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THE
PENTATEUCH



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THE PENTATEUCH OF PRINTING,
WITH
A CHAPTER ON JUDGES.

BY
WILLIAM BLADES.

With a Memoir of the Author, and List of his Works,

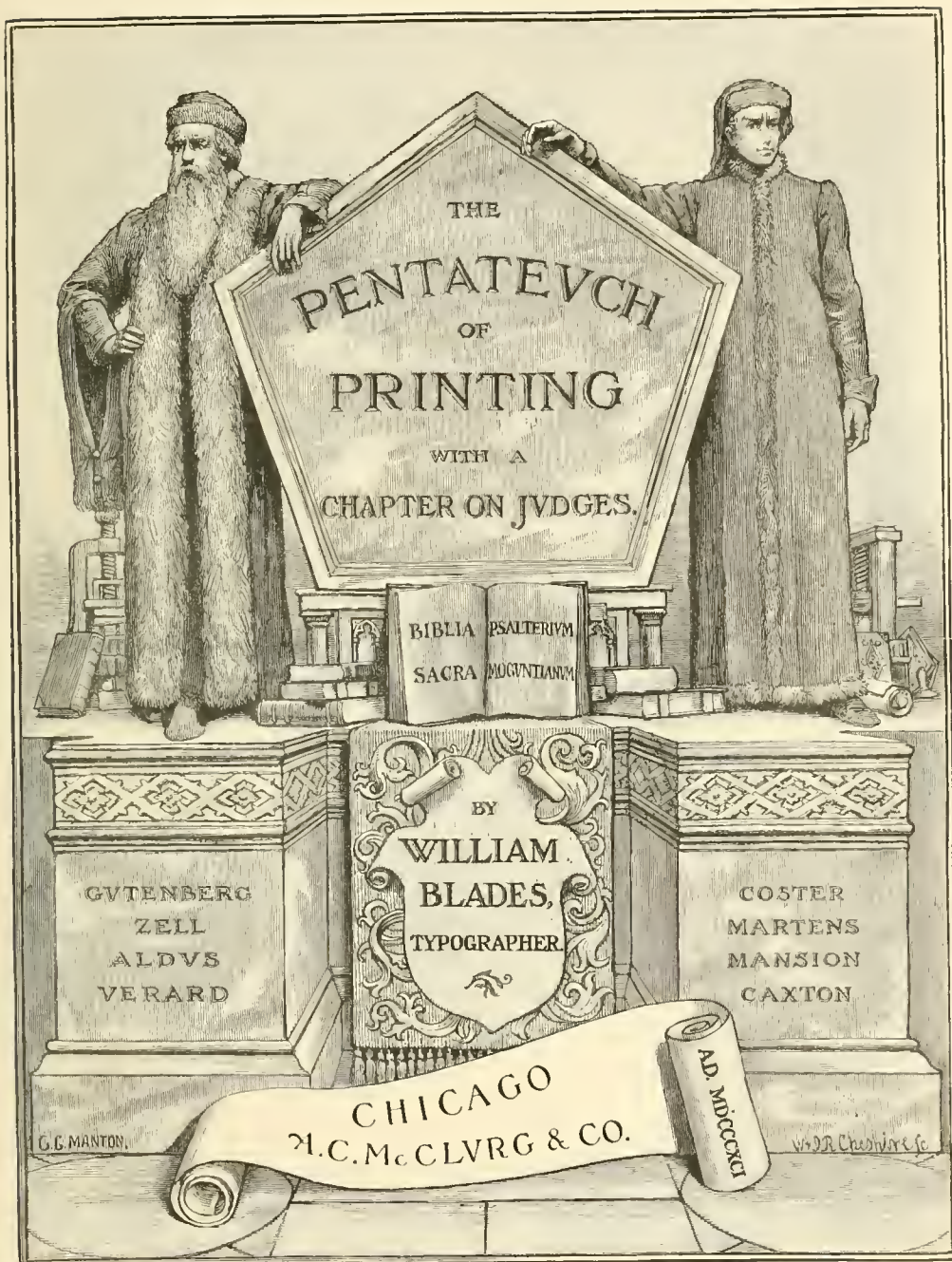
BY
TALBOT B. REED.

CHICAGO:
A. C. McCLURG AND COMPANY.

1891.



Blades, East & Blades,
Printers,
23, Abchurch Lane, London, E.C.





THE PENTATEUCH OF PRINTING is not so fanciful a title for the present book as might at first sight appear. There is a self-evident analogy between the *Genesis* of the World and the *Genesis* of Printing. The spread of Typography is not inaptly typified by an *Exodus*; while the laws promulgated in *Leviticus* have a plain parallel in idea with the laws and observances necessary to be followed in making a book. *Numbers* certainly is not so directly suggestive of the many great names which figure upon the Printers' Roll of Honour; but *Deuteronomy* at once suggests, by its very signification, the second birth and reinforcement of the vital conditions of Printing introduced by the steam-machine. No subject is now-a-days complete without a knowledge of what specialists have previously written upon it, and the public generally are certain to form their opinions upon the published statements of the best *Judges*. We thus obtain six chapter-heads for our book, and whether the information offered under these heads is worth reading must now be left to the only Judge, against whose verdict it is useless to appeal—the Reading Public.

