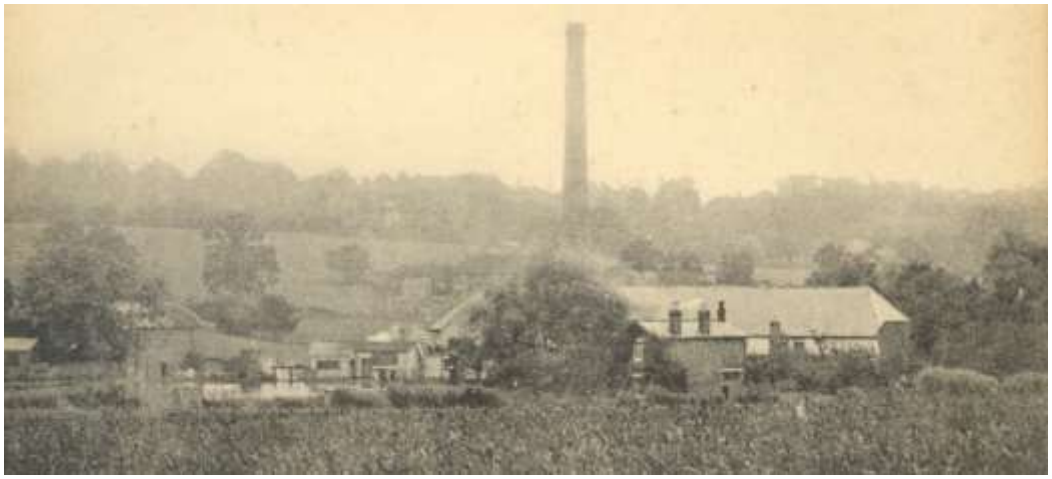
Roughway Paper Mills - manufacturers of watermarked stamp papers.

by David Gurney FRPSL

Introduction.

It was in 1923 that Fred. J. Melville documented a visit he made to Roughway Paper Mill, near Plaxtol in Kent, prior to the London International Stamp Exhibition. His illustrated description of the processes is of great interest to Philatelists and this is reproduced later.



Roughway Mill, Plaxtol, near Tonbridge. The dammed pond is on the other side of the Mill buildings.

Evidence of the article came to light in the course of researches currently being undertaken into the history and operation of the Paper Mill which was totally destroyed by fire in March 1998. Early last year Plaxtol Local History Group, to which I am Archivist, obtained a series of press photographs at a Collectors fair in Canterbury showing the operations at the Mill, but was not able to precisely date these at the time. However this became possible with the recent discovery of Fred Melville's article when it was realised that some of these pictures were used as illustrations and were all stamped on the back by the James Press Agency, official photographers to the London International Stamp Exhibition. The photographs illustrate the making of the special watermarked paper at Roughway Mill for the prize aero stamp which was to be printed at the Exhibition. The discovery of this article and the accompanying photographs have provided an important historical window to the operational techniques used by the Mill nearly 100 years ago. Many of the employees of the Mill lived in the parish of Plaxtol.

The stamp

The watermark

The London International Stamp Exhibition 1923

Brief history of the Mill.

The earliest documentary evidence of the existence of a Mill is to be found is in the Wrotham Manor rentals of 1493 "*Thos Dyne holds in the borough of Roughway.....piece of land near the fulling mill."* The 1568 Wrotham Manor Rolls mention 'fulling mill lands' (cloth mill) on the same site. Some early maps sometimes mark it as Dunks Green Mill. The Chowns family of Fairlawn owned the Mill until 1586 and both the 'Mill' and the 'Fulling Mil l Lands' frequently appear in documents between 1538 and 1784. It was presumably an important landmark as in 1677 the adjacent hamlet of Dunks Green is referred to as 'Fullers Playne'.

