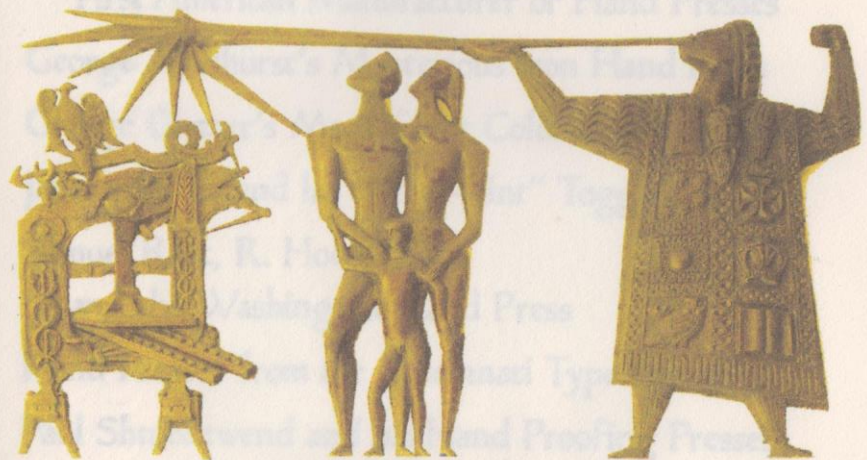
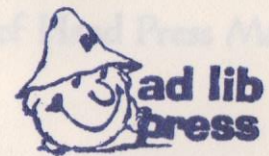


A
HAND
PRESS
COMPENDIUM



Robert W Oldham

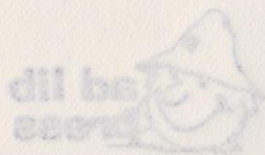


2021

A
HAND
PRESS
COMPENDIUM



Robert W. Oldham



1901

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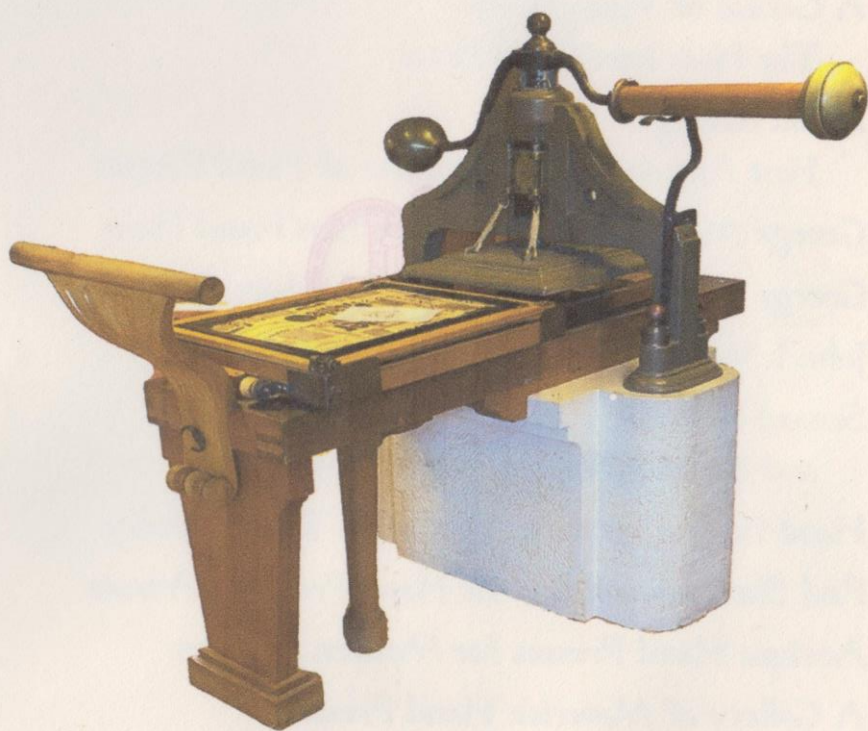
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A Genius of Typography

with Co-author A. E. Maia do Amaral

In 1772 Wilhelm Haas, a well-known typefounder of Basel, Switzerland, who wanted to print his beautiful types to show them to their best advantage, designed and built a new kind of printing press. All parts subject to stress during the printing process were made of cast iron, except the wood plank-and-coffin bed with its stone for the types, and the rails, or ribs, on which it moved, which were metal on wood, like the wooden "common" presses. The iron frame, or "staple", was bolted on top of a block of stone estimated to weigh about 400kg. The Basel Paper Mill and Printing Museum, in Switzerland, built a full size replica of this innovative press in 1958 based on the engravings published in 1790* and exhibits in their Wilhelm Haas Gallery.

