British Postal Mechanisation
(From Transorma to the Modern Era)

Period Covered : 1935 to Present (2022)

Purpose of Exhibit :
To present the story of the co-dependent development of mechanisation threads that enabled post office mail handling and sorting to become automated.
The exhibit has four threads , they are:
(a) Machine-Readable Stamp Identity,
(b) Letter Facing + Service Class + Cancel Integration,
(c) Letter Destination Sorting &
(d) Postcode Structure + Implementation , each are inter-related.

Scan QR Code

Organization of Exhibit

(1) 1935-57 Early Mechanized Sorting
(2) The Modern Letter Processing Era
(3) 1957+ The Search for Stamp Identity & Phosphor Coating
(4) Automatic Letter Facing & Sorting , Postcode Structure & Implementation.
(5) Address Simplification to Post Code, Machine Cancel & PO Counter Stamp advancements

Presentation Approach:
This exhibit uses elements of Traditional , Postal History & Marcophily categories to tell the story.
A minimum number of non philatelic items are included as important event markers.

Picture Postcard© National Postal Museum, London
The Dutch TRANSORMA, a room-size machine, became operational in October 1935 / In Great Britain

This exhibit is about the story, told through the philatelic trails of the advancements in materials science, engineering and address data structure, that has enabled this remarkable advance in automation.

Symbols Used: ☐ Items of high importance ☐ Difficult to Procure

Ref : Postal Mechanisation Study Circle, Postal Mechanisation handbook
H. Dagnall, The Mechanised Sorting of Mail

An Historical Perspective

The scale of advancement that Royal Mail was to enact with the 1935 introduction of the TRANSORMA can best be appreciated by an understanding of postal operations at the time.

"Post & Go" 1st class stamp
(showing manually sorting of mail)

Video

Scan & Watch

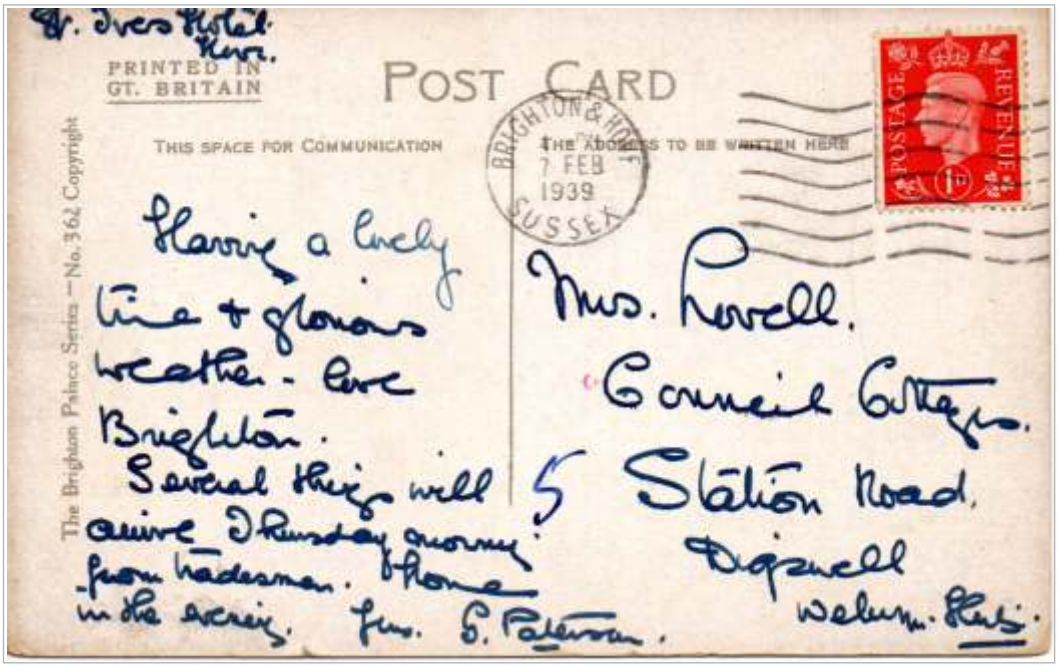
Mail facing and sorting was a completely manual operation performed by men (only) in long lines of sorting stations.

Limited Automation

The only automation within the British Postal in the early 20th century consisted of a series of manually operated cancelling machines.
The Person Hill treadle operated machine depicted below was the first to be introduced in 1857.
Officially First Demonstrated in May 1858, Hill's 'Parallel Motion Stamping Machine' was a modified more Robust, 'Machine C' having a Parallel - Motion linkage and having a Double-Roller inking feature to eliminate offset inking.