It is thought the Mill had probably turned to paper-making by 1787 when a quarter acre of land was sold to John Buttenshaw, Paper-maker, *'adjoining to the Millpond of the said John Buttenshaw'*. In 1819 and again in 1842, references can be found in the Church Rate Books to *'New Mill'* suggesting the Mill buildings had probably been rebuilt at that time. It is also thought that the hellicentric tall chimney with the brick courses in spirals was built at this time. Various references can be found in several sources to the owners of the Mill and in particular to Walter Monkton, paper maker from 1875 to 1878 when the Mill was listed in 1875 as 'Not yet in work' and in 1876 when it was making 'best ledger papers, loft dried using one machine 57inch. By 1880 the firm of R.D.Turner & Co were manufacturing special water-marked papers only using water and steam for motive power. By 1914 the Roughway Paper Mills Ltd were making Light Weight Banks, Tissues, Copyings and Cigarette papers using two machines 60inch, steam only. Following the end of the First World War Roughway Mill took on a Government contract for the manufacture of the British Postal Order for which there was a small separate countersunk dandy for

each denomination and also all the paper made for the old age pensions. This was in addition to the many watermarked postage stamp papers the Mill was making for the Dominions and the Colonies.

1923 Report of Fred. Melville's visit to Roughway Paper Mill.

There are pleasant Kentish lanes that lead - if you can find the way - to Roughway, where lies the historic mill which for generations has made paper for British and Colonial postage stamps. It is very much an out-of-the-way hamlet, well off the beaten track, and an ideal spot for the purpose of paper-making for government papers which must be carefully guarded at every stage in their manufacture.

Roughway Mill was associated with Chafford Mills at nearby Fordcombe through the Turner family, but this latter Mill which manufactured watermarked paper for the British surface printed stamps from their earliest introduction was dismantled by the 1920s. Roughway began to make stamp papers from the later 1870s and for a long period manufactured all the English and Colonial stamp papers until its closure in 1912. However this was a temporary measure and philatelists have evidence of it in the temporary passing of those coloured papers, and the sensation of the "white-backs". But Roughway has been quickened into life again, and as always, it specialises in watermarked papers. Its huge battery of "dandies" include the India "star", and "Court fee" papers, the Crown over CA, formerly the Roman and now also the Script, and postage papers for Egypt, the Sudan, New Zealand, Australia, several Indian native states, Palestine, Mesopotamia, and others. It was at Roughway that the special watermarked paper was made for the Aero stamp, which is to be printed at the Exhibition by Messrs. Thomas De La Rue & Co., Ltd., and the purpose of my visit to the Mill was to witness the making of this paper, and to tell you about it-or nearly all.

