Crookes History Booklets

These short explorations of local history topics were compiled by Constance Hallwright

Also known as 'The Bustle Lady'

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The Crookes Brickworks

The earliest houses in Crookes were built of stone, and had stone roofs, for reasons which will become clear very soon. Stone was used in most country areas, and Crookes was an agricultural community until the 1870s. Stone-built houses were for peasants and labourers, because they could put them up themselves, using local materials.

In most towns, brick-built houses were favoured by the aristocracy, the gentry and the clergy, but brick was slow to catch on in Sheffield, due to the relative poverty of the people – few were wealthy enough to build entirely in brick. But even if your outside walls were of stone, nearly all houses did require some bricks. Using bricks meant your internal walls, stairwells etc. could be thin but still be load-bearing, and stone would have taken up too much valuable internal space. So small, local brick-making enterprises sprang up wherever houses were being built. Crookes got its first brickworks in 1833, owned by George Burrows, who made his bricks after the time-honoured fashion, meaning it hadn't changed since the middle ages.

To make bricks in the old-fashioned way, you would need: a mould, a good supply of clay, an even greater supply of sand or other filler, plenty of coal, gas or wood for fuel, some sort of power for mixing, a great deal of time, and a kiln. First, you need to find yourself deposits of clay and of sand – fortunately, the two are often found together, as sand is produced by the action of water eroding rock like sandstone, and a great place to find this is in an extinct river bed. Rock particles which have been ground down especially finely create a bed of clay (the minute particles fill up all the spaces between themselves, so that water can no longer drain through), so clay is often found underneath the sand layer. If a farmer or quarry owner found a deposit of sand and clay on their land, it was a valuable way of making a bit more money, as they could use their existing workers to make bricks during the winter, when there was little else to do. The first thing to do was to dig out the topsoil, and stack it somewhere – it was too good to waste, and they'd want to replace it when all the brickmaking was done. But digging out the soil meant they were digging out a pit, which would soon fill up with water. This meant you had to pump it out, so you'll need some barrels – and you'll need the water for later.

The clay would be dug out by hand with a spade, hauled up to the top of the pit in buckets fastened to a rope. The clay would be dug in late autumn or early winter, and piled up, for the frost to break it down over winter. In spring, you can start making bricks. To make a good, hard brick, you would mix 1 part sand to 3 of clay, which is called puddling – not unlike stirring a mixture in a food processor. Clay is a very heavy, sticky, resistant material, so some power would be essential – horse power in

the early stages, later a steam engine driven by gas would be easier and cheaper. When the mixture is ready, take the wooden mould, and coat the inside with a little sand, fill with the clay, levelling the top to shape it. The finished brick is turned out onto straw or wooden racks, and covered with some wooden boards, and left to dry out – how long this took depended on the weather, but may take about a month. And then you make the next brick, in the same way. Making bricks was hard, heavy work; you were outside in horrible weather, getting covered in mud, and all for very little pay, but it was work at a time of the year when there was very little other work to do. Later, machines were invented that mechanised the moulding, but they were expensive, so were not worth the investment for a small, local brickworks.

When your heap of shaped bricks have dried out (around about April time) it's time to fire them in the kiln. For this, you'll need a monstrous amount of fuel: wood, gorse, bracken, anything that will produce a slow burn for three days, as the stack needs to be warmed up slowly, or the bricks will crack. You add fuel continuously for the three days **and nights**. After the slow burn, you increase the rate of firing by admitting more air, which means you need to add more fuel, for a further three days **and nights**. When you're making bricks, you can't just light a fire and go off for your tea. Once the bricks are cooked, it then takes another **7-10** days before they are cool enough to remove them from the kiln, so during this time, you can't make any more bricks, because your kiln is full of hot bricks. Brick-making in early to mid-Victorian times was a slow process, hence bricks were expensive.

