

# North East Derbyshire Industrial Archaeology Society

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## Chairman's Comments:

In handing over the Newsletter editorship to Cliff Lea one could be forgiven in thinking that it would be a release from kicking off each issue with a few, hopefully well chosen, words. Not so. Your new editor has asked me to make a contribution as Chairman. So much for that idea! *(Editor: But David, the Newsletter would NOT be the same without your much appreciated "stamp" and news. See later)*

Since issue 10 we have had the Saturday visits to the Shireoaks-Norwood Tunnel section of the Chesterfield Canal and a guided tour of Belper's North Mill and town. Both were deservedly very popular; and we still have the Scunthorpe Corus Works visit to come. We have over twenty places booked for that event.

Derbyshire County Council is still at work on the Damstead Works site, Dronfield, with Paul Smith, Malcolm Calow and David Rance having been in attendance. We look forward to the removal of the barriers on completion of the Council's work so we can all see this intriguing site in its new splendour. This begs the question as to what sites, apart from Damstead, Seldom Seen engine house and Pleasley Pit, are conserved and regularly accessible industrial archaeological features within northeast Derbyshire?

I would love to be convinced that there are more than those three so comments, please, either direct or via the editor. Also, in the vein of the continued loss of existing sites to developers and the media's sudden interest in heritage items under threat, are there any in which NEDIAS should be taking an interest?

Meanwhile, I hope you all find the forthcoming lecture programme both interesting and enjoyable. Perhaps, too, some may find sufficient stimulation to join the ranks of those who are already involved in research on the ground, in archives and even in family attics to bring out more information on this area's considerable industrial heritage?

*David Wilmot*

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## WHAT'S ON?

### NEDIAS Lecture Programme, 2003/2004

**When:** Meetings are usually held the second Monday of each month, start time 7.30.  
**Where:** The **Friends Meeting House, Ashgate Road**, Chesterfield (junction of Brockwell Lane).  
**Cost:** Free to NEDIAS members but **visitors are asked for a donation of £2 for each meeting.**  
**Further details:** See our special NEDIAS Lecture Programme information brochure.

### 2003

**8<sup>th</sup> September** - Philip Riden; *Company Housing in the Derbyshire Coalfields*  
**13<sup>th</sup> October** - Hugh Potter; *Cromford Canal*  
**10<sup>th</sup> November** - Darrell Clark; *Arkwright's Mills at Cromford*  
**8<sup>th</sup> December** - Peter Machen; *The Development of Sheffield Trades*

### 2004:

**12<sup>th</sup> January** - Ann Hodson; *Memories of Barker Pottery*  
**9<sup>th</sup> February** - Peter Hawkins; *Markham's 1889-2000*  
**8<sup>th</sup> March** - AGM & Members' Evening  
**19<sup>th</sup> April** - Andrew Firth; *Hulley's Buses*  
**10<sup>th</sup> May** - Ken Horan; *Railway Steam to Diesel - A Regional Perspective*

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## WHAT ELSE IS ON?

**Tuesdays at 9pm, BBC2 – “Restoration”.** A series of programmes which showcases the need for restoration of architectural gems, and inviting votes from the public. Arkwright's Cromford Mill is to feature, and needs your support by phone on 0901 077 77 77.

**Sat/ Sun 6 & 7 September: Pleasley Pit Open Weekend:** See the considerable progress on restoration work on the north winding engine and recent work on the signalling system, with displays of mining memorabilia and photographs. Opening times not known but mid-morning until late afternoon is the customary pattern. Contact David Wilmot for more details.

**Sun 7<sup>th</sup> September - Model Engineers' open day at Wortley Top Forge.** South Yorkshire Industrial History Society.