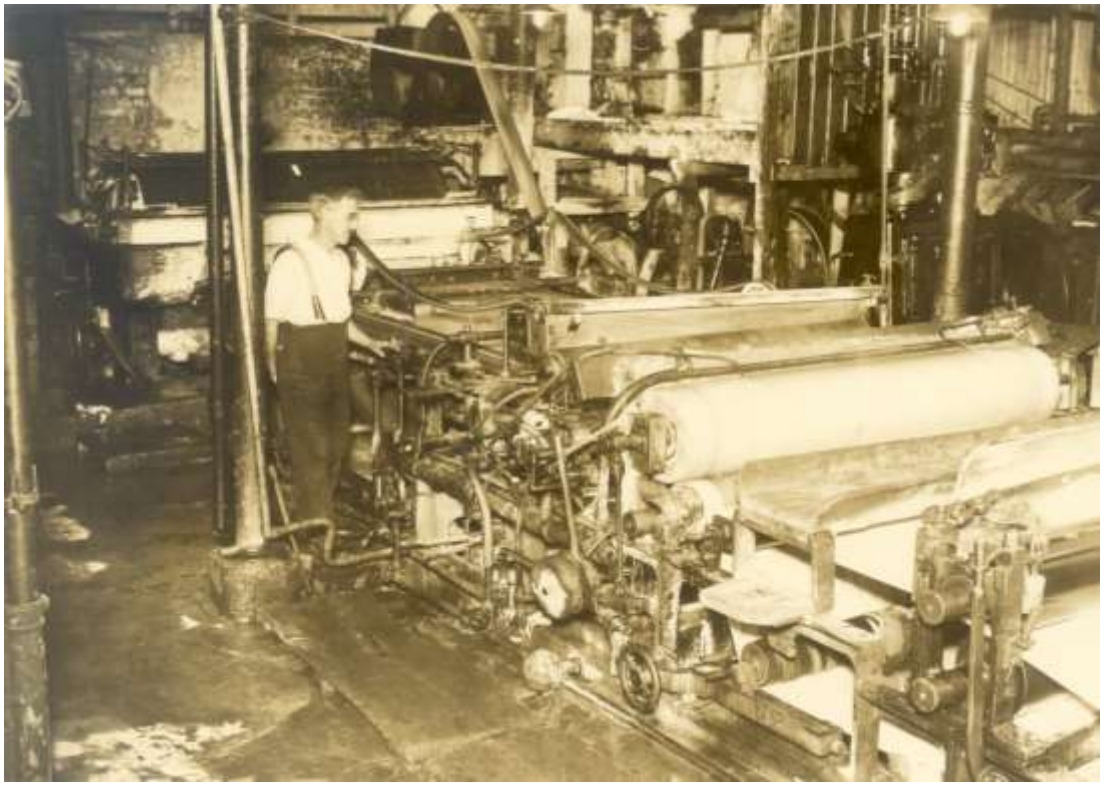
The paper made here is entirely produced from rags, and long experience of the production of paper for stamps has proved that cotton rags are the best basis for this purpose; linen, which is the ideal thing for bond papers, is too hard to suit the needs of the stamp manufacturer. So in the process of cutting up the rags, a job done by women, who draw the rags over a knife, as in my first picture the cotton rags are separated from the linen ones, and all are graded into qualities (1) supers, (2) seconds and (3) thirds. Only the first class is used for making stamp paper.

The rags are cleaned in huge boilers with the aid of caustic soda, and are subsequently washed in passing through a breaking machine, which continues the process of disintegration of fibrous material, producing what is termed "half-stuff", and this is bleached with chloride of lime. The "half-stuff" is then treated in a drainer which draws off the bleaching liquor, and then it is brought to the beaters.

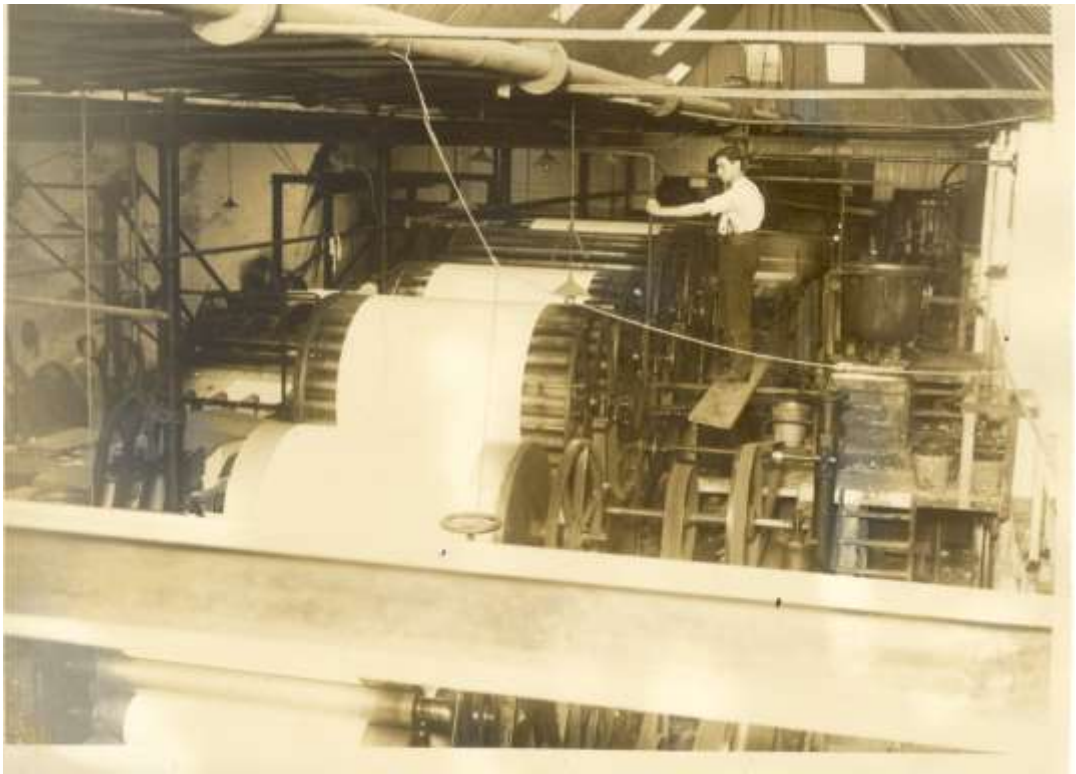
In the beaters the "half-stuff" goes through a continuous grinding under a heavy roller, the purpose of which is to separate every fibre of the material, and thoroughly to hydrate it. The "half-stuff" is treated in the beaters fro from six to ten hours, and the necessary size of resin is added during the process. The stuff, now pulp, is then let down into large chests whence supplies are drawn for the paper-making machine.