Early mechanical cancellation devices such as the Person machine provided the only process automation for mail handling in the period. In production use from September 25, 1857, the Person Hill canceller was used 21.5.1862 to cancel this letter.
Single-Weight Commercial cover with 1d stamp from London (93) to Edinburgh (21st May 1862)

Brighton was chosen on the basis of space availability, ease of switching to manual operation if the equipment failed, the relative youth of the Clerk, Telegraphist and Postman Class and the similarity of volume with Rotterdam, where the Dutch machines were operating.



← Ident '3'

Enlarged image

Ident '3' in red sideways
7th Feb 1939, Brighton & Home (1d Post Card rate paid by P.S.)

The purpose of Ident use was to monitor sort accuracy.
When a letter was sorted incorrectly, it was returned to the sort queue and reprocessed.
This action would also result in two or more Ident impressions.

Double Ident
'M' + '4'

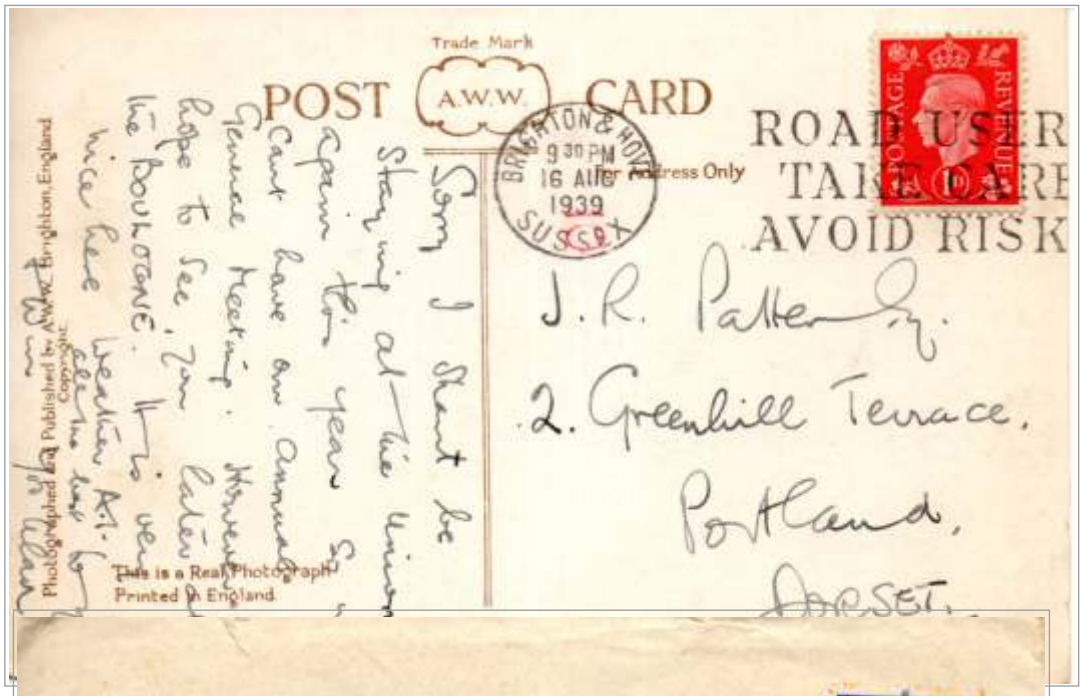
← Ident 'M'

← Ident '4'

Enlarged image

Mail from GB sent to Canada (26 Feb 1941)
(1s'3d Airmail rate paid by Postage Stamp)

The purpose of the Ident marks was to track the source of miscoded letters for quality control. Each code-desk operator was issued an indent mechanism with either an alpha or numeric marketing face .
This was inserted into the desk to begin an operating shift.

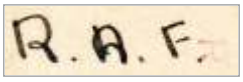


Used in 1939

Ident "10"

Enlarged image

Ident "R"



Enlarged image

Used in 1943

Large 'R', Sideways Ident in Red
8th Mar 1943, Brighton & Hove to bucks (2½d letter rate paid)

After a letter's destination had been identified by an operator, the letter was dropped into a slot where it passed by the ident mechanism and impressed with the operator's cypher.

Ident Mechanism

Alpha-Numeric Face

Letters were dropped from the operator onto a carrier. The carriers were transported from the code desks via an track system that ran at a constant speed of 50 letters per minute.

