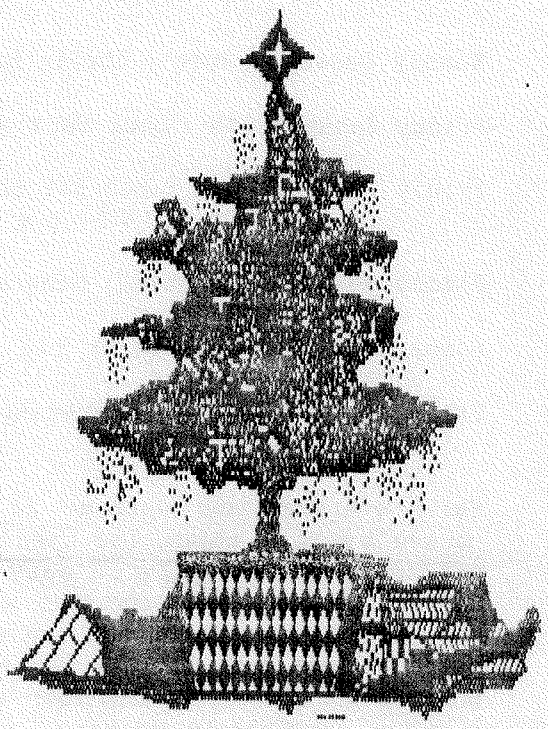
MAIDSTONE MODEL ENGINEERING SOCIETY.



OFFICERS OF THE SOCIETY:

President: A.H.W.Payne Esq. (Jack) Maidstone 57545.
38 Oxford Road, Maidstone, Kent.

Chairman: G.Kimber Esq. (Graham) West Malling 845931.
4 The Stream, Ditton, Maidstone, Kent.

Vice Chairman: A.Gurr Esq. (Adrian) Maidstone 678903.
47 Blythe Road, Maidstone, Kent.

Secretary: M.N.Parham Esq. (Martin) Maidstone 44175.
Bramleys, Old Loose Hill, Loose, Maidstone, Kent.

Treasurer: P.A.Roots Esq. (Peter) Maidstone 58599.
97 Tonbridge Road, Maidstone, Kent.

Press Officer: Mrs. S.Gurr. (Sue) Maidstone 678903.
47 Blythe Road, Maidstone, Kent.

Commitee Members: Norman Clark, Don Paterson, Geoff Riddles,
Robin Spencer, Chris Williams and Peter Kingsford.

NEWSLETTER - CHRISTMAS 1988.

**********DIARY DATES**********
**********INTO 1989**********

Monday December 26th : Boxing Day Run. Clubhouse open from 11 a.m.

Friday January 6th : Look Back at 1988 with George Barlow at 7.30 p.m.

Friday February 3rd : Bob Ratcliffe and A Pot Pourri of Steam Photography at 7.30 p.m.

Friday March 3rd : Annual General Meeting 7.30 p.m.

Sunday March 26th : Easter Day, Public Running Commences at 3 p.m.

Friday April 7th : Video Evening at 7.30 p.m.

Hallo everyone and welcome to the Christmas newsletter. The year seems to have passed by in a flash. The Open Day was as usual a culinary success but alas we did not seem to have quite so many items on display as we have had before and perhaps next year will be better. But we did make sure the 30 visiting locomotives all had the chance of a jolly good run on the track. During the summer we had a charity run which raised £50 for the Cheshire Homes. Out of all the evening runs we had, the Bonfire Night Run on November 4th was certainly the Chilliest. It was so cold there was ice continually forming on the rails and only our Secretary was brave (if that is the right word!) enough to run an engine. Lots of Chilli was sent by his Mrs which warmed us all (perhaps where we get the term evening run?! No, joking aside it was super and very welcome). The December Friday Meeting was a Bits 'n' Pieces gathering and very successful it was too bearing in mind there was no newsletter to advertise the event. We almost ran out of space to display everything.

So George Barlow is on the agenda as the first star of our evening meetings for January with Bob Ratcliffe in February (Bob you may recall gave us a slide show on Southern steam earlier this year). You are reminded to be prompt for the A.G.M. in March for you might miss it if you're two minutes late! It's an ideal time for a get together and a good natter and of course refreshments are always provided for the indoor evening meetings. Easter falls earlier this year for the start of the season and a Video Night is set for April - if any members feel they have a video that might be of interest (any colour but blue!) please bring it along, or contact us in advance if possible.

Articles this time from Graham Kimber and Charles Darley.....Jim Ewins is busy preparing for the M.E. exhibition.....Richard Linkins unfortunately had his article wiped from the computer.....John Rice now sends us his regards from Qatar and promises an item soon.....we of course are pleased to receive any articles to print but preferably of a non contentious nature! On a different note we must take this opportunity to say a big thank you to Ken Linkins who has done a lot of hard work surreptitiously clearing underneath the track - it has not gone unnoticed.

As some of you may know Adrian and I moved house recently but our phone number remains the same. Unfortunately the workshop has yet to be erected although work is in progress so you may notice he is pining a little lately but hopefully not for long.

