

# Introduction to the Adept Lathe

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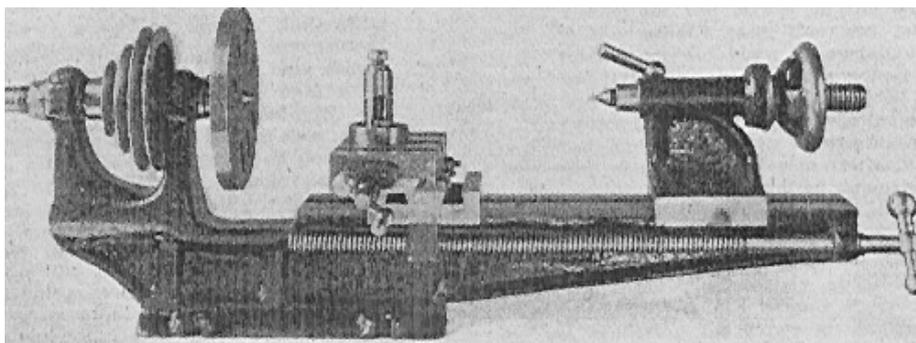
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## Introduction

This document provides an introduction to the little Sheffield-made Adept modeller's lathe, built in large numbers<sup>1</sup> and, while constructed down to the lowest price, many thousands survive in use or awaiting restoration. This document, therefore, is primarily meant to assist restorers and users of this attractive, crude, and definitive "cheap lathe". It is, secondly, meant to be relevant to aficionados of other makes of British-made cast iron model-maker's lathes. Feel free to circulate this document unaltered, but please cite me as the author and mention its exclusive web location at Griffiths Engineering's excellent lathes site ([www.lathes.co.uk](http://www.lathes.co.uk)), which has a wealth of photos and data on Adepts and their contemporaries.

## Pre-History of the Adept Line

The distinctive gapped, cantilever bed form of the Adepts appears inspired by the 2-3/4" x 12" sliding lathe, from a new firm called Lineker & Winfield, introduced in 1925. The respected engineer George Gentry gave this a demanding testing and a very favourable two-page review.<sup>2</sup> Highly specified for just £3.15s., it had bronze bearings, a generous 3/4" spindle with 3/4" nose thread, slotted boring table and slotted top-slide, and double-vee slides with adjustable gibs. It could be retro-fitted with back-gear for £1.5s. extra and screwcutting gear for another £2. Gentry bought the sample against his impending retirement, to have a small lathe for home use, and years later he described modifications to improve it further. Gentry described it as the forerunner of the small, cantilever bed model engineer lathe which in the 1930s was produced in variants by several firms.<sup>3</sup> Indeed, the Lineker's bed can be seen much later in the slightly smaller-sized Flexispeed, Perris, Meteor, Simat, and finally the Cowells lathe which remains in production today. (The latter Gentry article is essential reading for owners of similar plain machines wanting to incorporate back-gearing, screwcutting, a fully compound slide, and other such improvements.)

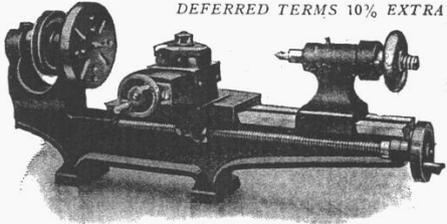


**The historically significant Lineker & Winfield 2-3/4" x 12" sliding plain lathe ca. 1925.  
*Model Engineer* 7 May 1925.**

Enter the firm Heeley Motor and Manufacturing Co. who had diversified into the lathes business after the Great War, producing small, conservative box-bed lathes for J.G Graves of Sheffield. The Heeley firm took its name from a former cluster of villages now a suburb in south Sheffield, but it was founded ca. 1889 by Charles Portass. The familiar Portass brand appeared ca. 1926, but as a line of lathes built by the firm Heeley before a firm named Portass existed. In 1926 Heeley introduced its own brand of 2-1/8" x 10" plain "Portass lathe", soon nicknamed the "Baby Portass",

briefly described in the 22 Apr 1926 *Model Engineer*. I own one of these machines. They were popular during the decade they were in regular production<sup>4</sup> under various guises, including: "The Portass Lathe" with Heeley plate, the ENOX (cast into the bed), the ECLIPSE (cast into the bed, for James Neil & Sons), and the "Baby Zyto" and "Graves" with no special markings.

Heeley's 2-1/8" Portass, and its 3" BGSC big brother, were evidently inspired by the cantilever bed Lineker & Winfield. Aside from its weight, due to massive castings, the Baby Portass was a lot of lathe for the money, costing when introduced 45/- for the lever tailstock Model A and 55/- for the screw tailstock Model B. Both were value engineered to cost less than their competitor but lacked desirable features such as gunmetal bushings and boring table. Likewise a BGSC "2-1/8 inch Model de-Luxe" was introduced, with a slotted table, costing £4.5s. versus £8 for the BGSC Lineker & Winfield. This was also much better value than the £10.10s. for the 3" scaled-up Baby type machine, and why the latter lasted only a year or two before being succeeded by a better model.

<p style="text-align: center;"><b>WITH ORDER,</b> <b>6/-</b> <b>9 MONTHLY PAYMENTS OF 6/-.</b></p>	<p style="text-align: center;"><b>The 'PORTASS'</b> <b>2 1/8" CENTRE LATHE.</b> AS 55/- BELOW. 45/- WITH LEVER TAILSTOCK. <i>DEFERRED TERMS 10% EXTRA</i></p>								
									
<p><b>SPECIFICATION :</b></p>									
<p>Height of Centres, 2 1/4". Length between Centres, 10". No. O Morse Taper Centres. Vee Bed accurately Machined. 2-Speed Cone Pulley. Face Plate 5 1/2" diam. Hollow Mandrel to take 1/2" Bar.</p>	<p>Height of Centres from Gap, 2 1/4"  Swings over Saddle, 1 1/4". Saddle Slides Length of Bed. Compound Slide Rest with Vee Slide. Square Thread Lead Screw, 10 T.P.I. Lever Drilling Attachment.</p>								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">2-Speed Foot Motor ... 25/-</td> <td style="width: 50%;">The Portass "PORTALATHE" comprises 2 1/8" cen. Lathe, patent Wall Stand, Foot Motor and Belt. PRICE ... 77/6</td> </tr> <tr> <td>3-Jaw Dog Chuck ... 5/6</td> <td></td> </tr> <tr> <td>Set of 4 Faceplate Dogs... 12/6</td> <td></td> </tr> <tr> <td>Hand Rest ... 4/6</td> <td></td> </tr> </table>	2-Speed Foot Motor ... 25/-	The Portass "PORTALATHE" comprises 2 1/8" cen. Lathe, patent Wall Stand, Foot Motor and Belt. PRICE ... 77/6	3-Jaw Dog Chuck ... 5/6		Set of 4 Faceplate Dogs... 12/6		Hand Rest ... 4/6		
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<p>Write to Dept. M.E., <b>J. G. GRAVES, Ltd., SHEFFIELD.</b></p>									

**'Baby' Portass Model B: Severely value-engineered mimic of the Lineker & Winfield, and immediate predecessor of the Adept's. *Model Engineer* 22 Apr 1926.**

The early history of Portass lathes concluded when the Heeley business was split, following the founder's death in the late 1920s, between Portass sons Stanley and Fred. Portass Senior may have died in the 1920s but the firm was not split until 1930 or 1931.<sup>5</sup> Stanley Portass renamed the existing Heeley firm the Portass Lathe and Machine Tool Company and moved into the still extant "Buttermere Works" off Abbeydale Road, near Millhouses. The Portass Lathe and Machine Tool Company continued the development of the 3<sup>rd</sup> generation of Heeley lathes and also added new models. Stanley's firm also produced large machine tools, and all Portass machines regardless of size were characterised by massive castings and known for their rigidity. Having his own foundry, adjacent to the works, probably encouraged this heavy-machines policy. Certainly it gave him great control over the supply and quality of castings.<sup>6</sup>

Brother Fred commenced trading as F.W. Portass, producing tiny, inexpensive machines for modellers: the Adept line. Having less money to work with, he made his tiny machines in a much smaller "Abbeydale Works" not far distant from his brother's in Sheffield. Fred miniaturised the cantilever bed architecture of the 2-1/8" "Baby" Portass, creating much smaller and lighter

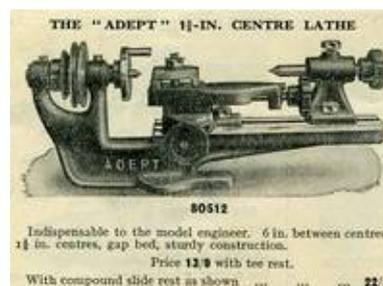
machines with brilliantly engineered castings. The Baby Portass echoes loudly in the architecture of the Adept, although the Lineker influence resonates in the more streamlined bed casting. My Baby Portass is 18" long and too heavy for me to bother unbolting it from my bench to put on the bathroom scale. My Super Adepts are 13" long and about 6-1/2" lbs, while my Ordinary Adepts are 11" long and lighter. This is small indeed for a cast iron machine; the tiny Adepts are remarkable achievements in cast iron lathe construction. Stanley Portass had bigger fish to fry and never attempted to compete with his brother for the tiny sized modeller's niche. His smallest product, the Baby, was comparatively massive and was far heavier. Its successor, a longer 2-1/8" lathe with a double-footed curvilinear bed, made no attempt to match the Adepts for compactness or low price.