Inwards to Brighton, Sorting mark 'y' sideways (3.5mm height).

← Ident "y"

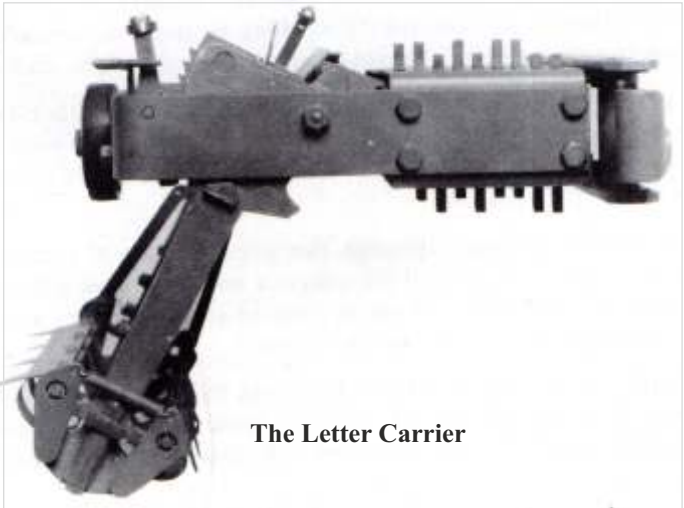
Enlarge view

Outwards from Brighton & Hove (21st July 1949) to S.Wales.

← Ident "17"

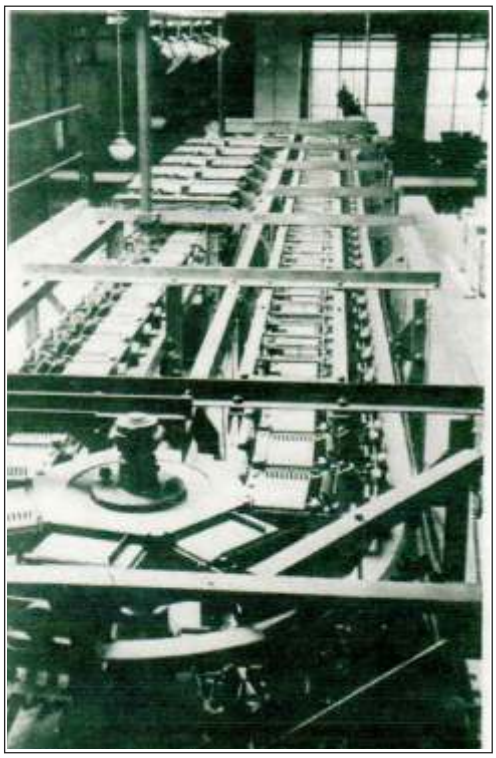
Enlarge view

The Oval Track



The Letter Carrier

The carriers were mechanically "programmed" by the code desk keyboard by setting nine fingers to specific positions. When the carrier reached the appropriate place along the oval track, the letter was released into a chute that allowed it to fall into the appropriate destination box within a bank of boxes, below.



The full range of idents used is presented in the table at right along with approximate font size. Due to wear, some example of the characters vary in size.