May we wish all our members a very happy Christmas and an exceedingly good New Year.....with very best wishes,

Sue X

A POTTED HISTORY OF THE LATHE

The history of the lathe is probably as old as the first neolithic man deciding he had better make a bike to give himself a sporting chance of outrunning a Sabre Tooth Tiger.

Historians suggest that the concept of the lathe evolved from The Potters Wheel but I suspect the potters pinched the idea from Fred Flintstone in Mud Hut No.5 whose wife never managed to get him to do anything about the hut or even walk the Dinosaur.

The oldest item so far found which "could" have been turned is a wooden bowl found in a pit grave and dated at 1200 BC.

The oldest item so far found which was "obviously" turned is again a wooden bowl found in a tomb and dated at 700 BC, by the 6th Century BC bowls beads and ornaments have been discovered which prove that accomplished Turners were at work by this time.

By the 2nd Century BC the use of the lathe was known throughout Europe and the Near East, Sketch 1 shows some items discovered in peat near Glastonbury and dated 100 BC - AD50 these have been turned from soft Kimmeridge stone.

This ability to turn stones round, led to the development of the Grinding Wheel and Sketch 2 shows the earliest known illustration of the use of a grinding wheel, this method of grinding continued for more than 900 years and is in fact still used in less developed countries.

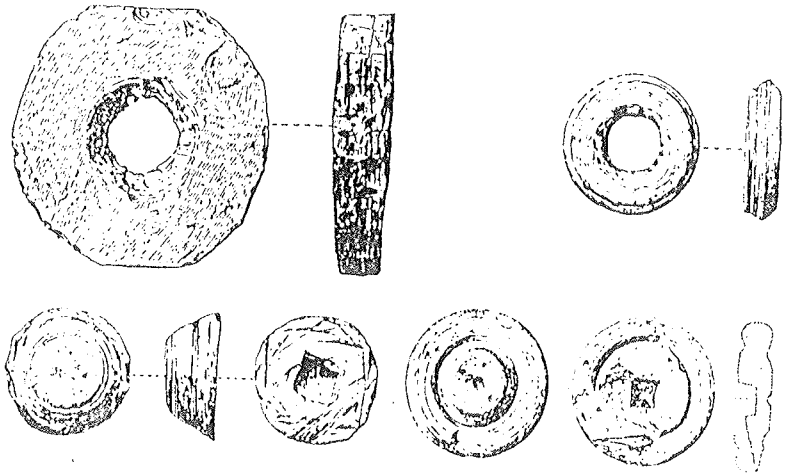
The method of driving the spindles of primitive lathes seems to have split two ways in Europe and the East. The East persisted with one hand driving and the remaining hand and foot holding the tool. In Europe the foot was used for driving and left both hands free for the tool manipulation, this led to the Pole Lathe, see Sketch 3. This sketch shows that the need for rigidity in machines was recognised at this early stage.

The pole driven lathe continued in use for light wood turning until the demand for heavier wood turning and metal parts for clocks became necessary by the middle of the Fourteenth Century.

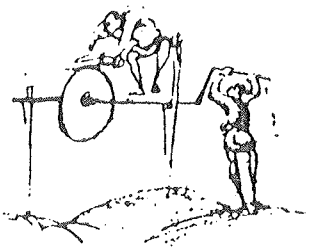
The need for more power led to the development of continuous drive to the spindle, at first by hand and later by water power.

It was about this time that the first clocks were developed in Italy and manufacture spread to Holland, Germany, France and England. The clock in Salisbury Cathedral dates from 1386, the only turned parts on this clock are the driving rope barrels. The rest is the work of highly skilled Blacksmiths and it contains no screw threads at all, every part is held by wedges.

By the end of the Fourteenth Century the demand for small domestic clocks meant that the lathe became an economic necessity, to turn arbors and wheels, screws were now cut by the screw plate, which is actually a set of dies of varying sizes all cut in a single plate. Each clock maker had his own set of pet threads.

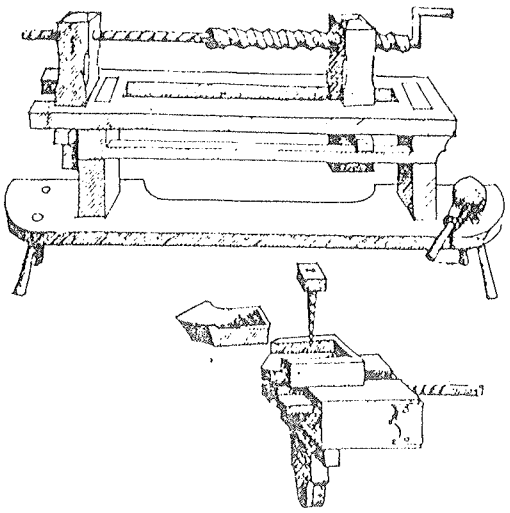


1 *Glastonbury Lake Village bracelet rings,* c. *100* B.C. (*Bulleid and Gray*): (top left) *Blank prepared for turning on mandril;* (top right) *Blank from which ring has been parted off;* (bottom left) *Blank with squared driving hole;* (bottom right) *Spoiled workpiece with ring partly turned and showing driving square and centre pop*