Cutting up and sorting the rags; the best cotton ones are selected for the stamp paper, as paper made from them is kindest to the printing plates.

In the beater the “half-stuff” is ground under a heavy roller to disintegrate and hydrate every fibre.



The wet end of the paper-making machine. The pale milky fluid passes from a strainer on to the endless web of wire to the dandy roll which impresses the watermark and imparts the texture to the paper.



The paper then passes round steam drying cylinders and air dryers to the calendaring rollers which perfect the surface of the paper.

The pulp when hydrated again for the machine produces a pale milky-like fluid, which after passing through a strainer flows on to the wet end of the paper-making machine. The first picture of the machine shows where the pulp passes from the strainer and spreads over the width of an endless web of wire cloth, constantly moving forward, and with a permanent woggle or vibrating motion which shakes the water through the web, leaving almost immediately a layer of pulp, the width of the deckles, and moving on towards the dandy roll.

The deckles are rubber boundary straps which move with the wire; they limit the width of the band of paper that is being made, and are, of course, adjustable. The Roughway machine is 57 inches wide, but by means of these deckles paper of any lesser width may be produced.

On passing the end of the deckles the pulp is now partly formed paper, and in this soft state it passes under the dandy roll. This is a gauze cylinder on which the watermark devices are sewn or soldered, and which revolves over the paper in this soft state and impresses not only the watermark but the texture, which in modern (1923) stamp papers is always “wove,” never “laid.”

