel from a fire-box. By passing the hot gasses through flues below a shallow boxed refractory brick hearth containing the slurry, water is driven off as steam leaving the ground materials as a hardened cake. The cake would then be allowed to cool, then lifted and broken up for bagging or other onward handling.

One process needing a high temperature, which developed with increasing importance, was in making ceramic frits. As already explained, this covered a wide range of quantity and formula in the preparation for making both colours and glazes. Small batch lots would originally, and later, be relatively easily processed in a refractory crucible placed in a hot kiln and left to "cook" - sometimes for several hours. Where greater quantities were required, reverberatory type furnaces were developed where hot gasses entered at one end of the length of the fire-box and the powdered mix placed at the other end. The bed of the kiln would be sloping such that as the mix fused and became molten in the heat, it would naturally flow through the kiln, where it would collect and then be tapped and poured into a suitable water-bath. Also, depending on quantity and type of product being processed frit made in this way could be by a continuous flow through the furnace. Later developments were with rotary furnaces and the improvements through fuel technology.

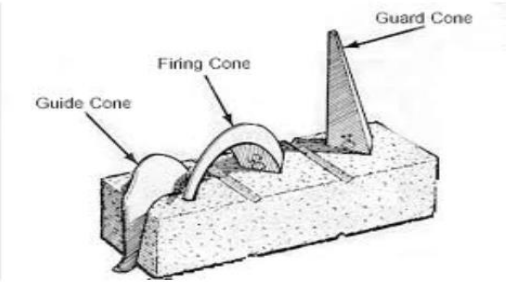
There was a continued need for a wider range of leadless frits and these were more suited for making in rotary batch furnaces, often up to several feet in diameter as described earlier. Initially the fuel was oil. The charging port was in the barrel of the kiln, with the burner port at one end in the middle face; at the other end immediately opposite, was the flue outlet. Firing temperature would be well over 1000 degrees centigrade and it would take several hours to reach operating temperature from cold. During the charging of the mix to be fritted, the burner port would be covered with a steel plate. The burner, mounted to swing into position, with the fuel injected, and a powerful fan to create air-flow. Once the batch was charged and the charge-plug secured the burner would ignite easily from residual red heat in the refractory wall. Thus the firing would restart and the rotating back and forth, set to automatic timing device. Once the frit batch was fully molten, rotation could be applied for several turns, before turning the burner off and pouring. Once gas became a reliable supply, it quickly became the preferred fuel. During 1980's even higher temperatures, to over 1400 degrees centigrade, could be easily achieved to great advantage, by introducing neat oxygen into the air flow on specially designed burners.

For leaded frits (mostly lead bisilicate for the ceramics industry) this was suited to continuous reverberatory furnaces, being produced in large quantity. Due to the stringent control needed to comply with health regulations, it thus fell into the domain of a small number of specialist producers.

Kiln furniture historically brings to mind saggars, in which the ware was placed before stacking in the bottle kilns. The saggars were normally made by each individual pottery for their own use. Other early items of kiln furniture included cranks, pins, spurs, stilts and thimbles. Then as kiln design became more specialised, with the introduction of tunnel kilns, top-hat kilns and the like, so the supply of kiln furniture kept apace with design and demand. Hence a number of specialist suppliers in the area.

15. Pyrometric Devices

Some of the materials required in making pottery are not directly constituents for the finished pottery ware. An obvious example of this is “potter’s plaster”. For those potters shaping their pots using casting processes there was a sizeable department producing the models (modelling shop) and for the moulds, accordingly, a continued demand for the high quality potter's plaster. Similarly, as just indicated, the making of kiln furniture. Another allied, but specialist category of essential materials can be classed as *pyrometric devices.* These were originally developed and used essentially in the control of kilns using solid fuel. The principle involved, was to know what was happening to the ware inside the kiln, during the firing cycle. Where temperature was important, also critical is the amount of heat during the firing - thus a measure of heat/work. Up till 1850's, the process of firing pottery in a kiln, was entirely based on the knowledge and experience of the man in charge. A poor result would be very expensive. Moving into the demands of industrial expansion, potters needed a greater reliance to know what was happening inside their kilns. In 1782, Josiah Wedgwood invented a pyrometric device, which offered a greatly improved means to ensure control. Whereas the Wedgwood device was effective, with increased demand, even greater accuracy was needed to reduce firing losses. Further improvement was invented by a German called Dr. Hermann Seger in 1886 – called Seger Cones.