The brothers inherited a deep conservatism in their design philosophies, for once they settled on a winning design, they resisted pressures to modernise even in the face of vicious competition after WW2. Stanley, reluctantly, introduced new models – all traditional in design - which allowed him to continue business until the early 1970s, but by the mid-1950s his main products were becoming anachronistic. Fred was even more stubborn. He changed hardly anything, apart from introducing improved hand shapers (his other core product), and he ceased production about 1961.

## History of the Adept Line

Two versions of the Adept lathe were made by F. W. Portass: the "Adept" (ordinary model, with bolt-on simple slide-rest) and the more complex and expensive compound slide-rest and leadscrew "Super Adept" model. The Ordinary appeared about 1931, available with a plain, lever, or screw tailstock. The Super Adept was not a development of the Ordinary. Both machines were value-engineered from the introduction of the range to offer choice of capabilities while employing many common parts to keep prices low. The Super was advertised as a 'sliding' lathe, meaning that it has the Ordinary's top-slide but atop a carriage driven by a full-length leadscrew. This is fully-compound, sliding on outside-vee'd ways which do not feature on the Ordinary version. It is propelled by a left-hand leadscrew whose hand wheel has a nice waisted handle. A central slot, along the bed, guides the tailstock's tenon as per the Ordinary. Thus, the Super is superficially a tiny and simplified version of the classic British engine lathe, and attractive on this account.

The Super Adept appeared at the August 1933 *Model Engineer* Exhibition, at the Bond's o' Euston Road stand. This firm billed itself as "the Home of Hobbies" and sold "everything 'modellish'" for four decades. The 14 September 1933 *Model Engineer* reported that "their principal exhibits in the lathe line comprised practically all the models made by 'Portass'. Notable among these last were a new specially made lathe called 'Bond's Maximus', a 3 in. back-gear S.C. lathe...at the other end of the scale was the one and only entirely new 'Adept' lathe of the same make, which is now designed with a sliding saddle, carrying the compound rest. This is illustrated, but price on application."<sup>7</sup> The latter marks the introduction of the Super and the start of several decades of confusion between the two Portass firms who, probably by arrangement, catered to different parts of the market and periodically sent one another misdirected correspondence.



**Tyzack Ordinary Adept advert, plain tailstock, ca. 1935. Bonds used the same plate to advertise the Ordinary Adept in their 1963 catalogue; by then Adepts must have been old stock.**

The Great Depression caused a rapid die-back of the multitude of small British lathes which appeared right after WW1. For the most part their firms produced machines of undistinguished quality and technology, and some of the makers disappeared completely along with the designs. Modeller's lathes which evidently vanished in the 1930s include the Wade, Edwards, David, Dignus, and Patrick lathes, and the Drummond Goliath multi-machine which did nothing well. Of the producers of the larger, model engineer class (say, 3" to 4" centre height) lathes, Stanley Portass' well-capitalised firm thrived, as did newcomers Ross & Alexander and Myford. These and others are fully described and illustrated at [www.lathes.co.uk](http://www.lathes.co.uk).

The two Adept lathes occupied the model-maker's lathe void when the Baby Portass and smaller machines dwindled, and they filled this void until copycat competition like the Flexispeed and Wizard appeared in the late 1940s. Adepts were highly suitable for indoors work. They were very small and light compared with anything but a very expensive watchmaker's lathe. Either Adept could be mounted on a board, clamped to the kitchen table, and worked with one of a dozen cheap makes of treadle foot-motor with little mess or noise. Alternatively the Adept could occupy the corner of one of the popular, cheap Hobbies workbenches suited to a spare bedroom. Yet the initial rise to popularity of the Adept lathes, during hard times, was quick primarily because they were priced to sell when most types of model-making required a lathe.

How common were Adepts during the 1930s? Most modelling at the time called for a lathe. In particular, until the early 1950s it was difficult to engage in scale railway modelling in the absence of a small lathe, and model engineering without a lathe however small remains out of the question. No other manufacturer approached the prices of the Adepts. In 1937 a bare-bones, ordinary Adept cost a mere 13/9 (60p or \$1.25!). It included a hand turning rest, two unhardened centres, plain tailstock, and a faceplate. For just 22/- you also got a bolt-on slide-rest (a quarter of an average weekly industrial wage) and for 15/- more an independent 4-jaw chuck capable of accurate if the work was carefully centred. It is fair to say that these machines did more than any other to put miniature machining within the grasp of the ordinary man. These little (13" long) cast iron machines were the archetype "small lathe" for modellers and model engineers lacking space and money. Fred Portass advertised them correctly as "world renowned". Examples have been found in Holland, South Africa, Australia, New Zealand, Canada, and America.

Like most of the other makers, Fred Portass relied heavily on distributors but also advertised his products aggressively in 1939, already emphasising "world renowned". Then the War came. Commercial model production plummeted in 1940, when Fred Portass still regularly advertised Adept lathes using the familiar plate depicting the popular Ordinary with a non-screw tailstock. In June the Ordinary was 24/- with slide-rest and 15/- with just a hand rest, screw tailstock 6/- extra. The Super was 35/6 and the 4-jaw chuck 16/-. In 1941 he advertised less often, noting that Adepts were "Still available though we regret we cannot give our usual prompt deliveries, owing to the urgency of Priority Orders for Government Work".

**WORLD RENOWNED "ADEPT" LATHES**

The "Adept" Countershaft for speed reduction when driving the "Adept" and other small lathes by means of an electric motor. Price 10/-. Post 9d.

The "Super Adept" Lathe (as illustrated). Price 33/-.  
 The "Adept" Lathe with compound slide rest. " 22 -.  
 The "Adept" Lathe with hand rest instead of compound rest. " 13/9.  
 All models are 1½" centres, 6" between centres. (Postage) - extra

The "Adept" 2½" independent Chuck with 4 reversible jaws. The back of this chuck is screwed to fit the "Adept" lathes. Price 15/-. Post 6d.

WRITE FOR LISTS TO :-  
**F. W. PORTASS, Sellers Street, Sheffield, 8**

**Super Adept advertisement on the eve of War, 14 September 1939, *Model Engineer*. Super Adept advertisements used the same old plates until the very end ca. 1961.**

The production of metal toys was banned in January 1942. So too, a year later, was the commercial sale of new or second hand models, either whole or as components. Unable to buy manufactured items, amateurs were desperate for lathes to make their own components, but the sale of new machines now required a licence attesting to their use in war work. Persons still modelling used discarded or hoarded material, aided by a weak private trade in used models. The *Model Railway News* shrank to 14 tiny, thin pages but the *Model Engineer*, its sister publication, fared better because model engineers were sought in armaments factories. Practitioners like Edward Beal and L.B.S.C. kept writing, furthering techniques and keeping up morale.

