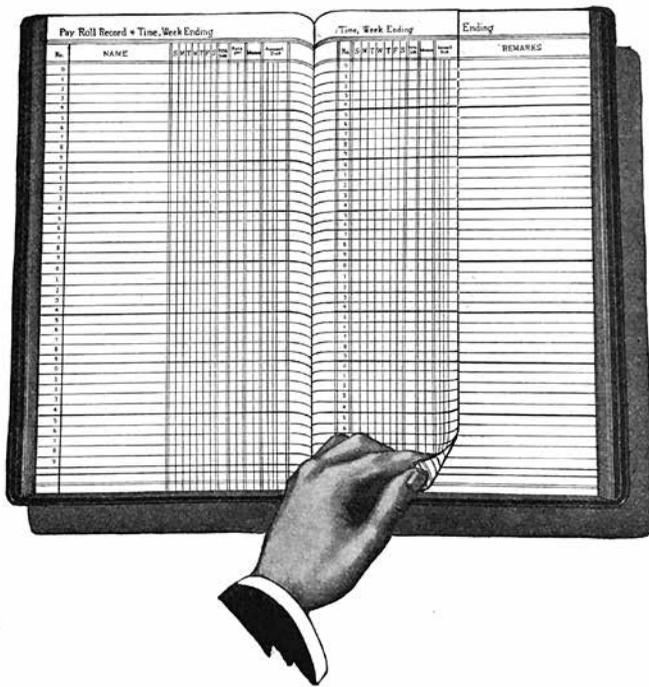


the history of ruled paper



ARTICLE BY **correy baldwin**

I **mag**ine you are a monk in the Middle Ages. You have been tasked with drawing lines on sheets of paper for musical scores all morning, and you still have 50 sheets to get through before the afternoon Gregorian chant session. It almost makes you wish you were on scribe duty. Line upon line upon line, sheet after sheet... If only you could pop down to the local stationery store and pick up some blank music notebooks.

Alas, lined paper—or “ruled” paper—wouldn’t appear for another eight centuries or so. And by then, Gregorian chants would more or less be on the way out. Copying text would have been just as difficult without the aid of margins and lines. Scribes did have tricks for staying aligned, from pricking small holes along the margins of a page to using a stylus to scratch faint lines into the vellum. But for centuries, anything requiring lines, from accounting ledgers to pages for musical notation, had to be drawn by hand—tediously, and laboriously.

It is no surprise, then, that ruled paper was enormously popular when it became possible to mass-produce. This simple stationery product would save printers countless hours, and greatly aid note-takers and business clerks alike.

How exactly the early mechanization of line drawing came about is unknown, though it’s easy to imagine—as Don Kerrigan, printer at the National Print Museum in Ireland, has speculated: “The monks probably got upset ruling sheet after sheet, day after day, and somebody would have come up with the idea of mass-producing—probably four or five quills on a piece of board.” It was only a matter of time until someone came up with a mass-production line-drawing machine.

In the 19th century, when ruled paper was flourishing, the stationery world looked wildly different than it does today. At the time, there were two distinct divisions within the printing trade. One was letterpress book printing, and the other was stationery—primarily the making of books intended for handwritten entries, such as notebooks and ledger books, as well as specialty items like cards and invitations.

Intriguingly, these stationery products were often custom work. Businesses would approach a stationer with a request for, say, a ledger or account book. It would be customized to their own specifications, including things like number of columns, margin sizes and ink colour. After printing, a stationer might keep a sample page on hand, in order to make identical books for the same client in the future.

These were not your ordinary, run-of-the-mill accounting books. Businesses in the 19th-century took their stationery and office supplies seriously. The office was in many ways a more stylish endeavour then,