Seger Cones give a visual measure of the heat inside the kiln. Their shape is an elongated triangle, with a numbered range of different cones coded also with colours. A series of three or four cones (each 2 or 3 inches long) would be fixed on a refractory base each slightly tilted. Several sets would be placed strategically inside the kiln before firing but able to be viewed externally through a viewing port. As the kiln firing proceeds and higher temperature is achieved, the cones soften and bend-over in sequence. By watching these, the fireman will know how the process is going and when to shut down. Other similar device became available with the invention of ***Holdcroft Bars*** in 1898 and also from a similar date there were the somewhat different ***Buller's Rings***. The rings are a ceramic form disc which when placed with the ware in the kiln, can, after the firing, be measured on a micrometer-type gauge and indicate on an accurate scale the heat/work undergone during the firing. The Cones and Bars have been made and provided by other specialists, and Buller's Rings are still used extensively worldwide, made by Taylor Tunnicliffe Ltd. of Longton.

Picture above, left, shows rings placed with the ware during firing. Afterwards the rings are measured on the scale as shown.

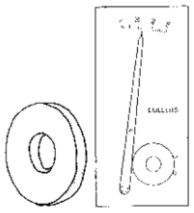


Diagram 2. Bullers ring and measuring gauge.

Right, diagram also shows Holdcroft Bars and how they soften during firing to indicate heat/work.

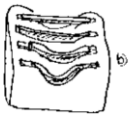


DIAGRAM 3: Holdcroft's Bars (a) before firing (b) after firing

16. Engine Room, Fitting Shop & Engineering Services

Power to drive the many and various developing processes, through the industrial revolution, was as essential in pottery manufacture, as it was in all industrial applications. It originated with developments of the steam engine. Consequently, the ready availability of coal to produce the steam meant that most factories in The Potteries had an "engine house". Power from the steam engine would be transmitted through an often intricate and complicated system of pulley-wheels and belt drives. Depending on the level and type of activity, for example milling, the machinery would be required to operate round the clock. Hence it was possible to disconnect selected areas and machines when not needed, but very often the central boiler-house and steam engine would remain in operation for six or seven days round the clock; but having carefully scheduled maintenance times.

Thus it was normal that each factory would have its own engineering services and employ many of the skilled trades accordingly. From 1870's, with the early practical supply and distribution of electricity, the gradual introduction of electromotive power introduced a greater degree of flexibility to operate many machines, each using its own electric motor. It was not uncommon, however, to find several factories still running a central steam engine until as late as 1950's. Many factory premises had designated areas, from which these specialist service trades would operate. Hence the "fitting shop", which would include engineers (fitters), electricians and also others such as plumbers, bricklayers and a joiners shop.

17. Transport & Garage Maintenance

Movement of raw materials to the various sites of usage, as well as finished goods onward to customers, has been of significant influence to the shaping of The Potteries. In the early days, it would all have been "horse power" in one form or another. Up to 1880"s, the horse and cart would have been the norm. But the two big movers, often running side by side (literally as much as chronologically) were canals and railways. It can be seen that many factories were located near or against either the Trent & Mersey or the Caldon

canal. Raw materials, mainly brought by boat through Liverpool, were transferred by barge and unloaded onto wharfs adjacent to factory sites, or to other designated distribution areas. Finished goods, suitably packed in crates and often for export to North America, would make up the payload, for the canal trip back to Liverpool. Locally, it was not until the 1880/90's that viable road transport began to replace movement of goods by horse and cart. Some Potters' Millers and Raw Material suppliers, might have had their own stabling and facilities for moving their goods to local customers, on a regular daily basis. Otherwise, there were small transport businesses (horse and cart) ready to provide a contract service. As the movement of milled materials and glazes in liquid or slurry form needed to be transferred between suppliers and their local customers, initially this was done largely in wooden barrels. The larger pottery manufacturer would be using a range of different glazes, and not necessarily from the same supplier. Hence the wooden barrels, or tubs, in which the glaze was delivered, would be off loaded and used as storage until empty. For this, there was a carefully administered system, whereby empty tubs would be collected for return by each glaze supplier. By 1890's mechanised transport was becoming more commonplace for public and private needs. For example, electric trams and early private motor cars for those who could afford them. Whilst development was generally ongoing in mechanised freight-transport there was a particular problem for suppliers to pottery factories, to accommodate delivery to many of the factory sites. Access was okay for horse and cart through the narrow and often low headroom gateways, but the developing commercial lorry was much too big. Hence it was a very interesting site in The Potteries when one major supplier took a first delivery of a fleet of “diddy-lorries”, to make local deliveries of colours and glazes. The changing result of this was that stable facilities were gradually superseded by garages, and motor mechanics.