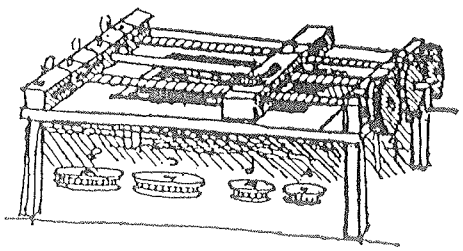


2 *Sword grinder, Utrecht Psalter,* A.D. *850* (*Library, University of Leiden*)

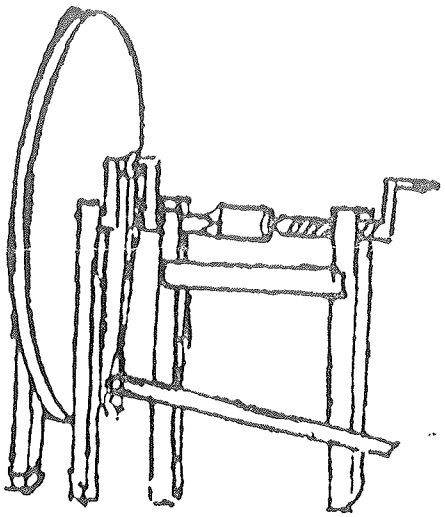
3 *A German pole lathe of 1395* (Mendelesches Brüderbuch)



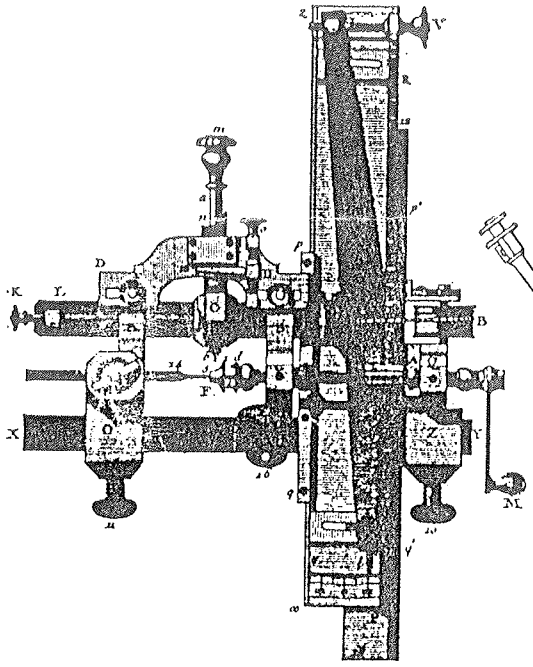
4 *German clock-maker's screw-cutting lathe,* c. *1480, showing* (below) *the tool-holder on cross slide* (Mittelalterlichen Hausbuch)



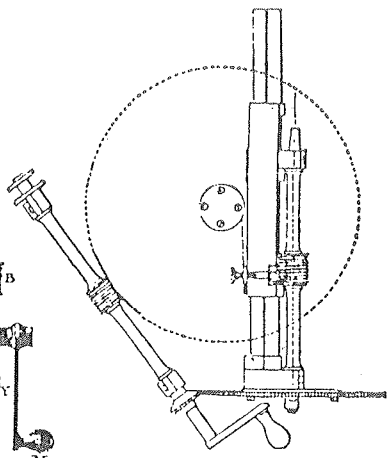
9 *Screwing machine by Leonardo da Vinci,* c. *1500. Note change wheels under table* (*Institut de France manuscript*)



10 *Sketch by Leonardo da Vinci,* c. *1500, showing lathe with three-bearing headstock and drive by treadle, crank and flywheel* (*Codex Atlanticus*)



14 *Improved automatic fusee engine by Ferdinand Berthoud, 1763* (*Berthoud*)



15 *Precision screw-cutting lathe by Je Ramsden, 1778* (*Ramsden*)

The first recorded illustration of actual screw cutting is shown in Sketch 4, the thread being cut is driven from a socket in the master screw/spindle and driven by a crank handle and rotates in the tailstock.

The first mechanical gear cutting device recorded dates from about 1540 and was used to cut more than 1800 wheels for a Planetary Clock made for Charles V, by an Italian clock maker Juanelo Torriano (1501 - 75) who recorded cutting an average of three wheels a day.

This machine must have been similar to the modern clock makers wheel cutting engine.

Sketches 9 and 10 show Leonardo Da Vinci's contribution to the lathe and 9 shows the earliest record of change wheels while 10 shows the earliest record of a treadle drive with the drive applied between the headstock bearings, if you look at this machine it embodies all the parts of the modern lathe.

Sketch 13 shows a design for a lathe by Jacques Bosson who was Leonardo's successor as engineer to the French Court.

Very few of the machines sketched by Leonardo and his contemporaries were ever built and it is a matter of some doubt if these great minds of the Renaissance had as big an effect on the machine tool as it would appear. However, the lathe by 1578 was well established and Sketch 11 shows a machine that undoubtedly existed as the legs of Elizabethan or Jacobean furniture bear witness of, this machine was the forerunner of the ornamental turning lathes introduced by Charles Holtzapffel in the late 18th Century, these machines were extremely costly and ornamental turning became a hobby for the landed gentry.