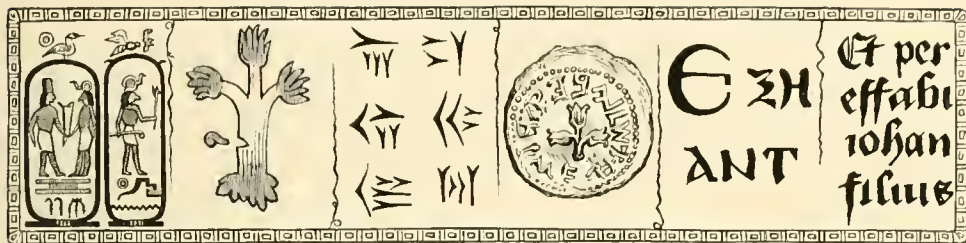
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MEMOIR of the late WILLIAM BLADES,

BY

TALBOT BAINES REED.

TO the friends of the late WILLIAM BLADES no apology is needed for publishing in its present form the work on which he was engaged at the time of his death, in April, 1890. For such as did not know him, it is thought that a few biographical notes on the man and his career will sufficiently explain the peculiar interest which attaches to his last and not least important work.

WILLIAM BLADES was born at Clapham, on the 5th of December, 1824—at a period when the romantic bibliomania of DIBDIN and the Roxboro' Club was in its zenith. These enthusiasts met periodically to celebrate their discoveries in the field of book-lore; to keep one another in mind of the famous occasion when the Marquess of BLANDFORD wrested the *Valdarfar Boccaccio* from the Earl of SPENCER for the sum of £2,260, at Evans's; and to drink in silence to the "Cause of Bibliomania all over the World." Emulated by the example of these aristocratic enthusiasts, other more humble enquirers, such as TIMPERLEY, HANSARD, and JOHNSON were exploring the same field, and helping one another to conclusions. There was more zeal than knowledge. There was a great deal of fine writing, entertaining anecdote, and expensive book-making; there were sweeping generalizations, and a touching confidence in second-hand evidence. But in all the school, although it included one or two practical printers, no one had the courage to defy authority, and question all bibliographical dogma

until he could verify it for himself. The little boy at Clapham was destined to inaugurate this desirable revolution, and apply to the study of Early Printing a sturdy agnosticism which would have horrified DIBDIN and scandalized the choice spirits of the Roxboro' Club.

At the early age of sixteen, and after a comparatively brief educational career at the Clapham Grammar School, WILLIAM BLADES entered the office of his father, the late JOSEPH BLADES, a respected City printer, at 11, Abchurch Lane. In after life he was always ready to attribute the main part of his success as a bibliographer, as well as his own business prosperity, to the thorough grounding which, during his 'prentice years, he received in all the details, practical and artistic, of his profession. Nor was he wont, in dealing with questions relating to the well-being and relief of the journeyman printer, in which he took so deep an interest, ever to ignore the days, often severe and wearisome, when he wore the apron and worked at case side by side with his father's *employés*. His description of himself as "WILLIAM BLADES, Printer," on the title-page of one or more of his books, conveyed what he felt to be his chief claim to authority on matters relating to the history and antiquities of his craft. Those matters it was his rule to investigate as a printer first, as an antiquary next, and as a man of letters last; and it was by adhering to this order that he was able to do for bibliography what AMES and DIBDIN and TIMPERLEY had failed to do.

These investigations, however, do not appear to have interested him specially during the early years of his career as a printer. It was not till he had become a master in his craft that he gave the first indications of a turn for the antiquities of Printing. Long before 1858 the bibliomania of the DIBDIN school had died down into a vague academic interest in the productions of the early presses, measured chiefly by their market value at auctions, and studied wholly on the unquestioned authority of the author of the *Bibliographical Decameron* and his contemporaries. The art of exact fac-simile was as yet unknown; and for those who, without access to the originals, pretended to a knowledge of the typography of the early printers, the lax copper-plates and wood engravings of the old illustrators were the principal data of research.

In a few directions, however, the interest was reviving, and, in 1858, Mr. BLADES undertook to write an introductory note for a re-print of Caxton's edition of *The Governayle of Health*. His special qualification for the task was

that he had already begun his investigation of the typography of the works of the first English press, which were to result in his *Life of Caxton*. What it was which specially turned his attention to this inquiry he has not left on record. Whatever it was, looking at it from the printer's point of view, a very little study sufficed to convince him of the general untrustworthiness of the old authorities, and the necessity of instituting an original research.