Initial Ident Set Examples 1935-38

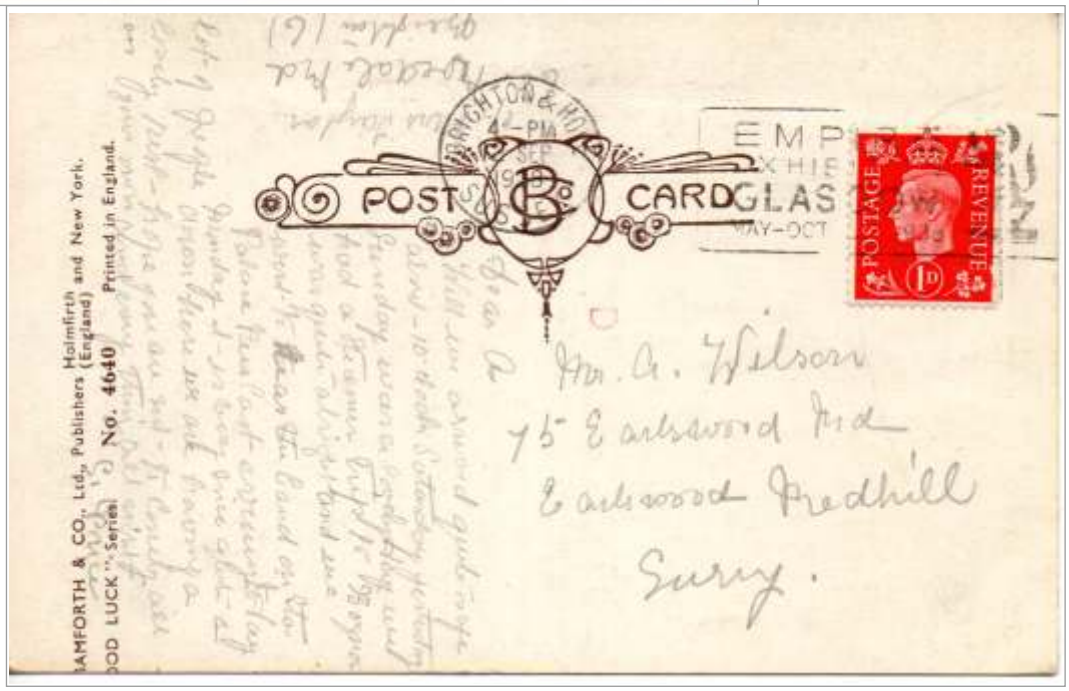
This cover: 27 Mar 1936

Ident "H"

Enlarge view

Ident "D"

Enlarge view



This cover: 12 Sep 1938

Recorded Ident Use				
Range		Font Size	From	Notes
A	Z	3.5mm	Sep 1935	
a	z	3.5mm	Sep 1935	Excluded: c,l,s,v,w
2	9	3.0mm	Sep 1935	l's without serifs
10	15	5.0mm	Late1936	l's without serifs
16	21	4.5mm	1943	
22	23	4.0mm	1946	
24	32	5.0mm	1948	
33	37	2.5mm	1961	

From P.G. Awcock, Brighton Transorma 1935-1968, Pub.1996

At the time of introduction, there were 55 idents (A-Z, a-z and 2-9, excluding five lower-case letters).

Note that standard placement of the Ident is sideways with the base of the character to the left.

The examples to following page represent only one of each series for the purpose of font illustration.

30 Sep 1946

Enlarge view

← Ident "g"

Enlarge view

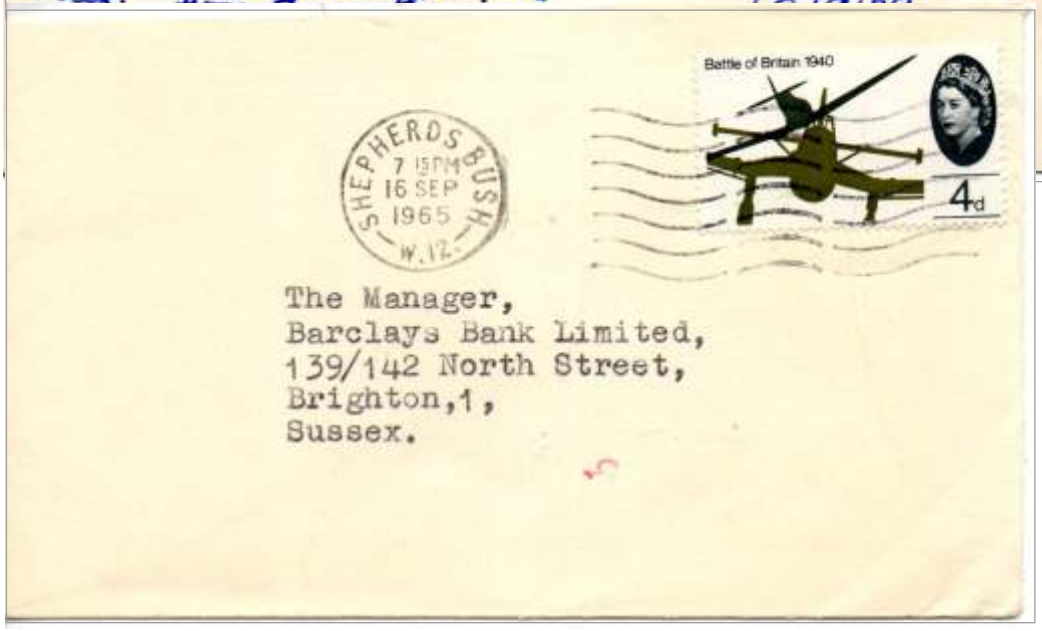
← Ident "p"

31 Dec 1953

Enlarge view

← Ident

9 Aug 1953



Enlarge view

← Ident "3"

16 Sep 1965

The TRANSORMA was capable of sorting ***Outgoing*** and ***Incoming*** mail as separate activities. Because the machines existed only in Brighton and with no postal code yet in existence, an, Incoming sort was limited to the local area.