The watch and clock industries now caused a rapid movement in the lathe and by 1741 a special lathe for turning "Fusees" was at work in France, this machine was semi automatic and equipped with change wheels and a leadscrew to produce the hyperbolic tapered thread of a fusee.

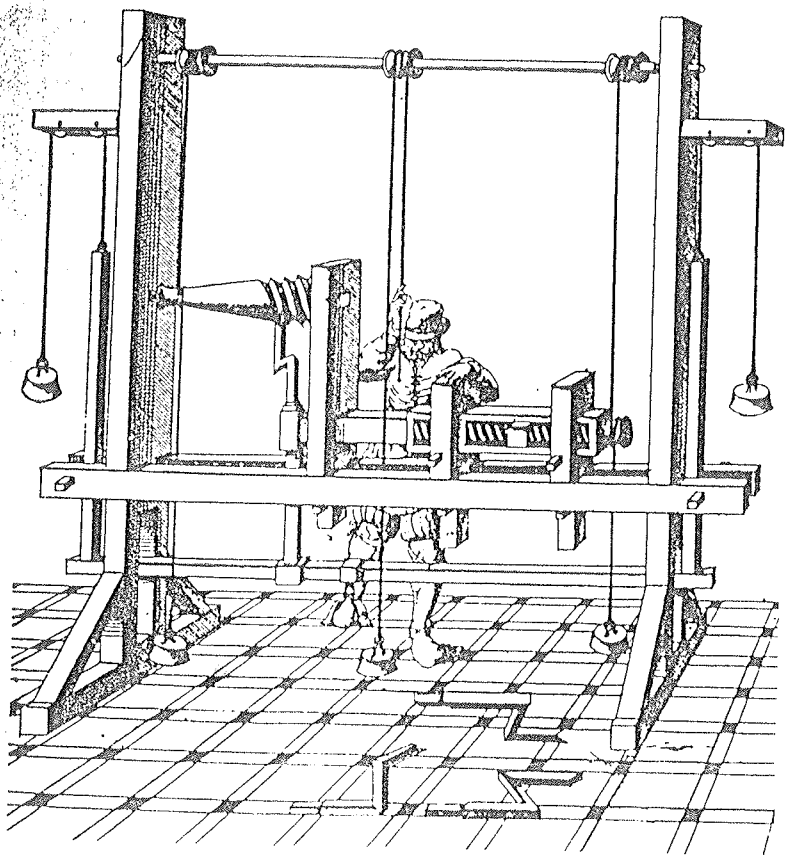
The then ultimate in high precision screw cutting lathes was made by Jesse Ramsden (1735 - 1800) to produce the long fine pitched lead screws required to produce the scales for his mathematical and scientific instruments.

By the end of the Eighteenth Century the lathe was becoming less of a scientific machine tool of small dimensions and the new breed of men called engineers were born. The most prominent of these was Henry Maudslay (1771 - 1831). Maudslay was born in Woolwich and from the age of 12 worked at the Arsenal in various jobs finishing in the forge.

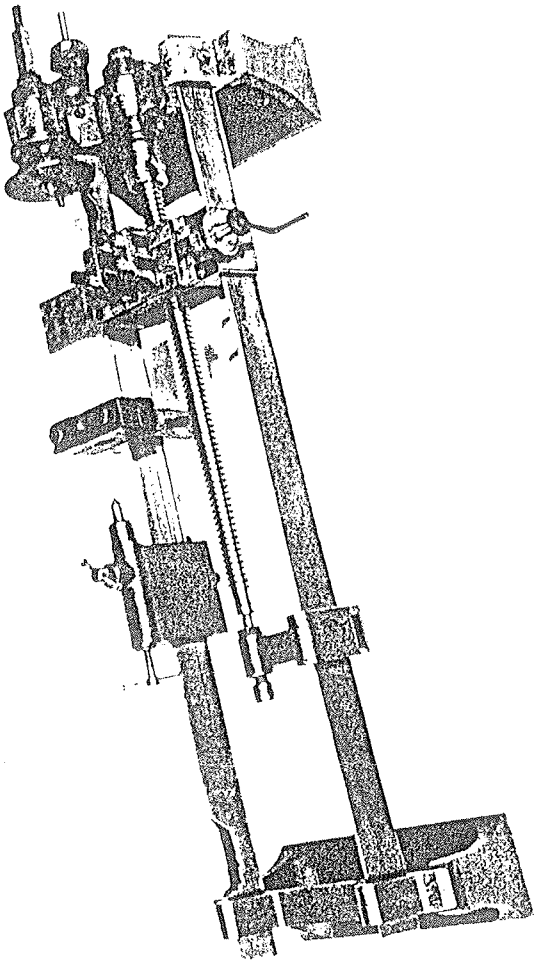
His reputation as a craftsman reached the ear of Joseph Bramah (1748 - 1814) who had a workshop in St. Giles, London, manufacturing his patent water closet but needed help to develop his patent lock, incidentally this lock was the reason for the saying "a Real Bramah" meaning something of very high quality that found its way into the cockney slang. Maudslay joined Bramah in 1790 and developed machines to make these famous locks.