**Description and Outlines of a New Book Printing Press
Invented in Basel in 1772 and to use the art of printing. Published
by Wilhelm Haas the father. Printed by Wilhelm Haas the son.*

Building key parts, the frame and platen, of the hand press out of cast iron greatly improved the strength, precision, and efficiency of the press. In addition, due to his design the press was capable of printing the full forme with one pull and a single movement of the bed. Haas devised a change to the bar, the lever that when pulled applies the printing force by rotating a large screw in a nut. His change was to add weights to the handle and to a doubly-curved rearward extension of the bar, so the mass on the 2 ends of the bar was equal, essentially the mechanism of the fly-ball-driven coining press that was his inspiration. When this "balancier" bar was pulled to print, the momentum of the added mass increased the impression force, while the shape and size of the rear bar extension permitted a spring-like action of the weight, enabling the pressman to apply a greater printing force with less exertion.

The early wood presses had a wood "box hose" through which the screw spindle passed to press on the platen, which hung from the hose by cord lashings. Willem Blaeu (1571-1638) of Holland, is credited with inventing a metal open hose. The "garter"

or collar was clamped in a groove on the screw spindle, inside the box hose and at the top of the open metal hose, so the rising screw lifted the platen after the impression, as the screw and bar returned to their starting positions.

The Haas press depicted in the 1790 book used a "box hose" made of cast brass, with a "garter" on the screw spindle held in place by two screws. The cast iron platen was hung from the hose by traditional cord lashings.

Haas's invention, however, had two weaknesses: the staple, while an improvement over wood, was cast iron, which is brittle under bending stress. Unfortunately, a too-vigorous application of the additional and unregulated force available with the improved bar could, and occasionally did, over-stress and break the cast iron staple, due to the twisting as well as tension. These issues, with the heavy stone base, nearly doomed Haas's very innovative press.

Due to resistance by the Guild of Printers of Basel, because he was not trained as a printer according to the procedures of the guild, Haas was forbidden by court order from using his press commercially. But

he supplied his presses to the printing office of the publisher Johann Jakob Thurneysen in Basel, with whom he entered into a partnership in 1779-1780.

In 1782 Haas's son, also named Wilhelm (1766-1838), who had as a youth shown great understanding and talent for engineering design as well as for printing, began work at 16 years of age with his father's partner in their book printery, to learn the trade of printing and publishing, though not as a registered apprentice. He later stated in his Day-book:

"As early as 1772 my father had invented a new book printing press in the manner of coin balancers and had some press frames cast in iron; however, since the first ones were a little too weak and too elegant, some broke and the real usefulness of the invention was threatened to fail. Having been instructed by this experience, I had a more solid model made and since the casting of it wanted to show some difficulty, since at that time this art was not as perfected as it had been since then, in 1784 I myself traveled to the iron smelter in Zinsweiler in Alsace for the form to have it done according to

my sense, which has turned out well, and now the press frames were cast solidly and durable, and have already held over 50 years of trial."