Model engineering firms made war supplies such as fuses and aircraft instruments. So did machine tool makers whose products were not up to the needs of military establishments or factories. This probably included the firm F.W. Portass. It is hard to imagine Adept lathes in war use, although the two tiny models of hand shaper were very good and may have been needed in repair and experimental work. In any event, by September 1947 the firm was again supplying Adept lathes to the public but advising of a 12 month wait list after placing an order, on account of being "inundated with orders". In fact, the Austerity decade had begun, and materials were in short supply. Five years of pent-up demand exploded and any lathe seemed worth its weight in gold. The Adepts, still the cheapest and smallest, sold vigorously. Unfortunately Fred Portass, made complacent by this surge in demand, failed to modernise his designs or increase his tiny range of accessories when a host of small competitor lathes began to appear. Worse, he failed to advertise in the model engineering press until 1950 when new competitors were long advertising aggressively. By then, various new small lathes, especially the 1-5/8" Flexispeed and the 1-3/4" Lane (formerly the 'Wizard')<sup>8</sup>, were clearly taking a substantial bite out of the Adept's market share.

ANNOUNCING  
**"THE WIZARD"**  
 A NEW MICRO LATHE  
 for the DISCRIMINATING AMATEUR



Brief Specification :  
 Centre height 1 1/2 in. Face-plate 4-in. dia.  
 Between centres 6 in. No. "O" morse  
 Swing over bed 3 1/2 in. centre head and  
 Swing over saddle 2 in. tail. Hole through  
 Swing over gap 4 1/2 in. both 9/32 in. Set  
 over tailstock.

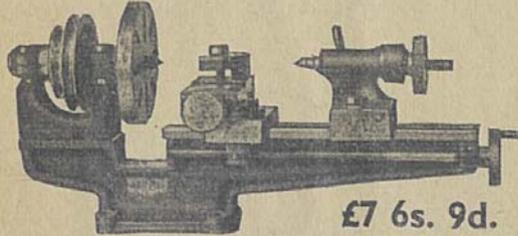
Fully compounded slide-rest, with "T"  
 slotted milling table, three-speed vee  
 pulley, 1/2" belt, Acme L.S.

PRICE £9 4s. 9d. CARR. EXTRA  
 Limited number from stock. Descriptive leaflet for S.A.E.

0-1/4" Drill Chuck "O" M.T. Shank, 10s. 6d.  
 2) Machined Chuck Back-Plate, 5s.  
 Lever Operated Countershaft (on baseplate), £2

**C. LANE & SON**  
 Dairy Lane, Houghton-le-Spring,  
 Co. Durham  
 "The Little Lathe that is a Little Different"

**THE FLEXISPEED 1 1/8" LATHE**  
 Designed for the Model Engineer with a small pocket



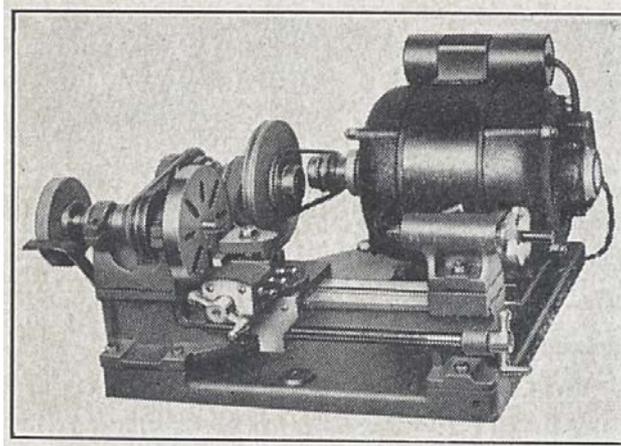
**£7 6s. 9d.**

Reasonable deliveries on all available accessories.  
 Ask your dealer, or send S.A.E.

**FLEXISPEED MACHINE TOOL CO.**  
 5, SOUTH LANE, SHEFFIELD, 1.

Lane Wizard and Flexispeed Standard adverts, from the *Model Engineer*, ca. 1948.

There were others too, of comparable size, like the gimmicky Grindturn with an ill-advised extended spindle bearing a large, unprotected grinding wheel situated immediately beside the head bearing! (Be careful if you intend to buy a Grindturn. I have inspected one that was utterly worn out by corundum grit and other users have reported evidence of accelerated wear.) Gimmicks aside, at first the Adept's new and hungry competition tended to be better-specified or at least more highly-featured, and thus markedly more expensive and non-threatening.



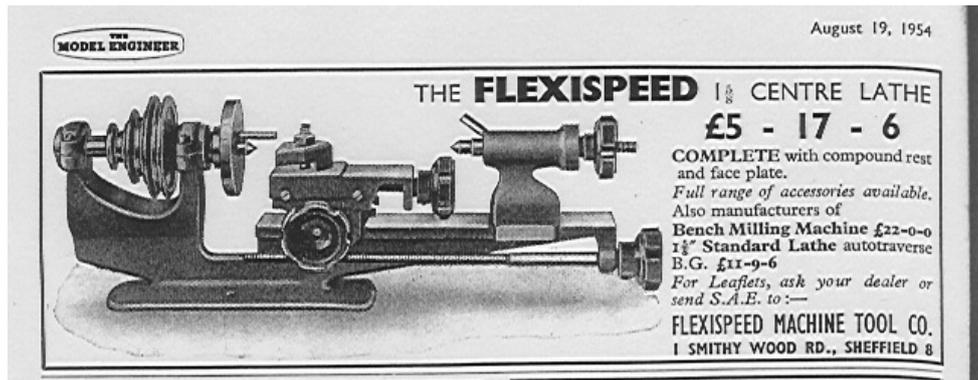
**Grindturn 2" Model ca. 1947. Note the grinding wheel, only useful if run at speeds damaging to spindle and bearings. Still, one of the higher-specified, more expensive small lathes.**

Flexispeed steadily worked towards market superiority. In 1947 their 1-5/8" model was adopted by Tyzack as the new Zyto small lathe; the Baby Portass ones had the honour of being the "Baby Zyto". The major distributor Garner began promoting Flexispeed products on favourable terms, not mentioning Adepts which they also carried. The year 1950 telegraphed an irreversible decline of the fortunes of the Adept's maker. The main agent of this decline was Flexispeed who now moved strategically to occupy the niche held by F.W. Portass. Flexispeed took out a half-page advert promoting their Adept-like 1-5/8" models and budget horizontal bench mill (£20), an item that Fred Portass ought to have introduced. The Standard Flexispeed lathe was £7.6s.9d with back-gearing for £2 extra.

The basic Flexispeed model had improvements shared by other recent makes of modeller's lathes, particularly a 1/2" spindle (not 3/8") that could take a heavier chuck, spindle bored through with socket for commercial OMT taper tooling. This was a big improvement over the Adept, whose 3/8" solid mandrel kept the price down but imposed limitations, e.g.: parting-off 1" steel was very challenging; users could not bore a useful sized clearance hole using a D-bit; and only a tiny taper socket was possible. Also unlike the Adept, the Flexispeed had a set-over tailstock. This, while cute, is actually difficult to utilise when a machine has just 6" or 7" between centres, and damnably hard to re-set to zero. In fact, the Super Adept's fully compound slide-rest was far more useful when turning taper tooling as well as making fine cuts, and one wonders why the Adept's competition preferred simple slide-rests. In any event, Fred Portass did not try to compete with this higher-specified and costlier machine, or its early brethren, evidently feeling secure that experience and established name as the lowest priced lathe would see him through.

Yet Flexispeed had more surprises. They introduced a 'Student' 1-5/8 inch lathe for just £4.17s.6d., almost the same price as the Super Adept. This was the first ever real attempt to build down to the Super Adept's price, although no one tried to out-beat the simpler Ordinary Adept. By then it hardly mattered because buyers expected more and the Ordinary was becoming too elementary. The Flexispeed Student's tailstock ran on the bed dovetail, not in a slot, making for more consistent alignment than the Super Adept. The latter had a reputation for soon developing a sloppy fit. The hollow, larger (1/2" spindle) spindle had a three-speed pulley and took standard OMT tooling. At least the slide-rest was fully compound. Apart from a bed casting which was too spindly at the tailstock end, the Student looked much like a Super Adept. On closer inspection it has markedly less rigidity particularly when taking parting cuts, since the mating vee-slides are shorter, the spindly bed lacks strength, and there are fewer gib-screws. Yet from a marketing viewpoint the differences were trivial. Fred Portass had now lost his lathe price advantage. Flexispeed was now in cutthroat competition with F.W. Portass. In 1953 they carried an Adept-like advert for the Student, priced down to £5.17s.6d. versus £5.15s.0d. for the Super Adept. Flexispeed's independent chuck was £1.17s.6d. versus £1.18s.6d., and Flexispeed offered a tailstock die holder

(15/-) which Adept did not, but Flexispeed's steady, at 11/6, cost 3/6 more.