Maudslay's first and second screw cutting lathes were made in 1800 (see Sketch 9) the ultimate masterpiece by Maudslay was a leadscrew 5 feet long by 2 inches diameter with a pitch of 50 threads to the inch this was used to calibrate scales for the Greenwich observatory.

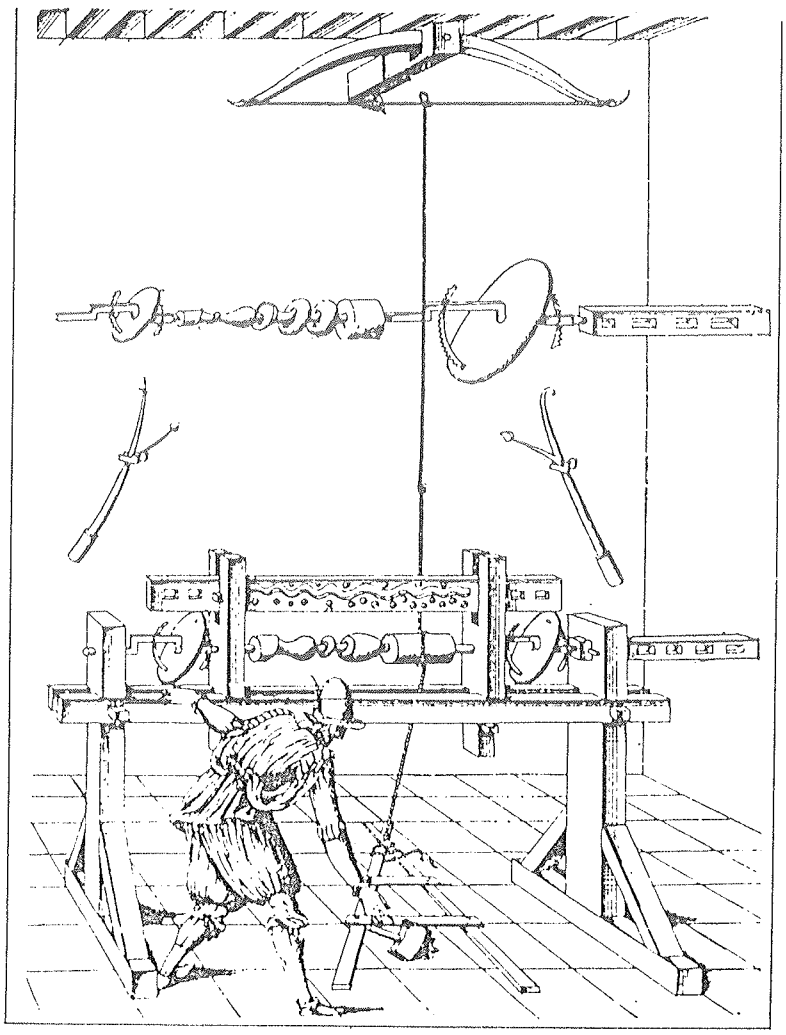
In 1805 Maudslay invented the Micrometer and the age of precision was born.



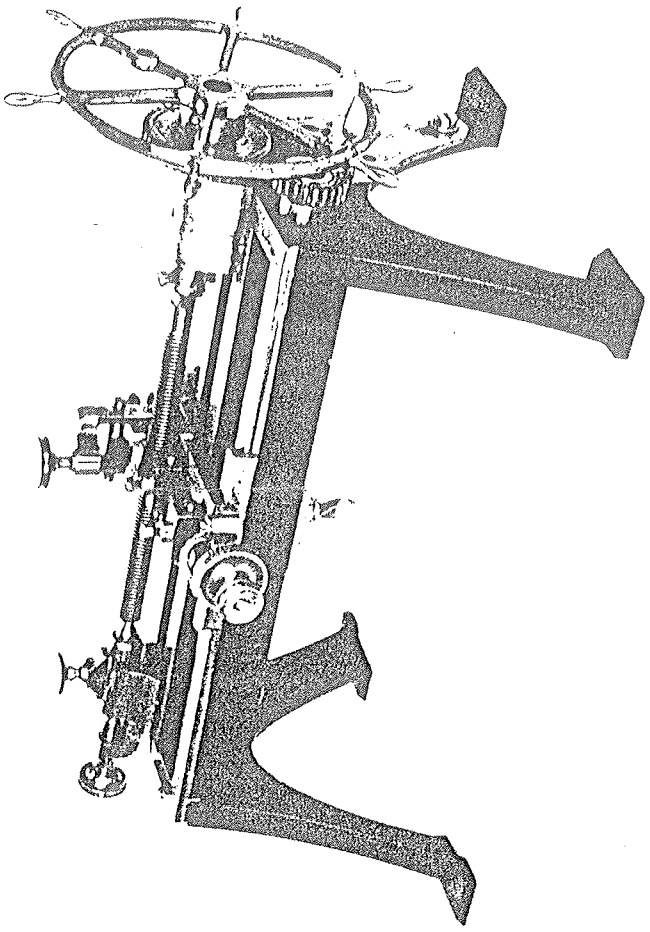
11 *Drawing by Jacques Besson of a screw-cutting lathe with lead screw, 1578*



37 *Henry Maudslay's first screw-cutting lathe, c. 1800*
(Crown Copyright, Science Museum, London)



13 *Ornamental turning lathe with templet by Jacques Besson, 1578 (Besson)*



38 *Maudslay's second screw-cutting lathe, c. 1800*
(Crown Copyright, Science Museum, London)

Brunel went to Maudslay for help in manufacturing ships blocks at Portsmouth and he spent 6 years developing 44 machines for the first mechanised production line,reduced the labour force from 110 to 10 to produce 160,000 blocks a year for the Navy. Some of these machines are still working now.