Incoming Mail
1953

← Ident "o"

Enlarge view

Letter from London to Brighton 16/11/53 Ident 'o' (small)

Local mail would first go through an *outward* sort to determine what city or postal jurisdiction to which it was to be sent. Local mail (Brighton & Hove) would then be segregated and processed for an *Incoming* sort for individual letter carriers. This placed two ident strikes onto the envelope for *Outgoing and Incoming.*

← Ident "2"

Enlarge view

Local Delivery
1958

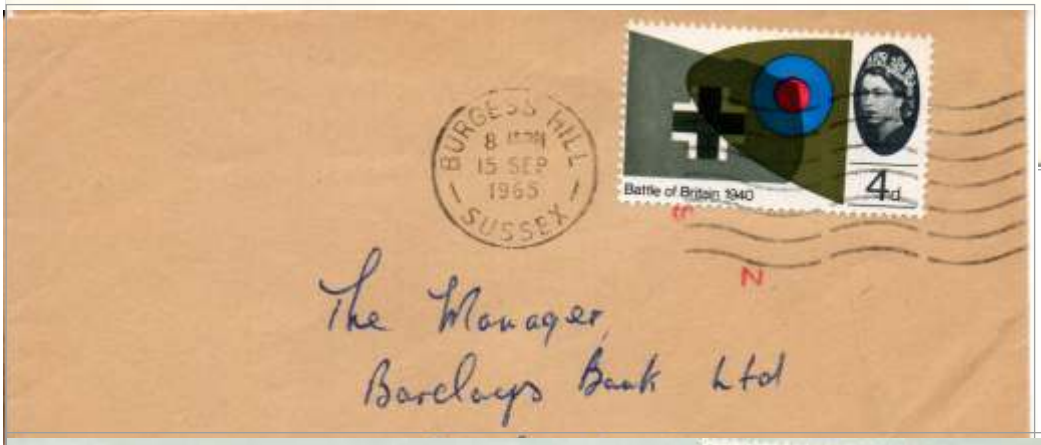
Local Mail, printed Paper Rate, from Brighton to Brighton, small '2' Ident.

The TRANSORMA was capable of sorting ***Outgoing*** and ***Incoming*** mail as separate activities.

Ident "6"

Ident "U"

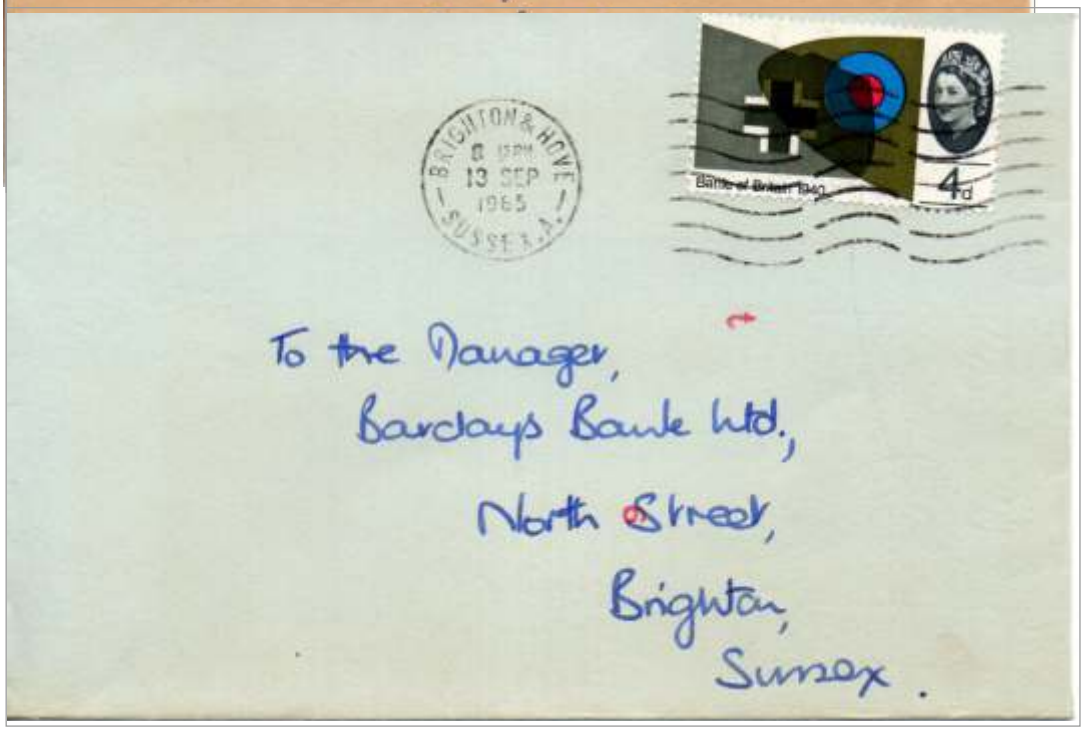
Enlarge view



Ident "6"