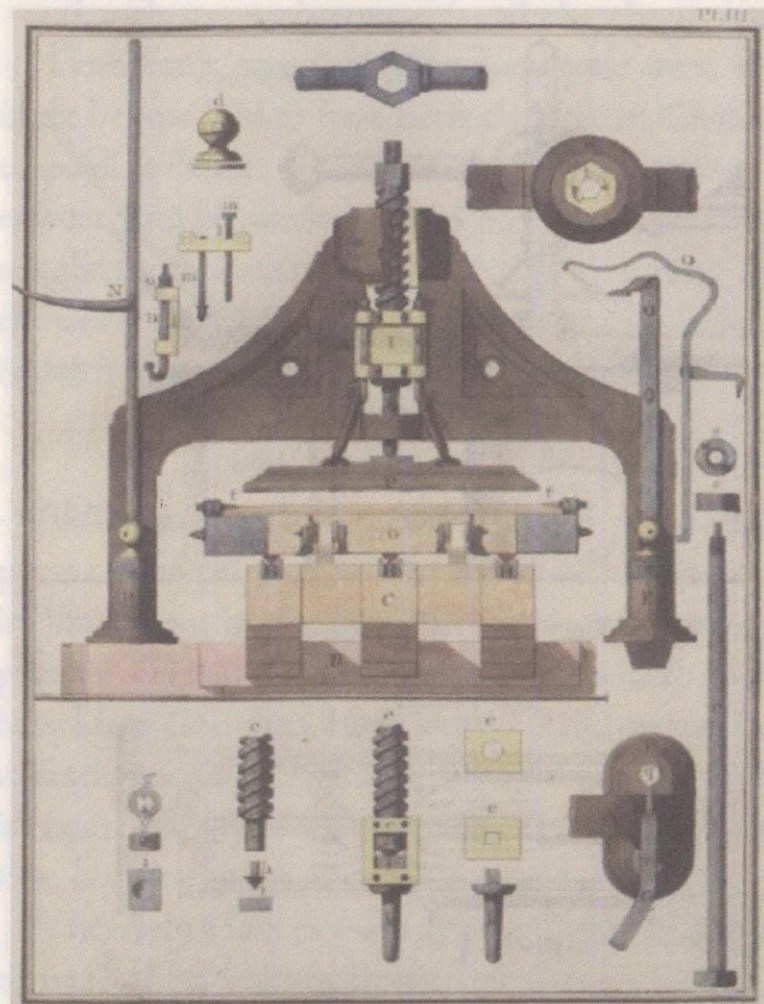
Georges Dagon, in his article "La presse Haas" in 'Schweitzerisches Gutenbergmuseum' in 1956, said that Peter Wegelin, in his book 'Die Buchdrucker-eien der Schweiz', St. Gallen 1836, presents the Haas press as "an improved and perfected press in all its parts, of a simple and light iron construction, but at the same time solid".

Wilhelm, the son, joined his father's Haa'sche Schriftgiesserei in 1787 and opened a book printing company at the same location, equipped with several of the improved presses. He continued to improve them, and sold many to other printers, and he sent improved parts to them. He also improved the "map type" font developed and produced earlier by his father, and it became popular.

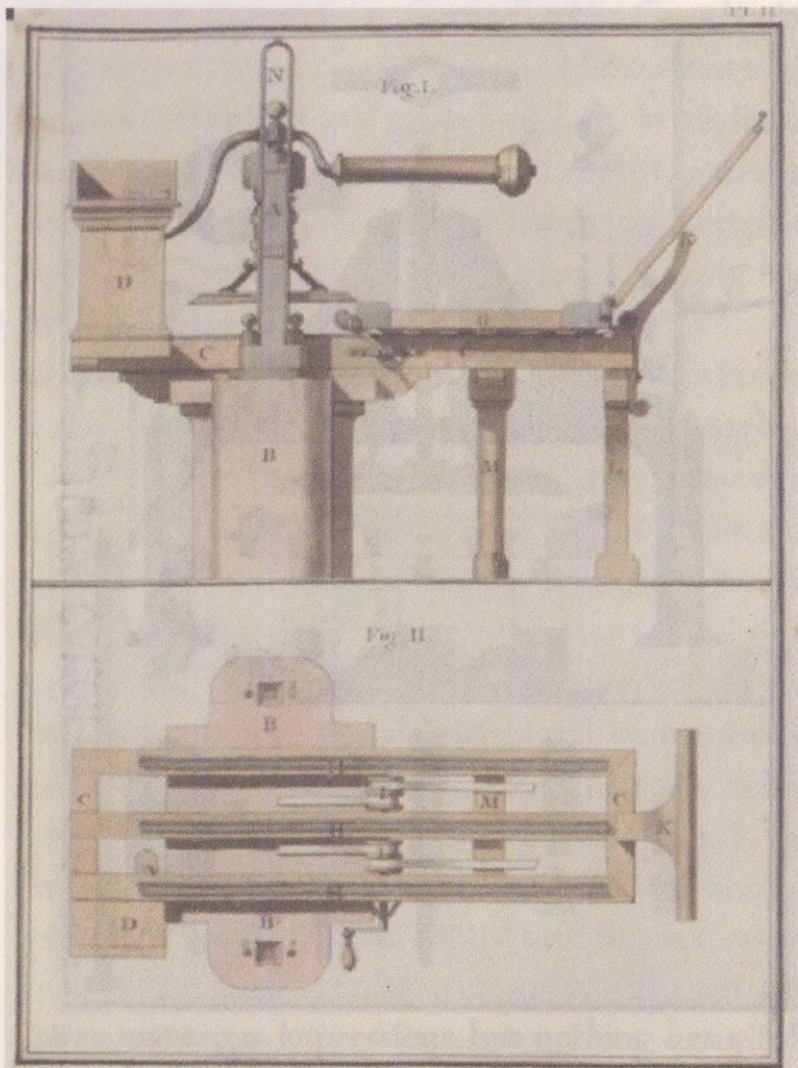
In November 1790 the Royal Prussian Academy of Arts and Mechanical Sciences created a new category of awards to artists, a Class of Mechanical Artists, and awarded the first two Diplomas to father and son for their "new type of book printing press."

