Czechoslovakia

First Republic

Typographic Plate Production

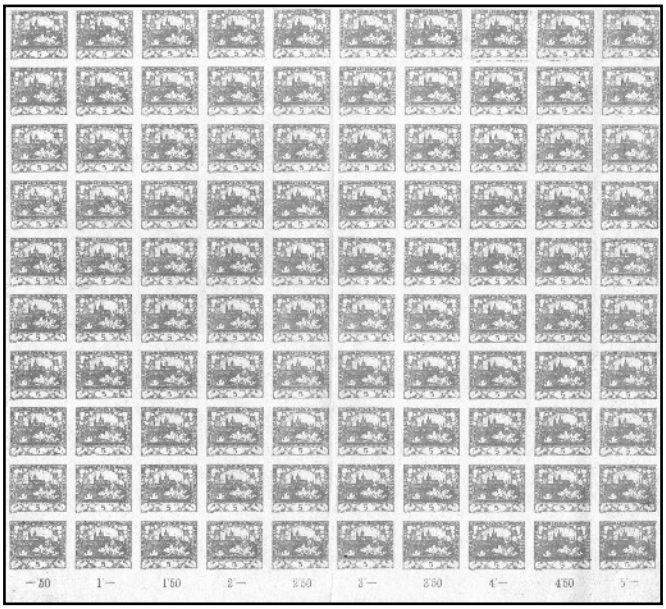
1918-1923

Typographic Plate Manufacture 1918-1923

The Photographic Based Method

Reproduction of the green 5 haler *Hradčany* master die and an auxiliary print.

An engraver cut from metal a double-stamp size *master die*.
The print shop used the die to stamp out double-stamp size *auxiliary prints*.



Reproduction of the green 5 haler *Hradčany* paste-up.

A workman then hand-pasted 100 auxiliary prints to stiff paper in a ten-by-ten *paste-up* array.
A set of *tally numbers* pasted below the bottom row of auxiliary prints completed the arrangement.

Reproduction of a negative image, a cliché from a typographically-produced plate, and a printed green 5 haler stamp.

A camera fitted with a 50% reduction lens produced a plate-sized *glass negative*.
A workman electrochemically transferred the glass negative's image to a *metal plate*.
Once etched, its cliché edges milled, and given a polish, the metal plate could be used to print stamps.
Photographic based typographic plate production involved several complex steps prone to error.
The company found plates quick to wear out and difficult to repair or replace.

Typographic Plate Manufacture 1918-1923

The 1920 Individual Die Method

Reproduction of the mauve 30 haler *Hradčany* master woodcut created by the Caha Xylograph company.
100 galvanized dies were created from the woodcut.
These were arranged in a ten-by-ten array without tally numbers.

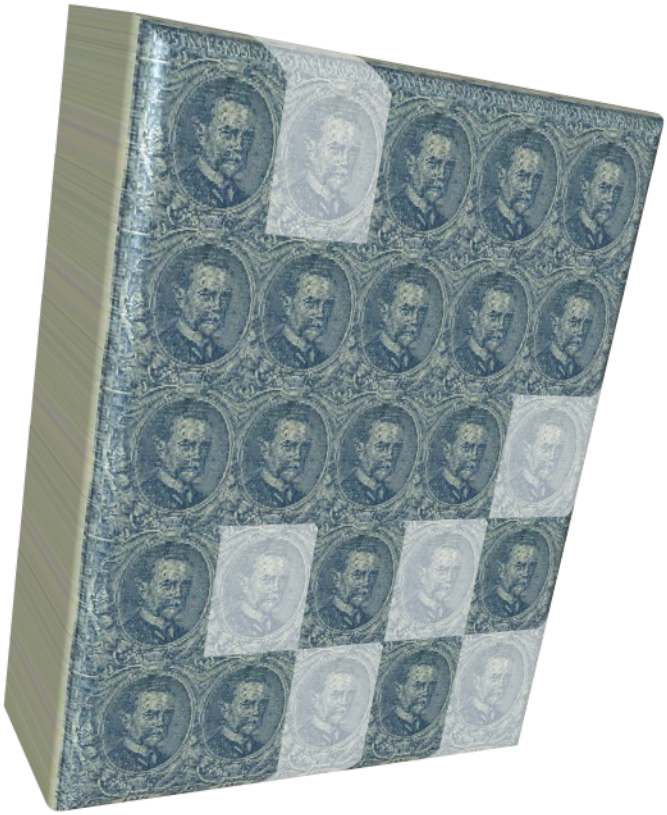
Because the dies were of different sizes and arranged by hand, many clichés were misaligned.
Note the tilt leftward and upward in the upper left corner stamp, the rightward tilt of the lower left corner stamp.