The manner in which he went about this was characteristic of the man's enthusiasm and determination. He shut up his LEWIS, and AMES, and DIBDIN, and ALDYS, and assumed that neither he, nor anyone else, knew anything of WILLIAM CAXTON. From this clear stand-point he began first to study the life, and then the books of the Mercer printer. He groped through the City records till he established the clear connection between the apprentice of ROBERT LARGE, and the merchant adventurer in the Burgundian Court. Then, step by step, he traced the literary *protégé* of the Duchess to Bruges, and into the printing office of COLARD MANSION. As he himself confessed, it was no easy task. Often he had to go back on his steps, and often the difficulties in the way seemed to forbid all further progress. But the ground cleared as he went on, and when once he had traced his hero to Westminster, the chief biographical difficulties of his task were over.

There remained the still more important study of CAXTON'S works. Here, more than ever, he resolved to take nothing at second hand. He personally inspected no fewer than 450 Caxtons in different libraries, collating, comparing, and classifying them as he went along. His printer's instinct at once found the key to the study. It was not in the titles or colophons, in the diction or the literary evidence, but in the types. He subjected each book to a searching typographical examination, and classified it according to its types. He made the whole work and method of the primitive little printing house at the "Red Pale" live before our eyes; we saw when type 1 came to an end, and when type 2 appeared; we found the ingenious craftsman, when type 2 was wearing out, trimming it with his graver, and creating type 2* out of its ruins. We watched the career of each type, from the moment it was cast in its rough mould, till the day when, worn out and discarded, it passed into strange hands and finally vanished. Meanwhile, each book as it came up, fell into its proper class. The year of undated books was fixed by the evidence of their dated

companions; and the relative order in a single year was often determined by the observation of some typographical detail, visible only to the eye of the expert, which clearly marked off one stage in the printers' habits from another.

In such manner was the *Life of Caxton* written. It marked a new epoch in bibliography, and disposed finally of the lax methods of the old school. With a work like the *Life of Caxton* on record, it would be impossible in future to write with authority about the old printers and their books, without approaching the study from the point of view of the typographical expert. There is no doubt that the mechanical improvements in processes of fac-simile added much to the success and value of the *Life and Typography of William Caxton*. It is useless to talk about old type unless you can display it. This Mr. BLADES did on a lavish scale. Not only were fac-simile pages of all the representative books given, but the alphabets in each class of type were laboriously picked out and presented, with the combinations and variants of each letter, so that the student was able to study CAXTON'S works not only as they appeared ready printed, but letter by letter, in the case before composition.

The first volume of the *Life of Caxton* appeared in 1861, and the second in 1863; between which two dates, Mr. BLADES had married the lady who, for twenty-eight years, was to be the loyal partner in his life and work.

The *magnum opus* was received with general approbation. It was recognised that a right method of investigating the problems of palæotypography had been discovered. A new interest was aroused in the works of the early presses, and the fortunate possessors of "Caxtons" became suddenly alive to their privileges.

Not the least gratifying result of the labours connected with this work were the friendships which Mr. BLADES formed with men of his own taste, engaged in like pursuits. It is worth recording the pleasant account given by Mr. PROTHIERO of the meeting of HENRY BRADSHAW and WILLIAM BLADES, while the proofs of the *Caxton* were still in the press. "In September, 1860, Mr. BLADES paid a visit to Cambridge, taking with him the first two sheets of his book in type, and the rest in manuscript. It was a fine, warm afternoon, and after dinner—they dined earlier in those days than now—they went down, as BRADSHAW was fond of doing, into the college garden; a bottle of wine was ordered out, and

"there and then, without moving from the place, Mr. BLADES read the whole "historical portion of the book to his willing listener, who frequently interposed "criticisms and suggestions of the most useful kind."

The friendship thus begun continued uninterruptedly for a quarter of a century. It was none the less valued because BRADSHAW, the keenest of the new scientific school of bibliographers, was an outspoken critic. "Believe me," wrote Mr. BLADES, when acknowledging a voluminous letter of criticism on his second volume, "no review in the *Athenæum* or *Saturday* will give me half the inward "satisfaction that I feel when you tell me that my book has enabled or assisted "you to write such a body of sound, critical notes as now lies before me."

This was not the only friendship for which he was indebted to his *Life of Caxton*. His work brought him into contact and friendly intercourse with librarians and printers, not only in England, but in France, Holland, and Germany, and made his already rich library a rallying point for students and enquirers of all kinds, who came to him for advice and information, and received, in addition to both, an unfailing and kindly welcome.

The publication of the *Caxton* by no means completed Mr. BLADES' attention to history of the first English press. His bibliographical method forbade him to consider any question, however exhaustively treated, as closed. He was constantly collecting new material, and as constantly giving the world the benefit of his studies. The *Life of Caxton* was supplemented by a very useful hand list of the specimens of the old master's press in the British Museum, by his *How to tell a Caxton*, as well as his introductory notes and monographs to several valuable fac-simile reprints of English *incunabula*. He became a constant and diligent contributor to the trade periodicals, and his scattered articles—of which it is hoped the list appended will be found to be a pretty complete catalogue—comprehend an important, and perhaps not sufficiently well-remembered, volume of his literary work. He did as much as any writer of the time to call the printer's attention to the honourable and interesting traditions of his craft, and to lift him from the *rôle* of a mere tradesman into that of a partner in a glorious Art.