In 1793 the publisher Georg Joachim Goeschen of Leipzig purchased three improved Haas presses for his recently-established publishing firm. In his letter of December 1804, responding negatively to the letter from Friedrich Koenig requesting Goeschen to adopt the new Suhler cylinder press Koenig had invented, Goeschen wrote in part:

“Haas’s machine is the invention of a man who has studied mechanics and mathematics thoroughly, and puts his theories into practice every day. His press is the only one with which we can obtain the greatest precision and beauty in printing. I myself invented presses without screws or nuts, but I give preference to that of Haas. Haas was not only a mechanic, he was also a chemist, and he was aware of the influence of temperature and many other things that are usually overlooked. For a press which is to print in beautiful style, things are required to which I see no regard paid in your essay. Therefore I maintain your machine will turn out very numerous impressions, but nothing beautiful, i.e. not the greatest delicacy in the fine strokes combined with great strength in the thick strokes,



Original Haas Press – front view



Original Haas Press – side and plan views

and with great sharpness in all the characters.”

Goeschen’s standards for excellence were very high; he was said to have been the first in Germany to publish deluxe editions of the classic German literature, and his work attained high honors and was sought by the wealthy and nobility. To achieve that the work had to be absolutely correct - uniformity, of both inking and impression were vital.



Wilhelm, the son, delivered an improved iron press to the printery of the St. Blasien monastery in June 1790. In addition to the “several improved presses” in Haas’s own printing office and the three he sold to Goeschen, Haas was said to have sold an undisclosed number of improved presses to printers in Switzerland and Germany. There may at one time have been ten or more in use in Europe.

The early Haas press (1772-84) with its weighted bar had no built-in limit of impression force; the pressman had to judge exactly how hard to pull to achieve uniform impression and appearance for the entire press run. If the son’s improved press also

used the weighted bar it also could not provide absolute control of impression, unless there was a limit which the press shown in the 1790 book did not have. The earlier presses broke due to excessive unregulated force. The improved press was designed to overcome that problem, both by strengthening the staple and, one assumes, by preventing or severely limiting by some mechanical means the chance of applying excessive force.

In his description of the Stanhope press Walter Wilkes* wrote: "Thirty years after the Stanhope press was invented, there was still debate as to whether Stanhope might have owed his idea to Wilhelm Haas. . . . But the lever system of his press alone shows Stanhope's independent contribution to the construction of printing presses." However, Wilkes probably did not have access to the "Daybook" of Wilhelm Haas the son, with his references to the redesign of the Haas press to overcome its problems, nor to other evidence cited here of its superiority.

* Translated from Walter Wilkes, *Die Entwicklung der eisernen Buchdruckerpresse*, 1983, p 76

If Charles Mahon, Third Earl Stanhope, had visited Basel after 1787 or one of the other printing offices equipped with the improved presses, he would likely have seen a different press than was described in the 1790 book, on which historians' assessments of the press have been based.