**Sat 18 October: EMIAC 66 Conference,** Royal Regency Banqueting Suite, Ilkeston. The East Midlands Industrial Archaeology Conference this year covers the history and buildings of the “entertainment” industry. Contact Cliff Lea for more details

**Sat 1 November, 10.30-3.30: Scarsdale Local History Fair,** Arkwright Centre, Arkwright Town. NEDIAS will have a stand at this Fair, which is attended by major history and archaeology groups from this area. An event not to be missed!

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**NEDIAS Tour of Chesterfield Canal – Shireoaks to Kiveton Park** by Patricia Pick

On Saturday 28 June, 21 members, ably guided by Christine Richardson and her husband Mel, took the train from Kiveton Park for a walk along the newly restored section of the Chesterfield Canal. The weather was set fair and with Christine in the lead we set off to explore the canal.

When we arrived at the first lock Christine gave us a demonstration as to how a lock worked, with members helping to move the gates. She explained that the water between the two locks was called a pound, and where there was no water between, this created “staircase “ locks.

Along the way several features that we might normally have missed were pointed out to us. Some original milestones are still in place, rope grooves on stones (where the tow rope between the horse and the boat have rubbed), stop grooves (for slotting planks into place to close off part of the canal for maintenance), and a mason’s mark on a stone at Thorpe Bottom Lock.

But the main event was to see all 22 locks fully restored and working. Yes, working. We were lucky enough to see the trip boat, the Norwood Packet, taking a party of visitors through the locks (apparently it takes about 2 hours). There are 15 locks in just over a half-mile, including two treble and two double staircases. Every lock has been painstakingly restored, some with original stone, some still had the original bricks in the lock. Different building methods were used when Hugh Henshall took over after James Brindley’s untimely death in September 1772, and these are still visible today.



Finally we arrived at Thorpe Top Treble. This lock holds all the water back for 2 miles to Norwood Tunnel; the canal is now at its highest point. When the canal was built there were numerous land disputes, and this is still evident today where British Waterways is in dispute with a local landowner over who owns the overflow channel at Thorpe Top Treble. At Kiveton Park in the 1840’s, stone for the rebuilding of the Houses of Parliament which had been quarried at North Anston, was loaded onto the canal for its journey by water to London. transhipped at West Stockwith on the River Trent, the stone was then taken via the Humber and North Sea to the River Thames and Westminster.

The towpath changes sides at Kiveton Park and continues onwards to the Norwood Tunnel. Opened on 9 May 1775, it took each boat over an hour to travel 2850 yard length of the tunnel, the longest in England at the time. The tunnel was a constant source of problems, finally collapsing on 18 October 1775; James Brindley would not be disappointed with the ongoing restoration and future tentative plans to deal even with the tunnel collapse.

Many thanks to Christine Richardson and the Canal Trust for an illuminating visit.

***Christine Richardson demonstrating lock operation to an enthralled group of NEDIAS members.***

**Footnote to Chesterfield Canal Visit** - Has anyone got a photograph of the narrow boat arriving at Kiveton Park on the afternoon of Saturday 28<sup>th</sup> June? Those members who had taken part in the morning canal walk with Christine Richardson, and then adjourned to the local pub for lunch, were treated to the sight of a splendidly decorated narrow boat which had worked its way up the newly re-opened section. Unfortunately, Christine did not have a camera with her to record the event so if anyone can help, please contact her at 15 Coal Drive, Aughton, Sheffield S26 3RA.

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**NEDIAS Visit to Belper North Mill and Strutt's Belper** by David Wilmot

Saturday 5<sup>th</sup> July saw nine members greeted at the door of North Mill by Arthur and Jean. After coffee and biscuits, followed by an audiovisual display, we toured the ground floor museum and basement areas, with full and graphic accounts of the history of the site, plus information on the examples of textile machinery on display. While not replicating the crowded machinery rooms of working mills, the looms and machines shown very usefully demonstrate the development of the mechanisation of the trade from its early days through to the end of the nineteenth century. To have all this under one roof is very useful, certainly for those of us who still have trouble grasping the intricacies of the water frame.