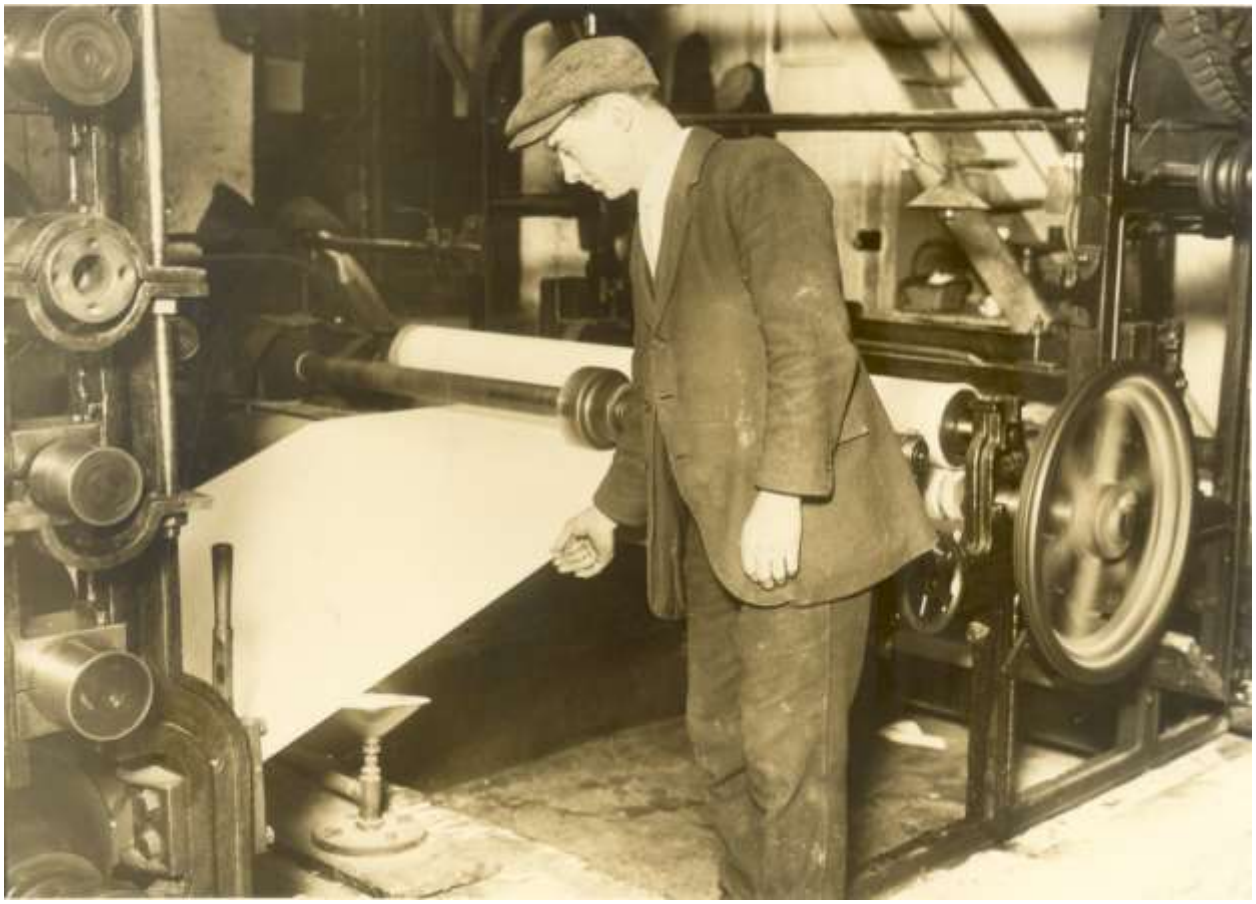
The dandy roll on the machine in the photograph on the occasion of my visit, was a special one, bearing the aeroplane device for a watermark. This was made by Messrs. Edwin Amies & Son, of Maidstone, who have been paper mould and dandy roll manufacturers for generations. The original Amies started the business in 1793. They have made the moulds and dandies for a great number of the watermarked papers known to philatelists, and learning of our plans for producing an aero stamp at the Exhibition, Mr. Ernest H. Amies, the present head of the firm, generously offered to make a special dandy roll for the occasion.

As a matter of curiosity it may be recorded that on the one dandy were two styles of the aerial watermark, one pane being of the cut-to-register” kind (i.e., what philatelists call a single watermark, one device to each stamp) and the other pane an “all-over” watermark (multiple). Messrs. Amies will show the dandy at the Exhibition.

So our paper passing under this dandy roll on the machine receives its watermark, and passes over steam cylinders for drying, and then through a bath or tub of gelatine size, and on over the air dryer, whence it passes over surface calendars and is rolled up at the dry end of the machine.

The roll of paper sometimes three quarters of a mile long, has then to be cut up into sheets and this requires special care with watermarked paper, on the “cut-to-register” plan. There is no difficulty in slitting the roll into the requisite widths, and our roll was first so slit to produce two narrow rolls, one of single and the other of multiple aeroplane watermark. The latter was cut into sheets of equal size, the watermark being all over the paper, no special regard for register being required.

On the other hand with a single or “cut-to-register” watermark the paper has to be cut with extreme precision or the watermark will not be in register on the printed stamps. This is usually done by hand, the paper being threaded on to needles which pierce the register marks at right and left. But Roughway possesses an ingenious machine of its own, invented by Mr. Harry Cremer, J.P., the Managing Director. The roll of paper is drawn over the machine seen in the accompanying photograph.