The earliest known sketch by Lord Stanhope of his press shows the upper part of the iron frame, or staple, with careful measurement notations of the various parts that would hold the bed and platen, but no depiction of support of the compound lever system or of feet or height above the floor. The sketch was evidently intended for Keeton, the carpenter who was to make the wooden patterns for the casting of the main press parts, the staple, bed, platen, and ribs, including a notation to allow for about 15 percent shrinkage from pattern to the finished castings.

The sketch also includes a drawing of the T-base that was to become a signature feature of Stanhope presses; there is a "doodle" on the foot of the T in the sketch that very closely resembles the same part of the mysterious press discussed in the following

pages. Beside the drawing is a note that the timbers of the base should be 8 inches by 8 inches. The oldest known surviving Stanhope press, No. 5 of 1804, has a T-base of 11.5 by 11.5 inches.

Georges Dagon, in his article "La presse Haas" cited above, stated without supporting citations, that "Stanhope had only to improve a prototype. History reveals that he did so in collaboration with Guillaume Haas Jr. to whom he expressed his conceptions." And in his final paragraph Dagon reiterates: "As it turned out that Lord Stanhope called upon him for his first tests, all bibliographers and historians of the printing press agree on this point..."; again without any citation to his sources. I have not been able to locate any such references.



There is one known surviving example of a "mysterious" press, now kept in the Biblioteca Geral of the University of Coimbra, Portugal. This press has by local tradition been attributed to the skilled locksmith and blacksmith Manoel Bernardes Galinha (1810-1864), in 1845; it was first recorded in 1866

by the Coimbra local historian Joachim Martins de Carvalho[§], and mentioned by him again in 1888. The press bears a cast brass plaque stating "M.Galinha em Coimbra"[†] and Galinha's crudely-stamped monogram on the rounce crank. During disassembly for cleaning and restoration we found no other markings on the press identifying anyone.

Galinha had prepared the press for Augusto Valerio Ferreira Pinto Basto, who wished to start a newspaper in Coimbra, but that plan was aborted. Pinto Basto had been the first manager of the Vista Alegre glass and porcelain factory founded by his father in Ilhavo, Portugal, and had traveled extensively in Europe visiting other ceramics companies and recruiting porcelain artists and workers.

After being unused, the press was bought in 1847 to start the "O Observador" newspaper, and in 1866 it was bought by a local printer, Francisco dos

[§] Joachim Martins de Carvalho, *Apontamentos para a historia contemporanea*, 1866, p 391

[†] Galinha built an elaborate iron gate for the University of Coimbra's Botanical Garden and placed beside it a plaque stating "M.Bdes Galinha o fez en Coimbra." The plaque on the press omits "o fez" ("made it").

Santos e Silva, who used it for several years. It was sold to the University of Coimbra some time before 1874 and used in the library to print catalogs of new acquisitions, and later by the university's Botanical Institute to print, among other works, an *Index Seminum*; during restoration of the press in 2019 we found a press sheet of this publication (1894) stuffed into a hole in the base of the press. The only other historical record of the press is a note that it was restored and sent to Lisbon in 1941 for an exhibition on typography.

However, this "mystery" press appears to be a modified version of the Haas press depicted in the 1790 book from Basel. The differences could be construed as intended to overcome the weaknesses of design of the earlier model. The staple, essentially the same size and form as the earlier press, is made of wrought iron, a much stronger form of iron.

The one-pull platen and bed are a few centimeters larger than those of the 1790 press. The bar, without weight added, operates a similar size screw, but is mounted on a separate spindle and connected to the screw through levers atop the two spindles, their

ends farther apart than the spindles. This arrangement increases the power at the end of the pull, while also adding a mechanical limit stop which prevents "over-stressing" the press while making possible the maintenance of consistent impression.