Meanwhile, his business was prospering. The distractions of literary work and of a rapidly increasing bibliomania were not allowed to interfere with the careful attention demanded in the building up and maintenance of a large trade

connection. His interest in the methods and practice of the old press never hindered him from keeping pace with all the improvements of the new. His office became well known in the City for its enterprise in adopting any new improvement consistent with the production of good printing; and he was looked up to as an authority on the practice of the art and craft of to-day, no less than on that of four centuries ago.

In 1870, occurred an epoch in the annals of typographical controversy, when Dr. VAN DER LINDE'S destructive essay against the claims of Haarlem as the birthplace of Printing appeared in the "Cologne Chronicle." Mr. BLADES was sufficiently interested in the subject, and in the general tenor of Dr. VAN DER LINDE'S argument, to publish an English translation of the work by Mr. HESSELS at his own cost. At the same time he maintained from the first an attitude of careful reserve on the main question. In an article on *Early Schools of Typography*, contributed, before the appearance of the English edition of the *Coster Legend*, to Mr. BERJEAU'S *Bookworm*, he had suggested the possibility of an independent invention of printing both in Holland and Germany, a theory which has of late years gained some ground. While heartily approving of the destruction of all obviously false and flimsy evidence on the side of either claimant, it was to him a source of regret when the literary duel between Dr. VAN DER LINDE and Dr. HESSELS descended from the arena of forcible argument into that of acrimonious dispute. To him, as to most other students of the controversy, the existence of the "Costeriana" was an insuperable obstacle to the admission of the German claim; and one of his latest utterances, before the Library Association, was a careful and judicial summary of the case on either side, with a decided inclination of opinion in favour of Haarlem as against Mentz.

During the few years which followed the publication of Dr. VAN DER LINDE'S book, Mr. BLADES' energies were chiefly devoted to the development of his important library of books on Printing, the foundations of which had been laid as far back as his apprentice days. The genuine book-hunter needs not to be reminded of the insidious nature of his malady. Any excuse suffices for a new relapse. The *Life of Carton* was a more than common excuse. Not only did it lead its author to a search after "fifteeners," (of which, however, he did not acquire many) but it was the occasion for collecting every available work on the

early practice of the Art, not only in England, but abroad. From this it was but a step to treatises on the multiplex craft of modern printing. His enquiry into the types and typefounding of Caxton naturally opened the way for a collection on that branch of the subject generally—particularly of type founders' specimen books, to whose historical importance his little book on the subject, published in 1875, was one of the first to call attention. His interest in the Invention controversy naturally brought onto his shelves the voluminous literature devoted to that question, which, when once begun, must, to be of real importance, be complete. Nor was there any reason why the collector, once embarked on his career, should hold his hand from any work, be it a memoir, an Act of Parliament, a typographical oddity, a sober specification, a specimen of fine work, or an ephemeral tract, provided it bore on his subject, and added weight to his collection. And so, from small beginnings, and it may be to the occasional concern of himself, his library grew into one of peculiar value and importance. How wisely and carefully he selected, how thoroughly he explored the highways and byways of typographical literature, the catalogue of his collection, when it comes to be published, will disclose.

An occasion arrived in 1877 for admitting the book-loving public to a participation in some of its treasures. The Caxton Celebration of that year was an event which will always be peculiarly associated with the name of WILLIAM BLADES. It was due to him that the solecism of celebrating the Fourth Centenary of the Introduction of Printing into England three years before its time was avoided. When the true anniversary came, Mr. BLADES threw himself heart and soul into the movement. What was his part in the success of the Celebration is already on record. He suggested both the form the festival should take, and the methods by which it might be carried out. He undertook the collection and arrangement of the unique display of Caxtons and early English printed books which were brought together—perhaps the most complete collection ever seen at one time. He organized and superintended the arrangement of the large miscellaneous collection of books, specimens, autographs, portraits, medals and curiosities, to which he himself contributed the lion's share. For the catalogue he wrote, of course, the prefatory note on Caxton.

The writer of these notes has good reason to remember those busy days at South Kensington. It was in that long, upper gallery, crowded with packing

cases, noisy with the hammering of nails, dim with dust, and with the hand on the dial creeping hourly towards the opening day, that he first met WILLIAM BLADES. The man of letters was in his shirt sleeves, busy with the unpacking of a box of Caxtons. He was the guiding spirit of the scene. While others despaired of being up to time, he kept his head and worked hard. While others differed and argued, he was serene and genial. It was impossible in his presence to stand idle, or doubt for a moment of the success of the undertaking. How complete was that success need not be told here, or how modest was the share of credit which he took to himself. When it was all over, he took his books and pictures and medals back to the little library at Croydon, and returned to the life of the printer-student as cheerfully as he had emerged from it a year before.

