

NEWALL

GROUP

# PRECISION

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A QUARTERLY MAGAZINE DEVOTED TO THE ACTIVITIES OF THE NEWALL GROUP OF COMPANIES



*This magazine is mainly concerned with the activities and interests of the Newall Group of Companies.*

*The Newall Engineering Co. Ltd., Peterborough. Machine Tools and Gauges.*  
*Optical Measuring Tools Ltd., Slough. Optical and Scientific Measuring Instruments and Optics.*  
*Keighley Grinders (Machine Tools) Ltd., Keighley. Grinding Machines.*  
*James C. Kay & Co. Ltd., Bury. Ironfounders.*  
*Machine Tool Electrics Ltd., Leigh-on-Sea. Electrical Switch and Control Gear, and Electronic Equipment.*

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# Precision

MAGAZINE OF THE NEWALL ENGINEERING GROUP



JULY, 1948

No. THREE Vol. ONE

EDITOR: N. R. CANADINE

## *Editorial*

**W**E are all keyed up now for the Summer events—the Horticultural Show, the holidays, the Machine Tool and Engineering Exhibition at Olympia. Let us hope that the weather holds good.

And so to our third issue, which shows a pleasing increase in personal notes and news. This is what we want. But how often have we heard the phrase, "I can't write; I can't put things together." The trouble is, that the pen-shy people usually have the most interesting news to tell, and it is grand to put the magazine in an envelope and send it off to distant relatives and friends. Do bear in mind that you can write just as well as anyone who has written in this number. Just put it down and hand it in. We'll do the rest.

And whether you are going to the seaside, the country, or staying at home for your holiday, we wish you the best of weather and the best of luck.

THE EDITOR

# THE MANUFACTURE OF OPTICAL PARTS AND APPLICATIONS

by J. A. Haley,

(2)

OPTICAL MANAGER, O.M.T., Ltd.

MY last article dealt briefly with the manufacture of a lens and the means to obtain prescribed curves. In this article I propose to deal with the making of a prism.

The function of a prism in any optical system is to bend or refract the light and in accordance with the function of the instrument, special types of prisms are employed. It is therefore very important that the correct material is specified. It could be glass, quartz, Iceland spar or even rock salt as they all differ in their final and particular application.

The quality of a prism mainly depends upon its definition. This is procured by the flatness of surface, although in certain cases where the material is not homogeneous, irregular surfaces are created which would give satisfactory results. To accomplish this a special instrument, known as an interferometer, is employed which I will explain at some future date.

To make a prism, whether it be one or a quantity, the technique is almost the same. The materials are selected which which are usually supplied by the manufacturers in rectangular blocks from which the prisms are cut; the cutting is done by means of a circular blade charged with diamond powder. The prisms are then roughly ground to size and angle; this process is known as the roughing process and is followed by the truing operation when the angles are corrected to a common base. This is very essential because all faces must be perpendicular to the same plane to avoid twist, which is pyramidal error. The angles are generated to the order of  $\frac{1}{2}$  minute of arc, but in special cases the angles are corrected to 1 second of arc. The method employed for measuring the

angles to  $\frac{1}{2}$  minute tolerance is the back reflecting Goniometer and to prove an angle to 1 second of arc an interferometer is used.

The prisms are still in their grey state and the next process is smoothing and polishing. The very finest emery powder is used and the polishing is done by specially prepared pitch which is pressed evenly on a flat tool known as the runner and the polishing medium used is serium oxide, jewellers' rouge or putty powder. In the event of a single prism being made it is briskly rubbed over the surface of the pitch which ultimately produces a high polish. Care must be taken not to destroy the angles.

Let us now consider a quantity being prepared for the final operation. A suitable jig can be used but if one is not available, a Plaster of Paris block method is adopted. The latter I propose to explain briefly. It is necessary to have a perfectly flat surface plate or optical tool on which the prisms are placed evenly in close contact. The parts are then surrounded by a metal ring of a suitable height in accordance with the particular size of the prism. Plaster of Paris is mixed to a thin cream consistency and poured into the mould to its full capacity. A circular tool is then placed on top which has a convenient boss for screwing on to the machine spindle. The base plate is then removed leaving the surfaces of the prisms in one plane. The mould is then screwed on to a machine and the same process of smoothing and polishing is employed as used for a single prism thus completing a large number in the shortest possible time. The plaster block process is repeated until all the surfaces are polished. Careful inspection of each prism for angles and definition completes the manufacture.

## PRIZEWINNING APPRENTICES

THE annual educational prizes for Newall apprentices having the best record at Technical School have been awarded as follows:—

W. V. WHEELER £10-10-0; K. E. COOPER £6-6-0; K. R. LEACH £3-3-0

We have pleasure in presenting a summary of their respective careers to date, written by the prize-winning apprentices.

### W. V. WHEELER

I was born on the ninth of February, 1929. My first two years were spent in Peterborough and the following three years in Norwich, after which my family returned to Peterborough. I commenced my education at St. Mary's Infants School and following my seventh birthday I was moved to New Road Boys' School and remained there until we moved to London in April, 1937. My new school was Sandhurst Road School. At this school I later sat for the preliminary examination for a scholarship to a secondary school, but the outbreak of war prevented me from taking the final examination that year. It was due to the war that we moved to our present home, in Surrey, and there I passed the final examination and won a scholarship to the Frimley and Camberley Secondary School. In June, 1944, I passed the London General Schools Certificate and a year later left school to start my apprenticeship at the Newall Engineering Company.

My two and a half years at Newall's have been spent in Gear Shaping, Turning, A.I.D., Jig Boring & Milling and at the Peterborough Technical College I have reached the Senior Group three course.

### K. E. COOPER

After leaving Fletton Secondary School, I decided to engage upon an engineering career and to foster this end I joined the Newall Eng. Co., in September, 1943, starting work in the Inspection Dept. In this haven of rest I remained until 1945, when a move seemed to be called for, and since I had originally joined the firm with the intention of becoming a draughtsman, a transfer to the Drawing Office was arranged, much to the consternation of machinists and fitters.

It was during my first few months in this dept., that I realised that a draughtsman's lot was not the simplest obtainable. Here I would point out that any youngster new to the drawing board can always obtain very fluent advice on how to deal with doubtful jobs by approaching the right shop chargehands. Personally I have not always taken these words of wisdom literally and as a result I am still in the D.O.

So much for work, as for spare time occupations, mine are not of a high standard. I don't read the classics, only "Sporting Life." My ambition for the immediate future? To back the winner of the Derby. (Ed.: He didn't.)

### K. R. LEACH

The last three years of my schooling were spent at Lincoln Road School, the head master being Mr. Talbutt.

During this time I started taking piano lessons and made considerable strides.

I left school in 1942 and started work in Newalls' Drawing Office. My job was to make prints for the workshops; I spent two years at this and was then promoted and occupied twelve months at machine drawing.

Then came something I didn't approve of at the time; I was transferred to the Gauge Shop for practical experience, but I soon adjusted myself to this. Whilst there I did some turning and quite an amount of milling. After this I was moved to the fitting shop, where I am at present. My ambition now is to return to the D.O. I am attending school and most of my spare time is spent in doing homework and piano practice. I am never at a loss for something to do as I can always spend any spare moments at the piano with the utmost pleasure.

MR. ISAAC. E. GOOD

# Career



*being a quarterly feature revealing  
the achievements, the interests,  
and the sports of Newall  
Group personalities.*

## PARTICULARS OF MR. ISAAC E. GOOD'S CAREER

Native of Grimsby.

1916/21 Apprentice—H. F. Atkins, Old Fletton.

1921/35 Universal Grinder & Demonstrator Foreman—H. F. Atkins.

1935 Joined Newall Engineering Co., Ltd., as Machine Shop Foreman.

1938 Appointed Works Manager.

1942 Appointed Managing Director of Keighley Grinders, (Machine Tools) Ltd.

Hobbies: Snooker, Golf, Gardening.

## FOR YOUR INTEREST...

THE writer came across a very useful book recently published by Odhams Press Ltd., Long Acre, London, entitled 'Practical Workshop Mathematics', price 9s. 6d.

The book is one that should be in the hands of all ambitious craftsmen. It is probably unique in that it not only provides a complete introduction to mathematics, from the most elementary stages of Common and Decimal Fractions and Algebra to Geometry and

Trigonometry, but relates them to practical workshop problems. Many hundreds of illustrative problems are provided, showing clearly at every step how the instruction imparted is actually applied. And, throughout, the language is simple and straightforward. Its 384 pages cover a multitude of subjects and the purchase of the book should undoubtedly prove a very sound investment.

E. A. VALDES



## A DAY IN DESPATCH AND RECEIVING STORE

AFTER clocking on early, if not brightly, I proceed to clear up the debris of the previous day's fray. Helped by my faithful ally, Ernie, I get things ship-shape and await events. We haven't long to wait.

Ernie Newell comes in to say there's a QL, an LA, and two Saw Benches to be despatched and could we pack the equipment. I point out that we have no equipment yet, and in the absence of the magic Yellow Card, are not likely to have any. Ernie departs, muttering about someone having Yellow Jaundice, and their need of urgent attention.

Our next visitor is Alf Trowell seeking chrome. On drawing blank, Alf tells me in lurid phrases what ought to happen to me, and to the suppliers. Alf's long illness has not, I am pleased to say, impaired his power of invective.