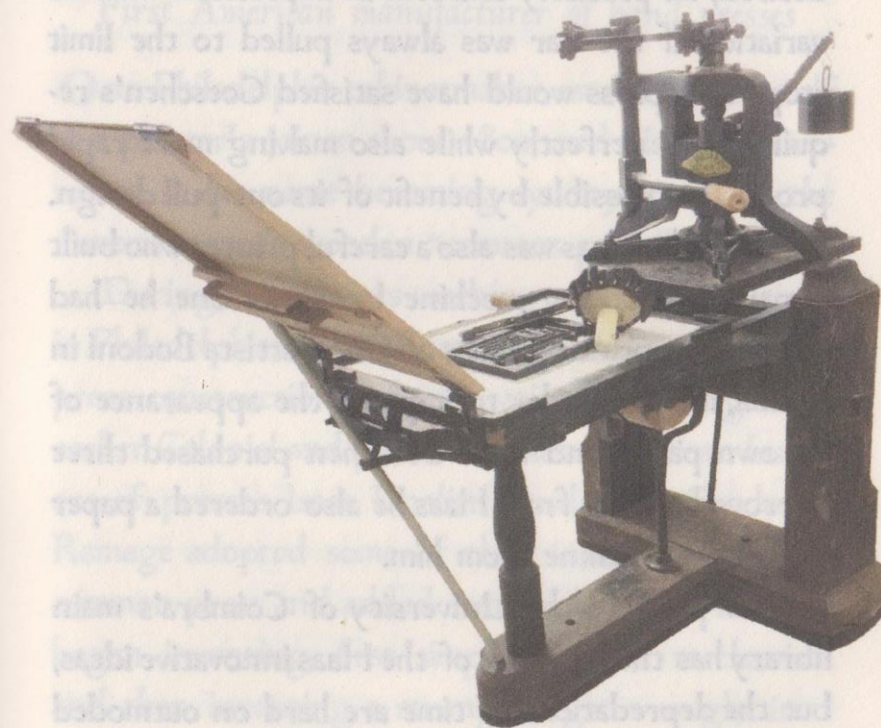
The heavy T-shaped base and upright supports of the staple are made of oak wood, and at an estimated original weight of 90kg is much lighter than the heavy stone block base of the earlier press. The connection of the screw to the platen differs from the earlier press in using a counterweighted lever extending toward the rear of the press to raise the platen and iron hose after the impression, instead of the garter inside the hose, thus reducing wear.

The construction of the platen also is different; instead of cast iron it is a one-inch-thick wood plank sandwiched between two quarter-inch-thick sheets of wrought iron with four ribs on top, all fastened together with 63 flat-head machine screws. The four diagonal ribs on top complete this elaborate platen. The platen is hung from the iron hose on four iron straps bolted to it and the hose, instead of the old cord lashings.

The two presses have similar "plank-and-coffin" beds with a stone for the types, though on differing arrangements of ribs and cramps, and their platens are very similar in size (1772 press 41x43 cm, "mystery" press 44x57 cm), though as usual the coffins are larger than the platens by several centimeters so the stone bed can be the same size as the platen.

The forged wrought iron staple of the "mystery" press is many times stronger than even a thicker one of cast iron, as shown by the breakage of many of the "first construction" surviving Stanhope presses, even though they were three times or more thicker, and at least one "first construction" survivor has the staple thickened, apparently by adding a layer of plaster about 1.5 inches thick on the back of the staple wood pattern. The staple was thickened and reinforced several times during its production life.

The compound lever system completes the solution of the breakage and variability of impression problems ingeniously, by both progressively increasing the transmitted force at the end of the pull, and by incorporating a mechanical limit stop on the bar spindle to prevent accidental excessive force.



The unusual press at the University of Coimbra may be the only surviving example of the improved iron presses made by Wilhelm Haas the son, of Basel.

Once makeready of the type forme was complete, it was possible to produce as many sheets from it as desired, all precisely uniform in impression with no variation if the bar was always pulled to the limit stop. This press would have satisfied Goeschen's requirements perfectly while also making more rapid production possible by benefit of its one-pull design.

Wilhelm Haas was also a careful printer who built a paper-smoothing machine based on one he had seen in the printing office of Giambattista Bodoni in Parma, Italy, in order to improve the appearance of his own pages, and when Goeschen purchased three improved presses from Haas he also ordered a paper smoothing machine from him.

The press in the University of Coimbra's main library has the hallmark of the Haas innovative ideas, but the depredations of time are hard on outmoded printing presses. Of the 1900 Columbian presses built by the Clymer company between 1817 and 1863, only 121 survivors are recorded. If the press in Coimbra actually was made by Wilhelm Haas the son, it is not surprising if it is the only survivor.