Nasmyth, Roberts, Clement and Whitworth all worked for Maudslay and I consider Maudslay the Father of Modern Engineering.

The last Sketch 40, shows a Facing Lathe produced by Joseph Clement (1779 - 1844) and it can be seen that this is the modern lathe. Incidentally, this constant speed facing lathe had to wait until the introduction of the modern computer numerically controlled lathe to be improved upon, this facility on the modern lathe can be quite exciting if you call off the constant surface speed for facing and forget to put in the code for maximum spindle speed limitation. You can imagine what happens if you are cutting at 600 FT/MIN surface speed on a 6" diameter and change tools to a $\frac{1}{4}$" carbide drill, presto, instant speed change from 380 RPM - 9000 RPM - into orbit goes £75,000 worth of CNC lathe. This is called Hi Tech Turning.

G. KIMBER

++

NEW MEMBERS+++
++++++++++++++

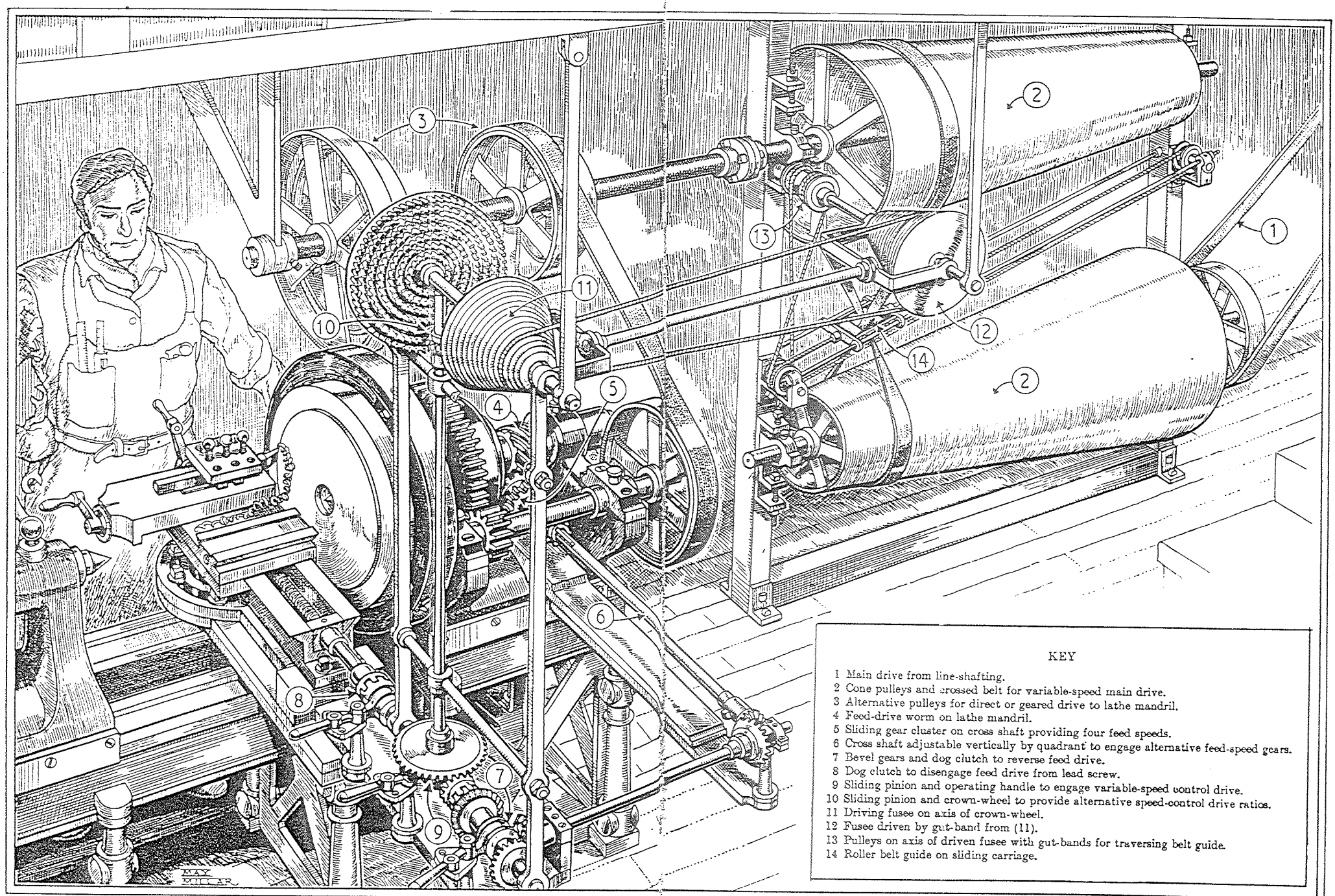
We welcome the following :

David Deller from Larkfield who is interested in steam powered model ships and locomotives ;

Robert Hodgkins from Gillingham who is building a 5" gauge Boxhill ;

Colin Brewer from Loose whose interests are 16 mm garden railways and sailing ships.