The formation of the Library Association, in 1877, was another event which commanded Mr. BLADES' warm sympathy. He was a Member of the Council of that body from the beginning, and a frequent attendant at the pleasant yearly Conferences held under its auspices in various parts of the country. His diary contains notes of some of these bibliographical expeditions, that to the Glasgow Meeting, in 1888, being recorded with special pleasure. He contrived on such visits to see all that was to be seen in the way of early printed books and libraries, and invariably came back refreshed in mind, and often weightier in baggage, from these congenial holidays. He occasionally read papers before the Association, one of his latest public appearances being at the London Meeting of the Association in 1889, when he read an interesting account of the Chained Library at Wimborne.

His love of books tempted him, in 1881, to a literary effort in a lighter vein than any he had hitherto adopted. The *Enemies of Books* is a dainty and entertaining defence of his favourites against their sworn enemies, human, insect, and elemental, and brought him into contact with many admirers whom his more serious works had not interested. This championship did not hinder the development of an almost romantic interest on the part of the author for the real book worm. Among the treasures of his library were usually to be seen one or more of these learned insects, browsing on the pages of an old magazine, or, as a special delicacy, being feasted on a morsel of fifteenth century printed matter. His attempts to rear them, however, were unsuccessful. As he confessed once to the writer, it was one of the failures of his life!

A *jeu d'esprit* of another kind had been published in 1872, whimsically connecting Shakespeare with the printing profession, a jest which amused him all the more that it was taken *au grand sérieux* by some sober-minded correspondents. Later, in 1885, his account and metrical paraphrase of the German morality play the *Depositio Cornuti Typographici*, gave him scope for the combination of a good deal of special lore to illustrate a quaint old-world literary drollery.

The closing years of his life witnessed no diminution of his energies, either in business or literary pursuits, although both were occasionally hindered by what proved to be premonitory symptoms of the heart affection to which he was to succumb.

In 1884 he took up the cudgels on behalf of the English inventor of the Steam Press, against his old friend Herr GOEBEL of Stuttgart, who claimed the honour for his countryman KENIG. In the controversy which ensued, Mr. BLADES was careful to keep the discussion free from the faults which had marred the dispute between Dr. VAN DER LINDE and Dr. HESSELS. It was a trial to him that his temperate statement of the claims of NICHOLSON should, after all, cost him a valued friendship, for the loss of which, however, he felt had not himself to reproach.

His widening interest in early books of every kind led him, among his latest efforts, to undertake what promised to be a novel and highly scientific natural-history study of the *incunabula*. His careful note on *Water-marks*, contributed to the *Athenæum*, and the equally valuable note on *Signatures*, with which he inaugurated his projected series of *Bibliographical Miscellanies*, promised, had the author lived to complete his scheme, to place the study of early printed books on a clearer and still more precise footing than it had yet attained.

But the project was cut short at an early stage. His investigations on these questions had been carried on with all his old enthusiasm and determination, but with increasing difficulty, and at increasing physical cost. For the same reason, the *Pentateuch of Printing* had lain on his study table many months incomplete. The idea of giving to book lovers, not professionally conversant with Printing, a clear and simple account of the origin and development of the Art by which books are produced, was one which he had long cherished. To the lay mind the question is full of confusion and intricacy. It is obscured by much that is irrelevant, and distorted by much that is incorrect. His object was to clear away the irrelevant, to reduce fiction to fact, and technicality to

plain English. Intended originally for a short treatise, the idea had expanded, and took form in the quaint conceit which the title of the work implies. Nor, when it was more than half complete in that shape, did it stop growing. He determined to add to its attractiveness by illustration on a lavish scale, and had already begun to collect and prepare the wood-cuts for the purpose, and further enlarge the treatment of his subject in other directions.

At this stage it was that the abrupt summons came to lay down the busy pen and rest from work.

His own jubilee as a printer was about to be celebrated, and his friends and workmen were invited to the gathering, when it was known that he was unwell, and that the occasion must be postponed. The next thing we heard was that he was dead, on April 28, 1890.

In these brief notes nothing more has been attempted than a sketch of Mr. BLADES as a printer and a bibliographer. Yet the picture would be incomplete without a word as to his private life. Those who had the privilege of knowing him at home will not readily forget the atmosphere of gentleness and kindness in which he lived. His family life was one of simple harmony—no one who was with him for an hour could fail to discover that behind his learning and enthusiasm and industry there was the background of an unaffected goodness. With those especially who, in that well-remembered library, surrounded by his precious books, sought his assistance or counsel, the memory of him will linger long as of one whose pleasure it was to be kind, whose sympathy was always ready, and whose shrewd sense and wide knowledge and cheery helpfulness were always at the service of a friend.

In preparing the *Pentateuch of Printing* for publication in the form in which it now appears, the present writer has been careful to refrain from anything like "editing" on a large scale. In a few cases additional matter was necessary to the clear meaning of the narrative. In other cases, where fragmentary notes had been left to indicate topics which the author intended to deal with more fully, some little expansion has been ventured upon. Otherwise, the object has been to present the book, although not professedly complete in every respect, as nearly as possible, both as regards the text and the illustrations, as it was left by the author at the time of his death.

TALBOT BAINES REED.