Ident "Z"

Enlarge view



Ident "t"

Ident "6"

Enlarge view

Local mail would first go through an *outward* sort to determine what city or postal jurisdiction to which it was to be sent. Local mail (Brighton & Hove) would then be segregated and processed for an *Incoming* sort for individual letter carriers. This placed two ident strikes onto the envelope for *Outgoing and Incoming.*

London: Six Position Letter Sorting

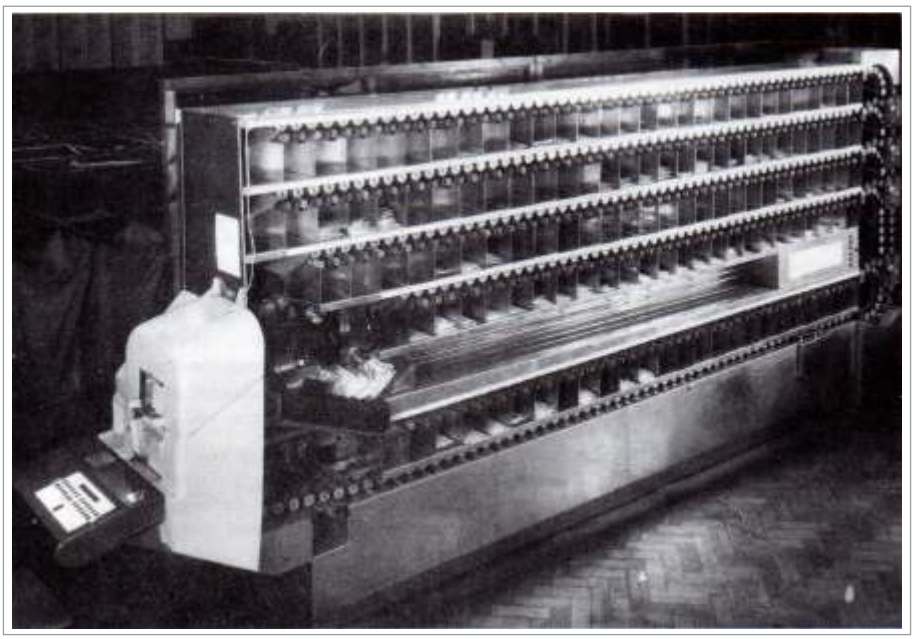
Less than 100 covers as known to exist.

Ident "IV" Sideways

Enlarge view

In bound mail from Funchal, Portugal (19/12/1952) to London SE25.

First Operational UK built mail Sorting Machine "SPLSM" or SIX position Letter Sorting Machine, capable of sorting mail into 120 destination boxes began trial at Mt. Pleasant (London). Ident in the form of Roman Numerals, were employed for quality control.
The SPLSM processed in land mail through Mt. Pleasant, as well as international Mail destined for the Provinces. One example is presented below.



An improved version of the SPLSM, type E8, was introduced in the London F.S. in 1971, 5 machines being installed at Bird Street. Idents were used sporadically but during 1983-4 large letters A to E, repeated at 60-70 mm intervals, were used as machine identifiers.