**The Flexispeed Student lathe: Finally, a sliding lathe able to compete against the Super Adept in terms of price and specification.**

By 1953 the Adept's distributors seldom mentioned Adept lathes in their advertising, possibly prompting Fred Portass to regularly advertise in the ME using his familiar 20-year-old engravings. By 1953 the name and address of Fred Portass' firm had changed to "F.W. Portass Machine Tools Ltd., Adept Works, 55 Meadow Street, Sheffield 8". The reasons for the apparent relocation are unknown but a brand makeover was certainly being attempted. Stung by new competition, Fred Portass was now regularly advertising in the M.E. He still emphasised "world-renowned", "world famous", and "full range of accessories" including a new three-point steady and finally (!) a drill chuck. The expansion to his accessories list was too little, too late. Despite competition from, Robblak, Cowells, and other firms, Adept shapers remained popular and for a while this offset some of the losses in lathe sales.<sup>9</sup>

This was the Jurassic of the little, cast-iron lathe. Only the evolving Flexispeed would survive the impending die-back. As the 1950s progressed, most of the British makes of traditional modeller's lathes disappeared. Notwithstanding the occasional interesting but not revolutionary feature, these machines remained grounded in turn-of-the-Century design and manufacturing technology. In 1954 this obsolescence became clear when the early Unimat (DB200/SL1000) appeared in the UK. The first model had nine speeds and swung a 2-3/4" diameter rod, 5-3/8" long, between centres. The machine-cast alloy castings were generally superior, in a manufacturing sense, to the old sand-cast iron type. Best of all, the Unimat looked modern, had a self-contained motor, and came with numerous accessories such as the elusive 3-jaw scroll chuck. By then the tired old Adept, with few accessories, called for more patience and machine-shop acumen than modellers of the day were prepared to accept. They now sought a "universal machine tool", and while the Adept assuredly was not, neither were most of its competition besides the Unimat.<sup>10</sup>

Possibly because the Unimat was shockingly expensive (£27.17s.6d. when introduced), and because most other British modeller's lathes vanished quickly, Adept production was able to drag on, declining, until about 1961.<sup>11</sup> Some dealers had a few some in stock for several more years; in itself a statement about how demand for this type had plummeted. Improvements kept the Flexispeed line selling into the 1970s,<sup>12</sup> but by without doubt the new archetype was the evolving Unimat. Machines such as the Flexispeed and Unimat did *not* do the firm F.W. Portass in. Fred Portass did his own firm in. When attractive, modernised small machines appeared in the late 1940s onwards, the Adept slid towards oblivion because its maker failed to modernise the design. It would have been simple to offer extra features such as back-gearing, a decent vertical slide accessory, indexed handwheels, integral motorisation, a larger 1/2" diameter spindle drilled through and with a full OMT taper, or a spindle pulley with index holes and a locking pin.

It seems certain that Fred Portass never offered a screwcutting Adept but many hundreds were

converted by their owners. It is lamentable that attachment points, for securing this equipment, were not cast into the headstock. This would have added nothing to the cost whilst giving the user, and the maker, future options. The short mandrel, which did not protrude beyond the back housing, is another unnecessarily limiting feature. Others are identifiable, but dwelling on them detracts from these machines' positive features and their market superiority for so many years.

## Specifications of Adept Lathes

Adepts were produced under basic conditions which limited the size and complexity of the machines produced. Precision lathe authority Peter Clark wrote to me on their origins: "Years ago...a friend of mine, told me about visiting the Adept maker, Fred Portass at his little workshop in Abbeydale Road, Sheffield. The story was that Portass started with only two machines. These were a small capstan lathe of 5/8" capacity and a single-gear lever operated bench milling machine. The design of the Adept was supposed to have been governed by the capacity of these two. Certainly the cast iron used was beautiful stuff that could well have been necessary for milling on a tiny mill, using one cut!" Somehow, he found ways to organise production around basic equipment such that he could produce large volumes of machines at consistently low cost. Adepts were the cheapest and most rudimentary miniature lathes to have seen sustained production.

Adept lathes have 1-5/8" swing (3-1/4" diameter) over the bed, and the gap in the bed admits material 4-1/4" diameter, both quite useful sizes. Six inches between male centres at maximum tailstock set-back. Owners of lathes this size often fitted huge 4-jaw or 3-jaw chucks (often all they could get) in connection with a Goodell-Pratt style tailstock drill chuck on a taper. This reduced the effective between-centres distance to a couple of inches, but this flaw was universal to this size of machine. The Adept's spindle and tailstock barrel are 3/8" diameter mild steel. The former runs in cast iron housings without bushings; many owners bored these out and fitted bronze bushings. Articles on Adept improvements from the M.E. showed how to make this, and other improvements, with no machines beside the Adept itself.<sup>13</sup>

Cast iron's most striking characteristic is its high resistance to sliding wear. Because of this few lathes of the time featured pre-stressed ball or roller bearings. These were costly in the smaller sizes until the 1950s. Until the 1960s the better large model engineer's lathes usually had replaceable bushings of bronze or gunmetal, but many gave excellent service with a hardened and polished steel spindle running in a lapped iron split-housing. Indeed, and the Myford ML10, made until fairly recently and still reconditioned for sale by its makers, has traditional steel-running-in-iron. However most of the small model-maker's lathes had an unhardened mild steel spindle running direct in the iron housing. These were seldom polished or lapped, and the sometimes the housing was bored without reaming, like the Adept.

This being said, the longevity of this arrangement is remarkable if attention were constantly paid to cleanliness and lubrication. It is nevertheless quite possible that an Adept or similar spindle today will exhibit significant wear, especially at the tail housing where an excessively heavy chuck could cause headstock centre drop. Some owners fitted cycle oil cups to the oil holes atop the iron housings. This did much to keep things oiled. Some fitted fibre shims to stop oil running quickly out of the sawn housing (styrene sheet works as well). Others neglected the oiling, paid no attention to iron and corundum dust, and responded to heavy wear by screwing the housings together until they fractured. Some did this just for fun it seems. This is a common fault on small, old lathes. You pays your money and you takes your chance.

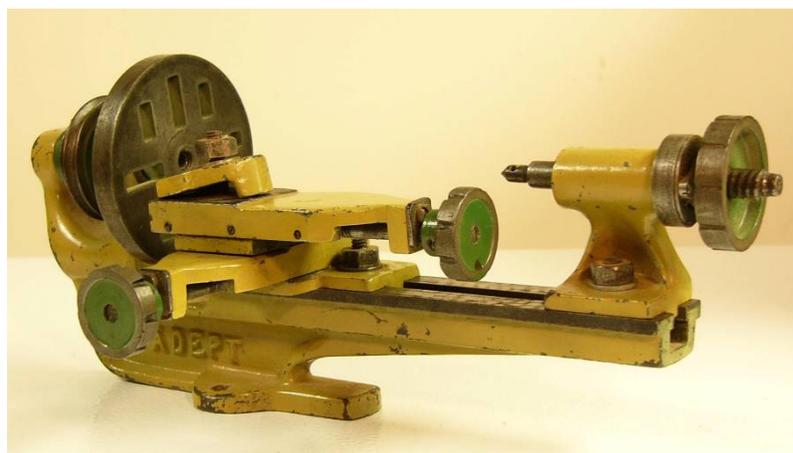
Fred Portass was clever enough to offer his four-jaw chuck screwed to fit 1/2", 5/8", and 3/4" BSF to allow sales to owners of other lathes. Unfortunately, however, he never enlarged the Adept's spindle nose thread above an uncommonly small 3/8" BSF. It is most difficult to find chucks or other headstock tooling, besides Adept manufacture, to fit this size. The best option is to take

some 1" rod, turn up a new spindle between centres, screw-cut it to take 3/4" Sherline chucks. Do not forget to bore and ream a suitably undersized and OMT non-standard taper socket!