List of Published Works by WILLIAM BLADES.

The Governayle of Helthe ; by John de Bordeaux (?), or by Bartholomeus Montagnassa ; with the Medecyne of y^e Stomache, in verse ; by John Lydgate (?). Reprinted from Caxton's edition, with introductory remarks and notes by William Blades.

8^o. London 1858.

[*Printed in imitation Caxton types, cast in pewter.*]

Morale Prouerbes ; C. Du Castel ; with introductory remarks by William Blades ; *fac-simile*.

4^o. 1859.

[*Printed in imitation Caxton types, cast in pewter.*]

The Life and Typography of W. Caxton, England's first Printer, with evidence of his typographical connection with Colard Mansion, the printer at Bruges ; with numerous plates.

2 vols. 4^o. London, 1861-63.

A Catalogue of Books printed by, or ascribed to the Press of W. Caxton, in which is included the press mark of every copy contained in the British Museum.

sm. 4^o. London, 1865.

A List of Medals, Jettons, Tokens, etc., in connection with Printers and the Art of Printing.

8^o. London, 1869.

[*Only 25 copies printed.*]

A List of Medals struck by order of the Corporation of London, with an appendix of other Medals struck privately or for sale, having reference to the same corporate body, or the Members thereof.

8^o. London, 1870.

[*Privately Printed.*]

How to tell a Caxton, with some hints where and how the same might be found ; plates.

8^o. London, 1870.

[*A handbook for the use of the amateur and collector.*]

Typographical Notes : The Early Schools of Typography, from the *Bookworm*, March, 1870 ; The Enschedè Type Foundry at Haarlem.

8^o. London, 1870.

[*Privately Printed.*]

Shakespere and Typography ; being an attempt to show Shakespere's personal connection with, and technical knowledge of the Art of Printing ; also remarks upon some common typographical errors, with special reference to the text of Shakespere ; plates.

8^o. London, 1872.

- Some early Type-specimen Books of England, Holland, France, Italy, and Germany, with explanatory remarks. 8^o London, 1875.
[With historical notes on the old English and Foreign Type Foundries.]
- Earl of Rivers. The Dictes and Sayings of the Philosophers; a *fac-simile* reproduction of the first book printed in England; with a preface by William Blades. 4^o 1877.
- The Biography and Typography of William Caxton, England's first Printer; plates. 8^o London, 1877.
[A new edition, issued in connection with the Caxton Celebration, 1877.]
- The Boke of Saint Albans, by Dame Juliana Berners; a *fac-simile*; with an introduction by William Blades. 4^o 1881.
- The Enemies of Books; Illustrated; Trübner & Co., London. 8^o 1881.
- Do. Do. 8^o 2nd Edition. 1881.
- Do. Do. 8^o 3rd Edition. 1882.
- The Biography and Typography of William Caxton, England's first Printer; plates. 2nd Edition. 8^o 1882.
- Les livres et leurs Enemis. 8^o Paris (Claudin) 1883.
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- An Account of the German Morality Play, entitled "Depositio Cornuti Typographici"; as performed in the 17th and 18th centuries. Illustrated. 4^o 1885.
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- Do. Do. 2nd Edition. 1888.
- Bibliographical Miscellanies, No. 1—Signatures. 8^o 1890.
- Do. Do. No. 2—The Chained Library at Wimborne Minster. 8^o 1890.
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[“*This went no further than half-a-dozen proofs.—W.B.*”]
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- The Early Types of the Royal Printing Office, Paris, and the Chancellor of the
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March and April, 1871.
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opening of the New Library and Museum, Guildhall, London. 1872.
[*Privately Printed.*]
- Timperley and his Works. *Printers' Register*, December, 1873.
- A Strike in 1798. *Do.*, January, 1874.
- A notice of Caslon I. *Caslon Circular*, January, 1875.
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- Franklin-ana. *Caslon Circular*, April, 1879.
- Development of Books and their Size-Notations. *Library Notes*, January, 1880.
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- Almshouses or Pensions? *Printers' Register*, October, 1880.

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- A Lad of Mettle. *Caslon Circular*, April, 1881.
- The First Printing Press at Oxford. *Antiquary*, July, 1881.
 [*With an account of the 'Expositio' of "1468," and a list of early Oxford types.*]
- Who was Bercula? *Bibliographer*, December, 1881.
- On Caxton's "Four Sons of Amyon." *Athenæum*, April 14th, 1882.
- Vulgaria Whittintoni, 1520. *Bibliographer*, 1882.
- Messrs. Blades' New Printing Works. *Printers' Register*, April, 1882.
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 October, 1883, to June, 1884.
 [*The object of these Articles was to defend the claims of Nicholson to the honour of the invention, against those put forward by Herr Goebel on behalf of the German, König. Herr Goebel's reply was published in the same periodical in March to June, 1885; Mr. Blades' rejoinder in July, 1885, and Herr Goebel's last word in August, 1885.*]
- Memoir of Henry Bradshaw. A review. *Printers' Register*, March, 1886.
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 [*A review of Mr. T. B. Reed's book—Article re-printed in Caslon Circular.*]
- On the Present Aspect of the Question, Who was the Inventor of Printing? 1887.
 [*Privately Printed.*]
 [*This was a paper read before the Library Association at their Birmingham Congress, in September, 1887.*]
- Type Composing and Matrix Machines. *Printers' Register*, September, 1887.
- The Hagermann Matrix Stamping Machine. *Printers' Register*, January, 1888.
- The Library of the French Protestant Church. *Antiquary*, July, 1888.
- 'Form,' or 'Forme' ? *Printers' Register*, August, 1888.
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- De Ortu Typographiæ. *Bookworm (E. Stock)* 1888.
 [*Notes on the Invention of Printing controversy.*]