CALGARY SCHOOL BOARD

CLASSIFICATION # a

Supplies - General

APPROPRIATION

PAYEE	Particulars	Cash Book Folio	School	Debit		Credit
				Details	Total	
	Brought Forward				213 25	2 85
Eddy Co	Oulison Toilet Fixtures	53	Stock		14 66	
Wm Bunday	Newsprint	56	Council H		71 28	
	Quin Skin	"	Stores		47 20	
Wm Elec Co	1 Lamp (Miss Whitehead)	57	Gen Stores		6 30	
Osborne	Ducketts Ink	"	"		31 00	
	Compasses	58	"		20 16	
	Drawing paper	"	"		41 58	
	maps		Council H	20 40		
	Pencils H		Stock	16 20	36 60	
	Clock Deals		"		1 53	
	Chalk		"		15 50	
Wm J. Spensley	Rental to Feb 11. 10th	"	Council H		2 50	
	" Feb 4 10th	"	Council H		20 .	
Wm Papa Co	Ink & paper		Stores		10 29	
	Drug Paper		Stores		2 74	
Stewart Co	Tea Spoons	59	Scaly H		1 68	
Young	Ink	61	Stores		20 00	
	Index Sets & Paste		Council H	2 79		
	Art Gum Erasers		Council H	4 05	6 84	
Jan Job Dept	Letterheads & Envelopes		Stores		101 65	
	"		Council H	4 -		
	"		Scaly H	2 -	6 - 0	2 85
					6 90 26	2 85
Press	Letterheads	62	Council H		4 70	
Command	Substitute monthly reports		General		5 00	
	Registration cards		Council H		16 50	
	Algebra exercise		General		6 75	
National School	Printed Forms	958	Council High		6 00	6
Wm Drug Co	Jaylars Therm Asstd	66	Stock		12 00	
Wm	Parguetry	66	General		36 00	
	Counting blocks	"	Stores		16 00	
Wm J. Spensley	Rental to Feb 13th 11.	"	Council High	2 50		
	" " " " 10	"	" "	2 50 0		
	" " Mar 13/20 (2 machines)	"	" "	5 00		
	"	67	Council High	2 50		

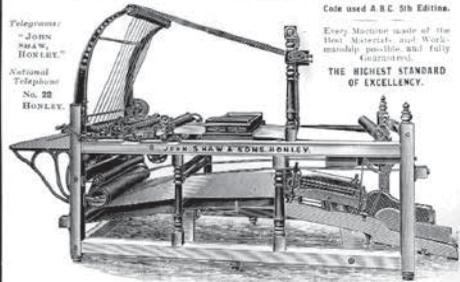
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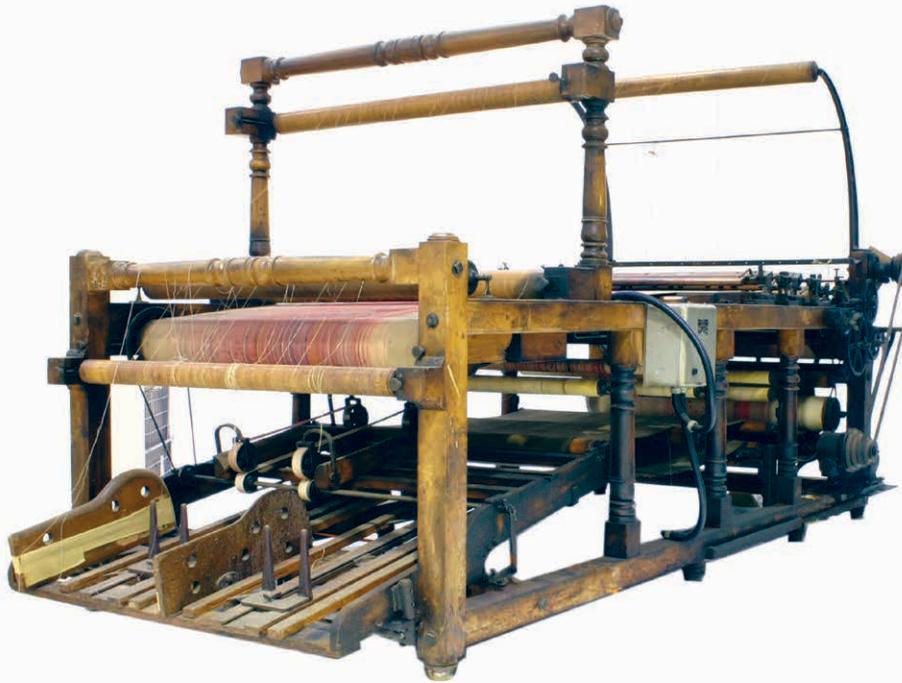
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↑
Ruling machine, manufactured by John Shaw (patentees) of Honley, England. The machine rules lines on paper according to a predetermined scheme.

© Museums Victoria

John Shaw & Sons advertisement, *Tanner's Trade Circular*, June 1907.

notable for its well-made, high-quality supplies and equipment. This was as true for the lavish fountain pens and cast-iron staplers as it was for the handmade paper goods. Ledger books were impressive and often gorgeous: hand-stitched and leather-bound with marbled edges.