18. Coopers and Joiners Shop

For manufacturers of colours and glazes, it was essential to have a wide range of products to offer potential customers, as much as holding a level of stock for existing customers. It is no doubt, that in very early days, there were many ingenious and makeshift ways of storing these powder materials, but two things increased the problem. First the powdered colours and glazes had to be in a dry form and are very dusty when being handled or transferred. This created problems of contamination. Secondly, as business expanded, there was a dramatic growth of product range. Warehousing and storage presented ongoing limitations. One obvious method was to construct wooden bins; these were made flexible in capacity, by having slatted partition dividing planks and a removable slatted frontage. Sometimes, it would be necessary to make these covered. Smaller ranges of colours in particular, were stored in varying sizes of porcelain jars – not dissimilar to those used for storing drugs in chemist shops, at the time. The practical application and use of wooden barrels, resolved many difficulties, where the barrels could be constructed as water-tight and of different sizes.



Colour Warehouse

They could contain material in slip or liquid form, as well as for the many processed powders. When full or partially filled, they could be lidded and sealed and easily transported and moved around for both storage and for deliveries to customers. They were also often fitted with large steel lifting rings so that they could be picked up and transferred by block and tackle or other similar lifting gear. In view of the amount of work and expense in providing barrels, suppliers would ensure that each barrel was heavily stamped and marked to identify ownership. This served the dual purpose to advertise, and also the hope, that when emptied, they would be returned for washing out and reuse.

Medium sized to smaller barrels, with specially fitting lids, were ideal for storing finished colour. Wooden barrels for glaze delivery were widely in use till the late 1950's, but the cost was always a major factor to find an alternative. One type of successor to them to be used was in the form of heavily vulcanised rubber tubs, which were each fitted into a metal frame with lifting lugs. Obviously this gradually put an end to the need for the cooper's trade, as employed within the industry. But it was only partially successful since the rubber tubs had to be specially made by external suppliers, and proved to be almost as expensive. By the 1970's, the next generation of tubs for storage and delivery, quickly adopted by suppliers of ceramic materials, were the heavy duty plastic ones; similar to plastic water butts. As an aside, it was interesting to note the number of people who worked in The Potteries (or had friends) who just happened to have water butts in their gardens, well painted over, which may not have been purchased at the local garden centre.

19. Laboratory and Research

The very early potters who wanted to decorate their work, did so according to their own knowledge acquired, and the materials available. Then, when range and application of surface decorated pottery became an exacting art, the colour and glaze makers developed as specialists in their own right; and so the art-form was handed down from master to apprentice. As the variety of glaze effects and colours developed, particularly with respect to the need to be able to reproduce what had been done before, so the recipes and methods had to be written down and specified. This is where the art and artistry of the potter needed to be controlled and presented more as a science. But with so many variables from raw materials to the finished article, this was never going to happen - to a large extent "**art** predominated over **science**".

The importance of product consistency for supplying colours and glaze materials, was evident from the outset. For the potter, there were so many different processes and costs to produce his ware, and when the number finished goods were less than perfect there was an ongoing analysis to determine what was at fault. If the cause of any problem could not be identified within the potter's own production control, the logical assumption was that one or other of the raw materials used, was at fault. If as a result of spoiled production, proof could be suggested as being caused by a supplier's raw material being outside specified standard, financial claim and litigation could follow. Needles to say, there were many safeguards and measures in place, on both sides, to avoid such occurrence. Every factory, whether it be the supplier or the potter, would almost certainly have on-site facility for testing and product control. So it was that every finished colour and glaze would be tested and compared against a known and approved standard. There were many tests that were used, but most would involve a production sample being put alongside a similarly prepared sample from standard. This would be placed in a suitable laboratory kiln to fire to required working temperature. More often done over-night, and ready for review each morning.