The dry end of the machine: the paper passing from the surface calenders over an electric light, which shows up the watermark, is examined by the foreman, and is then wound on a finishing spool.

The paper, as it is drawn into position for cutting, is illuminated from behind by an electric light bulb, which shows up the watermark plainly to the operator of the machine. On the face of the machine is an indicator or pointer which corresponds with the register mark in the watermark, usually a + mark. The operator has to see that these points in the paper and on the machine meet before moving the cutter which is worked by a treadle.

An important feature of this machine over the hand method is that the register is obtained from the edges of the sheet. In threading sheets on needles for hand cutting the operators use the two outside register marks:

\+ + +

and as there is a greater tendency for the paper to stretch at the edges than in the centre, this frequently results in loss of perfect register. The Roughway machine method is to work to the central register point which eliminates this risk of variation due to slight stretching at the edges.

The present predominance of the “all-over” or multiple watermark in stamp printing is due to the fact that the printer is saved the trouble of getting his stamps in register with the watermark. At most Mills, too, it is more costly to produce a cut-to-register watermark than an all-over one because the cutting by the old hand method is a slow business. But in the general interests of security, and that is one of the chief objects of a watermark, the cut-to-register, accurately cut, and accurately printed, is no doubt a greater safeguard against counterfeiting, requiring just that perfect precision in cutting and in printing that the counterfeiter is unlikely ever to be able to attain without the most elaborate machinery.

A little sun and air is useful in acclimatising the paper, which is matured by hanging for days in an airy loft.

Paper is peculiarly susceptible to a variety of influences, and an important feature in the making of paper for stamp printing is to ensure its even quality and its mature condition. The ingredients, even the rags, are stored in bins for months before they are used, and the sheets of paper when made are not sent straight off to the printer. The paper is then loft dried, which enables it to take up its natural amount of moisture by being hung up in racks in a room controlled in supplying the correct amount of ventilation. After this process the paper is stacked away for six to eight weeks, at the end of which time

it has become thoroughly matured, and is then in a right condition to work kindly on the printing machine.

All this is a slow business but one which saves endless trouble and waste in printing. Cheaper materials and more rapid production have been applied to the production of stamp paper at home and elsewhere, but the net result is never economical, for what is saved in the actual cost of the paper is lost in the heavy percentage of rejects from the printed sheets.

The cut sheets are tested at intervals for register on glass gauges which bear complete replicas of the watermarked devices and register marks. The Foreman of the Salle or Finishing House (Mr. A. E. Larkin) has been making our stamp papers for over forty years.

The sheets when cut are frequently tested on glass frame gauges. For each kind of watermarked paper made, a glass gauge is prepared showing the complete watermark arrangement together with the register marks. A sheet laid on its appropriate frame, and examined against a light must correspond exactly in respect of watermark and cut. These gauges are also very useful for securing correct register to start with.

The last stage in the work is the sorting examination and counting of the sheets. I took up several sheets that had been thrown out for re-pulping, and it was difficult for the untrained eye to detect even the slightest flaw. But there was just one tiny speck in the large sheet, no bigger than this full stop. The keen

eye of the examiner had found it and the sheet was thrown out. The sheets are counted twice and are passed on to the packers who pack and seal each ream separately with the special government seal.

The sheets are examined, counted twice, and then packed up in reams, each ream being sealed with a special government seal.

Roughway is only a one-machine Mill, but it can cope with a vast output of paper in its special class. Devoting its output exclusively to the best class of watermarked rag papers, its employees have been working stamp papers for the greater part of their lives, and even the old machine seems to know its work is important and exclusive, and to take a pride in rolling out its creamy lengths of perfect paper. Mr. A. E. Larkin, foreman of the sale, or finishing house, whose memories of paper-making go back to the “crown” and “anchor” days of British stamps is one of the oldest employees at the Mill, and his reminiscences, if he could be persuaded to write them, would provide some useful data for philatelic history.