Since the spindle and tailstock barrel are both 3/8" diameter, so it was a simple matter for users to fit up some 3/8" steel in the headstock and turn up special-purpose barrels. Owners of plain and lever tailstocks were especially apt to do this. Many Ordinary Adept owners had only a plain tailstock with just a point with a cast iron hand wheel at the other end. They drilled many a hole by centre-popping the butt end of a drill, holding in a tap-wrench, and forcing in with brute force by pushing on the hand wheel. Clever owners turned up a female-centred tailstock barrel. A cheap, mild steel, 1/4"BSW, hex-head bolt atop the plain tailstock locked the barrel. Users often filed up a plug of brass so the barrel would not be scored.

Tailstock and mandrel have OMT-angled tapers but regular OMT tooling will not fit. This is because, in order to get a socket in a tiny 3/8" mandrel, Fred Portass extended the small end of OMT so that his sockets, while the right inches-per-foot taper for OMT, have a large diameter of 1/4 inch while the small end of a standard OMT taper plug is 0.252 inches. This conclusion follows inspecting a dozen Adepts and a report from someone who visited the works just after the War. The non-conformity prevented Adept owners from using the wide range of standard OMT taper tooling carried by tool shops in the 1930s to 1950s. (Aside: Curse Mr. Morse for his system of tapers with approx. 1.5° included angle but varying several thou per foot! God bless Mr. Jarno and his entire family for inventing a rational taper consistent for all sizes of socket. A fatwa upon lathe builders who still cling to the Morse system.)

The Super Adept was preferred when finances permitted, but the Ordinary version appealed for reasons beside low price. It was ideal for workers (e.g. doll-house and pen makers) only interested in hand-turning against a T-rest. They needed little extra besides chisels or gravers, a prong centre for wood turning, and maybe faceplate or drive-plate with carriers and male centres. When required for metal work, the T-rest could be unbolted and replaced with an optional slide-rest. The T-rest was a very good one. (I am in need of one, or at least data from a specimen to allow me to make patterns and replicate this fitting. Same applies to the 3-point steady.)



**Ordinary Adept ca. 1937 with slide-rest and screw tailstock. Early type slotted-plate feedscrew retainers which wore severely and allowed no backlash adjustment. Before restoration by A. Webster.**

The Ordinary Adept's slide-rest top slide rotates for taper turning (same item as on the Super). The lower slide's base has a cast iron lug which fits into a 3/8" slot machined down the centre of the bed. All WW (Webster-Witcomb) pattern watchmakers' lathes have a bolt-on slide-rest, so this idea was hardly new. Some American WW lathes of the time (e.g., Mosley, Peerless) had a central slot to guide lugs beneath both slide-rest and tailstock; the bed was not prismatic form, meaning that

there was no outside surface for guidance as with, say, a Boley WW or a Levin. Their beds were, of course, vastly more accurately made than the gang-milled Adept bed.

The Ordinary Adept shares with such machines the disadvantage that a bolt-on slide-rest permits only a limited length of cut to be taken. Many users would find this no limitation at all, and to be fair, the disproportionately large Adept slides allow quite a long cut. Also on a positive note, All Adepts have a cast iron English Pattern toolpost. While lacking the adjustable jackscrew found on, say, the Myford or Flexispeed, it can clamp a wide range of tools, tool-holders, and work pieces. The Ordinary Adept's extraordinary cheapness stems from well-executed castings, few parts, and few exacting machining operations. The headstock was made as accurately as the Super version, and well-aligned with the ways, elsewhere the quality control could be lacking.

It seems that the better castings went into Supers while Ordinaries often got the ones with roughness, non-critical fissures, or pits. Parts also seem to have been sent the Ordinary Adept assembly line when machining revealed a void in the casting. I have seen an Ordinary Adept with matching, undersized female tapers. The angle is right but the holes are not bored deep enough to grip more than the end of a regular Adept male centre. This strongly suggests that Ordinary Adepts were sometimes built from parts not good enough for the posh model. The Ordinary was often gaily painted, at the request of distributors, in order to camouflage its deficiencies. I have one in vile cream with handwheels picked out in green, but others have red highlights. The Supers are sometimes described as characteristically black stove-enamelled. In fact the most common colour was dark blue. I have three of that colour.

Do not let these occasional deficiencies dilute your enthusiasm. Many surviving Ordinary Adepts are quite serviceable for purposes like turning H0 scale or 4mm scale locomotive fittings *provided* you can find a chuck that fits or is not worn out. The Adepts were not been built for more accuracy than this. Remember also that S.C. Pritchard did the experimental work for his PECO products on an Ordinary Adept, during the War and on his dining room table.<sup>14</sup> As when they were new, fitting and bodging are called for when greater precision is demanded, and less often just to get them functioning decently. Sometimes you can be lucky. One of my Ordinaries arrived with bearings, spindle, and tailstock barrel as good as a Super Adept that I had extensively tweaked into top condition. At other times the seller today is dead wrong about "good condition", just as he was about "Adept watchmaker's lathe" and "rare"! The same can be said of buying the Super model.

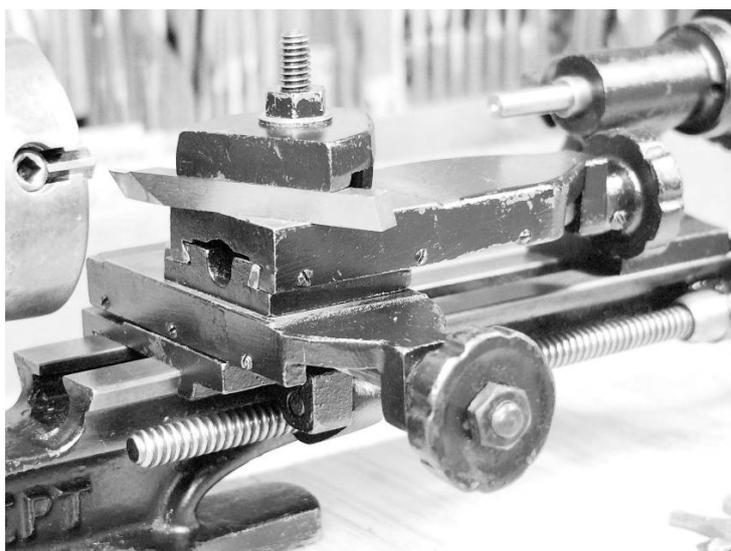
The Super is a much more useful machine than the Ordinary. It features the same compound slide but atop a saddle (or carriage) which is propelled by a full-length leadscrew. The hand wheel has a pleasant, properly-waisted handle, a most commendable feature. The 12 TPI ACME leadscrew is nicely executed and works well, with little slop, in the ACME-threaded cast iron bushing. These bushings are extremely hard-wearing. Owing to the Super Adept's sliding saddle, the cutter can traverse a six-inch rod held between centres. The same central slot of the Ordinary Adept remains to guide the tailstock's tenon or lug. This is severely prone to wear, but the solution is simple: File it off and screw on a block of steel that fits nicely between the ways.

The leadscrew allows the tool bit to traverse the full length of a six-inch rod held between centres. The top-slide can be set to cut a taper yet ordinary 90° x-y turning can still be done by means of the saddle and cross-slide leadscrews. This is handy when making tailstock tooling like a drill pad. The top-slide (common to both models) can be removed and the maker's cast iron angle plate put in its place for simple drilling, boring, and slot-milling. The top-slide can be bolted to the angle plate (or piece of scrap angle) for vertical milling operations, another big selling point. These operations were complicated by the absence of graduated markings on the handwheels, but a clever worker could set co-ordinates with a micrometer or slide-gauge.

The top-slide can be set to cut a taper, yet cylindrical turning and 90° facing can still be done by means of the saddle and cross-slide leadscrews. This is handy when making tailstock tooling like a drill pad. The top-slide is fixed in place by a single bolt, in a sloppy hole, which needs to be

alarmingly tight if the unit is not to rotate during use. It is also tricky to set the angle correctly. This however was a very common system even with better-specified model engineer's lathes like the RandA. Furthermore, the Adept's anchor bolt could take the torque without cracking.

All three slides have adjustable gibs made of press-flattened steel strip. The saddle runs smoothly and accurately on outside-vee'd ways which do not feature on the Ordinary version. One is not so fortunate with the top-slide units. The male vee which guides the top-slide casting frequently has one straight and one slightly curved male vee. The latter usually faces the headstock. If you are seeking accurate work, there is grave risk of cracking the top-slide base casting if the grubscrew of the corresponding gib is over-tightened in efforts to eliminate shake. This problem of a curved vee was observed a user in the 1940s who hand-shaped the two vee faces square. The problem is a consequence of the rapid way in which the vee was formed with a 60° milling cutter.