The problems and the resulting expense and waste that could be caused, were so important to avoid. In many cases, testing procedures for a given batch of glaze production, included a sample from the supplier being delivered to the customer, who would conduct his own trials for approving, before accepting delivery. An example of one known instance, where things went very wrong, involved black specks on fine white china dinnerware. The specks were caused by bits of iron in the glaze. A known defect and carefully avoided, where the liquid glaze in preparation would be poured from the mill over powerful electro-magnets. Though tested and approved, over two or three deliveries the problem persisted. Everything was then scrutinised at all stages of movement, during a subsequent delivery. It was observed that at the delivery point at the pottery works concerned, the glaze tubs were lifted by blocks from the lorry, to a position where operatives pumped the glaze to a receiving tank inside the factory. Empty tubs were then loaded back for return. It was noted that because the headroom was limited, it was easier to remove the lids from tubs before hoisting. Above the lifting gear were old, dirty, and very rusty steel beams. How the matter of loss assessment and compensation was sorted and whether supplier or customer was attributed to blame is not known, but it is indicative of what could easily go wrong. One black speck on a fine white china dinner plate, is one speck too many.

Research was also a necessary activity, running alongside routine daily testing. As well as testing new material supplies, a customer might bring a sample or example of a colour or effect that he wished to achieve on his particular body and through his process conditions. Similarly, if a potential customer wanted a glaze, it would be essential to ensure that the glaze was suitable and was matched for both the body and firing conditions. During the firing process, a natural expansion and contraction occurs with both the body and the glaze. If the expansion of the glaze does not fit that of the body, tension effects exist in the finished ware to cause several different possible faults. Sometimes, the glaze-fit can be so bad it will be evident direct from the kiln.

Such as cracks in the glaze or body, or other faults could be peeling, dunting, crazing, handles breaking off. In other instances, not so obvious, the faults could occur much later in time, after products had experienced temperature change through washing up, containing hot liquid or food or even natural seasonal temperature change. For the early potters this was a question of trial, error, and chance. Later the question of glaze fit became more readily understood and laboratory equipment was devised to measure accurately the thermal expansion properties of both body-material and glaze. So it was scientifically possible to adjust the formulation and components in the glaze to fit any particular body.

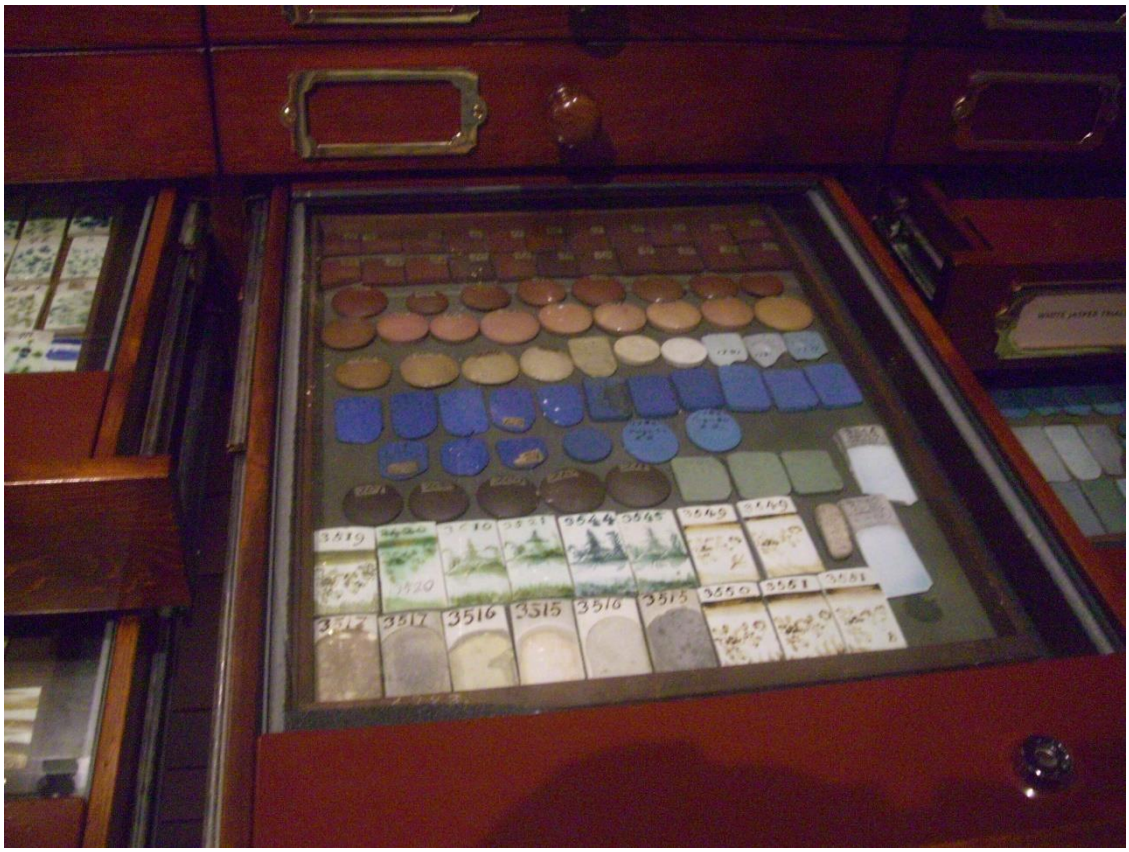
Alternatively a change in purchased material might occur, which could have serious effect in throughput of colours or glazes. Where serious, a lot of work would often have to be done, to find an alternative supplier or even a different material.