By this time the switchboard is on duty. My first call is from Joe Cole, asking why two parcels addressed to the B.T.H. have been delivered to Newell, and asking how to dispose of them. I tell Joe what to do with them, but Joe says he's not going to.

Our next caller is a carrier who wishes me to sign for seven items whilst delivering only four. After passing strictures on his education I cadge a fag from him.

The 'phone rings again, and Sheila of Accounts wishes to know if I have any record of a case received in 1946, or maybe it was 1886. After consulting my volume of 'Wordy Wisdom' I tell Sheila that the case was burned on the bonfire at Queen Victoria's Jubilee.

The next inquiry is from Mrs. Winton, who wants to know why I did not insure the LA which left the Works on 31-1-47. I get out of this rather neatly by 'passing the buck' to Doris and Mae, and by giving Paddy a tip for the 2.30.

Mr. Goodacre then rings to ask why, when I had signed for nine hundred-weights of steel, we had received only a bag of nuts. I contact the railway driver,

who not only tells me that Tom has had the steel, but other things.

Again the 'phone rings. Mr. Cranbrook this time. He tells me that someone says they have not received some goods advised last October. Can I produce the body or prove an alibi? Having proved someone to be blood brothers to Ananias I ponder on the perfidy of mankind.

My faith is somewhat restored by a visit from smiling Jean with inquiries regarding the dispatch of some of Mrs. Syred's specials.

Mr. Clarke is the next quiz master. Have I despatched the oil drip feeders to Smith, Smith & Smith, Ltd? On replying that they are out of stock, I am consigned, with the goods and the customers, to a place where fuel cuts are unknown.

An apprentice calls in to say that his mother has a ham, butter and cakes for his brother in the Forces, who is starving somewhere in the wilds of Catterick. Could he have some paper and string? On my pointing out that I am custodian of the firm's property, I hear some startling opinions expressed.

From now on Ernie and I fight a losing battle against post, passenger, PX Express, Red Arrow, goods and other intruders.

Eventually we tackle our outward mail. This is due out at 4.50. At 4.55 we are snowed under by various items which *must-go-tonight*.

Having seen Ernie safely off to Fletton Post Office, I try to catch up on my Goods Inwards Book, but am delayed by constant calls to the 'phone to assure excited callers that their particular order has gone.

Calling it a day, I mount my bath chair and am taken home (strictly within the legal speed limit) by Bill Groome.

On arrival at 'Mon Repose', I am greeted with the news that the paper, paste, planks and ladders are ready, and when am I going to start on the so-and-so staircase.

J.S.

## PSYCHOLOGY IN THE WORKSHOP

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**PSYCHOLOGY**, and its application knowingly or unknowingly, is becoming increasingly important in defining and resolving certain problems which arise in the relationship between Managements and Workers. The word 'psychology' is rarely used by most people, but they apply its principles every day of their lives, perhaps unknowingly, when they study other people's minds during conversation to see what they are getting at, or if they are being "got at". One frequently hears the remark "It's not what he said, it's how he said it", which proves that the listener wasn't influenced so much by the remark as by the thoughts in the mind of the person who made it. This, then, is psychology: the "weighing-up" of other people, and every one in his own particular way is a psychologist. That is why psychology has become so important in the factories. The shortage of labour, and the consequent need of Managements to retain and use to full advantage their existing personnel has made supervisory staffs psychology-conscious whether they are aware of it or not. They had good training in the art during the period of the Essential Works order (when men could only be sacked for gross misconduct), this deprived them of their most potent disciplinary weapon, the freedom to discharge men on the slightest pretext with a choice of replacements waiting outside the gates. So, facing up to the conditions imposed by the Essential Works Order, the only alternative was to study the workers individually and apply the power of reason instead of the "big stick". Credit is due to most supervisors for the excellent results they have achieved from the results of their applied psychology. It has made for a more intimate and co-operative atmosphere in the workshop, which can reflect itself in production figures. There are, of course, occasional differences, and it is a sight worth seeing when some workers, thinking democracy means you can do as you like, receives

psychological treatment from his foreman. His approach to the man is reminiscent of a missionary's approach to his first native convert. He usually remonstrates gently, pointing out that one must work to live, delicately hinting that no-one has a right to expect something for nothing, finally putting the matter beyond further doubt by a lengthy discourse on the country's production difficulties in general, the firm's in particular, and brings tears to the workman's eyes by slyly hinting that his dear old mother would be shocked if she knew of his behaviour. Then follows a pep talk which gives the workman the impression that the country's future lies in his particular pair of hands. All supervisors are not quite as expert as the foregoing example, but they have their own particular methods. Some, seeing a man doing wrong, just ignore him completely, in the hope that the withdrawal of their personal contact will show how displeased they are and so shock the man into a realisation of the enormity of his offence. Others, approaching the workman, fix him with a disapproving stare, striving to give it a hypnotic quality that will enable them to will his dormant conscience into some semblance of activity. It would be interesting to see them afterwards, when in the sanctuary of their offices, they relax from the awful strain of resisting the temptation to revert to the old days and say "Get on with it, or else....." Some supervisors find the strain so terrific they have been known to consume innumerable cups of tea as an opiate to their tortured nerves, and if this fails, to find relief in pulling handfuls of hair from their heads, the result of which is apparent for all to see. To sum up, it would be fair to say that from a supervisory point of view this psychology business can pay dividends. There are so many workers, of real ability whose experience of factory discipline is based on the artificial conditions existing during the war, and consequently do not know the more rigid disciplinary code of peace time, who need a little coaching and tolerance to pass from the one to the other. If sacking were the only remedy resorted to, then Managements would find themselves with only half a staff,

## NEWALL GROUP GOLF TOURNAMENT



The players in the Newall Group Golf Tournament, played at Luffenham and won by Keighley Grinders (Machine Tools) Ltd.

Back Row (standing): A. W. Lurcock, H. J. Rowe, S. G. Howard,  
I. E. Good, K. E. Summers, W. K. Temple.

Front Row (sitting): L. B. Oldfield, J. C. Player.

so it would seem that a little psychology can have substantial results. It would seem from the foregoing that psychological study was the sole prerogative of supervisors, but this is not so. The worker has been using it on his supervisors for ages, so much so, that having completed his diagnosis he is so confident of its accuracy, that he is prepared to pass it on to posterity by recording it in writing on various appropriate walls.

THE NEWALL SHOP COMMITTEE

### END PIECE

We thought that our Works Order for 'Petrified Grinding Wheels' had created an all-time record. Service Department have written in, however, to mention an operator in a large Northern factory, standing disconsolate by his silent machine to tell our Service Engineer that: 'There must be something wrong with the machine. There's a lot of sparks coming off the wheel'.

So help us... its true.

# MACHINE TOOL AND ENGINEERING EXHIBITION...

FROM August 26th until September 11th will be seen at Olympia, London, the product of many months of patient work from all within the Newall Group of Companies.

At the Machine Tool and Engineering Exhibition we are staging the largest exhibit in our history, with some 20 machine tools and many optical and mechanical measuring instruments, which will show the progress made by the Newall Companies, by their design staffs, by their organisation; and will show the inherent skill, craftsmanship, and pride of work of each and all of the employees of the Group.

Pride of place on the Instrument Stand will be given to the O.M.T. Pantometer. The Pantometer is an optical and mechanical instrument primarily designed for the measurement of Jet Turbine Blades as used in Jet Aircraft. These blades have considerable variation in form and are not consistent in shape throughout the length of the blade. Thus, highly special problems of measurement arise. The accuracy of these blades must be beyond reproach, and the design staffs of Optical Measuring Tools Ltd. worked on the problems associated therewith for no less than two years before embarking on the manufacture of the Pantometer, which will enable these blades to be checked as a production job at an average time of 90 seconds per each by relatively unskilled checking personnel. The sale of Pantometers is already substantial, and with the guaranteed growth of jet engines their future success is assured. Certainly we have no hesitation in saying that the Pantometer will attract a good deal of attention at the Exhibition.

The 16in. diameter Projection type Rotary Table is produced by Optical Measuring Tools Limited, and embodies many new features. These consist briefly of the following:

The optical scale is now projected on a suitable screen, and enables direct



Projection Type Rotary Table.

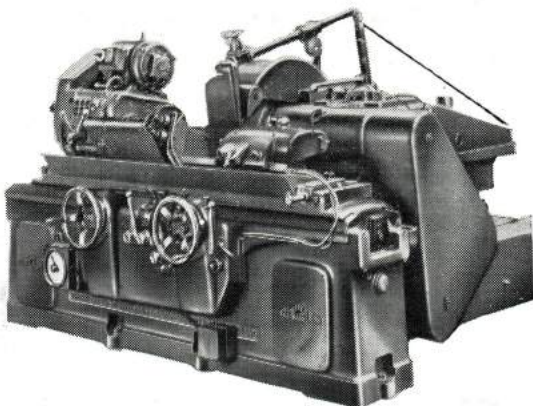
angular readings to the order of 2 seconds to be taken. This is a substantial improvement on the previous best of 6 seconds. Graticules are independently adjustable to enable an optimum position to be obtained before proceeding with the work in hand. The table is also fitted with a worm and wormwheel drive having two speeds for fine and coarse adjustment, and which can in its entirety be disengaged for rapid manual indexing. This mechanism enables light milling operations to be carried out to a degree of accuracy which was previously considered impossible. Not least important in connection with screen projection is the fact that it entirely eliminates the operator eyestrain inseparable from continued viewing through an eyepiece.