The first release in a dark colour resulted in panes with a checkerboard appearance as a result of die-height differences.
The colour was lightened for later releases.

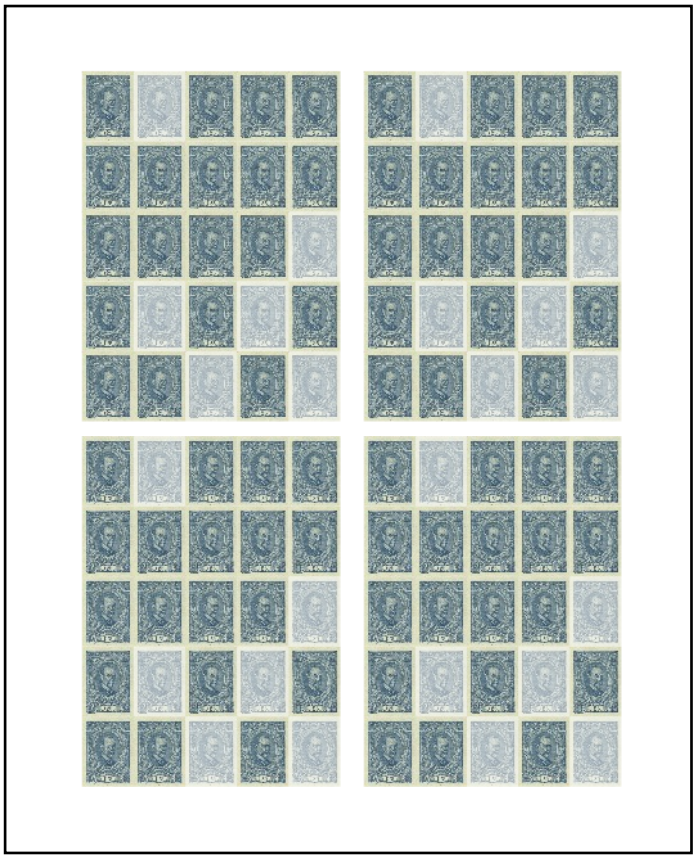
The company began experimenting by using individual metal dies.
This production of the last *Hradčany* plate dropped the auxiliary print, paste-up, and photographic steps.
Electroplastic plates were taken from the ten-by-ten matrix of individual dies.
The stamps were of a larger size and rougher appearance than the other *Hradčany* denominations.

Typographic Plate Manufacture 1918-1923

Mixed Matrix and Photographic Based Methods
1920 Quarter-plate Copy Technology



Quarter plate



Full plate (separation exaggerated)

Reproduction illustrating this combination of photographic and matrix based typographic plate manufacture.
For simplicity sake, positive to negative transformations have been ignored.
Matrix produced plates usually do not bear tally numbers.
Type I is shown dark, Type II shown lighter.

In 1920 the printers began searching for a means to replace the labour intensive photographic technique.

Four copies of a five-by-five photographically produced plate were assembled into a composite whole.
The Type II distribution pattern in the composite plate's quarters demonstrates the use of this method.

Only the 125 haler *1920 Masaryk 70th Birthday* plates were so fabricated; the technique was not used again.

