

Phase 6: 1980 – 1995

OCR & IJP technology

This section covers the period between 1980 and 1995 when significant advances in IJP and OCR technology, were introduced.

The following key developments took place during this period

- 1980 The IJP trial at Guildford MLO
- 1983 The OCR / IJP trial at London MP
- 1986 Flat Sorting Machines at London SW using IJP technology
- 1989 Ink Jet Printing message trial at Liverpool
- 1990 4-state Bar Code IJP trial at Reading
- 1991 IJP 'Product Serial Count' trials at six MLOs
- 1993 The Gloucester IJP postmark trial
- 1995 IJP stamp cancelling at London FS
- 1995 Ink Jet Printed desk idents at Slough MLO
- 1995 Dated IJP-QoS messages on Flat Sorting Machines

1980 – Guildford IJP Trial

A two-week trial using live mail took place from 17th March 1980 at Guildford Mail Centre to test the capability of an ink-jet printer.

In total, 100,000 2nd class items received a dummy code mark but few have survived into philatelic hands as the marks were virtually invisible in normal light. The ink used was a water-based phosphor ink which gave a yellow afterglow under UV.

Below is a photo, taken under UV light, that shows the dummy code marks.

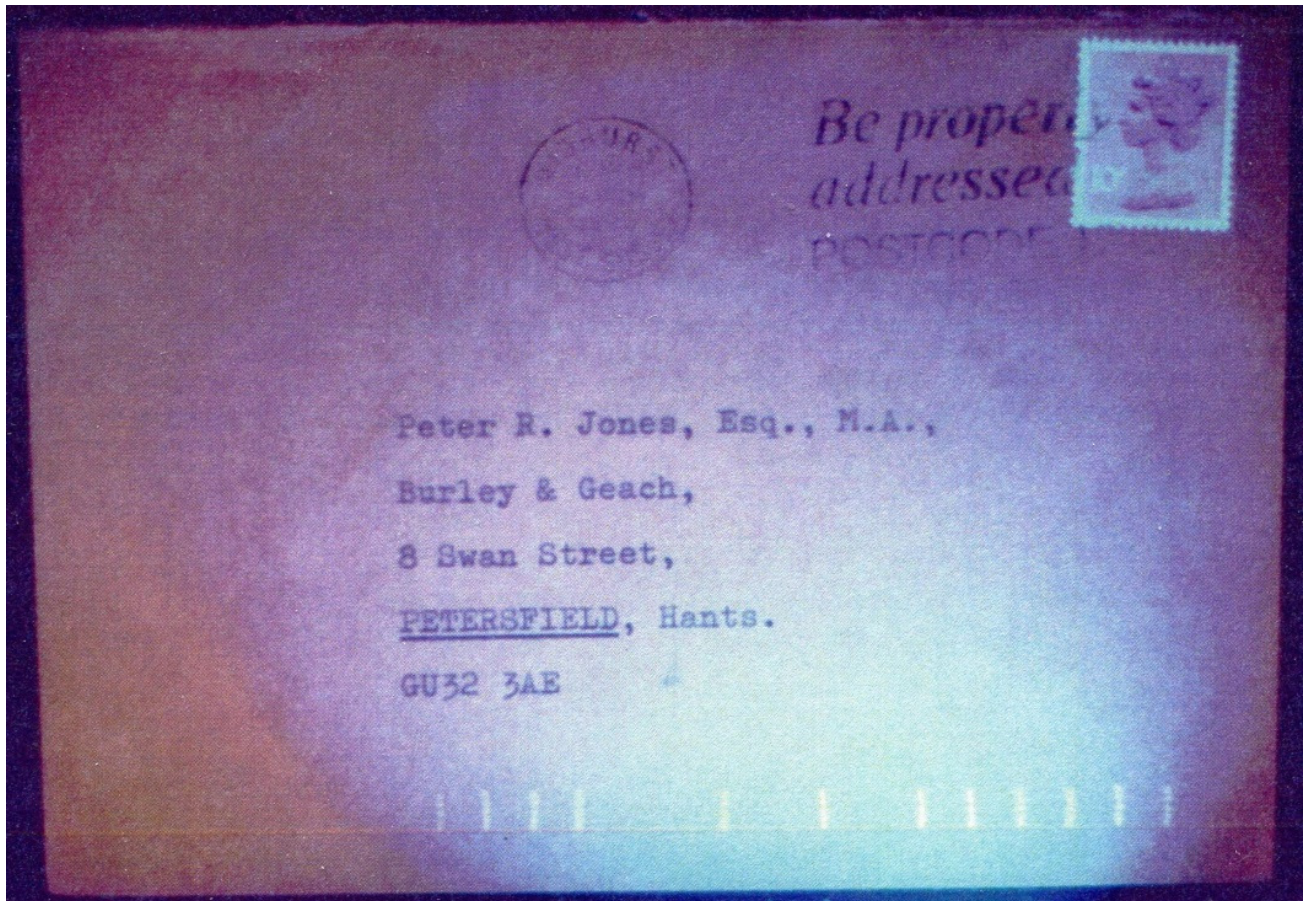


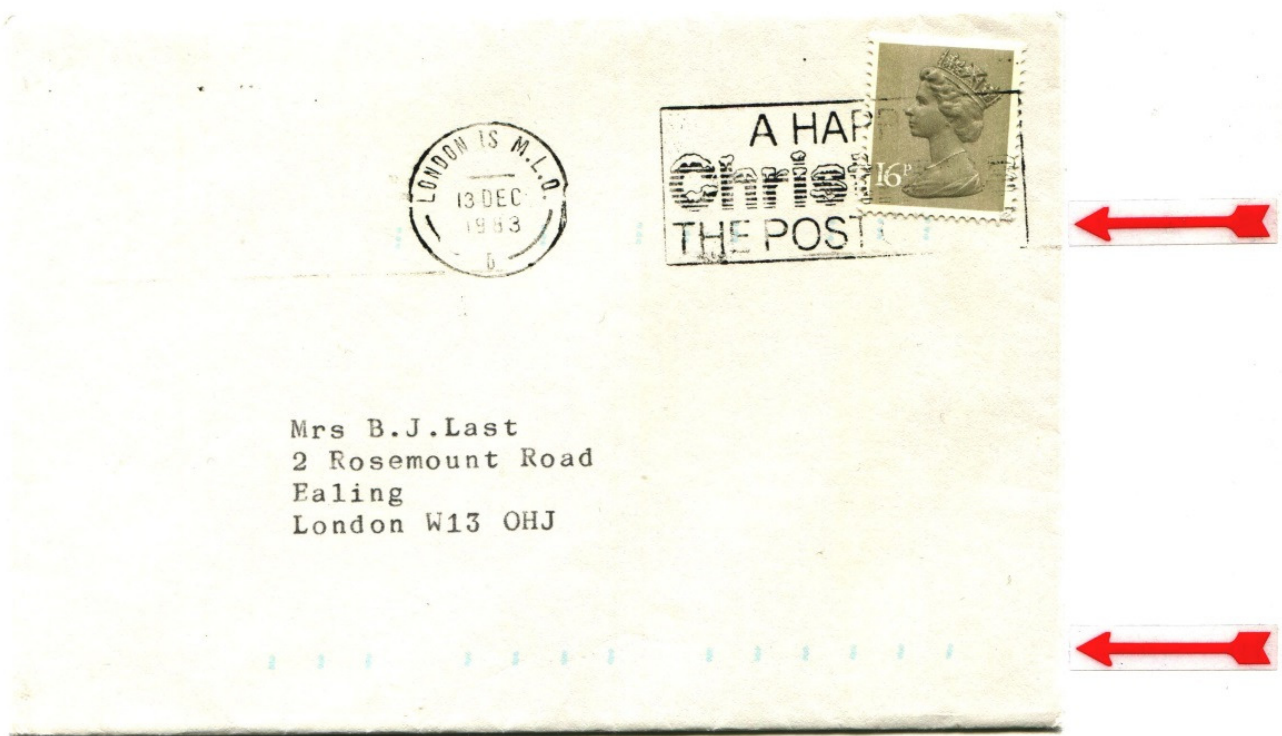
Photo taken under UV showing IJP coding - Midhurst 24 March 1980

1983 – OCR / IJP trial at London Mount Pleasant

In September 1983, the first live-mail Optical Character Recognition (OCR) trials began. The trials were conducted at the Inland Section of the London Mount Pleasant office. In this trial, the town in the address was checked against the postcode and, if correct, IJP coding was applied to the mail item.

The trial was successful, and the equipment was officially put into service during January 1984.

The cover below shows an early example during the trial period. The town (Ealing in this case) matched the written postcode and the item received both outward and inward codemarks.



Cover processed at London I.S, during OCR / IJP trial, dated 13 Dec 1983

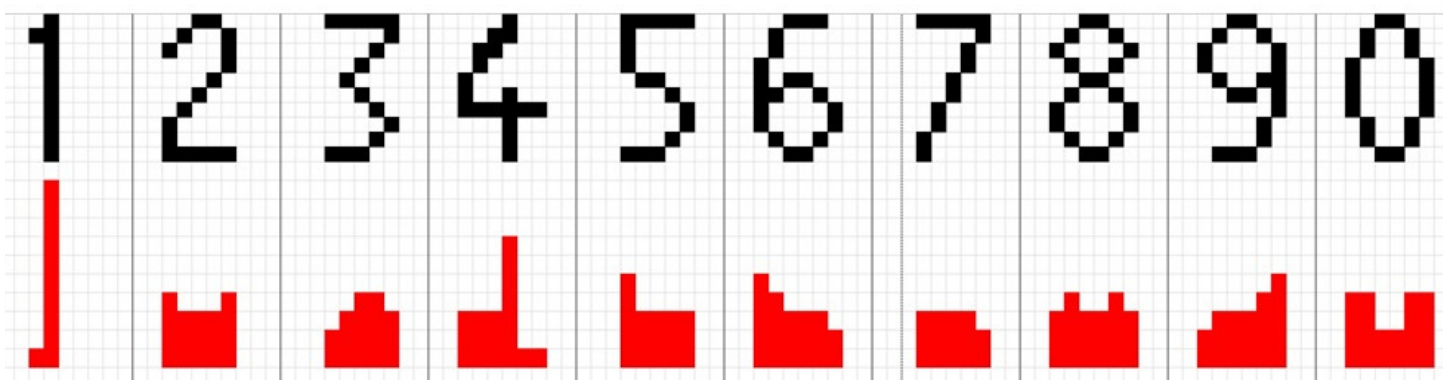
Optical Character Recognition (OCR) – how it works

Optical Character Recognition is a process which allows text based images to be converted into an electronic form. In the case of address recognition of mail items, these images are generated by sophisticated scanners within the sorting equipment.