On the main stand of the Newall Engineering Company will be featured the LA Production Grinder. This machine has met, in particular, a long-outstanding need of the Export market for the rapid and accurate production of textile spindles. These spindles have no less than four parallel and taper diameters, and are ground with two plunges, giving a stock removal of .020" at two minutes per each spindle complete. The finish on these spindles has been received with enthusiasm in the factories in Switzerland where LA Production Grinders are installed, and

times on this operation were far quicker than any hitherto achieved.

This is but one example of production times, which are being paralleled on different work in England and wherever the machines are sold.

The LA Production Grinder is also adaptable to take wheels up to 10" wide, making it possible to plunge-grind in one operation multiple or form diameters up to a length of the maximum wheel of 10". A quick withdrawal of 3" on the wheelhead gives a safety measure for loading and unloading. This withdrawal, in special instances, is also available to give slow infeed for face grinding, as is required when grinding crankshaft journals.



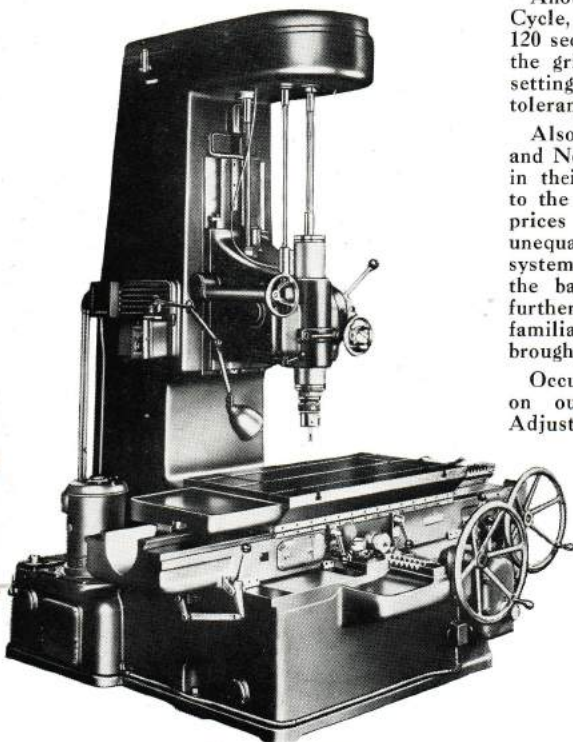
Newall LA Cylindrical Grinder.

Another feature is the Automatic Time Cycle, which is variable from zero to 120 seconds, making it possible to control the grinding cycle exactly, with an easy setting giving accurate results to a tolerance of .0003".

Also exhibited will be the No. 0, No. 1 and No. 2 Jig Borers, which are versatile in their separate ways and well known to the trade. Within their capacities and prices we are confident that they are unequalled. The feature of the roller system of linear measurement which is the basis of these machines needs no further description—because of the familiarity which their ready sale has brought about.

Occupying perhaps the smallest space on our stands will be the Newall Adjustable Roller Thread Caliper Gauge.

In principle, this gauge is to the design of our Managing Director, Mr. K. E. Summers, and was of the greatest possible value during the war in enabling unskilled operators to check threaded work. On the outdated types of Caliper Thread Gauge with fixed anvils it was possible to force a fit where fit did not truly exist, and it was possible for the hard metal of the gauge to damage the component being checked. The Roller Thread Gauge, with an infinite number of points of



No. 2 Jig Borer

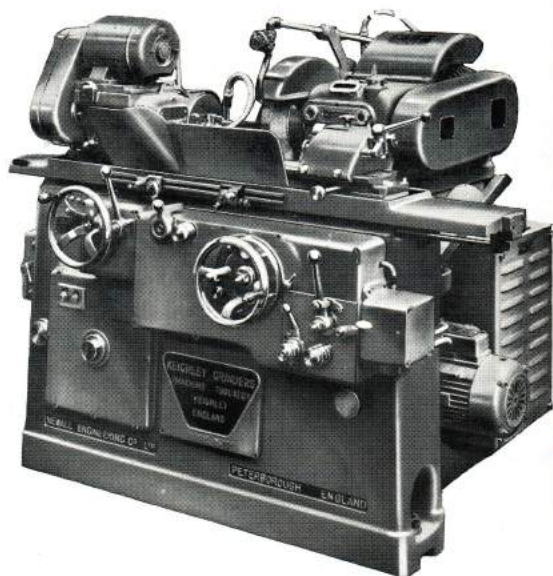
contact, and adjustable to any limit, ensures considerable saving in time, money and materials, and in absolute accuracy of check. Further, this infinity of checking points greatly extends the life of the gauge.

The products of Keighley Grinders (Machine Tools) Ltd., feature notably the KN Grinding Machine. One model is fitted with a Facing Head, which enables work to be produced at a fast production rate, ground internally and face ground at the same setting. Another KN machine will be fitted with a Heavy Duty Workhead. This machine will be used for similar types of work, but is capable of taking components which are much heavier. The workhead is gear driven and there are nine available speeds.

The KU Universal Grinder is a recently marketed machine, and its reception in industry has more than supported our own high opinion. Apart from short vee rope and motor drives it is beltless. It has compound slides on the wheelhead, a swivel workhead, and hydraulic table giving infinitely variable table speeds. Mechanical picking gives from .0002in. to .003in. pick at every other reversal of the table. A pressure cylinder is fitted to remove all backlash from the worm and wormwheel operating the wheelhead slides. The Internal Bracket can be dropped down in position without altering the setting of the wheelhead; thus work can be ground externally and internally all at the same setting, with great accuracy assured. The Internal spindle is driven by the main wheelhead motor, so that there is ample power available for the high speed internal spindles. A unique feature of this machine is that the external grinding wheel can be taken off one end of the spindle and placed on the opposite end, so that when grinding double cone work using the compound slides there is no necessity to remove the work from the centres. Its general proportions are such as to maintain the best possible rigidity and accuracy. The

hydraulics, wheelhead, workhead, etc., follow closely in design the well-known Keighley XL machine, so that all teething troubles have been eliminated.

Also exhibited will be the small KS Internal Grinding Machine, which is capable of grinding bores as small as  $\frac{1}{16}$  in. and up to 1- $\frac{5}{8}$  in. diameter. It is mechanically operated, except for the feed box mounted on top of the cross slide. Four table speeds are obtained through a gear box driven direct from the main motor, the table being actuated by a cam. The workhead is driven by means of a flat belt via a lay shaft again to the main drive motor and 7 speeds are available, using pick off pulleys. The great advantage of this machine is the automatic setting arrangement whereby the wheel can be redressed and compensated for wheel dressing. Thus, when setting up for batch quantities is initiated, the machine will grind the whole batch without any re-setting. This is obtained by an auxiliary cam feed mounted in the cross-slide and driven by the hydraulic feed box. If required, this machine can be fitted with a higher speed air driven spindle.



Keighley KL Hydraulic Grinder

The Keighley "KL" Grinder, which will also be on show, is a comparatively new design, based largely on and superceding the well-known Keighley "XL" machine. It is of robust construction and has a three-point base. All the well-tried features, such as hydraulic system, wheelhead bearings, workhead bearings, are identical to the "XL", but added features are the thyatron control giving infinitely variable workhead speeds. Larger workhead and wheelhead spindles enable a 1.5 in. wide wheel to be fitted, hydraulic plunge and or intermittent feed. An electrical timing device can be fitted to enable the whole machine cycle to be entirely automatic. In effect, this machine is a smaller edition of the Newall LA Heavy Duty Production Grinder.

When the news of our Exhibition was notified in the Works we were requested to arrange a party of workers to visit our various Stands on one of the Saturdays during the run of the Show, and a very substantial portion of the whole Works personnel of The Newall Engineering Co. Ltd., has arranged to go in bus trips to the Exhibition. We have pleasure in printing a contribution from one of our workers concerning this trip.

We share the view of our anonymous colleague that only good can come of such a journey. It has been sponsored with great pleasure. We wish them all an interesting journey from the mechanical aspects involved and mayhap an equally interesting evening when their tour of our Exhibits is ended. Will Newall employees who wish to travel on this journey please inform any Shop Steward.

\* \* \*

*The proposed trip to the Machine Tool & Engineering Exhibition, has created a stir of interest among the workpeople, particularly as the Firm is proposing to show a full range of products. It is a strange fact, but true, that the workers in the factory seldom have an opportunity of seeing the result of their combined efforts in its final finished perfection. Each worker does his or her part towards the finished whole, and usually their last view of the finished product is somewhat obscured by coatings of grease and rust-preventative. It is*

*possible for workers, particularly machine operators, to work for years at a factory and still not see the finished product or even know how it operates, a factor which in the writer's view should be remedied, as the interest of the worker in his job can be a very important point in production. It becomes quite understandable, therefore, that this proposed visit to the Exhibition should create a wave of interest in the factory because it will, possibly for the first time, enable the workers to see the result of their labours at its best. They will be able, with justifiable pride, to point out to admiring relatives and friends the parts they made or fitted, which is a very good thing, as every man should be proud of his work if it is good. Another angle which will inevitably crop up in the minds of the visitors from this factory, will be the comparison between "our" products and those of competitors. The writer can imagine the critical expert dissection of competitors' machines, and the possible arguments as to their merits or otherwise, also the pointed technical questions which will be asked, the answering of which might possibly test the knowledge of the Stand attendants. It is safe to say that a good day will be had by all, and the Management is to be congratulated upon sponsoring a trip which can be so much to our mutual satisfaction and advantage.*

"WORKER"

---

## MORE HINTS

When cooking your joint, such as it is, place a cube, (or a small teaspoonful) of sugar in the roasting tin. This gives a rich colour and your gravy will be much better as the result.