By the 1820s, paper-ruling machines were becoming fairly common in stationer workshops, though the slow rate at which they were adopted suggests that these early machines were cumbersome and unreliable. (They had first appeared around the end of the 18th century, beginning in 1770 with John Tetlow's "machine for ruling paper for music and other purposes.")

They wouldn't truly come into widespread use until William Hickok, a bookbinding equipment manufacturer from Pennsylvania, manufactured his ruling machine in 1852, and especially after he introduced his improvement, the "O-A Striker," in the 1870s.

Hickok's ruling machine made use of sets of brass pens that could be clipped to a wooden arm, which lay across a printing bed. The pens themselves resembled hair combs, with each individual tip a pen. These pens came in sets of various widths, depending on the desired width between the lines to be drawn.

The wooden arms (called "frames" or "carriages") lay across a cloth bed (usually moleskin, and called an "apron") that was wrapped tightly around two rollers. Blank sheets of paper would be set on this cloth bed,

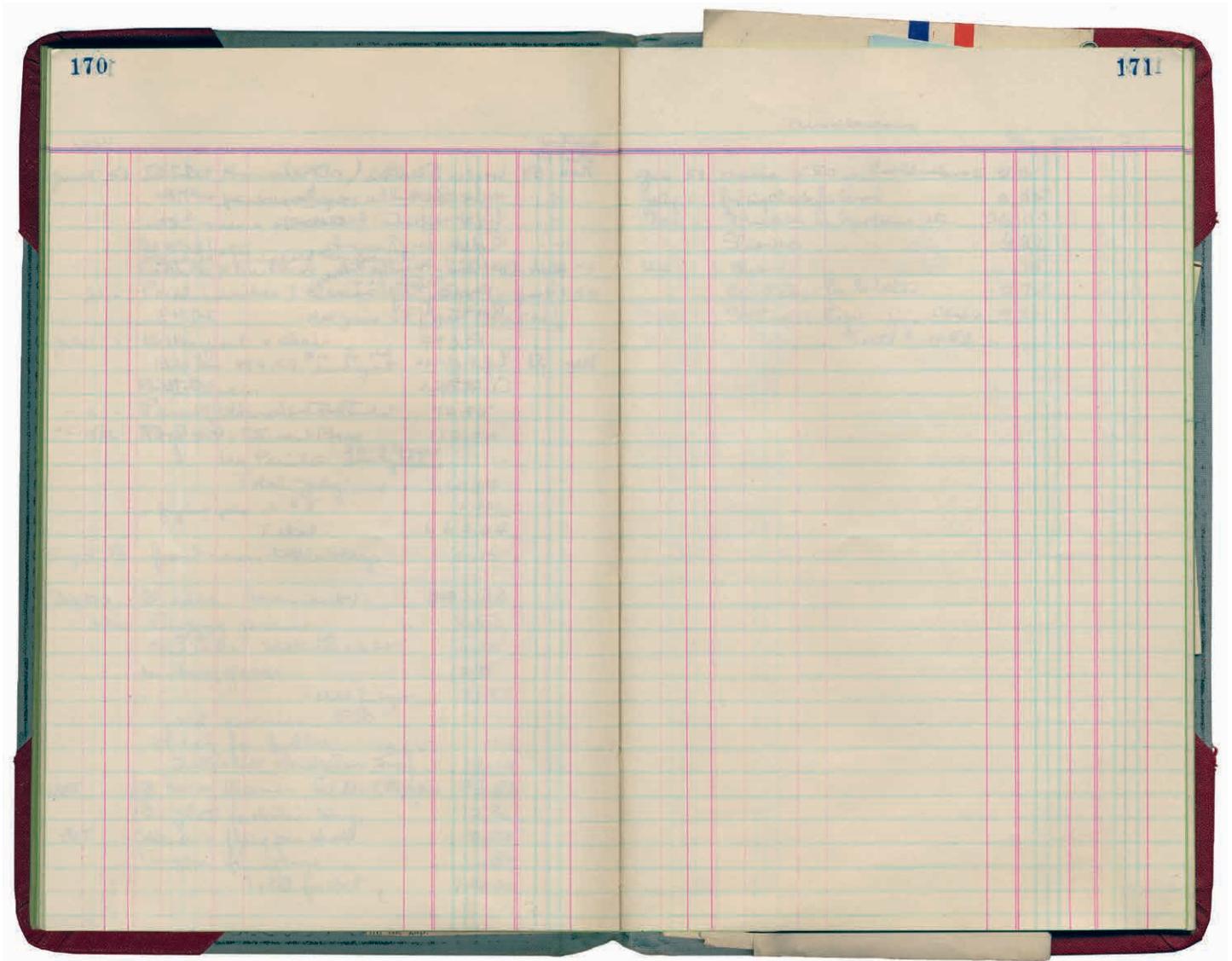
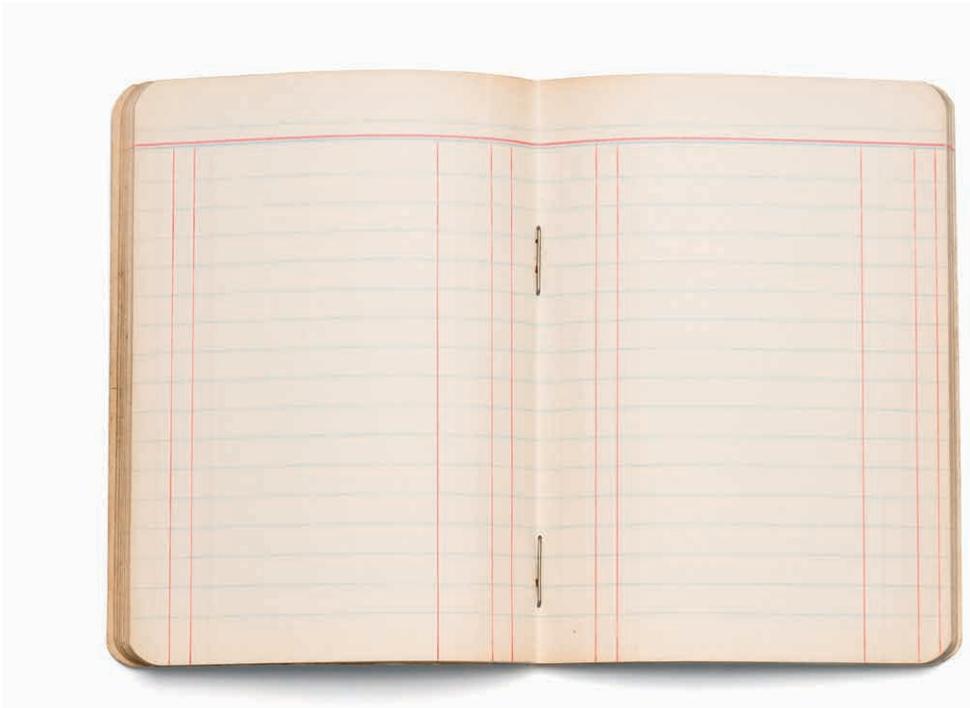
which would carry the sheets forward and beneath the frames, allowing the pens attached to the frames to draw lines across the sheets as they passed. To print both horizontal and vertical lines, a printed sheet was merely rotated, and run through the machine again.