The Optical Character Recognition software first of all cleans the raw image to maximise the chances of success. Translation of the characters into digital images is the primary function of the OCR.

Each image of every character is converted into a character code. If the algorithm is unsure of a character – then the software will produce multiple character codes before making a final choice.

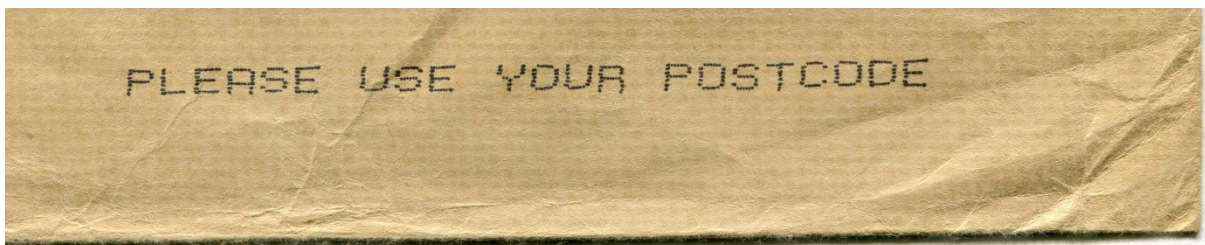
Below is a simplified way of showing how OCR works, taking the digits 1 to 9 and 0 as an example. Basically, as each character is read, it is 'sliced-up' and a histogram of that character (shown in red in the example) is formed in the computer memory. That pattern is then used to look up the nearest match from a library of pre-set patterns.



1986 – Flat Sorting Machines (FSMs)

The Flat Sorting Machine project began in 1986 when a single machine made by AEG was trialled at London SW. The purpose of the trial was to determine whether the machine could make a cost effective contribution to processing large flats which, until then had been handled manually. The four-year trial resulted in an order for 13 machines, model FSM 790, and were delivered in 1991/92.

The machine initially printed postcode-related messages (as below), but was later changed to specify date, time, operator identifier, location, input station and bin number – see item on the next page.



The operator placed the faced item on a conveyor and keyed in a two-digit number to identify the bin number assigned to that mail item. Photos of the operator positions and the chutes are shown below.



The keying rate was approximately 3000 items per hour, with a missort rate of less than 1%. In 1994, approximately 1.9m 1st Class items and 2.1m 2nd Class items were processed each week.

1988 - Quality of Service Trial at Reading

In mid-1988, a three month trial took place at Reading MLO, where an ink jet printer was fitted to the OCR in order to apply a 'Quality of Service' (QoS) ident to the mail items.

The format applied was "RG 0x", where x reflected the day of the week when the item was processed. It was changed manually each day as follows:

"01" was applied from midday on a Monday to midday on a Tuesday

"02" was applied from midday on a Tuesday to midday on Wednesday etc.

The 2nd Class item below is postmarked (Monday) 18 JLY 1988 and bears the QoS ident "RG 01" to indicate it was processed between midday on Monday and midday on Tuesday.



Cover bearing ident "01", processed at Reading MLO on 18 July 88

1989 – Liverpool Ink Jet Printing Message Trial

During June 1989, Ink Jet Printers were fitted to the presorters at Liverpool MLO. The purpose was to provide a second reference date on mail items passing through the system. The imprint served as a quality control mark and, as a result, provided an automatic correction of any date errors on meter franked mail.

The printers used in the trial were supplied by three different manufacturers, namely Linx, Domino and Video Jet. Initially, the format of the printed message changed almost daily but, from early September until early December that year, the imprints followed a standard pattern, i.e. LIVERPOOL / TIME / DATE as shown in the following example.



Liverpool Ink Jet Printed message – 26th Oct 1989

1995 – IJP Stamp Cancellling at London F.S.

During August 1994, a culling machine (known as the 'chip fryer') was installed at London Foreign Section to segregate / face machineable mail.

At the beginning of 1995, two Ink-jet printers were fitted to this machine, enabling it to be used as a stamp cancelling machine.

The machine was capable of printing a variety of different cancels, including 'pre-paid cancels' and Postage Paid Impressions (PPIs) on overseas-destined mail.

The special PMSC cover below shows an example of this machine being used in stamp-cancellling mode, on an outgoing mail item to Germany.



IJP cancel in red ink, applied at London F.S, dated 15 Feb 1995