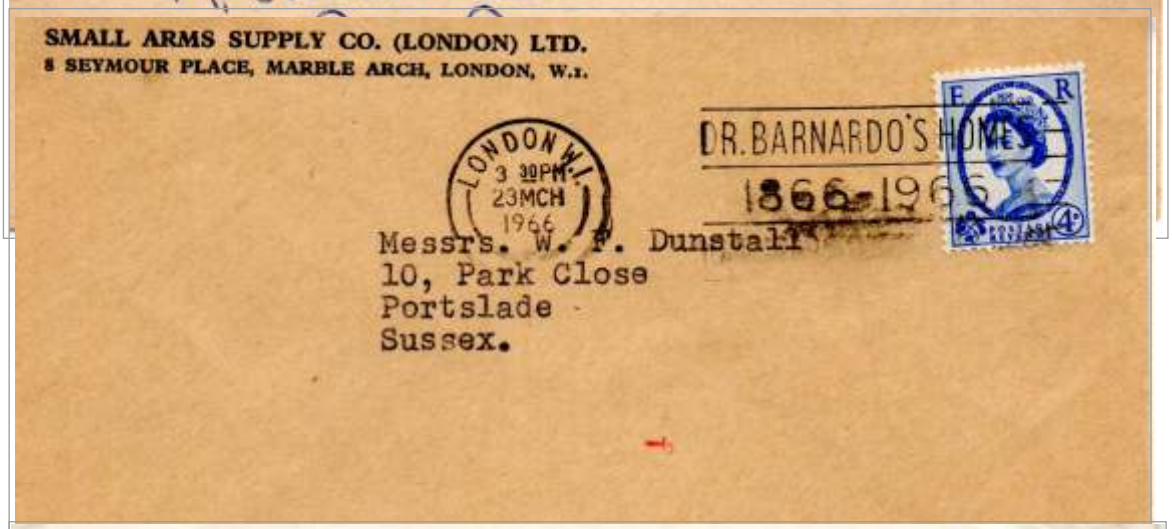
The Single Position Letter Sorting Machine - SPLSM

The SIX PLSM was superseded in 1955 by the first experimental SPLSM at Bath.
The device was operated, as the name suggests, by a single coding clerk and was capable of sorting letters to 144 destinations.
Following the trials, 20 production SPLSM were istalled between 1958 and 1970.

(17 Dec 1966)

Ident "O"

Enlarge view



Ident "f"

(23 Mar 1966)

Enlarge view

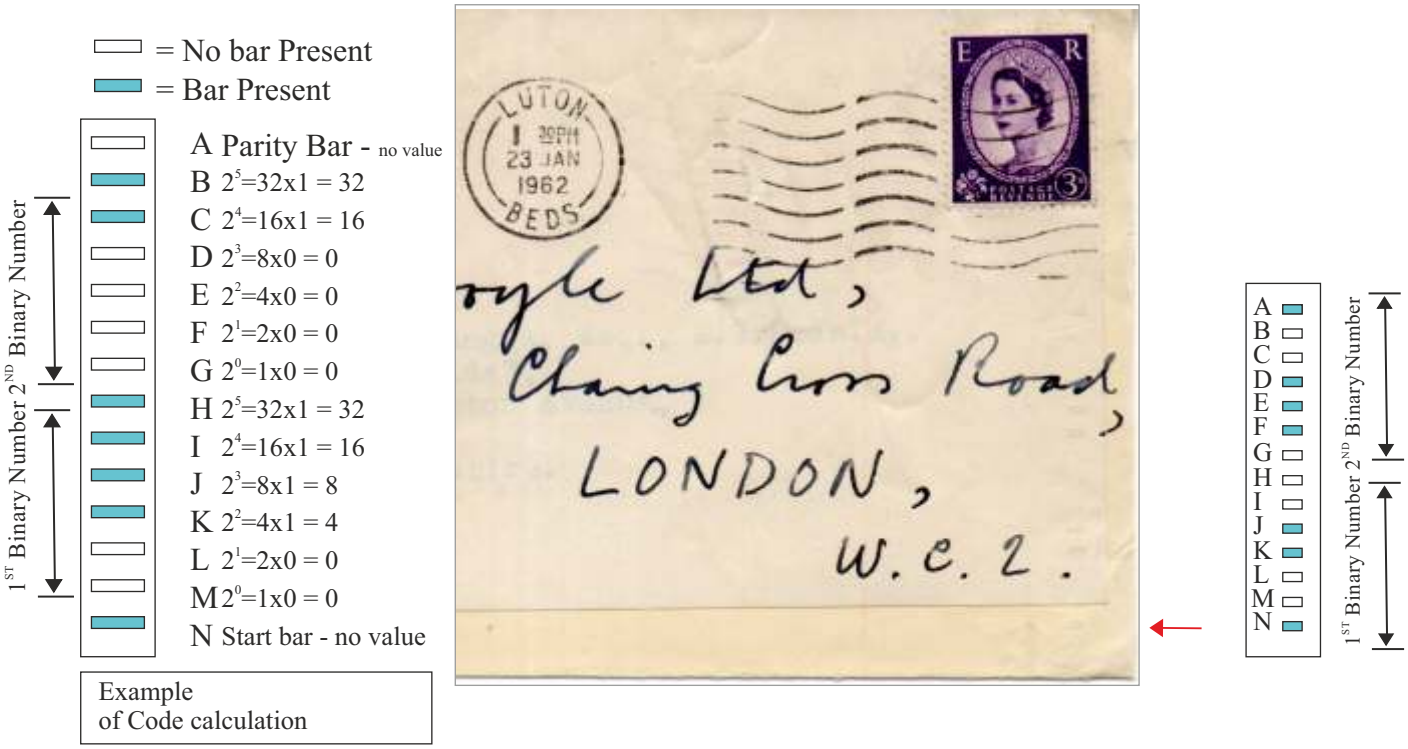
Ident "6"