Multiple frames—initially three, then later up to five—could be set with pens to allow for the drawing of multiple colours. One frame could also be set with a lighter shade of colour, for drawing "feint" lines, and another frame with a darker shade, for drawing things like borders and other heavier lines. The frames could also be raised and lowered in order to allow the pens to stop or begin drawing at a specific place, to create margins, or charts and tables.

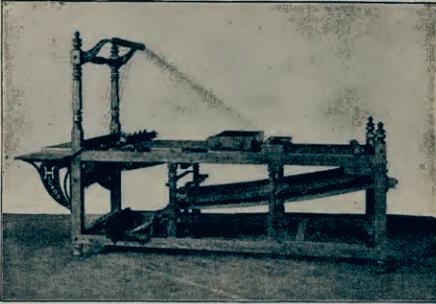
As for setting the ink, things were surprisingly DIY. A strip of linen cloth was dunked into a bowl of ink, lightly wrung, then draped and folded over the tops of the pens, to create a sort of inkpad. The ink simply ran down into the pens from the saturated flannel.

Although the machines became more complex (eventually allowing lines to be drawn on both sides of a sheet, and for pages to be rotated during the same run), line ruling was done in this manner until the age of off-set and digital printing.

The mechanization of lined paper not only increased the number of books entering offices, workshops and homes, but also brought about a proliferation in the kinds of lined paper goods. Stationers could supply



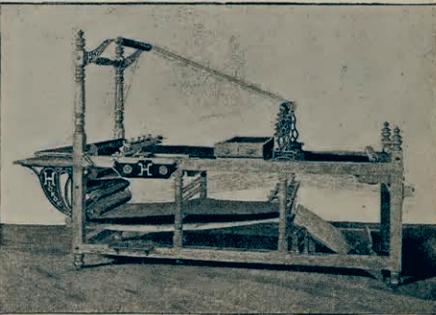
STYLE 2-B HICKOK HAND STRIKER RULING MACHINE.



Designed for small shops, where ruling is not done very rapidly, and where, therefore, the ink has time to dry (though the carrier is short) after the paper has passed under the pens and before it drops into the receiving box at feeder's feet. So far as material and workmanship are concerned, there is nothing better made than Style 2-B. The difference between it and the higher-priced rulers is simply in the number of parts used. Striking is accomplished on this machine exactly as it is on the Style 1-A ruling machine. Paper drops into receiving box.

STYLE 1-A HICKOK HAND STRIKER RULING MACHINE.

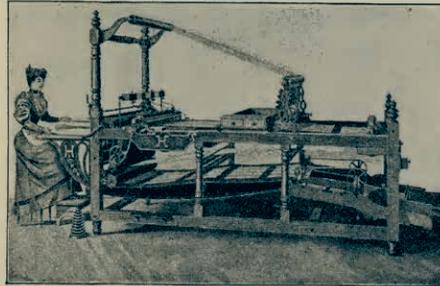
Described on opposite page.



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Style 1-A Ruling Machine is for use in shops where there is considerable faint or cross ruling, thus economizing the time of automatic strikers used in the same shop. It may also be used in small-sized binderies, where there is not sufficient work for an automatic striker machine. The operator turns the hand crank with the left hand, thus operating the machine by hand, while with the right hand the pen-beam is tilted up and down, doing hand striking. Power may be applied, and steam attachments are furnished to order at an extra charge. Style 1-A is as perfectly built in every part as the most expensive automatic striker ruling machine. The difference in construction is simply leaving off the striker parts and some other necessary pieces required on an automatic striker machine.

STYLE 1 SINGLE BEAM AUTOMATIC STRIKER RULING MACHINE.



Style 1 is used for faint or cross-lining when the striker is not operated, and also for down ruling from cross or head lines when the automatic striker is used for the purpose of leaving unruled head spaces by automatically raising the pens from the paper and allowing them again to descend upon the paper, the pens beginning to rule immediately upon touching the paper at a cross head line, and again being automatically raised from the paper and lowered upon the paper again successively at distances prearranged by the positions of the cams, which are adjusted by the operator, who sets them in the circular-revolving cam-head. This machine is for use on all classes of job ruling. The illustration shows the combined lay-boy and receiver—a device for receiving the paper (after it is ruled) in the lower portion of the machine. Gears are used in setting the striker—friction devices being avoided because gears are more positive in the correct delivery of both speed and power.

Prices.

2-B, with new Monitor standards, patent pen rest, two 30-inch and two 26 1/4-inch clamps, arranged to deliver paper to receiving box at feeder's end of machine (steam fixtures not included)—\$15 extra, if required) **\$190.00**

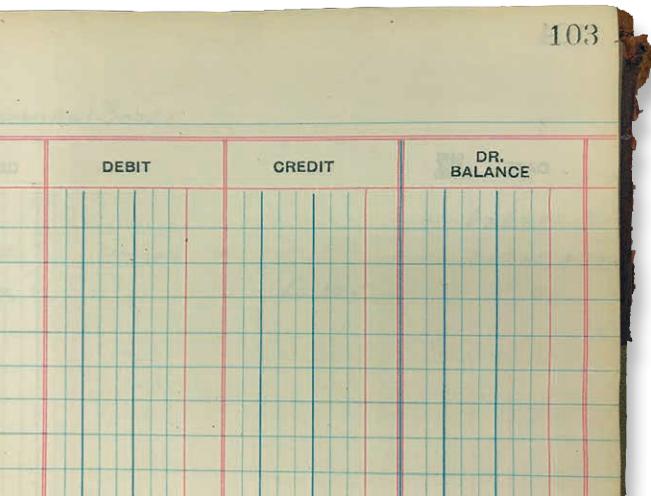
WIDTHS	Between Rails:		42 ins.		48 ins.		54 ins.	
	38 ins.	42 ins.	44 ins.	48 ins.	54 ins.	54 ins.	54 ins.	
	Cloth Widths:		38 ins.		42 ins.		48 ins.	
Style 1-A , with Imp. Rec'g Box	\$235.00	\$275.00	\$285.00	\$305.00	\$335.00			
With Lay-boy and Receiver	252.00	297.00	307.00	327.00	357.00			
Style 1 , with Receiving Box	410.00	450.00	450.00	480.00	510.00			
With Lay-boy and Receiver	427.00	472.00	482.00	502.00	532.00			