Cups that are discoloured by careless washing and tea stains, may be speedily cleansed by rubbing with salt.

Should you desire to stamp a transfer for embroidery without heating an iron for the purpose, try this method. Place the transfer in position, dip a cloth in methylated spirits and dab the back of the transfer gently. A clear design will result.



**THE TIME . . .**  
**THE PLACE . . .**  
**AND THE GIRL . . .**

**T**HE time: the afternoon of January 8th, 1948. The place: Newall Engineering Co., Ltd. And, most important, the girl... lovely Margaret Lockwood, Britain's No. 1 film actress, whose visit to Newall Works was an occasion to be long and happily remembered by the whole staff.

Miss Lockwood lived up to everyone's conception of a glamorous film star, and wore a brown jersey-material dress, with a full-length mink coat and sequin-studded toque.

Mr. K. Summers conducted Miss Lockwood round the Works, and, naturally, much interest was shown in

the cameras produced by the Newall Company. The British film industry is principally relying on Newall's for cameras for its £9,250,000 production programme.

During the tour she saw the prototype of the Technicolour Camera the firm is producing for the British branch of the Technicolour Corporation of America. The first should be completed in April.

Miss Lockwood was 'shot' by a black and white movie camera—three cameras are produced every month for the Rank Film Organisation. She posed with the Mayor and Mayoress, Mr. and Mrs. Reeves, and Mr. K. Summers, while Mr. Len Bussey, (Inspector in charge of the camera) ran about 50 feet of film.

During the afternoon Miss Lockwood was presented with a bouquet of pink carnations by Miss Susie Walker (now Mrs. Gordon Mason), who is working on the Newall Camera.





## MASON — WALKER

On March 24th, W. Gordon Mason, Camera Research Engineer, Newall Engineering Co. Ltd., and Susan Walker, Draughtswoman, were married at the Town Hall, Peterborough. This came as a complete surprise to their many friends who had no opportunity of showing in the usual way the regard in which both Susan and Gordon are held. Susan is employed directly under Gordon and we all hope that their new life together will be as happy as their working life obviously is.

## KNOCKS YEARS OFF

A FAMOUS beauty specialist says "Even an eyebrow reshaped will transform a face, and make it younger looking. It's the upward tilt that gives a youthful air to any woman's appearance. Drooping lines spell age.

"If it's a hat you're buying, choose one that has a perky tilt or a jaunty

## NEWALL SPORTS CLUB GET-TOGETHER

WHAT we hope will be the first of many such trips, took place on Sunday, May 9th. Two bus loads of Newall employees with their wives and families set out on this glorious Sunday morning for Whipsnade Zoo and were duly disgorged at their destination at about 11.30 a.m. The day fulfilled its earlier promise of being an ideal one, and Whipsnade itself, apart from the animal interest, proved to be a most beautiful place. Refreshments were available in plenty, and parents were able to hire small push chairs for their children—a much appreciated gesture. The beauty of the surrounding countryside must be seen to be believed, and many little parties of Newallites were noticed picnicing on the Downs. One wooded glen in the Zoo was literally carpeted with bluebells, in the midst of which could be seen two Wallabies, complete with their young in pouches.

The return journey—with one stop for liquid refreshment, was accomplished as pleasantly as the journey in the morning, and we arrived back in Peterborough at about 9 p.m. Everybody expressed their satisfaction and enjoyment of the whole trip, and the only complaints heard were of tired and aching feet.

It is hoped to run more such trips from time to time, so that by the end of the year, wives and families will be as well known to each other as are their men-folk who meet daily in our Works.

MRS. IRENE HARRIS,  
*Social Secretary.*

feather. Sweep your curls upward if you want that alive youthful appearance. Chin up, shoulders squared, lips up-curved to smile. These things all give you an alert, interesting look and chop years off your age.

"And", she says, "Every time a woman smiles, she can count on looking younger!"

## NEWALL JIG BORERS on PRODUCTION for

**N**EWALL Jig Borers are used on the production line at Mellor Bromley & Co., Ltd., Leicester. They have proved invaluable in the manufacture of Circular Knitting Machines which are usually built in comparatively small batches of ten or twenty at a time. It is obviously impossible to make special

tools and jigs for such machines, and, therefore, the drawings and castings are taken straight to the Machine Shop for jig boring, thus saving a considerable amount of time and also allowing for a flexibility in manufacture which would not be possible if jig and tools had been utilised.

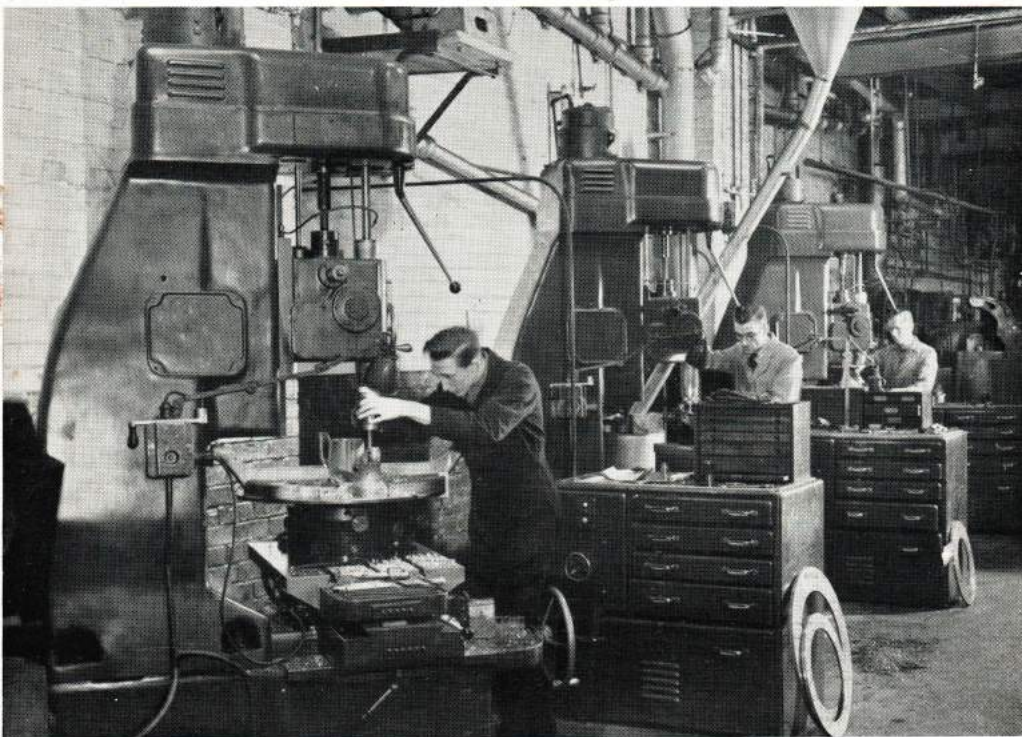
The Jig Borers were installed four years ago and during the War, worked night and day. The Works' Manager states that they have never experienced any mechanical trouble at all, and the machines today are practically as good as new. He paid a special compliment to the valuable assistance of Newall Service Operators in this respect.

The type of work for which they are used consists of boring holes in cam-boxes, camplates, and other components, to very close tolerances. It is interesting to note that throughout the whole of the large Machine Shop at Mellor Bromley, tool-room limits are observed.

**A Completely shaped and patterned Vest is produced in less than ten minutes. Newall Jig Borers contribute substantially to this remarkable achievement.**



# MELLOR BROMLEY KNITTING MACHINES

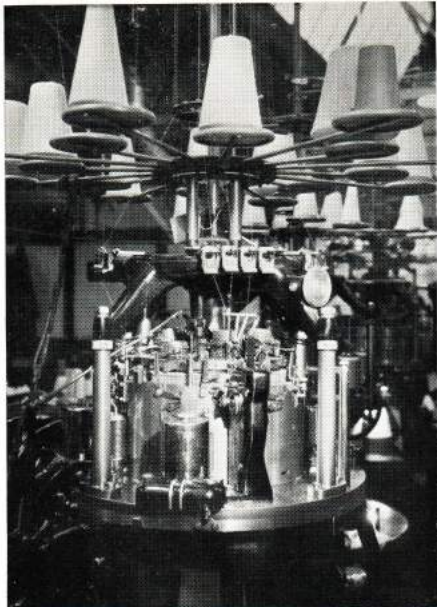


There are over 3,000 precision parts in a knitting machine. Newall Jig Boreers are used in the manufacture of each one.