Typographic Plate Manufacture 1918-1923

The 1920 Five-Die Technology

An engraver cut a stamp-sized master die.

A metalworker created five copies of the die, likely the most useful subunit of the total one hundred needed.
These he soldered together to form a strip of five dies.
The metalworker copied that strip, then soldered the two together end-to end to form a ten-die strip.
Ten such strips in a matrix formed a mould used to produce 100-cliché plates.

Matrix based plates do not bear tally numbers.
For simplicity sake, this reproduction of the five-die process ignores negative to positive transformations.

This 1920 change in technology made plate fabrication and repair far faster.
Workmen no longer had to attach bits of metal to the plate to effect a repair.
New dies or strips could easily be inserted into a matrix and new electroplastic copies taken.

The four lower denominations of the *1920 Agriculture and Science* issue.

Type I. Type II.

Types I and II of the 100 haler and 300 haler from the *1923 Agriculture and Science* issue.

Only these eight issues and denominations were printed with plates constructed using the five-die method.

Typographic Plate Manufacture 1918-1923

The 1923 Ten-Die Technology

An engraver cut a stamp-sized master die.

A metalworker created ten copies and soldered them together to form a 2 × 5 block.
Ten such blocks held together in a matrix formed a mould used to produce 100-cliché plates.
Each time a new plate was needed, the blocks in the matrix might be reassembled in a different order.
The company used electroplastic copies of this matrix to produce plates.
Like all matrix based typography, such plates bore no tally numbers.

Likely the mechanical stability of a ten-die block compared to a ten-die strip prompted the change.
For simplicity sake, this reproduction of the ten-die process ignores negative to positive transformations.

Type II. Type II.

The Type II 200 haler and all denominations of the Type III *1923 Agriculture and Science* issue.

Only these four denominations were printed with plates constructed using the ten-die method.

Typographic Plate Manufacture 1918-1923

Mixed Matrix and Photographic Based Methods
Casting and Pressure Based Technologies

Plate 3/29 of the olive brown 10 haler *Dove* issue with tally numbers, set number, and date.

Finally the company tried and settled upon two other mixed based technologies.
The printer always marked such plates with a *set number* and a two-digit *date*.
Both were chiefly used on issues that already had photographically-produced plates.

The *casting method* turned an electroplated copy of a photographic plate into a matrix.
The *pressure method* forced foil at great pressure into a photographic plate to form a matrix.
These techniques limited the exposure of labour-intensive photographic plates to wear and damage.
The unusual presence of tally numbers on some matrix produced panes mark their photographic ancestry.
As the two methods left no identifying traces on the plates, it is impossible to say which method was used.

Plates produced by these methods are usually, but not always, referred to by set/date: 1/28.
This practice causes problems in that the same set/date pair sometimes occurred on different plates.

Typographic Plate Manufacture 1918-1923

Plate Numbers

20 haler *Liberated Republic*.
A gap in the decimal line identifies this as Plate II.

1000 haler *1919 Postage Due* issue.
A plate without identifiers.

100 haler *Liberated Republic*.
The number on the stress bar likely indicated membership in the set of plates currently in use at the time.

Some numbers on a plate may be misleading.
Shown is Plate XII, not 4, of the blue 5 haler *Dove*.

25 haler *Dove* Type II.
Three horizontal lines scratched into the stress bar.

Once stress bars were introduced they often bore identification marks.
Sometimes nips or cuts in a tally number or its decimal line identified plates without stress bars
Other plates had long or short decimal lines or missing decimal points in the tally numbers.
It is not known if these marks were made deliberately or occurred by accident.
Some plates had no markings at all and may only be identified by means of their plate flaws.

Only a small fraction of the early typographically-produced plates had true plate numbers.
Czech philatelic writers assigned plate numbers based upon their position on the press.
Writers in other countries sometimes assigned plate numbers that differed from the Czech system.
As such, plate numbers usually do not denote production sequence.