925

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Specimens of type, borders, ornaments, brass rules and cuts, etc.: catalogue of printing machinery and materials, wood goods, etc. by the American Type Founders Company, 1897
archive.org

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Book conservator Todd Pattison provided this page detail from a Five Cents savings bank account book, 1924. "It shows how elaborate the paper ruling could be for some uses, and how many columns could be made. This was a specific order that could be duplicated if the customer needed it—they would keep a copy of a page on file with a number and you could order another book based on that number."

→
"Paper ruling machines were sometimes used to create fancy decorated paper that could be used for endsheets or covering paper for books, decorated paper to cover boxes, or even paper with a pattern for other decoration. This shows how elaborate paper ruling could be," says book conservator and binder Todd Pattison.
New Fairy Stories for My Grandchildren by George Keil (NY: D. Appleton and Co., 1861).



account books and ledger books, journals and diaries, guest books, notebooks, music notation books, agendas, loose-leaf writing paper, and composition and exercise notebooks for the classroom. They could also use ruling machines in creative ways to create elaborately patterned end papers for books.

A lot of the notebooks and paper styles we associate with lined paper were developed over time, and the standardization of these paper goods took time as well. The German Friedrich Soenneken patented the three-ring binder in 1886, yet the common spiral-bound notebook would not make its appearance until the 1930s. Legal pads (with their distinctive pale yellow) are an 1888 innovation by a paper mill worker from Massachusetts named Thomas Holley, who began gathering paper scraps from the mill and repurposing them as inexpensive notepads.

The very concept of loose-leaf paper—that is, paper that comes in individual sheets (“loose” meaning there is no binding, and “leaf” being another word for a sheet of paper)—didn’t come about until the early 1900s.

A law clerk by the name of Richard Ettinger came up with the concept of using loose leaf in 1913, while working in the law office of Charles W. Gerstenberg. Ettinger and Gerstenberg had just begun selling a second printing of a manual they had published on federal taxes when the US Congress voted in new tax regulations. Instantly, their book was made obsolete. A frustrated Ettinger hit on the idea of printing future manuals on loose leaf—using binder rings rather than binding glue—so that they could be easily updated whenever necessary, without having to reprint the entire book.

Over time, the term “loose leaf” came to refer more commonly to the standard-sized sheets of ruled paper that we know today, generally printed with feint-blue lines and a red margin.

But loose leaf is just the beginning. There is also music paper (also known as manuscript paper), for musical notation. Quad-ruled paper (or “quadrille” paper—from French *quadrillé*, for “small square”) features a grid made of feint, evenly spaced vertical and horizontal lines. Graph paper (originally known as “squared” paper) uses the same feint grid as quad paper, but with every fifth or tenth line darker to make it easier to count the number of lines while plotting data.

Some writers (myself included) prefer to write on quad paper, while others write and sketch on dot-grid paper. Those who take notes using stenography or other shorthand can use Gregg-ruled or Pitman-ruled paper, each with their single red centre line down the middle of the page. *Tianzige zhi* is a ruled paper designed specifically for Chinese characters. For Japanese, there is *genkō yōshi*, consisting of vertical columns of squares.

French ruled paper, known as *Seyès*, makes use of heavier lines for guides, between which lay a series of feint lines, to encourage greater accuracy within the form of each letter.

And then things get even stranger, with hexagonal paper, isometric graph paper, logarithmic paper and polar coordinate paper. Stationery may have become standardized, but it has also become extraordinarily varied.

Ruled paper did not just make certain tasks easier, it also opened up an entire industry of notebooks and papers made to perfectly match your activity, mood or aesthetic preferences. They are options meant to inspire. You can even find one with blank pages, if that’s your thing.

The stationery stores that our poor medieval monks could not access, can now supply standard notepads in practically every form imaginable. Whatever you need, there is a ruled notebook for you. 📖

National Print Museum

There are excellent videos of a paper-ruling machine in operation at the National Print Museum in Ireland.

nationalprintmuseum.ie