Knitting Machines are extremely complicated and can only be described as gigantic watches. An impression of the complications can be visualised from the photograph, and from the fact that each machine contains over 3,000 parts. The one illustrated is capable of knitting a complete shaped and patterned Vest in less than ten minutes. When installed in a hosiery factory they usually operate continuously for twenty-four hours a day for seven days a week. The machine makes 48,000 loops a minute and consumes 540 feet of yarn in that time. English Knitting Machines are far in advance of those produced elsewhere. Mr. Shortland, the chief designer at

Mellor Bromley, states that in the underwear and outerwear field, British machines are ahead of the world. The quality of materials and precision of manufacture makes our procedure so much envied, that builders in other countries pay us the compliment of trying to copy them, but they can never produce the remarkable accuracy and precision, which is needed to knit fine yarns at such a fantastic speed.

One of the operators at Mellor Bromley made the following statement, "I have worked on all types of machines and done the rounds of the Machine Shop, but this is the finest job that I have ever operated for accuracy. The



machine has never come unstuck and the micrometer arrangement is excellent; if an error occurs, it is entirely due to the human element and not to the machine."

The foreman in charge of this section stated that Newall Jig Borers were "uncanny" in their accuracy and simplicity of operation. He expressed the sentiment that skilled men are scarce and to get Newall Jig Borers installed dispenses with the necessity of devoting skilled labour for a considerable period in the manufacture of jigs and tools.

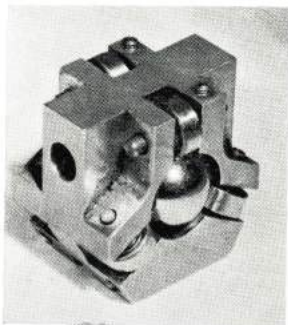
It is impossible to quote production figures for the work on which these machines are employed, because quality and not production is the keynote of the Shop. Accuracy and quality of work take a predominant place and the operators are not pressed for maximum output.

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## BALL CARRIAGE

FOR USE ON

## FIRE CONTROL INSTRUMENTS



### NEWALL JIG BORER PRODUCED AT MELLOR BROMLEY LTD.

During the war, Mellor Bromley produced Admiralty instruments and here they were working to very fine limits indeed.

In one instance, a special ball carriage was produced for use on a fire controlling unit. The carriage was used for transmitting torque and consisted of a gunmetal housing containing two sets of 3 ball races, each set being equally spaced around a  $\frac{3}{4}$ " diameter ball

bearing. So accurate was the positioning of these ball bearings and ball races, that if one revolved the remainder all revolved simultaneously. The accuracy here was two tenths of a thou. and by means of this novel method of torque transmission, an enormous amount of plotting table and recorder work was undertaken on Newall Jig Borers to clear a very dangerous and acute Admiralty "bottleneck".

# THE O.M.T. ROTARY PROJECTION TABLE *by H. J. Smith,* *Chief Draughtsman, O.M.T.*

FOR machine shop production of components requiring angular locations of high precision, the optical and mechanical rotary tables have now become essential items of equipment. An improved version of the well known O.M.T. Optical Rotary Table is now in production at Slough, and embodies several interesting new features.

It is quite clear that continual use of an eyepiece reading instrument eventually causes eye fatigue of the operator and thereby affects the accuracy of reading and setting of the table. This has been overcome in the O.M.T. Rotary Projection Table by replacing the eyepiece with a  $3\frac{3}{8}'' \times 2''$  rectangular ground glass screen. This screen is totally covered by a lens which collects the light scattered by the ground glass and directs it into the operator's eyes, thus giving the effect of a brighter screen. The ample screen size and brightness fully overcome the possibility of fatigue in prolonged operation and the screen may be easily read three feet away in a well lighted room.

The accuracy of reading in the eyepiece table is by direct reading to 30 seconds of arc and by estimation to 6 seconds of arc. The direct reading, therefore, on this table gives a linear movement of .0012" on 8" rad. This was not considered adequate when the table might be used with, say, a Newall Jig Borer and it was considered that the accuracy of the rotary table should be in the same region as that of a Jig Borer. For this reason a direct reading of 2 seconds of arc was considered necessary, and this gives a linear measurement of .00008" on 8" rad., or "one-tenth" on 10" radius. This is achieved on the Projection Table with a completely new optical system which incorporates a pair of sliding wedge shaped prisms to give a controlled image shift of the circle divisions. The new system permits the introduction of the time-saving feature of setting the next reading whilst one operation is being carried out, so that while a hole, say, is being bored, the operator may pre-set his optical screen reading for the next operational position. It is also possible with the new table, to shift the whole

screen image by a small amount so that with reasonable care in setting up, it is feasible to set the initial position at absolute zero. If the setting is only roughly carried out it is still possible to bring the screen image to the nearest 10 minutes and avoid an initial reading containing seconds.

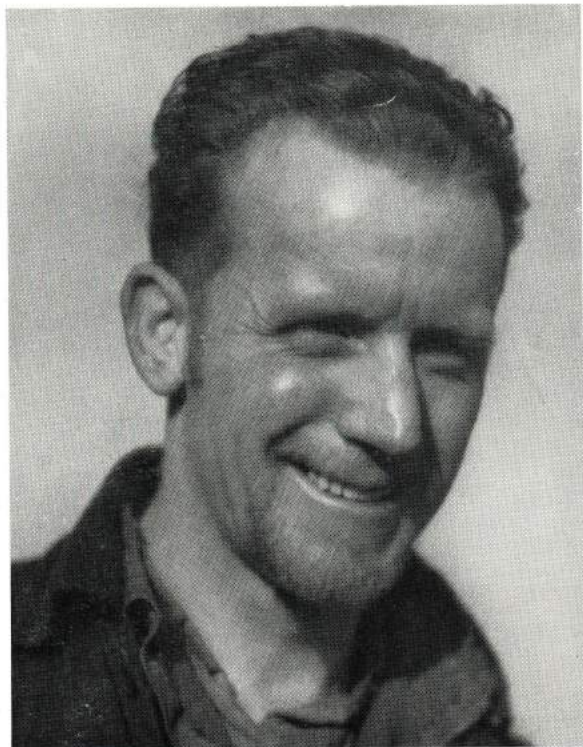
This greater precision of angular location necessitated a much finer mechanical control than was used on the old tables for fine setting. Since the fine control is of necessity an extremely slow motion it is, of course, unsuitable for general rotation of the table and a second higher speed control became an addition requirement. To avoid a forest of control knobs, the slow speed for fine setting and the faster speed for general movement of the table have been brought to one control handle by using a compact epicyclic gear drive coupled with the main worm and wheel drive.

The worm is housed in an eccentric sleeve so that it may be completely disengaged from the wormwheel, thus allowing the table top to be freely rotated by hand. The control for this is on the same axis and adjacent to the drive control handle for operational convenience. The change from the ordinary drive speed to the slow motion drive speed is accomplished simply by pulling the control handle out axially into a plunger located position. This may be done whilst rotating the handle—and conversely the "change-up" may be carried out by pushing the handle inwards. It is of interest that the worm and wheel ratio of the table is 300:1, which is increased by the epicyclic gear to 15,000:1 for the fine motion.

The worm and wheel drive makes it possible for light milling work such as cam forming to be included in the work of the table.

The prototype projection table has been in service now for several months under rather adverse conditions, but we have been assured by the customer that it is possible to repeat readings to plus or minus one second of arc.

It is felt that the Projection Table forms another link in the chain of requirements needed to improve quality and increase production.



## "GINGER" MCCOOMBE,

subject of this fine character-study by Leslie Beels, Drawing Office camera wizard, has spent eight years operating Newall's 72ft. Bertram Planer, which arrived for his exclusive use, and which he hasn't yet managed to wear out. Home Guard duties in this quiet spot failed to appeal and, volunteering for National Fire Service duties, he found himself one night with Fred Brittain and "Basil" Bradberry, putting out a fire on the railway line a hundred yards to starboard of his brand new Planer. When the fire was out they told him that the ten-ton truck was full of bombs en route to places where they would do the most good. Was his face red? We doubt it was redder than the beard he grew to hide his blushes. Married, with one daughter, Avril, aged one year, he has been many

Newall parties' mainstay; but those days are slipping. Ask daughter Avril for details. Ambition? To take life as it comes . . . Good luck, Ginger, and may your beard and your shadow never grow less.



## Mr. A. W. LURCOCK

Born—Margate, Kent, 1895.  
 Great War—France 1914/1919. Military Medal 1917.  
 1919/1921—Tenor Singer, Canterbury Cathedral.  
 1921/1935—Tenor Singer, Salisbury Cathedral, and Secretary, H. Martin & Sons, Mineral Water Manufacturers, Salisbury.  
 1935/1942—Site accountant on Militia Camps, and War Contracts.  
 1st April, 1942—Joined Keighley Grinders on its inception as Secretary. Appointed Director 1946.  
 Hobbies—Golf, Philately.  
 Married; three grown-up step-children.

# THE ENGINEERING APPRENTICE

by W. V. Wheeler

(Newall Apprentice Educational Award  
1st Prize Winner - 1946 and 1948)

THE young men in the engineering trade today have a far better chance of making a decent future for themselves than their fathers had. The conditions they work in have improved greatly, their wages are higher, and they have the chance to take time off, with pay, to further their education at a Technical College. They have their own body inside the A.E.U., that is, the Junior Workers Committee, to look after their welfare and social activities, and a magazine printed especially for them, "The Engineering Apprentice."