**Super Adept carriage, showing vee-ways, gib-strip, and top-slide. Note the Mk II system for securing the feedscrews, which eliminates the slotted keeper plate. Collection A. Webster.**



**Super Adept after restoration, sitting on a Peter Denny style 'kitchen table workbench' with Austerity period hand tools. Note (1) the splendid waisted handle on the lead screw hand wheel, (2) the long, blank taper in the tailstock's socket; the tailstock has a very short bearing surface for the barrel to slide in. Collection A. Webster.**



**Super Adept headstock. Short, solid spindle running in 3/8" iron housings without bushings. Note the light 4-jaw chuck. Collection A. Webster.**

The screw tailstock was standard on Super unless the buyer specified the now-uncommon lever type. It is hard to feed in drills smaller than #50 Morse owing to lack of sensitivity. The lock-lever is the same rod, threaded at one end 1/4"BSW, that screws into the drive plate except it was bent 45-60° depending on the fitter's mood. A steel plug with a hand-filed tenon (or maybe just a pip) catches the slot in the barrel. Do not lose this when cleaning up your new acquisition.

### **Variations of Adept Lathes**

The Adept lathe may have been sold, or even produced, in the U.S.A. by the Adept Tool Co. of 2342 Hampton Road, East Cleveland, Ohio.<sup>15</sup> This firm illustrated an Ordinary Adept lathe fitted with the firm's own low-speed, backgear replacement system involving an extended spindle with 6" pulley, driven from a 1" pulley on a line shaft. An unremarkable looking "Adept sensitive drill" was also illustrated, but this may have been a product of Adept Tool Co. rather than F.W. Portass. The portable bench, proposed but not supplied by Adept Tool Co., is most commendable considering that electric motors were large and expensive, and countershafts were essential.



**Adept Tool Company (Cleveland Ohio) brochure illustration ca. 1930s.**

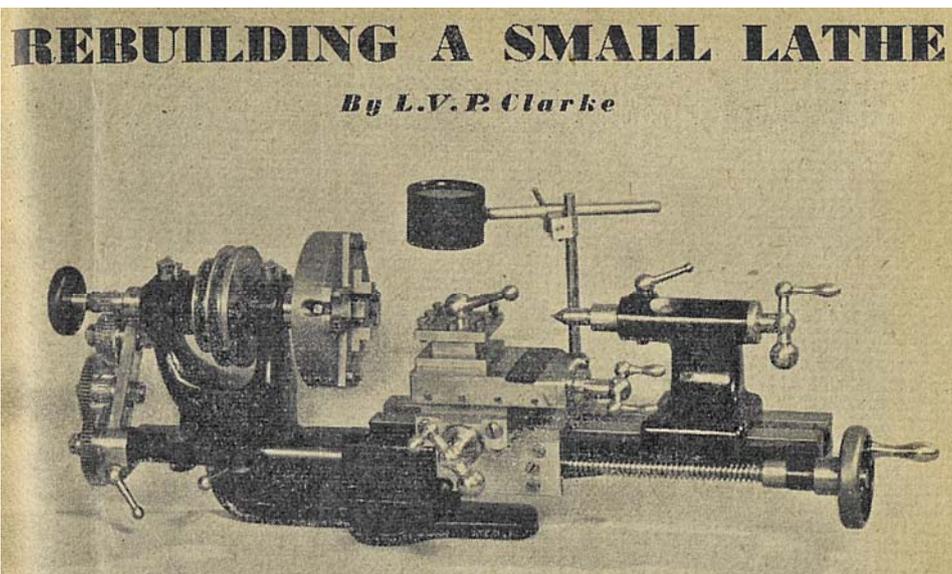
An Australian version of the Super Adept was sold as the "TNC" after WW2 and perhaps just before. There is good reason to believe that this was produced in Australia by Australian lathe manufacturer Fred Hercus.<sup>16</sup> An Australian "TNC" brand shaper was also available, and possibly the Adept ordinary lathe and the rumoured (but never authenticated) Adept horizontal mill. The TNC Super lathe was an exact copy of the Super Adept except for: (a) a straight (not waisted) carriage leadscrew handle; (b) "TNC" cast on the base and "British Made" removed; (c) different paint job; and (d) an improved top slide which greatly simplified taper turning. The Super is known to have been produced by F.W. Portass in the 1930s, for the Department store Gamages and maybe for other distributors, with cosmetic changes to the bed casting but otherwise identical. In place of "ADEPT" is cast "MADE IN ENGLAND". Other pseudo-Adepts seem to have been produced by Fred Portass. Imitation is said to be the greatest flattery – Hundreds of amateurs made their own Adept look-alike patterns for casting by the local foundry. During the War it was impossible to buy a new lathe but there were no restrictions on small castings!

The design of Adept lathes changed hardly at all over three decades of production. The pulleys of early specimens have 90° vee-grooves for the ¼" round leather belting. This was prone to slippage so later (certainly Post-War) machines had 60° grooves. The tool-post also changed. Top slides manufactured during the 1930s had a ¼" tool post screwed directly into the top-slide casting. This was normal for English lathes. However, in the case of the Adept the casting was thin on top and a fracture could occur if the cast clamp were over-tightened. Subsequent top-slides had a conical projection above the tool surface so the toolpost had more metal to hold it secure. The difference is shown on the Ordinary and Super Adepts photographs in this document.

Most or all of the pre-War lathes featured an inferior system of securing the slide-rests' two feedscrews. A flat slotted keeper plate, screwed onto the slide, engaged a groove turned in the knob end of the screw. Eventually the plate wore down and the groove developed rounded edges. This caused serious backlash and in bad cases the feedscrew and plate could seize up. The correction is to turn the roundness off the worn groove using a parting tool, and fit a new retaining plate the same thickness as the groove is wide, minus enough for free rotation. Unlike your predecessors you should apply plenty of grease to the keeper plate! Later lathes had more expensive feedscrews, turned from larger diameter stock, with a substantial turned collar. The plate was no more. Instead, the collar sandwiched the drilled casting on the inside, with the knob on the outside. Backlash could now be eliminated by altering the knob's endplay, then locking with a grub screw. This too is illustrated in the photos.

Sellers today often describe Adepts as "watchmaker's lathes". Based on this, an unwitting buyer may pay far above what a well-used specimen of the cheapest lathe ever made is worth. Adepts were far from precision machines, but some workers especially in the early Austerity years were desperate for any platform to rebuild, and reconstructed Adepts in impressive machines. The famous model engineering writer and illustrator Terry Aspin wrote of such a conversion.<sup>17</sup> The machine illustrated below was remade by L.V.P. Clarke into a collet-holding, screwcutting watchmaking lathe of true precision grade.<sup>18</sup> Bear in mind that little remained of the original but heavily machined and scraped castings. Adepts were made of good quality iron, and this was quite enough in the Austerity period when getting your own iron castings made was difficult.

Some speculate that a screwcutting Adept lathe was produced. I agree with Tony Griffiths that many British workers were highly skilled and well able to adapt standard machines to screwcutting. Indeed, the *Model Engineer* has articles on how to do this, including making an Adept-based screwcutting watchmaking lathe! Ah...Those were desperate days in the Austerity years after WW2. This accounts for the rare but diverse screwcutting and draw-in spindle Adepts occasionally seen today.