Firing begins in April and is finished in September. This placed an additional limit on how many bricks could be produced in a small brickworks. The owners of these local brickworks often started as farmers or landowners, and they did other things than just making bricks. Their labourers also did other things, as brickmaking was seasonal work. Unless they owned the land themselves, a person setting up as a brick-maker usually leased the land for seven (or ten) years at a time, by which time the deposit of sand and/or clay would be worked out. The whole process was time-consuming, labour-intensive and very inefficient.

You might wonder why they made bricks in small local brickworks, rather than in one big central one. It's all a matter of the expense of transportation. A brick is a very heavy thing, about 10lb in weight each one, but of fairly low value, costing 3-4 shillings per thousand, after the tax on bricks was abolished in 1850. Before motor vehicles became available, the only means of transporting building materials was the flat-topped cart (like a hay-rig) pulled by two big heavy horses. The cost of transporting bricks could be much greater than the actual cost of the bricks, if you had to take them a long way. Transport cost 9d per thousand per mile, or added 2% to the cost of a load of bricks for a journey of one mile, or 41% for a five-mile journey. It made sense to make the bricks as close as possible to where they would actually be used. As a result, Sheffield had numerous small local brickworks in the Victorian era.

Whenever something is in high demand, but expensive, there's a big incentive to improve the process and make it cheaper. In 1858, an Austrian called Fredrich Hoffman patented a design for a continuous firing kiln. Central to the design was a series of 14 chambers, each capable of containing 25,000 bricks. The chambers were arranged on each side of a central passageway, like rooms running off a corridor. This offered a number of very important advantages. Each chamber was fired in turn. This alone was much more efficient, as you didn't have to waste the time while the hot bricks cooled down. Into the main passage they placed a fire waggon, which holds a fire that burns continuously. After the firing, the fire waggon is wheeled to the next room, while the first lot is slowly cooling. This brings another efficiency gain, as the first chamber's waste heat is used to boost

the temperature of the active chamber. The Hoffman kiln had a tall chimney 112 feet high, which created a draught, which could be directed to specific chambers. As cooled bricks are removed, they are replaced by wet bricks that have just been moulded, so they dry out using the residual heat of the chamber. The fire would burn continuously for years or even decades. A Hoffman kiln can use gas or wood as fuel, and is very efficient, due to its high 'thermal mass' – it is 5 meters high and 15 meters wide. Mr Hoffman was very clever in another way – he realised his invention would be very easy to copy, and he ran a high risk of unscrupulous brickmakers just building their own version of his design. So he decided to license the concept – you could pay him an annual fee and build your own Hoffman kiln, or not – your choice.

To return to our man making a few bricks in Crookes, which by now was Mr Charles Hobson. He faced a choice of paying Mr Hoffman for using his design, or carrying on making modest numbers of bricks by the laborious old method. He chose to embrace progress, as Crookes was rapidly being developed, and there was money to be made from brickmaking.

Mr Charles Hobson leased a plot of land on Sackville Road, where St Vincent's Catholic Church is now. The site of the kiln was central to the plots being developed in Crookes. His house is opposite the site of the kiln, it's a very large (stone-built) house, with a grand cobbled driveway and imposing gateposts. As the owner of the works, he had to be on site, to oversee the firings. He had access to shallow workings of both clay and sand on Western Road, Mona Avenue and Springvale Road. Unfortunately, many of the bricks produced by the Crookes Brickworks were 'variable', because the clay was of poor quality, and had many irregular stones in it. This meant that the face of the bricks was prone to 'blowing' or shearing off, leaving the rough interior exposed. But any substandard bricks weren't wasted – they could be used in stair-wells, where they would be plastered over, and for outbuildings. Outdoor privies would be whitewashed for hygiene, and brick leant itself to this treatment.

A Crookes Brick

The Crookes Brickworks closed in 1910, primarily because they ran out of clay. Also, diesel engines made it possible to transport bricks more cheaply, so bricks made elsewhere could be brought in

economically. The kiln was demolished, and the bricks thus released were used to build the last batch of houses.

The Crookes Brickworks had a prodigious output during the time it was in operation. You can see the results all over Crookes, round the back and down the sides of the later stone-faced houses, and in the terrace houses that came later.