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The afternoon was spent on a tour of the town, starting with the Strutt housing - stone-built, three storey, brick two-storey, manager's housing, chapel, nailmaker's shop, laundry building and all. The North Midland Railway's cutting carved through the Strutt housing, with its stone-block walls and arched bridges and still busily used by trains today, was also very impressive. As if the industrial housing was not enough, we were taken through the town and shown further evidence of the Strutt family's influence on the town, through to the original township and its early market square. Prompted by Arthur's account of recent attempts at archaeological research, we mused over the car park site under which it is firmly believed lie the remains of a grand medieval manor house. Printed books and that Internet thing may have the information, but a walking tour with enthusiastic guides such as Arthur and Jean has to be the best way to instil the information.

### **Clayton's Tannery, and the Origins in Leather Making**

by Barry Knight

(Ed: The fascinating presentation by Barry Knight to NEDIAS on 12 May 2003, published by kind permission of Barry and Clayton's Tannery)

Clayton's plays a very important part in Chesterfield life but how did this start, and what is the history of leather and tanning itself.

Leather is a commodity as ancient as human civilisation, a commodity that is traded globally. It generates three times the income from rubber, tea, coffee, sugar and rice put together. Sadly most of this is produced abroad and it has turned from being the UK's second largest employer to almost a cottage industry bar a few larger tanneries.

There were 6000 heavy leather tanneries after the 2<sup>nd</sup> World War. Now the figure is only 3.

So where did it all begin? The answer is, no one actually knows. The earliest evidence can be found in Palaeolithic cave paintings and from the same period animal bones that were formed and used as flesh scrapers. But we believe that leather making must have been carried out many thousands of years prior to this. The climate of the very early Peking man would suggest that without protection from the elements he could not survive. Therefore he must have been using animal skins to keep himself warm.

The earliest forms of preserving skins would almost certainly have been oiling and smoking. We think that early man would have dried the skins over open fires in a similar fashion to the way kippers are cured today. This would have made the skins hard and bony, so to counter-act this he would have rubbed fat, brains and bone marrow into the skin in order to make them supple. N.B. Chamois leather is produced in a very similar way.

Probably the next form of tanning to come along was the vegetable tanning. It is thought that early man had discarded a skin into a pool or pond containing large amounts of vegetable matter i.e., leaves, twigs and bark. On returning months or years later he would have found the skin was still there when other discarded skins had gone rotten. Again by rubbing fats into the skins made the leather flexible, furthermore, with a little work he was able to turn his leather into many different things.

The next tanning to come along was alum tanning. Pre-dynastic Egyptian's were thought to be the first to use this form of tanning. Alum produces a white leather and like the vegetable tanning it still today has a large role to play in leather manufacture. Joseph Clayton makes cricket ball leathers from alum-tanned leather.



*Early Processes*

Only last year I was working on a project to make super-strong leather. I chose to make alum rawhide leather. This is where we intentionally leave an untanned strip in the middle of the leather. The results were astounding; it was probably the strongest leather we have ever produced. So what do I find researching for this talk? That Howard Carter the famous Egyptologist had found alum tanned rawhide, which was used for bindings on the royal carriage wheels of King Tutemkhamen over 4000 years old. And I thought I was good!

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Advancements in leather making were so good by the Greco-Roman period meant that there were no significant technological changes until the late 18<sup>th</sup> century.

The traditional divisions in leather making crafts became more formalised throughout Europe during the medieval period, and by the 14<sup>th</sup> century these were controlled by guilds.

Butchers and skinners, Tanners, (heavy leathers), Curriers, Fellmongering (light leathers), Whittawing (alum tanners) and fur dressers formed the main body of guilds.

Strict penalties were set for tanners who did not meet with the rules lay down by the guilds. Tanners could not butcher or currier, nor could a butcher tan or currier. The guilds prevented the above from using middlemen so the butcher could only sell to the tanner and the tanner could only sell to a currier. This was obviously to keep down the costs. In order to police this the guilds employed searchers.