**An ultimate makeover. *Model Engineer* 17 July 1947.**

## Manufacturer's Spares and Accessories

The standard kit for the Ordinary and the Super models comprised a drive chuck, two male centres, and in the case of the Ordinary, choice of a bolt-on hand-rest or slide-rest. Spares were available from the very beginning. These included mandrel, top-slide, a pair of male centres, and two-step pulley. In the late 1940s the range of accessories for the Super (besides countershaft and treadle "foot-motor") was advertised as (prices in shillings):

4-jaw independent chuck, 2-1/4"	32/-
3-jaw 'dog chuck'	10/6
Large faceplate, 3-1/4"	6/-
Carrier, 3/8" diameter	2/3
Carrier, 5/8" diameter	2/6
Hand rest	4/-
Prong chuck for wood	4/-
Small angle plate, 2-3/8" x 1-3/8" x 1-1/2"	4/-
Drill pad with vee groove	3/6
Set of three turning tools	3/6
Set of six turning tools	7/-
Round leather belting, per foot	6d

The 1963 Bond's catalogue listed three more accessories which seem to comprise the rest of the small range: drill chuck, 0-1/4"; three-point steady rest; and pair of female centres. These were probably old stock since Adepts were out of production. The drill chuck and steady were introduced late in the line's history. There was never a 3-jaw universal chuck because the maker could not produce one cheap enough. The foul 3-jaw 'dog chuck' was always borderline useless and repeatability was not remotely possible. The work wobbles drunkenly until quite a lot of metal is turned off, and thereafter things are manageable, unless of course the idea is to clock a rod or a drill to run true. I have a good specimen so don't tell me otherwise.

The light, four-jaw independent chuck was excellent, but the thinly case-hardened jaws wore down in a few years and users complained in the model engineering press. Usually they take a lot of work to put in good working order including, sometimes, making new jaws from tool steel with your

Adept hand shaper. While this is part of the fun, it is also a warning to disappointed aficionados quick to buy Adepts at inflated prices but unprepared to put in the necessary work.

## Restoring and Using Adepts

Adepts are very cute miniature versions of the cast iron engine lathe, minus the back-gearing of course. My own enthusiasm for Adepts relates to my interest in retro-modelling railways in North East England in 7mm scale, using only the limited tools and materials available to a modeller in the UK during the awful post-War Austerity decade. This is definitely an exercise in scratchbuilding and self-discipline. What better suits this mode than the ultra-basic Adept?

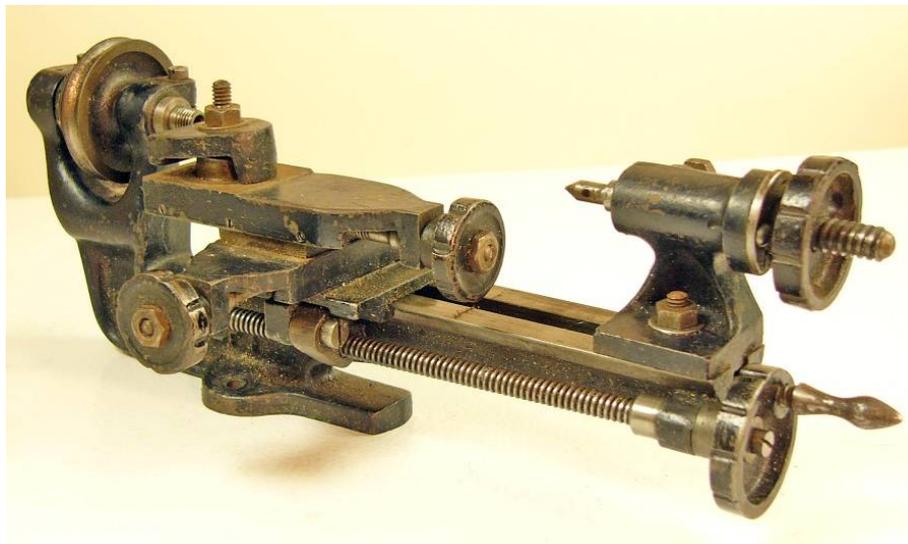
Adepts are not hard to find, and seldom worth much money except when fools go on a bidding rampage on eBay. Anyone expecting to use an Adept very likely has to do some elementary toolmaking despite what the seller claims. The same can be said of most old, cast iron modeller's lathes. Only a small percentage of these machines, as sold today, are fit to use without a fair amount of loving attention. Usually the cleaning and toolmaking required do not require an extensive workshop. By this I mean that hand tools, and a Sherline lathe or similar, will usually suffice to make and restore old parts. First of all, all Adepts now have at least six decades of wear so do not expect much from them. Furthermore, the range of accessories was so limited as to be comical, since these machines dated from a time when their users were prepared to bodge up their own accessories and tooling. The accessories from other machines will not fit. End of story. On the bright side, a rich literature on upgrades and making accessories and tooling suitable for small machines like Adepts can be found in pages of the *Model Engineer* for the 1920s, 1930s, 1940s, and 1950s.

When you buy an old machine, like an Adept, you roll the dice especially if it cannot be inspected before purchase. You may not get far if you lack machinery – or friends with machinery - to recondition certain components such as chuck jaws (almost always badly worn), taper sockets, and spindle (mandrel) nose. In fact you may have to build a new spindle if only because 3/8" BSF headstock tooling is rare as hens' teeth. If you expect a ready-to-go lathe it is most inadvisable to purchase an Adept, or even another old modeller's lathe with a larger 1/2" spindle nose thread, if the machine does not come with all the chucks or faceplates that you require. If you do lack the machining capability to adapt available commercial items like Taig (Peatol), Unimat, or Sherline, you are setting yourself up for disappointment. It is most uneconomic to buy one after another old lathe to build up a complete set of serviceable accessories. Trust me, I have been there.

In order to make all of my Adept collection fully serviceable I am planning to make a couple of 3/8" Adept spindles with 3/4" thread to suit Sherline chucks. I have already had to manufacture a couple of 3/8" Adept spindles because the ones in my lathes were beyond redemption. Take note that some or all of the tapers that may come with your machine will likely be scored or otherwise deficient. I have a drawer full of such useless items. I recommend making a small OMT toolroom reamer to restore the sockets, and making a full set of taper tooling from scratch. Quarter-inch, unhardened, mild steel rod was what Fred Portass used for his male and female centres. You can do better by using silver steel (drill rod or tool steel) and hardening just the business end so the whole thing does not warp. The originals were made with a radial Tommy bar hole on account of the solid spindle and tailstock barrel.

If like me you really get into restoring small retro lathes, maybe you can justify to your spouse a Myford to manufacture spindles, cut ACME screws, and perform many other high accuracy machining jobs. The restoration of a small lathe often requires a somewhat bigger lathe able to turn a spindle or tailstock barrel between centres. Making a leadscrew calls for a machine in the 3" to 4" centre height class. I did much of my initial restoration work with a Sherline – then my largest lathe - before getting a Chinese so-called 7 by 10 "mini-lathe" (really 7" by 8"). This thread-cutting machine, while ridiculously cheap, is correspondingly poorly made. Mine required over 160

hours of fitting in order to reach ordinary, non-precision shop standards. This included shaping 1mm off the tailstock base to vertically align the centres - outrageous. I used this machine with great effort to restore old British machines that once sold for pittance in the money of the day, yet were fundamentally more uniform in manufacturing tolerances. The acquisition of a vintage Pools 3" Special (an early rebadged RandA) made things much easier until my Myford Super 7B solved all my toolmaking challenges.



**Super Adept as received. Rust, grunge, wear...Lots of work needed. Collection A. Webster.**

## **Final Thoughts**

More photographs and further descriptions of Adepts can be found at Tony Griffith's excellent lathe site <http://www.lathes.co.uk>. The Adept and early Portass pages have been updated recently to reflect correspondence with Tony. Contact Tony if you have any thing to add on the early history of the Portass firm – He has a special interest and does a great service by making lathes information available free on the Internet. He is always interested in interesting photos, historical information, and literature on old small lathes (and large ones for that matter). This site is also your best bet for finding technical information and tooling for out-of-production lathes.

My interests are more focused. Do contact me if you are an Adept, Baby Portass, or Pools 3" Special enthusiast and want to share ideas or knowledge. I endeavour to share what I learn with other enthusiasts, and I am slowly preparing a book on restoring, using, and building accessories for classic small lathes.

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[a.webster@sympatico.ca](mailto:a.webster@sympatico.ca) (Type it in – Not a hyperlink)

## Endnotes

<sup>1</sup> 70,000 if we assume production of 200 a month for 30 years (ca. 1931 to 1961). However, given profit margins of just a few shillings, 200 (10 per work day) seems too low to be economic considering they were the main product of a small machine-making firm.

<sup>2</sup> Fully described in the 7 May 1925 *Model Engineer*. Gentry was of the opinion that the lathe received for inspection was a regular production specimen and not modified to impress the reviewers. Note that Lineker & Winfield lathes were produced only for several years and the successor firm, Winfield, never got such glowing reviews. Winfield boasted "When better lathes can be made, we shall be the first to make them", when in fact their products were made in a small works, on a shoestring budget, and often display evidence of hand bodgery in order to get them to work.