(23 Oct 1967)

Enlarge view

The next requirement for implementation of automatic letter facing and sorting was coding the cover. The trial of the binary code was experimented on the envelope with phosphor bars, initially in a vertical format and is read by the translator from bottom-up.

Binary Code Value Calculation



The next requirement for implementation of the trial was the binary code.
The code is recorded on the envelope with phosphor bars, initially in a vertical format and is read by the translator from bottom-up.

Bar position **N** is a start-bar and has no arithmetic value but signals the reader that the code commences with the next bar position. Each bar can be thought of as a 'bit' to use modern terminology.

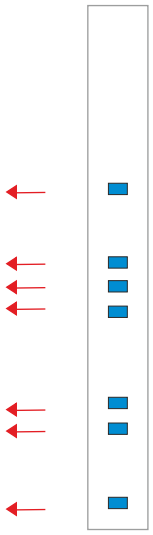
In the Luton configuration, the extract code is 12 bits long, divided in to two six bit parts.
The first number to be calculated includes bits **M-H**. The second number to be calculated begins at bit **G** and ends at bit B.
The last bit position, A, was an optional 'parity bar' which at Luton was 'parity-odd'.
This last bar served the purpose of a check-sum whereby the number of bars must add to an odd number.

Binary code works as follows: Bar=1, No Bar-0. Each step doubles in value therefore:
Position **M** = 1, **L** - 2, **K** = 4, **J** - 8, **I** = 16, **H** = 32 for a maximum of 63, (2^0, 2^1, 2^2 ... 2^5).
If a bar is present, the value of the position is multiplied by 1.
If a bar is not present the position value is multiplied by 0.
The top-most bit, 2^5, was apparently used as an internal value parity indicator.

This topic is more complicated than presented here but is covered in detail ***in British Letter Sorting Codes, 2nd Edition - 1996****, by R.C. de Vekey.*

The phosphor coated tape used was expensive. This example shows rectangular dots about a third smaller than the previous example. This difference is a function of die size and tape quality.

Phosphor
Rectangles
2mm W x 1mm H



A 1964 outgoing letter to Luton with vertical Lettalite B2 phosphor dots indicated by arrows.
The rectangular dots are smaller than the previous example.

Luton Extract Structure

To implement an indirect address code trial, three elements were required:
First, a structure of what outgoing and incoming information was to be captured.
Second, so that the coding could be separated from the sorting an indirect means of 'memory persistence' needed to be applied to an envelope.
Third, a binary code format must be chosen.

First - Luton Extract Code

Outgoing: Information captured included only the city and consisted of the first three and last two letters of the city name.

ex.
GLASGOW = GLA+OW
AYR = AYRYR

Incoming: Information captured included only the street name and consisted of the first two letters plus the last two letters plus the first letter of the ytype of road where S=street; C=court etc.

ex.
Tuckwell Close = TULLC

Second - Luton Phosphor

Beginning January, 1960

PHD

CSA

←"PD"

The coding desk was made by associating the letter feed and presentation unit the SPLSM with a specially designed code printer. A coding desk has two main function: one is the purely engineering matter to transporting and processing the letters; the other is the all-important matter of linking the human operator with the system. The operator's physical and psycological comfort must be given every consideration. Provision of an acceptable degree of physical comfort is not straight forward because of the wide range of human physical characteristics that have to be accommodated, nevertheless, the scope of the problem can be appreciated.

Video

Scan & Watch

Thrissell coding desks at Norwich, On the left is an aggregator stacker

Start of the Modern Era
Introduction of Easy View Desk at Redhill

Engineers had also been working to develop improved sorting equipment during the Union ban. With the lifting of the ban on new installations, Redhill, a new MLO, became the first office in 1975 to receive *Second Generation* equipment including the Easy View desk.

Video

Scan & Watch

Philatelic Announcement of Easy View Desks at Redhill