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- A New French Grammar. *Printers' Register*, December, 1888.
 [Article unsigned.]
- An Account of Proposals made nearly Two Centuries ago to found Public Libraries.
Library, 1889.
- On Trade Unionism. *Caslon Circular*, January, 1889.
- Bibliography. *Printers' Register*, February, 1889.
- Watermarks. *Athenaeum*, March 16th, March 30th, May 18th, 1889.
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 [Article unsigned.]
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PROLOGUE.

THE following Chapters, being intended as a popular summary of a very large and interesting subject, only profess to deal with the most important aspects of that subject, both on its historical and practical side.

Of late years the question, Who invented Printing? has assumed more than ever a prominent place in bibliographical criticism, and many books, large and small, have been published by opposing authors; notably by Dr. Van der Linde, in support of the claims of Gutenberg, of Mayence, and by Mr. Hessels on the side of Laurence Coster, of Haarlem.

The unrestrained abuse and the attribution of base motives in which both these writers indulge demands the strongest protest from all who wish to see the evidence

treated with calmness and without prejudice. The question is not at all whether Dr. Van der Linde can or cannot read Dutch fifteenth century MSS., or whether Mr. Hessels, as a Costerian, is incapacitated from writing a true word: these mutual recriminations only raise a feeling of repulsion to the whole subject. We really want a fair and impartial criticism, based on acknowledged facts and historical evidence.

As to the various forged documents, we now know them, so let us treat them as incumbrances and throw them on one side. This has been the object aimed at by

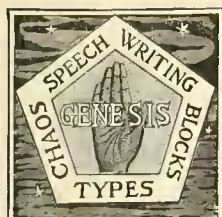
THE AUTHOR.

July, 1888.



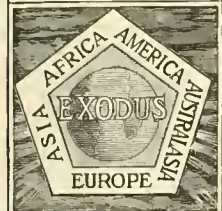
THE PENTATEUCH OF PRINTING.

THE PLAN.



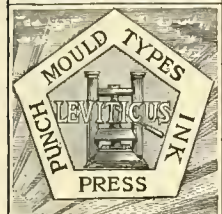
Creation - - -

1. ENGRAVED STAMPS.
2. PARCHMENT AND PAPER.
3. PLAYING CARDS.
4. ENGRAVED BLOCK-BOOKS.
5. CAST TYPES.



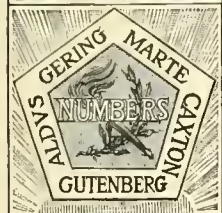
Propagation - -

1. EUROPE.
2. ASIA.
3. AFRICA.
4. AMERICA.
5. AUSTRALIA.



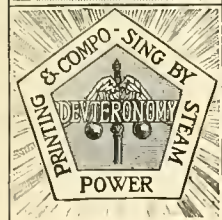
Law - - - -

1. TYPEFOUNDER.
2. COMPOSITOR.
3. PRESSMAN.
4. PAPER.
5. INK.



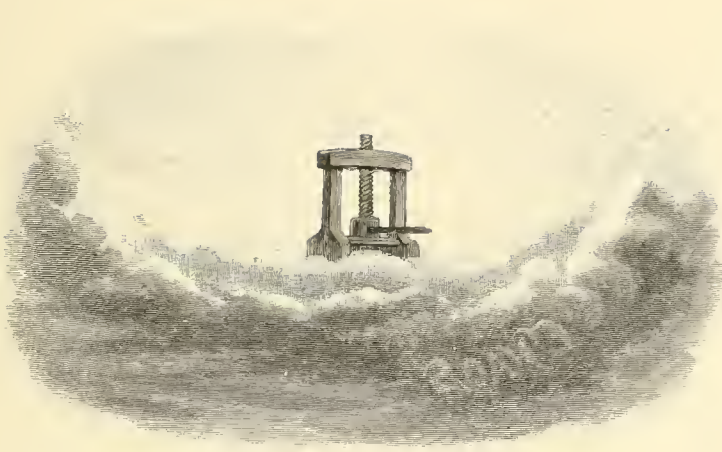
Famous Printers -

1. BEFORE A.D. 1500.
2. A.D. 1501 TO A.D. 1600.
3. A.D. 1601 TO A.D. 1700.
4. A.D. 1701 TO A.D. 1800.
5. A.D. 1801 TO A.D. 1890.