<sup>3</sup> "It is not to be assumed that this lathe, which in its original form, is no longer made, was other than really very good value for the quoted price, which it is unnecessary to quote here. It was remarkable value and may be regarded as the forerunner of a popular type and quality of model-maker's screw-cutting lathe now made by a succeeding firm, and several other light lathe makers." 4 December 1941 *Model Engineer*.

<sup>4</sup> The Portass Lathe and Machine Tool Company often made its products in batches, sometimes temporarily vanishing from distributors' lists, while the Adept's of F.W. Portass seemed to be constantly available. The Baby appeared in the Portass Lathe and Machine Tool Company's model range adverts into the 1950s, long after it became obsolescent, probably in the slim hope that some distributor would order a production run. For a few years after the split, this firm's name now appeared on the Heeley-style maker's plaques still in use, and indeed, a few Baby Portass carried this new plate.

<sup>5</sup> The Heeley Motor and Manufacturing Co. advertised in the *Model Engineer* in December 1929 and possibly into 1930.

<sup>6</sup> "65 Years of Lathes" by Edgar Westbury, *Model Engineer*, 29 September 1955. The famous Edgar Westbury described a visit to the works and his impressions of a family industry. Westbury noted of the firms conservatism that "In general, it may be said that the Portass lathes follow steadfastly the old and well-tried lines of design, with avoidance of superficial refinements which do not, in the opinion of the makers, effect any real improvement on the functional efficiency of the machine." He went on to say that "The methods employed in the Portass works are a revelation of what can be done in a modestly-equipped factory with a small, highly-skilled staff. All the employees have been with the firm for a long period – the oldest having a record of 35 years' service – and are versatile in their abilities, being capable of handling any of the machining or fitting operations as occasion requires. All castings are made in the the firm's own foundry, which is an annexe to the machine shop, and I was tremendously impressed with the quality of the castings inspected. It is possible that a reason for this high quality may be found in the fact that the foreman moulder, after producing a batch of castings, is responsible for machining them – one may be sure that hard spots and blow holes will be scrupulously avoided!"

<sup>7</sup> Note that the tiny, popular Adept No. 1 hand shaper appeared a year before the Super Adept lathe. The 22 September 1932 *Model Engineer* described a new hand shaper, bearing the brand 'Adept', at the Buck and Ryan stand at the 1932 ME Exhibition. The 27 September 1934 *Model Engineer* described, in positive terms, the larger No. 2 shaper displayed by Buck and Ryan and the *Model Engineer* Exhibition of that year.

<sup>8</sup> Lane & Son issued an apology to the effect that they had unwittingly used the registered name Wizard, and re-issued the machine as the 1-3/4" by 6-1/2" Lane "Micro-lathe." Their machine was thereafter the Lane Micro-Lathe.

<sup>9</sup> In 1953 the tiny Adept No. 1 hand shaper sold for £9.5s.0d. against £15.17s.6d. for the slightly larger Perfecto. Automatic traverse was available for the latter (£2 extra) but the Adept was still clearly the best price and value. In late 1953 Fred Portass introduced a motorised version of the handy, mid-sized Adept No. 2 shaper at a very reasonable £28.0s.0d. The attachment was available for £10.0s.0d., and for more £1.10s.0d. his works would fit it to a customer's shaper. The powered model sold well, but reputation and eleventh-hour range improvements could not keep the firm viable for more than a few years.

<sup>10</sup> From the 13 January 1955 advert in the *Model Engineer*: "Announcing the Amazing Emco-Unimat, just one of these unique motorised machine tools can be built up as a 1. Lathe (2-3/4" swing x 5-5/8" x 9 speeds, 2. Grinder, 3. Pillar drilling machine, 4. Milling machine, 5. Hand drill. Additional equipment available: jigsaw, circular saw, machine vice, milling table and clamps, flexible shaft and high speed steel tools and cutters of all descriptions." Promotional illustrations at the time showed the Unimat held by the headstock spigot and drilling a wall! Note that few people at the time had a Wolf or Black & Decker electric drill, which was expensive and advertised with all sorts of ambitious accoutrements including lathe attachment and circular saw attachment.

<sup>11</sup> F.W. Portass issued a 2-page, folded Super Adept advertisement dated 1 April 1960, believed to be the last printing of this flyer.

<sup>12</sup> Through evolving successors Simat, Perris, and ultimately Cowells which are a highly advanced development.

<sup>13</sup> There were many articles, over the years, on improving the Adept and similar machines. Perhaps the most useful is "Rebuilding the Small Lathe" by J. Stebbings, *Model Engineer*, 17 March 1949. This explains how, using just the Super Adept itself, to bore out the housings and fit home made 7/16" O.D. P/B bushes. Adjusting the alignment is explained, particularly replacing the very deficient cast lug on the base of the tailstock. In "Accessories for a Small Lathe" (28 Apr 1949) the author explains how to make a large motor reduction pulley from tinplate, a drill pad, and a tailstock dieholder.

<sup>14</sup> "A Novel Portable Workshop" by C. Barker, *Model Engineer*, 4 October 1945. Describes a visit to the home of S.C. Pritchard's residence, "known to many readers as the founder and late secretary of the late Finchley Model Engineering

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Society. His war work has forced him to live in East Devon, where his factory has been turning out repetition parts...” Pritchard’s workshop was a portable board (2’-2” by 1’-6” by ¾” deal) which usually resided on a dining room carver’s armchair. It features an Ordinary Adept with lever tailstock, a finisher-grinder device, a small pillar drill, and a vice and anvil. The machine tools were driven from a ¼” pre-War motor with a bodged-up system of pulleys. Shallow drawers underneath completed the ensemble. Assembly work was done on the window cill or a smaller portable board used on the dining room table. This truly exemplifies the make-do spirit of the Austerity period throughout the War and a decade afterwards.

<sup>15</sup> From a sales brochure from the 1930s marked “Adept Bench Lathes and Tools – Machine Tools Specially Designed for the Model Maker”. Unfortunately I have only the first page.

<sup>16</sup> Fred W. Hercus built a range of lathes aimed at the amateur, semi-professional, and educational markets. This included, for a decade, a light 3.5” machine with double-bar bed reminiscent of the later Unimat. In the 1930s he made the 3.5” Portass standard lathe, surely under licence, followed by a copy of the 1939 model 9-inch South Bend “Workshop” lathe. The latter evolved into a 10” swing machine which stayed in production until 2001. The firm is still active. The best clue that Fred Hercus built the TNC is what the Journal of the Auckland Society of Model Engineers has to say: “Mr. F.W. Hercus, wrote to the British press in 1954 (without revealing who he was) and outlined the Customs requirements for immigrants who took their own model-engineering machine tools with them into Australia. He also pointed out that, whilst it took sixteen weeks’ work in England to buy a Model C South Bend (£7), in Australia an “equally good” copy could be bought with just ten weeks’ wages. Fred Hercus was actively involved in model engineering and a member of the South Australian Society of Model and Experimental Engineers. He lived in the Adelaide foothills (his private 5” track is still visible from the New Norton Summit Road) and in the early years of the 21st century one of his 5” gauge locomotives (made by him personally) was still running regularly on Society open days. (*The Micrometer*, November 2004). Fred Hercus seemed the sort of fellow to build the Adept for sale in Australia and environs. His business connection with Stanley Portass makes it unlikely that he did not know brother Fred of Adept fame. It remains to be learned what “TNC” means, what accessories the lathe came with, and when it was produced. We do know that a copy of the Adept 4-jaw chuck - without the stamp “ADEPT” - was available for the TNC as well as the Adept type countershaft.

<sup>17</sup> “Pocket Workshops” by Terry Aspin, *Model Engineer*, 16 Apr 1953 and 30 Apr 1953. Describes a thorough overhaul to produce a better-specified but non-precision machine. Various accessories are described including how to make a dividing head and a light 4-jaw independent chuck.

<sup>18</sup> “Rebuilding a Small Lathe” by L.V.P. Clark, *Model Engineer*, 17 Jul 1947. Complete with excellent drawings and details of the screwcutting equipment. The new tailstock was hacksawed from a solid block of iron!