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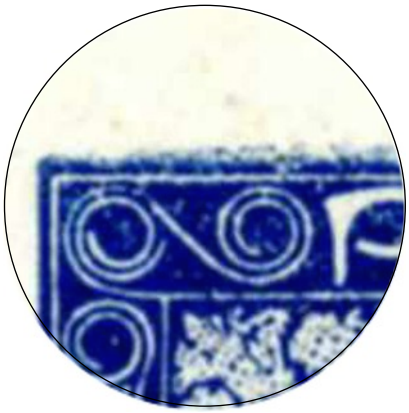
Stress Relief Bars



Block of four 50 haler *Hradčany* from Plate I with a blurred upper edge.
Plates tended to rock under the inking cylinder's pressure giving rise to blurred edges on the outer stamps.

Green 50 haler *Liberated Republic Plate I*.
Solid stress bar on the right side.

Olive-bistre 10 haler *Dove*.
Solid stress bar at top.
Milled stress bar on the right side.

Printers cured this problem by attaching stock typographic bars for stress relief to the edges of the plate.
A solid stress bar sometimes trapped air, causing paper folds during printing.
The company began to mill gaps in the bars next to each row's end or column's top to prevent such folding.

Typographic Plate Manufacture 1918-1923

Failed Booklet Issue

Intended for booklet panes that never materialized, postal authorities eventually released the stamps to the general public.

Plate XI.

Bump on the right side of the coloured triangle above the A in POŠTA.

No bump.

Ninety-cliché plate.
Positions 1-2, 11-12.

Violet and blue 5 haler *Dove*, position 11.
All well-known negative flaws occurring on plates up to and *including* Plate X appear on ninety-cliché plates.
The negative flaw in position 11 first occurred on Plate XI and does not appear on the ninety-cliché plates.
Therefore the blocks used to construct the ninety-cliché matrix came from Plate X .

1	2	3		5	6	7			
11	12	13		15	16	17			
21	22	23		25	26	27			
31	32	33		35	36	37			
41	42	43		45	46	47			
51	52	53		55	56	57			
61	62	63		65	66	67			
71	72	73		75	76	77			
81	82	83		85	86	87			
91	92	93		95	96	97			

Plate X: Source of the matrix blocks.

5	6	7	97	96	95		1	2	3
15	16	17	87	86	85		11	12	13
25	26	27	77	76	75		21	22	23
35	36	37	67	66	65		31	32	33
45	46	47	57	56	55		41	42	43
55	56	57	47	46	45		51	52	53
65	66	67	37	36	35		61	62	63
75	76	77	27	26	25		71	72	73
85	86	87	17	16	15		81	82	83
95	96	97	7	6	5		91	92	93

Disposition of the matrix blocks in Plate I.

Schematic representation of a ninety-cliché booklet plate and its source.
A workman cut two vertical thirty-cliché blocks from Plate X of the violet 5 haler *Dove*.
He made three copies of each block for a total of six blocks.
He put three blocks in the left side of the matrix to create the ninety-cliché plate used for Booklet Plate I.
In the centre of the gutter he offset the stress bars: the left upward, the right downward.

The goal was to create 2 × 3 stamp panes with enough selvage to mount them within booklet covers.
This was accomplished by inverting the centre block and creating a gutter to its right.
The gutter provided the needed selvage for the centre and rightmost six-stamp panes.
The leftmost six-stamp panes used the sheet's left selvage.

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Failed Booklet Issue

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				5	6				
				15	16				
				25	26				
				35	36				
				45	46				
				55	56				
				65	66				
				75	76				
				85	86				
				95	96				

Source of the replicated matrix block.
An unknown Type II Plate

5	6	96	95
15	16	86	85
25	26	76	75
35	36	66	65
45	46	56	55
55	56	46	45
65	66	36	35
75	76	26	25
85	86	16	15
95	96	6	5

5	6
15	16
25	26
35	36
45	46
55	56
65	66
75	76
85	86
95	96

Disposition of the replicated matrix block.

20 haler sixty-cliché plate