In spite of the fact that all these things had to be fought for by the "Union," they are accepted in a half-hearted manner and often used in such a way as to risk their being withdrawn or cancelled. The apprentices' magazine was received with many complaints, those concerned forgetting that it was a first edition and that the printing costs would be high compared with those of any well-founded periodical. In any case I consider that the payment of 1/6 per quarter, was well worth while, if only for the basic mathematical charts it contained.

Although they are paid for their day at school, there is a large percentage of

apprentices who will not attend—their reasons varying from "It didn't do me any good when I did go," to "I can't be bothered, it's too far anyway!" Well, all that I can say is that one day they will regret it.

To give a typical example of their general attitude, when the Junior Workers' Committee started their campaign for higher wages for apprentices, an appeal was sent out to all apprentices in the trade in Peterborough, to attend a rally to support the campaign and out of all the apprentices concerned, only *two* turned up. The attendance at a meeting six months later, had improved somewhat, about forty attended, but even then it was noticeable that those willing to take an active part in the campaign were the same few who always carry the load, and the attitude "Let us see results before we start," seems as deeply rooted as ever. This is a pity, because it is hindering progress in many directions and causing more trouble than necessary to the few struggling to improve conditions for all.

I suppose that one day they will see the error of their ways; let us hope, for their sakes, that it will not be too late.

W. V. WHEELER.

*IT is with deep regret that we record the death of Mr. H. N. LEWIS, who formerly worked in the Tool Room. Best Lewis was a craftsman of the best school, and in the ten years of his service with us had gained respect of all who came in contact with him. A kindly, skilled, and tolerant man, he spent much of his time in quiet help for others. As Chairman of the Works Hospital Committee and Executive Council representa-*

*tive, his wise handling of Committee work was invaluable.*

*A keen member of the R.A.O.B., he was initiated in 1931, was city secretary since 1932, and in June 1944 he became R.O.H. He was also a member of the St. John's Ambulance Brigade, and Air Raid Warden for the South Ward.*

*Our heartfelt sympathy goes out to Mrs. Lewis and relatives.*

# NO ART IN INDUSTRY ?

by Charles Graveney,

O.M.T., D.O.

BEFORE attempting an answer to this query, it is important to arrive at a generally accepted definition of Art, and to realise that there is more to it than a representation of the human figure, usually female, occupied at sport, leisure, or contemplation, with concealing or revealing drapery according to the location and period in history: for it includes not only representation of the human figure, but also everything in which we as humans are interested, and if the study of the figure has dominated the field of art it is probably because man, from the point of view of proportion, form, design and construction is the most perfect machine, and representationally is used as a symbol to express the whole range of emotions to which we as humans are susceptible.

It was natural to turn to nature for inspiration and the study of form, and at a very early stage in history man discovered that a certain proportion or shape consistently occurred in nature, and later, according to the philosophy of Plato and Pythagoras, the universe was based on numbers which resolved into multiple series, a theory which led to the formulation of the "Divine Proportion," to divide a dimension into two parts so that the total is to the greater part, as the greater part is to the smaller, or  $\frac{a+b}{a} = \frac{a}{b}$ .

Ever since man has been constructing his house to live in, the goods for his use, and the tools for producing them, in all known civilizations the appearance of an object has been considered equally as important to the user as its function, as can be ascertained by a visit to any good historical museum, for the appreciation of colour, and form, and the desire for self-expression is something which is part of the make-up of every human

being, and can only be eliminated by incorrect education.

Before the advent of mass production, men produced goods, which from the raw material to the finished product were the work of one individual. They knew what they wanted, and at each stage of the manufacture there was one mind only in control, facing problems and overcoming them as they arose, changing unsuitable material or methods, and improving tools as the occasion demanded, the result being as perfect an article as skill and available materials could produce, and satisfactorily fulfilling its desired function.

Naturally it became impossible for each individual to produce everything for his needs and those who discovered a talent for one particular craft or industry would specialise, but the most important influence on all the crafts in all periods of history was that of the architect. He would be commissioned to design and supervise not only the construction of the building, whether church, palace, private or public building, but also watch carefully every detail of decoration and furnishing down to the very key-holes, and the result was a complete unity of design and function, in other words, a "master-piece." Examples of these can be seen all over the world. For instance, in Italy during the fifteenth century, artists like Michael Angelo and Leonardo da Vinci were not only architects, but painters and sculptors, tackling their problems from basic principles of construction and design, and because of this approach were able to solve technical problems in other spheres of industry. Leonardo was Chief Engineer to Cesare Borgia; he was commissioned by the Duke of Milan to design water-works and armaments, and was the first known person to design a flying machine.



The influence of the architect on industry continued in this country right up to the 18th century. The finest period of English Art and an artistic tradition and unity of design was consistent in all the crafts.

Then came the machines which were eventually to replace the craftsman, and the manufacturer the architect. The earliest products of manufacturers naturally attempted to copy work previously produced by hand, and, desiring to satisfy their customers' demand for goods that were "artistic" as well as useful, they employed artists to decorate the thousand and one articles which filled the Victorian home, from fantastic gas brackets to beautiful brass bedsteads, "as supplied to all the crowned heads in Europe," etc. Even a simple object like a clock was surrounded by ornament so that before being able to see what time it was, one's eye would wander over fat cherubs supporting heavy columns, or rearing horses held back by muscular amazons. Having discovered the richly engraved face, the hands themselves would twist around with scrolls and spirals before they eventually settled on a figure which only owing to its position on the circumference could we recognise it as being a certain number.

This is a simple example of what happened when decoration was added to an object of utility, and gave birth to the phrase "applied art,"—it was possible to see in one room, art forms, shapes and designs borrowed from all nationalities and periods of history hobnobbing together in materials alien to their origin.

It was not recognised that the product of the machine age could have a beauty all its own, and with the discovery of new materials and methods of construction and manufacture, the "Art" or "Intellectual and Sensual appeal" was not something to be stuck on as an afterthought but must be considered as part of the design from the first conception, by the right choice of materials, method of construction, proportion and fitness for purpose. To quote one

example, the Tower Bridge in London, essentially a product of engineering design, is covered with fake gothic architecture, but the Forth Bridge also a feat of engineering skill derives its beauty from the correct use of materials and needs no added decoration.

There were individuals and groups of people who realised what was happening and attempted a solution.

At Dessau in Germany, under the direction of the architect Dr. Gropius, now a Director of Design at Harvard University, was started the experiment of designing the products of the machine from basic principles, accepting the machine and utilising it to produce essentially machine-made products and not reproductions of hand-craft; a kind of laboratory where practical designs were worked out as models for reproduction.

We have in this country the Royal Society of Arts, originated to encourage the improvement and application of Art to Industry, and the Design and Industries Association staging exhibitions has done good work under its motto "Fitness for Purpose." In 1934 the Board of Trade set up a Council for Art and Industry, but all these organisations provide only suggestions and ideas.

In America a new profession has grown up which puts these ideas to practical use—"The Industrial Design Consultant," who is taking the place in this mechanical age that the architect did in the past. Manufacturers when deciding upon new products, or improving the design and production of existing ones, can apply to this expert, who, with a large staff of trained technicians, engineers, architects, electricians, etc., thoroughly investigates the problem, the efficiency of existing models, new production methods and materials, etc., and prepares designs, the results of which are noticeable in the automobile industry, railroads, buildings, kitchen equipment and all those goods which can become available only by machine production.

## NORMAN KERSHAW HEARS . . .

THAT Percy Nunley applied for the weekend haulage rights at the coal mine excavated in the Fitting Shop.

× × × ×

THAT an applicant for employment produced with great pride a reference reading: "John Jones worked for us one week, and we're satisfied."

× × × ×

THAT Mr. Harlock looked suspicious when handed a book with the remark: "This'll make your hair stand on end."

× × × ×

THAT when halos were ordered in heaven Satan laughed. All the inspectors were working for him.

× × × ×

THAT Les Beels works better with a black cloth over his head.

× × × ×

THAT one of the Newall fur coats jumped off its owner's back when she passed the lettuce stall in the market.

× × × ×

THAT Ken Church is keen on dog racing.

× × × ×

THAT one day he had his shirt on "Bluebell."

× × × ×

THAT the owner took pity on Ken and told him that "Bluebell" was too slow. THAT Ken replied: "It's going to be a slow race, then. I own the other four."

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We sent a copy of *Precision* to one of our friends in the publishing business, and he told us a tale of his apprenticeship to the printing trade.

They gave him a new and untidy place in which to work. He said to the old hand alongside: "I shouldn't think this place has been cleaned since Caxton's time."

The old hand replied: "Hey, who the hell's Caxton, anyway?"

. . . . .

So cheer up. It isn't only engineers who come like that.

# HUMOUR

*By-Products of the  
Newall Group*



Chris Rees, Newall Maintenance Department, hopes that the photograph above will give permanence to the memories he has of his days in the Royal Navy—memories happy in spite of the fact that he was for four-and-a-half years engaged in minesweeping—an occupation that we personally would rather be without. The moment enshrined above was spent at the American Red Cross in Palermo, Sicily, exactly one week after the landing in Sicily. What Chris thinks about the Sicilian fair sex he would rather tell us privately. For 5 years he was working closely with U.S. Naval personnel, Limeys and Gobs together. Chris says that but for the U.S. Navy we wouldn't be where we are today. They boasted a bit; but they had plenty to boast about.