++



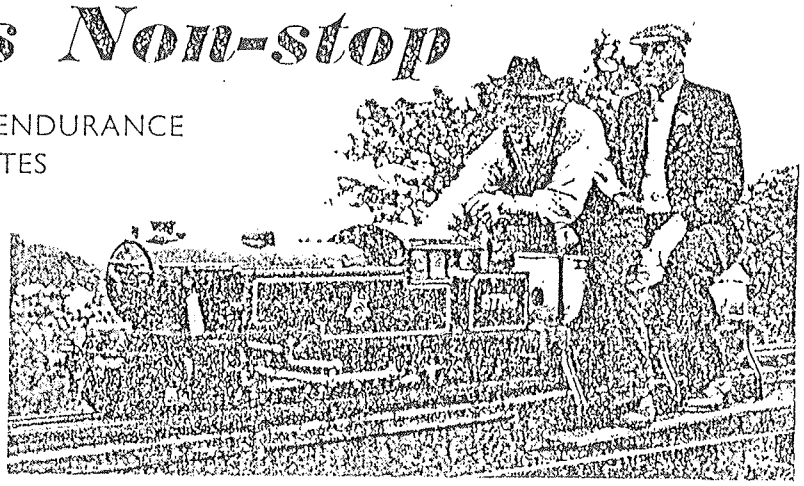
40 *Clement's constant-speed facing lathe, 1827 (based on the original drawings in the* Journal of the Royal Society of Arts)

The long distance Run.

I was looking through a few back issues of Model Engineers and came across the following article which attracted my attention. It was published 28th October 1954 with acknowledgment to the original it is reproduced below.

100 Miles Non-stop

DEMONSTRATION OF ENDURANCE AT BLACKGATES

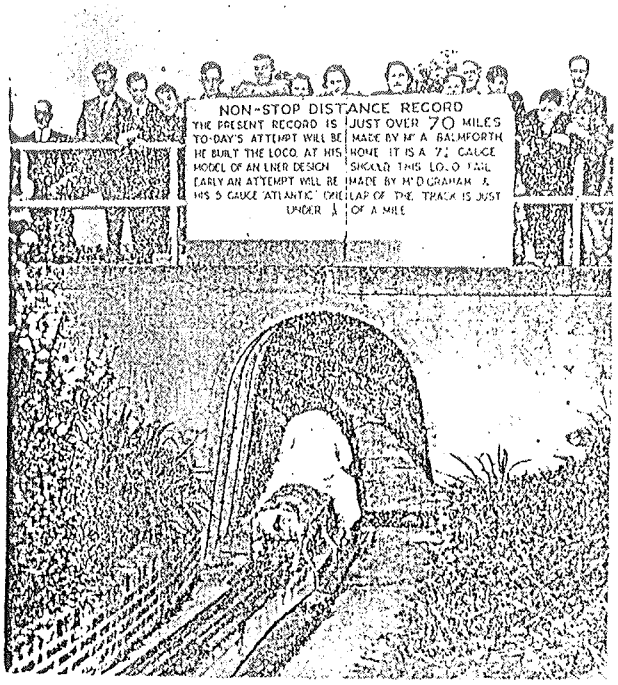


ON Sunday, September 19th, a 7¼-in. gauge L.N.E.R. 2-6-4 tank locomotive driven by her builder, Mr. Albert Balmforth, with Mr. Dan Hollings and Mr. F. Hepworth acting as relief drivers in turn, succeeded in completing a non-stop run of 100 miles 614 yards at Blackgates, Bradford. The run began at 9.31 a.m.; at 4.50 p.m., exactly 71 miles had been covered. The run, however, was continued until 7.58 p.m. when the engine was brought to her first standstill since starting 10 hours and 29 minutes earlier. She showed no sign of strain or wear, and the last ten laps of the track were run in the gathering dusk.

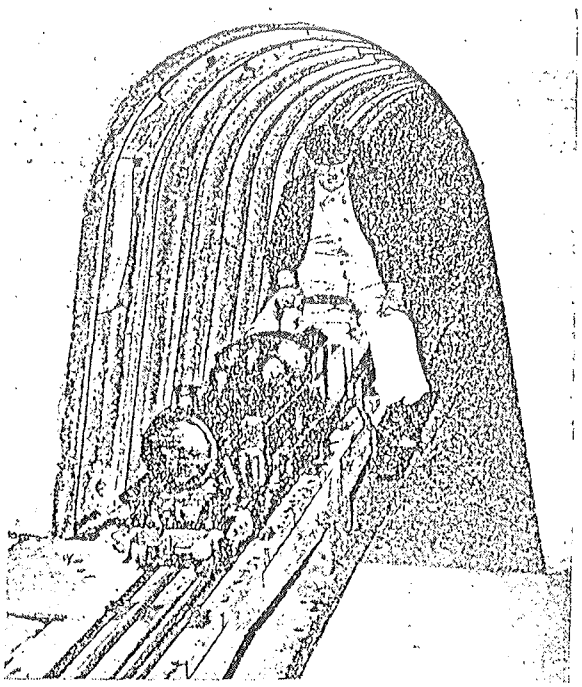
Shell-Mex and B.P. Ltd., were good enough to sponsor this run and supplied the lubricants. The event attracted from Press and public an amount of interest which exceeded the expectations of the members of the West Riding Small Locomotive Society, who feel that they have won many friends and given a remarkable demonstration of the stamina and workmanship of small live-steam locomotives.