Other areas of research would be to develop a product which was different or special, to compete in the market. Sometimes driven by fashion.

20. Conclusion

Early colour and glaze makers had an acquired ability, based on considerable experience and understanding of pottery making. Each would probably have some system of recording quantities and numbering different materials as used for his different colours and glazes. It is interesting to note and to see evidence of how this was done, by the most notable of them all, Josiah Wedgwood in 1750's. Still available to see at The Wedgwood Museum are drawers full of trials and sample-tiles he used to test and develop his colours and glazes and to see the combination effects. Also at the museum are records and pages of his original “trial experiments” and how notations of formulae are coded for security against being stolen or copied. All numbered and catalogued, as they were originally made, so many years ago. It is obvious that much of the lab-work would have been done by apprentices under his direction, but it provides amazing insight into the complexity and understanding, of how so much fine pottery was produced then and since.

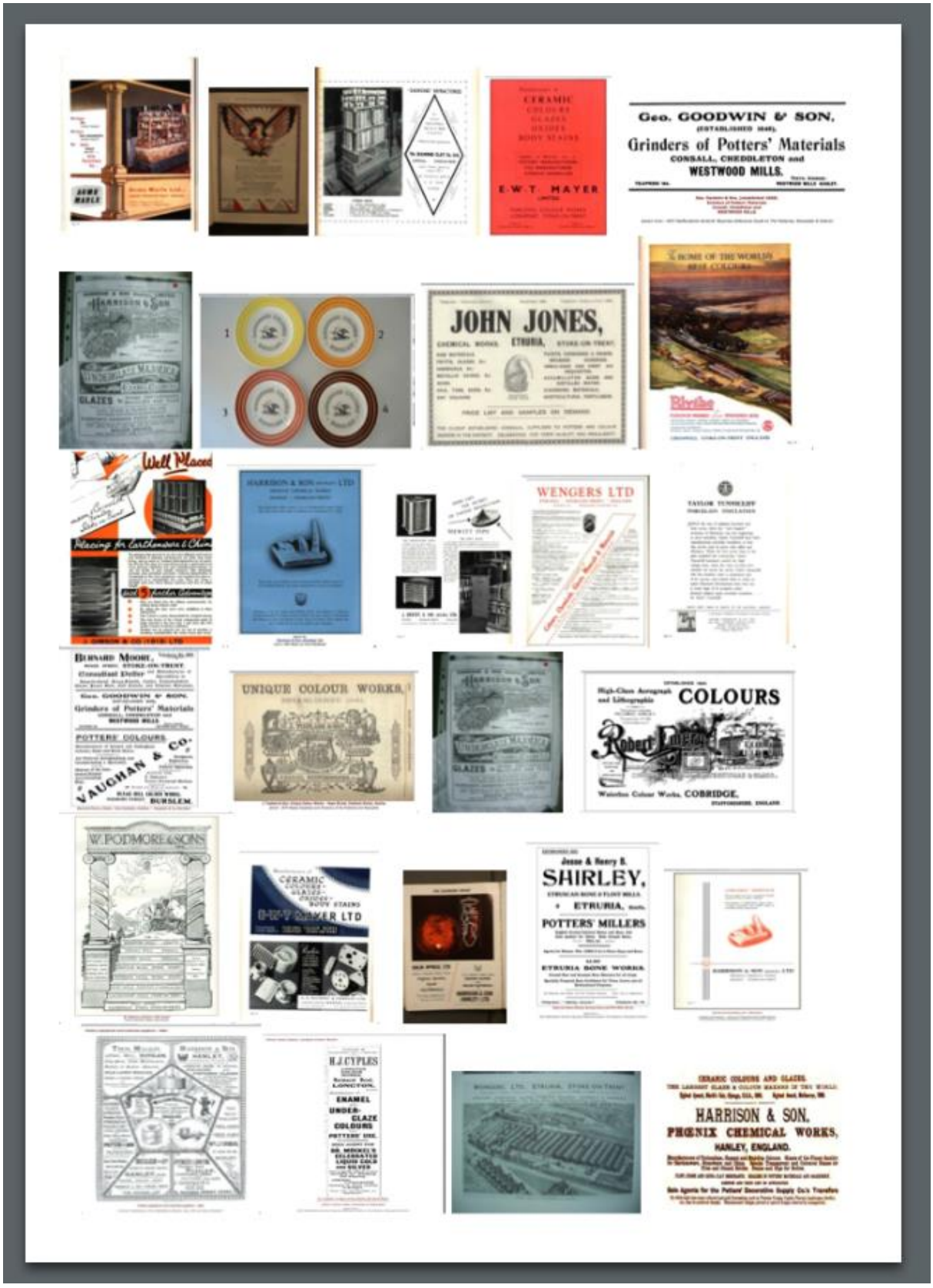
The following photographs were taken and are shown here, with the kind permission and cooperation of the management of the Wedgwood Museum, Barlaston.