So it's hands across the seas for Chris, who in his three years with Newall has gone from Labourer to Steel Stores, then to General Stores, and now to Maintenance Assistant. We wish him good luck and hope he will get along still better as time goes on. He likes working at Newall, is a keen gardener; reads up the Navy, and life at Sea, is married to brunette Doris, has one child, daughter Jill, aged 9, and doesn't give a damn for the next man.



Grand-daughter of Mrs. F. Easey, who looks after the overalls at Newall, Christine Easey, who will be three years old in August, was born on Victory Day, and is as happy as she looks. Daddy is in the Fire Service, and we are hoping to contact him with regard to the egg supply indicated in the background of this charming little snap.

## A sneezer from abroad —

Omolaja A. Awaiye,  
c/o Box 263,  
Ibadan, B.W.A.  
31.1.48.

Dear Sirs,

I have been willing to take up the task of communicating you since but I don't no your address, and I have been hearing of you since long time. Suddenly, my friend gave me your address, and showed me the handkerchief which he has ordered from you. Even when I saw the handkerchief, I was very pleased at it, and like it so much that, I beg my friend to give me your address.

I will be very much pleased if you can send me your handkerchief, and will be very much glad. Hope my letter will be granted, and have me as your friend too. I will be waiting for the handkerchief in few months to come.

Yours faithfully,

OMOLAJA A. AWAIYE.

[*Editor's Note.—What a pity he did not enclose the coupon.*]



## MISS E. RIGBY

At our Third Annual Horticultural Show, Miss E. Rigby, (Canteen Cook) swept the board at her first attempt. She won:

The Player Rose Bowl; Miniature Cup, (presented by Mr. A. Holroyd) for most points in the Flower Section; Fruit Bowl, (presented by Mrs. K. E. Summers); Miniature Cup, (presented by Mr. R. Brothers) for most points in Ladies' Section.

Good luck and good hunting for 1948.

# HOLIDAY NEWS

By KATH BRADLEY (*Gauge Shop*)

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HAVING decided to go to Dublin by air for my annual week's holiday, I quickly booked my plane reservation, before my fear of this method of travel attained sufficient strength to sway this bold decision taken on the spur of the moment. Having committed myself, I spent the intervening days a prey to a very varied assortment of feelings, but finally the great day arrived. Struggling with my luggage and my fears, I presented myself at the airport. The plane stood there sleek, shining, with its attendants hovering around it like high priests round a pagan god. As soon as I thought of this simile, my fears rocketed to the fore again and I went forward to the entrance steps feeling like a sacrificial offering. The hostess came forward with a welcoming smile, the cheerfulness of which enabled me to force a smile in return and adopt a confidence I did not feel. In no time at all, my luggage was stowed and I found myself strapped in a very comfortable seat. Instructions as to my behaviour during the take-off were gently spoken in my ear, a paper bag was given to me, in case my stomach refused to heed these instructions, and then the door slammed shut, the engines roared, the plane quivered—so did I—and we were off. I could see the airport runway rushing by until it became blurred—suddenly the tail came up and with a final roar, the plane seemed to leap into the air. Almost miraculously, peace seemed to descend upon the plane. The engines still roared, but in a softer, muted fashion. The plane seemed to be floating on air (I laughed to myself as I realised that this old saying was really true) so I began to loosen my grip on the arm rests and relax. The scene outside the windows was so wonderful that I completely forgot everything but the wonder of it. Soft looking cotton-woolly clouds floated past, the earth could be seen in miniature, the tiny squares of the fields in all shades of green, the winding threads of roads and railways, the little toy buildings and

black dots that were humans. It made me feel almost godlike and so superior. I found myself adapting an almost blasé attitude towards these wonders and glanced round the plane in a bored way, as if these things were common-place, for the benefit of any watching eyes among my fellow passengers. Returning my gaze to the window I found we were over a bluey-grey woolly blanket that I realized was the Irish Sea. There seemed hardly any movement of the surface, save for a gentle shimmering effect, just one little object which I learned afterwards was the afternoon Mail Boat from Holyhead, on its way to Dublin too. Suddenly we ran into a thick fog which curtained off the earth and it made one feel so lonely and remote. Fortunately the smiling hostess chose that moment to bring round tea and cakes. By the time I had disposed of these, we had broken through the fog bank into brilliant sunshine, with an intense blue sky above and huge banks of clouds below. The scene was breathtaking. The right wing of the plane, which was just underneath me where I sat, seemed studded with diamonds. It was all very beautiful to me. Then suddenly there was a different sound altogether inside the plane and it occurred to me that I was nearly at the end of my trip. Again the smiling hostess came to me and kindly tightened my safety belt and told me we would be landing shortly. We just drifted along, although we were gradually descending through the white blankets of cloud, until it seemed just a cloud of steam. I once again gazed below and I was amazed to see that we were over Ireland, but all the fields seemed upside down, and I began to wonder if they would ever straighten out. It was a wonderful sensation—the plane was gradually floating down; then suddenly the wing seemed to turn round and we were then flat over the fields. In the distance was a huge white building with two pathways, one at the far end of a

huge field and the other in front of the airport. Suddenly the wheels touched the ground with a slight bump, and I found we had landed—the engines had stopped and I was then stepping off the plane—safely. I felt like a veteran of air travel and laughed to myself as I remembered my fears at the beginning of the trip, as I had boarded the plane. Safely negotiating the Customs, I was met by my friends, and entered the waiting bus which took us into Dublin, to the Air Office, where my trip officially ended.

Dublin seemed thronged with holiday makers from various parts of the world. There were many things in the shops which are so difficult to obtain here.

Silk stockings were off the ration and you could buy as many as you wished. The sweets were also plentiful and they were not rationed. I noticed the

marvellous streamlined cars which were hurrying through the city each day. There were barrows and carts in the streets, loaded with all kinds of fruit—bananas, oranges, apples, nuts, everything! The food in the shops would have been a marvellous sight to the housewives here. There was the Dublin Horse Show, which was the main attraction for the visitors—the Irish Football Final too, and many other things for the crowds. I visited many of the seaside spots all around Dublin, and needless to say, they were beautiful. The sand was just like a silver powder and the scenery all round was wonderful. Eventually, like the ending of a beautiful dream, I awoke to the fact—I had reached the end of my holiday. The trip back was just as great a thrill and, although I was happy to arrive home, my memories of my air trip to Dublin, will always remain among my happiest.

EDITOR'S NOTE: *We regret that owing to lack of space, this article was omitted from the last issue.*

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## BROTHWOOD — FREESTONE

On March 20th, Mary Freestone, who had worked in the Wages Department for a year or so, and now is transferred to Sales, became Mrs. Gordon Brothwood.

The ceremony took place at St. Augustine's Church. As shown above, the bride wore a white gown of moss crepe, and one of the most charming head-dresses we have ever seen.

Among those of her many friends at Newall's, Mrs. Bentley, of the Wages Department, Mrs. Blades, of the Sales Department, Mrs. Jennings, Miss Edna Nichols and Miss Audrey Sutton, attended the ceremony.

Her colleagues and friends at Newall's subscribed and presented the young couple with an electric clock. Amongst other presents were Lloyd Loom chairs, cut glass biscuit barrel, cake stands, table linen, etc.

The bridegroom is a fireman on British Railways, and Mary comments that she doesn't know *what* we can say about him. We do know, however, that the picture above speaks for itself, and that we all wish them the happiest of marriages.



The Editor  
Precision  
Newall Engineering  
Pboro

## CORRESPONDENCE

We reproduce a letter which was received by Mr. J. Hann, General Manager of Optical Measuring Tools Ltd., from a former employee of the Company, Mr. E. E. Jeffery, together with a copy of the notice which was posted on the Works Notice Board in regard to this letter.

It is very gratifying to read in a letter like this that OMT products are so highly esteemed in the Trade. It is also encouraging to hear an employee express his pride at having helped in the production of instruments that have earned such a high reputation. This is the spirit we are anxious to foster. There is no reason why all employees should not feel a sense of pride in the Company with whom they are associated and not look upon their employment merely as a means of earning a livelihood.

OPTICAL MEASURING TOOLS, LIMITED  
19th February, 1948.

### NOTICE

Below is a letter just received from an old employee, E. Jeffery, who will be remembered by many of you.

I have had two major ambitions since I joined O.M.T.

- (1) That we should be known all over the world for the unequalled quality of our instruments, and
- (2) That people should work at O.M.T. because they like doing so.

I have a feeling that at least we have made a start towards realising these ambitions. If you will keep it up, then one day we will achieve a 100% success.

(J. HANN)

General Manager.

From—

E. E. Jeffery, Esq.,  
50 Woodside Gardens,  
Tottenham, London, N.17.

To—

J. Hann, Esq.,  
Optical Measuring Tools, Ltd.,  
Slough.

13th February, 1948.

Dear Mr. Hann,

It is with great excitement and pride that I am compelled to write and tell you of the deep respect that seems to be held in the Engineering World for O.M.T.

Since leaving your employ, in which I was a turner for close on five years, I have moved around a bit and have met a number of people who regard your Inclinable Tables and your Toolmakers' "Mikes" as the last thing in perfection.