During the 16<sup>th</sup> century every village would have at least one tannery, many towns had 5 or 6, cities would have 15 to 20 with London having around 200. Chesterfield had 5 tanneries on the river Hipper, servicing many curriers and bridlers and leather workers.

It was during this time that government passed environmental laws. Tanneries were to be built down wind from towns. They were prevented from washing the blood and dung from the hides in the rivers and the tanners had to clear their sites of hooves, horns and bone at least once per year. (N.B until the 1850s tanners bought hides with the horns, hooves and all manner of appendages still attached).

So how did the tanner make leather? It would probably take me a year and a day to describe in detail. Therefore I will only briefly touch upon the main processes.

The first job would be to trim the hide free of its appendages. Then a thorough wash to clear off the blood and dung. The Un-hairing was next and was carried out by one of two means. The hide would have been piled hair side in and allowed to decay, urine was often added to speed up the process. Alternatively lime would have been employed to loosen the hair. After a few weeks the hair was loose enough to be removed this was done by scraping the hair off with a blunt bladed knife. The next job was to turn the hide over and using a very sharp bladed knife take off all the unwanted flesh. The hides were then placed back into a lime solution for a further few months. The liming opens up the fibres within the structure of the hide, this in turn speeds up the tanning time. The next stage was mastering or puering. This is where dog dung and bird droppings were spread all over the hide. The enzymes contained within the dung have a biochemical reaction on hide and breakdown certain proteins and this allowed the tanner to produce softer leathers. Dog dirt was still being used in Leeds until the 1960s. I am happy to inform you that this has now been replaced with pancreatic bates.

The next process was called drenching. This was carried out to reduce the pH or alkalinity of the hide. The hides were stacked with a covering of rye, barley, stale beer or rotting pieces of hide for a few weeks or months. The fermentation produced acids, which turned the hide slightly acidic, which is the optimum condition for tanning. At this point the hides would have been pre-tanned. Using old spent tanning liquors the hides were immersed in Handler pits for around six months and on a daily basis the hides would have been moved around.

After a year or so the hides were ready for the tannage, this took place in layer pits and were around six foot deep. A 12-inch layer of crushed oak bark was steeped in the bottom of the pit and then a hide would be piled on top of this. Then another inch of bark was added, then another hides and so on and so on. After around six months the hides would have been removed from the pit, smoothed out and then pitted in a freshly made pit for further 6 months, year or two dependant on the final leather. In fact a three-year tannage was not unheard of. Once tanned the leather was then inspected by the local borough before selling on to the currier.

The currier's job was to treat the leather with oils and greases, shave the leathers to give a level surface, sett out the grain to remove growth wrinkles and to dye the leather to shade. The currier's work was quite a speedy operation

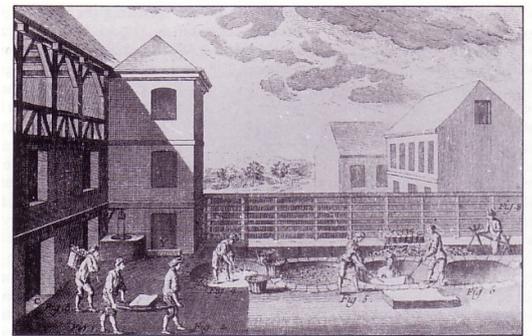


Fig. 5. 'Tanneur' Plate 6 from Diderot, *L'Encyclopédie*.

only taking around three months to complete. All of these tasks required very special skills and were kept separate from the tanners until the late 1800's.

Many of the strict rules lay down by the guilds and local boroughs were relaxed in the 19<sup>th</sup> century because they had become outdated. In fact they are now thought to have been damaging. If you were not allowed to tan hides quicker than a year and a day then what was the point in looking for quicker or more efficient ways of tanning.