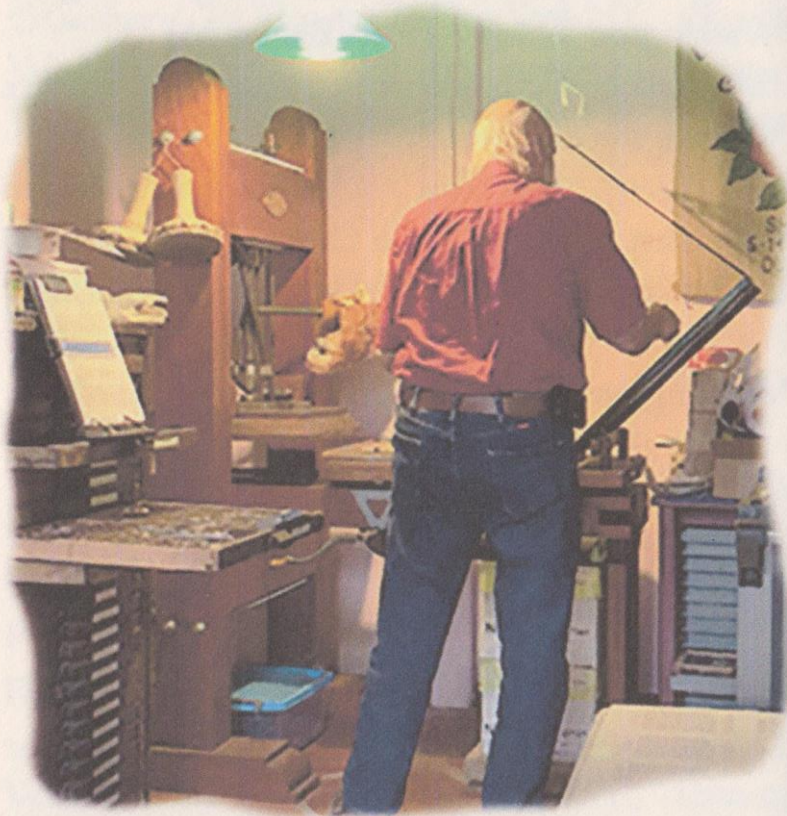
Adam Ramage

First American manufacturer of hand presses

One Philadelphia cabinetmaker established himself as a printer's joiner about 1800, and his success resulted in his name becoming synonymous with the American-made wooden "common press".

During his 50 years working as a printers joiner in Philadelphia, Adam Ramage set the pace of hand press construction and innovation. Following after earlier Colonial and post-revolution American builders of presses Isaac Doelittle and John Goodman, Ramage adopted some of their innovations to the common press and added some of his own. Then he began inventing, first simplifying the mechanism and then inventing a stronger light wrought iron frame and a powerful toggle impression mechanism as well, producing a variety of presses both capable of more precise work and more portable than their predecessors and even some of their competitors.

Adam Ramage was born about 1772 at Harley Muir, Scotland, about 20 km SSW of Edinburgh,



The author printing the Compendium on the Medhurst

Colophon

A Hand Press Compendium is a product of fifty years of my own interest in the variety of old printing presses invented in years long gone by, and used by every-day printers without much thought about their qualities. Yet they do each have particular qualities that are their reason for existence, and it was the collection of information about old hand presses that resulted from my curiosity about those individual qualities and how they changed the technology of printing in some way, that led through the North American Hand Press Database and other sources to several essays, each about a particular press and its inventor. Some were published in journals, some by my Ad Lib Press (established in 1964), and not a few mouldering in my computer. I have tried to illuminate some of their qualities.

The Compendium text is hand-set in 18 point Nephi Mediaeval, hand cut by Jim Rimmer in 1986, his second hand-made typeface. I had planned to use his 24 point Fellowship for the titles, but there were

delivery delays and I lost hope and began with Deepdene Italic for titles. Two months later the logjam broke and I switched to my preferred horse in mid-stream when it arrived. Printing was done one page at a time on my home-built conjectural "re-creation" of George Medhurst's long-lost prototype torsion-toggle hand press, invented in London about 1805. The press has been a pleasure to use. The paper is 24 lb Crane's Crest all-cotton fiber Natural White Wove, and the binding is by GreenGoat's Bindery, a subsidiary of Ad Lib Press.

Of the edition of 25 this is copy number 7

Bob Olden