Only today at my present place of work, one of our toolmakers came to me with the current edition of "Machinery" in which was your advertisement of your Rotary and Inclinable Tables, and I really felt proud at being asked to explain the working and the action of these instruments.

It seems to me that O.M.T. are fast becoming one of the leading firms in the field of scientific instruments, and if any of my old workmates are still there (Bill Sergeant, Les Bareham, Sid Avis, Henry Graveney) or in fact any of the boys, you can tell them from me that the jobs they are helping to produce are looked upon with pride, and they have every reason to feel a little proud themselves.

Today I felt really homesick for Montrose Avenue and wished more than anything that I were still there. Wishing continued success in the future to O.M.T. I remain,

Yours faithfully,

(Signed) E. E. JEFFERY.

Copy of letter received from Messrs. Arnott & Co., S.A., Paseo Colon 482, Buenos Aires, Argentina, dated April 20th, 1948, Ref. 48.001

Fendrake Trading Co. Ltd.,  
20 Fenchurch Street,  
London, E.C.3.,  
England.

Dear Sirs,

Ref: "NEWALL PRECISION" MAGAZINE

We have to congratulate makers, though rather belatedly, on their informative little magazine covering the Newall Engineering Group; we received copy No. 2 some time ago.

The popular style of the articles is really quite useful as an introduction to the catalogues and more technical matter they publish—and in some cases even furnish information not elsewhere provided. The personal angle is also quite entertaining and conveys the impression of their being a very happy family group.

Kindly have us put on their regular mailing list as also Mr. C. E. Cat. We should especially like to have a back copy of their first number—so as to have our collection complete.

You might pass these comments on to "The Editor" with our compliments.

Yours sincerely,  
ARNOTT & Co. SOC. ANON.

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Board of Trade,  
Millbank,  
London, S.W.1  
3rd February, 1948

Dear Sir,

We have received from the Press Officer of the Federation of British Industries a copy of your house journal, which has proved of interest and value to us in our work of publicity for British achievement in newspapers overseas.

We shall be grateful if you will put us on your distribution list for regular reception of your journal and any other news items (particularly relating to exports) likely to be of interest.

Yours faithfully,  
A. B. SAVAGE  
Information Division.

The Editor,  
"Precision",  
The Newall Engineering Group Ltd.  
Peterborough.



## BERRISFORD – SARGENT

Popular Betty Sargent and Kenneth Berrisford were married January 3rd, three weeks after Ken returned from Singapore.

Ken worked in the Gauge Shop as a machinist until he joined the Army, and hopes to return after his demob in May. Betty has been a clerk in the Drawing Office for three years now.

Our photo shows the young couple at St. Mary's Church, Eastfield, Peterborough.

# THE NEWALL

## HORTICULTURAL SHOW.

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THE fourth Annual Show will be held in the Works Canteen on Saturday, August 14th, 1948. The Committee are as follows: Chairman, H. Winters; Hon. Secretary, Mrs. F. Easey; Hon. Treasurer, H. Lewis; Advertising Secretary, R. Wright; Mrs. H. Lewis, F. Emery, J. Noble, H. Wilson, Miss K. Gardner, H. Green, P. Nunley, C. Cope, J. Millen, F. Rawlinson.

The Show will be opened by K. E. Summers, Esq., Managing Director, at 3 p.m., and there will be awarded over £50 in prizes, 12 silver cups, 2 diplomas, and 1 bronze medal. The opening of the Show will be filmed by F. G. Markin, Esq., Chief Constable of Peterborough, and this film will be shown in the Works Canteen together with that of Miss Lockwood's visit to Newall Works, and with full supporting programme.

Please remember the date—August 14. Bring your friends and be filmed. Who knows? You may be a Margaret Lockwood or James Mason. The Committee wish to thank Mr. Markin for his kindness in giving his time and skill for our enjoyment.

Please note that the entry "4 sprays of Chrysanthemums" has been taken out of this year's list of exhibits, and is replaced by an award for 6 Zinnias. Will competitors please note that all other Classes are as last year. One diploma will be given for the best pair of Marrows. The bronze medal will be given for the best Bloom in the show.

The Judges for Vegetables are: Mr. G. R. Radmile, Westwood House School, Thorpe Road, Peterborough, and Mr. Dinsdale, The Gardens, Thornhaugh Hall, Nr. Peterborough.

At the request of many members, the Photographic Class will include the headings: "Holiday Snap," "Portrait (any subject)," "Still Life," "Architecture."

The staging, etc., of the Photographic exhibits, will be carried out by: Messrs. L. Beels, T. Thomas, W. Holmes, G. Morris, L. Smith, so get your cameras going and prove that the inclusion of this section is justified. Please hand your entries to the Secretary, Mrs. F. Easey. We have been fortunate enough to secure the service of W. J. Greenwood, Esq., A.R.P.S., to judge the photographic exhibits.

Handicraft will be judged by J. Orman, Esq., of Handicrafts Ltd., Bridge Street, Peterborough.

Knitting, Needlework, Fancy Work, etc., will be judged by Mrs. A. Bonfield and Mrs. E. Dunn will kindly judge the Cakes, Bottled Fruit and Jam Competitions.

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### CAKE RECIPES

*Madiera Cake*—4 oz. Butter or Marg., 4 oz. Castor Sugar, 2 Eggs or its equal in dried eggs, 6 ozs. Flour,  $\frac{1}{2}$ -teaspoonful Baking Powder, 2 or 3 tablespoonfuls of Milk.

*Sponge Sandwich*—2 Eggs or its equal in dried eggs, 4 ozs. Castor Sugar, 4 ozs. Flour,  $\frac{1}{4}$ -teaspoonful Baking Powder, a little warm water.

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The Management have given permission for the Works to be opened to the public. We are arranging for parties of 10 persons to tour the works under the following guides:— Machine Shops, Messrs. D. Bridges, A. Watson and C. Steers; Fitting Shop, Camera Black and White, A. Smith; Inspection Dept., Projectors, etc., D. Bew; Fitting Shop, Machine, B. Fowles.

The 35 mm Camera will be exhibited and demonstrated by Messrs. J. Yeomans and L. Bussey. Photographs from the



"Miranda" film taken by the Newall Camera will be on view, and we are hoping to have a limited number of small photographs to be given to the public.

So we ask employees: Please help in making this a success by getting together in parties, in fairness to our demonstrators, who have kindly come forward in making this attraction possible.

Mr. E. Groome will be in charge of entertainment of parties as 60 people will be entertained at a time.

Schedules will be available to all competitors later.

Please bring your friends on August 14th, to—

THE NEWALL ENGINEERING  
COMPANY LTD.  
HORTICULTURAL SHOW.

R. J. WRIGHT,  
*Hon. Advertising Secretary.*

## DANCE LITTLE LADY

A major social function of the Newall Sports and Social Club under the Chairmanship of genial A. E. ("Widge") Smith, will be the opening Dance of the Season on September 11th, at London Road Drill Hall.

Reg. Walden's Band has been booked, there is a licensed bar and a record attendance is expected. Tickets will be available shortly from any member of the Committee. Please take your ticket at the first opportunity, to ensure that you are not left out, and to enable the Committee to make best possible arrangements for your comfort and entertainment.

## Report on Newall Jig Borers at Messrs. Reyrolle Ltd.

**D**URING the war, six Newall Jig Borers were installed in a very confined space in what was considered the safest place against bomb attack. Three of the Jig Borers were used entirely for machining the following.

Firstly, the Gyroscopic gun sites for the Royal Air Force. This work was entirely carried out on the Jig Boring Machines and was a particularly difficult piece of machining. The operation was so successful that representatives were sent from B.T.H. and H.M.V. for instruction.

Next come the Radar Predictors, and again the Newall Jig Borer was the only machine capable of producing the necessary parts for the computing unit. The final milling and boring being carried out as a production job.

Sound locators were also produced by the Jig Borers, and practically all parts of the locators were dealt with.

A large amount of experimental work is still being carried out for Reyrolle Switchgear. The rough casting is made and bored without any delay and expense which would be incurred in tooling. At the moment, the Jig Borers are producing air-brake gear for the Switchgear, the pilot valves of the air-brake being the most important part.

Operators prefer the Newall Jig Borer to the Genevoise, as stock drills can be taken from the store and used, whereas with the Genevoise, these require a special tapered drill.



Stan Williams and H. Wardle at one of the newer Newall Plant installations. Since this photograph was taken, Harry Wardle has left the Company to undertake a new appointment in which we wish him well. (Photograph taken 6th September, 1947).



THE



ENGINEERING GROUP

<i>The Newall Engineering Co. Ltd., Peterborough.</i>	<i>Machine Tools and Gauges.</i>
<i>Optical Measuring Tools Ltd., Slough.</i>	<i>Optical and Scientific Measuring Instruments and Optics.</i>
<i>Keighley Grinders (Machine Tools) Ltd., Keighley.</i>	<i>Grinding Machines.</i>
<i>James C. Kay &amp; Co. Ltd., Bury.</i>	<i>Ironfounders.</i>
<i>Machine Tool Electrics Ltd., Leigh-on-Sea.</i>	<i>Electrical Switch and Control Gear, and Electronic Equipment.</i>

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