### ***Tanners & Curriers Tools***

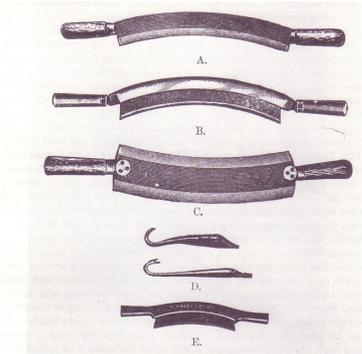


FIG. 3  
Tanner's Hand Tools from H. G. Bennett, *The Manufacture of Leather*. Constable (London, 1919).  
(A) Unhairing knife; (B) Scudding knife; (C) Fleshing knife; (D) Hauling hooks; (E) Scudding slate

In the mid to late 1800's, experiments were being carried out using chromium salts and by the turn of the 1900's chrome-tanned leathers were being produced worldwide. This was a process that revolutionised the leather industry taking the tanning time to around about three months. Now most modern tanneries are capable of turning hides into finished leather in around 5 to 7 days.

Let's go back to 1840. This was the year when Joseph Clayton founded the tannery. Not a great deal his known about Joseph Clayton. He was born in Peak Forrest. He was once a mayor of Chesterfield and he was believed to be a governor on the hospital and schools boards. The company set up on Spa Lane supplying leathers to the local leather workers, saddlers and so on. In 1870 the company had two sites, the other being Clayton Street with the whole production being moved there in around 1890. The company was

passed on to his sons Joseph and Morton and remained prosperous until two disasters occurred. The first was to be a fire (in 1913) that completely raised the buildings to the ground. In order to overcome the disaster orders were temporarily passed on to other local tanners and the Company's employees were put to work clearing the debris. After just a short period the company was back in full swing.

The second disaster was a little harder to overcome. The company had a prosperous order book with the largest customer being the London Omnibus Company. This was at a time when the horse was king. Then someone invented the automobile and soon after this event Joseph Clayton's fell into financial ruin. Again the company rose from disaster with the help of local businessmen, these included the likes of George Kenning and Theo Pearson and still to this day their descendants remain the shareholders.

In 1928 a young Harold Birkin was taken on as an office junior. During the great depression he travelled extensively to America and the rest of the world constantly looking for business. Harold steadily made progress and became General Manager and then chairman after his retirement. Two of Harold's sons Barrie and Roger Birkin took over the running of the company and still remain as General Manager and Sales Director respectfully. From the late twenties to the late seventies much of the leather produced was for industrial application i.e., machine belting, gasket leathers and hydraulic seals.

Again, because of the introduction of synthetics the company has had to adapt.

Today the company is known throughout the world for being a specialist and heavy leather producer. Its product list include leathers for the equestrian trade, industry, interior design, aerospace, re-enactment, and sporting with Clayton's being the only tanners to tan leather for test match cricket balls.

In 1998 the company purchased Samuel Sharps Curriers of Cosgrove. This company traces it's roots back to 1600 and was founded by the Penn family. The same Penn family who went on to America to found Pennsylvania.

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### **IA NEWS & NOTES:**

#### **Gone but not forgotten**

Fortuitously photographed by NEDIAS members a few months ago, June 2003 saw the demise of Chesterfield's former trolley bus depot on Sheffield Road. From Barry Marsden's *Tramtracks and Trolleybooms* we learn that the depot was purpose built at Thornfield, Stonegravels, in 1926 and opened

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in September 1927 when electric trolleybuses replaced Chesterfield's tramcars. From that time until replaced by motorbuses in 1938, the fleet of trolleybuses used Hardwick Street to gain access to the Thornfield depot, emerging from behind the Sheffield Road office block to the front gate. Eventually the site became part of the Robinson group being used for its transport fleet before standing empty in recent years.