One of Wedgwood's original workbooks - to be seen in the Museum.

Where Josiah Wedgwood was developing colours and glazes for his own purpose, the early suppliers to the rapidly developing pottery makers were invariably not only acting as specialist advisers, but working and supplying from their own premises. In the ***Pigot & Co's Directory of Staffordshire, dated 1828/29*** it is noted that there were *16 Colour Manufacturers, 10 Flint Grinders* but no reference to Glaze Makers (*10 Plumbers & Glaziers* but almost certainly these were putting in people's windows). So the Colour Makers and Flint Grinders were, according to Pigot, covering *47 China Manufacturers, 113 Earthenware Manufacturers* and *18 Enamellers, Lusterers, & Gilt Ornamenters of China & Earthenware.* As already suggested, many of these would have been making their own colours and glazes, but it is not difficult to imagine a very large demand for those with proven expertise.

The Pottery industry in North Staffordshire was originated by a number of early local entrepreneurs. There were many families, close-knit within the area, involved as employers and employed. Making pots was, and still is, complex, invariably dirty and dusty, but able to produce things both useful and of beauty. The history of the industry, provides much which is fascinating. There is so much to be seen and admired, in museums, country houses open to view and also many items treasured within our own domestic situations. But not so tangible, is the history of those families and people who worked and produced so many wonderful works of art, as well as the useful things, often taken for granted. The existence and the growth of the industry in The Potteries, was based on a complex and fascinating interaction of North Staffordshire families and their often difficult but supportive relationships.


Geo. GOODWIN & SON,
Grinders of Potters' Materials
CONSALL, CHEDDLETON and
WESTWOOD MILLS.
JOHN JONES,
ETRURIA,
Well Placed
WENGERS LTD
Bernard Moore,
Grinders of Potters' Materials
POTTERS' COLOURS
VAUGHAN & CO.
UNIQUE COLOUR WORKS,
COLOURS
Robert Allen
Waterloo Colour Works, COBRIDGE.
W. PODMORE & SONS
Jesse & Henry S.
SHIRLEY,
ETRURIA,
POTTERS' MILLERS
ETRURIA BONE WORKS.
H.J. CYPLES
ENAMEL
UNDER-GLAZE COLOURS
HARRISON & SON,
PHŒNIX CHEMICAL WORKS,
HANLEY, ENGLAND.