A special tank-car for carrying enough coal and water was built for the occasion and is seen in the photographs. The engine is 5 ft. 10 in. long, weighs 6 cwt. and took four years to build. The photographs show that, externally at least, she is an exact miniature replica of the full-size prototype; this fact, coupled with her superb performance, is a tribute to the care, skill and forethought which Mr. Balmforth so obviously put into her design and construction. She is quite justified in claiming the long-distance record for miniature steam locomotives; but how does her performance on this occasion compare with that put up at Chingford, some weeks earlier, by a *Hielan' Lassie* half her size, which ran 70 miles in just over 10 hours?

The photograph at the heading was taken by W. D. Hollings, the other two by W. H. Foster of Bingley.



Mr. Albert Balmforth under the bridge for the 550th time



Mr. Hollings leaves Blackgates tunnel as darkness falls

Not that I have any intentions of trying for the record I have often thought that to attempt a long distance run would be an experience that might be of interest to other members.

In order that the distance covered would be known the length of the track would have to be accurately known. Only being a relatively new member of the club I have no idea what is the exact length of the track but with the line of business that I am in, if no body else knew the exact length of the track I would be prepared to make the necessary assessment.

Before dealing with the normal aspects of running a loco what of the other problems that might be faced.

But before that let's set an initial target distance of say 5 miles. Assuming the we shall be running at 5 mph that distance would take 1 hour to complete. At that sort of distance the difficulties of mother nature would be under control. In fact I would consider that a run of upto 3 hours from that angle should not pose any problem as with GCSE exams in the minds of many sitting for 3 hours had become the normal time of sustained effort. So it is when we consider distances of say 15 miles and upward that consideration would have to be given to mother nature. At the present time I have no solution to that but I would hope that editorial comment might be able to provide some ideas.

What about sustained concentration. When driving a car it is suggested that one takes a break of say 10 mins in every 2 hours. As the run that I am suggesting should be continuous how would one be able to take a break, change drivers without stopping the loco and adhering to normal safety standards. Again I hope that editorial comment would be able to help out here.

Turning now to the loco. I can only speak from my own experience of the 040 Sweet Pea type loco that I run.
I find that I can quite comfortably make two circuits of the track with the small amount of coal I carry, about 0.5 lbs and about 1 gallon of water in the side tanks. That make a total weight of about 10.5lbs fuel required for about 2 laps or 5.25lbs per lap.
For the sake of the article and because no firm details are available let us assume that we take 5 mins for a comfortable lap of the circuit. In one hour we would cover 12 laps.
Fuel weight required 5.25 x 12 = 63lbs for one hour.
For 3 hours 63 x 3 = 126lbs.

So in addition to the load of what ever passengers over 1 cwt of fuel would be required for 3 hours.

Assuming that a record attempt was considered, at the speeds of say 5 mph the time for 100 miles is 20 hours and that would lead to about 1/2 ton of fuel required.

I hope that my calculations are wildly out (or that I have made some simple school boy howler) as I would consider that hauling a 1/2 ton, albeit a diminishing load, for 20 hours

would be some task.

So the feat that the original article highlighted was quite some record. I don't know whether it has ever been beaten or whether it could be beaten with the use of a 5" gauge loco on the club track.

May be over the winter months other members might like to consider whether it would be something to be attempted to a greater or lesser degree. I would certainly welcome comments from the members who are better informed than I in the aspects of fueling and running locos than I.

Finally many thanks to all the members who have helped me to have such a happy year running Baudot.

Charles Darley.

$$$

SNIPPETS
$$$$$$$$

Rewiring your workshop? Need any armoured cable? There are a few varying lengths between 7 and 10 metres at the Park if anyone is interested. Please contact Adrian if so.

$$$$$$$$

There is still some guard rail which requires painting and volunteers would be welcome. Materials are in the coalshed and trolley store .

$$$$$$$$

We now maintain an Accident Book which is kept in the First Aid Box in the Clubhouse. Any incident or accident resulting in any physical injury at the Club must be entered. Our Safety Officer is Don Paterson who has learnt by experience (renowned for testing whether a blower was working by putting his fingers in it!)

$$$

Subscriptions are now due for 1989. Please complete this slip and give or send it to our Treasurer Peter Roots.

I enclose herewith the sum of £........(£5 or £2-50 for retired members) being my subscription to Maidstone Model Engineering Society for 1989.

__________________________________ ____________________
name date

---
address