The site now has been cleared for housing development and earthworks have rapidly obliterated virtually all trace of the depot. Would it be too much to ask that the Council consider the transport manager of 1927, W G Marks, when allotting street names for the new development? Also, perhaps, "Straker Street" to commemorate the popular version of the trolleybus maker's name?

DRHW

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**ARKWRIGHT'S MILL, Cromford:**

Darrell Clark informs me that the second fine insurance plate has been wilfully stolen directly off the walls at Cromford Mill. What with the destruction of the aqueduct and the theft of the historic long case clock from the tea room, the theft of the only 2 insurance plaques on the buildings has ensured this is a particularly difficult year for the Arkwright Society. Perhaps now is a very appropriate time for members to show their firm support of this worthy organisation by casting their vote in the BBC2 Restoration programme. (See WHAT'S ON above).

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**NOTE:** Part 2 of the article **HOMES FIT FOR WORKERS**, by Darrell Clark will appear in the next NEDIAS Newsletter, No 12, November 2003. (Part 1 was published in NEDIAS Newsletter 10, May 2003)

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**STRETCHING A POINT**

In Robinson's Link Magazine of 1926, "AB" records...

".....I must not omit to mention the old elastic factory (in Brampton) which was going strong fifty or more years ago. It was an interesting place in those days of our grandfathers and grandmothers, as boots at that time were greatly worn with elastic sides, no laces or buttons to be bothered with. Connected with this concern was the old needle factory where all sorts of needles were made, knitting needles, darning needles, and even fine sewing needles were turned out."

DC

(Ed: does any member have more information on the elastic factory?)

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**NEDIAS Newsletter.** Since its inception, the NEDIAS Newsletter has informed, given opinion, and provided a medium for spreading information on local IA subjects. Each edition is eagerly awaited, and readership continues to expand. And we must warmly thank David Wilmot for the way in which he has designed and nurtured it: he has provided an excellent template. David, many thanks for this tremendous contribution to IA in our area; I have a difficult act to follow!

**CONTRIBUTIONS:** Is there something you can contribute to the next NEDIAS Newsletter? A short article or observation, which would be of interest to the membership? Then please send to Cliff Lea, 15 Kelburn Avenue, Walton, Chesterfield S40 3DG (Tel; 01246 234212, email; [c2clea@tiscali.co.uk](mailto:c2clea@tiscali.co.uk)). Do give me a ring on 01246 234 212 if you'd like to discuss further.

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**And Finally ...**

The writings of Sir Francis Head, in *Stokers & Pokers*, a popular account of railway operations first published in 1849, have a familiar ring today. Sir Francis lists just under 200 railway stations, including Chesterfield, which had the new facility of the electric telegraph not only for company use but also available to the general public. Then follows an apocryphal tale of a bridesmaid at a wedding getting so impressed during the ceremonies that she eloped with one of the guests. To the rescue came the railway's electric telegraph. Several authorities in other towns were warned to look out for the errant couple with the result that "no less than four affectionate couples legitimately married that morning were interrupted on their several marriage jaunts, and most seriously bothered, inconvenienced, and impeded by policemen and magistrates, ...".

How all this came to the notice of Sir Francis is not clear. Yet he went on to warn that "young people who form imprudent attachments" are, in consequence, no longer "effectually separated as in old-fashioned times, by distance, can now-a-days, though four or five hundred miles apart ... .. electrically converse with each other". Yes, it does seem we have been there before, more than one hundred and fifty years ago!  
(DRHW)

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**Your NEDIAS Committee: -**

*Chairman* – David Wilmot; *Secretary* – Patricia Pick; *Treasurer* – Pamela Alton  
*Membership Secretary/Assistant Treasurer* – Jean Heathcote; *Publicity & Newsletter* – Cliff Lea;  
*Lecture Meetings Organiser* – Malcolm Fisher; *Archivist* --Pete Wilson; *Committee Members* – David Hart, David Rance, Paul Smith, Jack Smith.

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