Second Birth -

1. MACHINE-MADE TYPES.
2. PRINTING MACHINES.
3. COMPOSITION ROLLERS.
4. STEREOTYPE.
5. COMPOSING MACHINES.



GENESIS.

“ Let Lyght be.”



GENESIS.



"N the beginning!" What a whirlpool of disputations and theories have these three words created! Our grandfathers attributed the creation of the world with amusing accuracy to the year B.C. 4004; and just as geology and astronomy have pushed back this old-fashioned "beginning" to indefinite millions of years, during which Evolution, with slow but certain progress, was working out this world's destiny in obedience to the fiat of the Almighty, so modern research and criticism have demonstrated that the same law of evolution applies to mental as well as physical phenomena, and that in both cases what *is* follows by fixed law on what *was*. Looked at in this light, the Art of Printing, as indeed all arts, never had a definite beginning, but was the necessary development of a previous process, as sure to come in the due course of events as harvest is to follow seed-time.

No acorn, no oak; and the idea that Printing, Minerva-like, started up, perfect from its birth, in the form of the Mazarin Bible or the Mayence Psalter, will not bear the test of criticism, although long current in typographical histories. The steam engine, the gasometer, the railway, the telegraph, the telephone, and all the great

discoveries of modern science, had to pass through an imperfect infancy and gradual development; why, then, imagine that Invention in the one instance of typography reached perfection by a sudden leap?

Typography, or the art of combining separate letters and taking from them an impression, was a growth of the fifteenth century. At that time progress of any kind was much more slow and difficult than now; and we hardly realise the immense advantage all modern inventors have derived from the Printing-press. Every step forward in art or science is now chronicled, and we can watch the infancy and growth of each great discovery through all its stages. But just imagine the Printing-press to be non-existent, and not only would invention be a slow and tedious process, through the absence of that previous knowledge which leads up to it, but of those tardy advances which were made posterity would learn but little and profit less.

In this respect the art which is "*omnium artium servatrix*" has been at a great disadvantage. Slowly born, just as the nations were emerging from centuries of torpor, its promoters realised to a very limited extent its future greatness, and omitted to register, with any attempt at accuracy, either the date of its birth or even its parentage. The chroniclers of those days, mostly ecclesiastics, who noted carefully the occurrence of an unusually high flood or the death of some obscure abbot, had the barest recognition for the young Hercules whose infancy gave no intimation of his future prowess, and whose only mission seemed to be the manufacture of cheap school books or poor imitations of the picturesque old manuscripts.

But here the question arises, Was Printing, strictly speaking, a development of the fifteenth century? The word Printing in its broad sense means "making an impression"; and if this be accepted as a definition, we can trace its footsteps to a period long before man

stood upon this earth. All over the world we find, in the various strata of the earth's crust, Nature herself printing on the pliant rocks representations of animals and trees; a life history entombed ages before language was born or man possessed the power of observation.

Language itself was of necessity a slow development, and equally slow was the next step; for speech existed long before man discovered that the human voice, which informed the brain through the ear, could be represented by figures or a combination of signs which produced the same result through the eye.



ASSYRIAN CLAY TABLET, STAMPED.



LETTERS STAMPED ON
GREEK LAMP.



LETTERS STAMPED ON
ROMAN LAMP.

This wonderful development—the art of writing—was progress sufficient for many centuries, during which all kinds of materials were used to perpetuate the deeds and ideas of various nations. Leaves of trees and pieces of wood were written upon; clays, slabs and cylinders were stamped; seals, even signatures, by which personal authority was transferred, were engraved on wood or metal; vases preserved the

name of the artist who formed them, and even the common clay lamps of the Greeks and Romans showed the names of their makers, printed with a stamp in bold relief upon the under surface.

The *style*, which marked the waxen tablets, the *pen* or *brush*, with which words were formed on the papyrus sheet, and the pointed *reed* or quill which was used on parchment or paper were simply improvements, all leading on to still further developments.



FIFTEENTH CENTURY PLAYING CARD.
Engraved on Wood. (From *Singer*.)

As ages rolled on and learning increased, book-writing and book-binding became important trades, and were subdivided into special branches, such as the calligraphers, who wrote luxuriously for the libraries of the rich, and the scribes, who supplied the wants of poor scholars and priests.

The Chinese were probably the nation who first used vegetable fibre to make sheets of paper. In Europe, our oldest MSS. are upon prepared skins; and paper, the manufacture of which was not common until the twelfth and thirteenth centuries, was seldom used, although specimens derived from the Arabs are found as early as the sixth century.

Printing from engraved blocks of wood or soft metal was practised in the fourteenth century, when rude figures of the Virgin and other saints, often coarsely coloured by hand, made their appearance.* About the same time ornamental patterns were printed on stuffs from engraved blocks. Cardboard was developed from paper, and playing-cards,

See Frontispiece.

printed from blocks, were common in the fourteenth and fifteenth centuries. All these methods of Printing were so many decided advances towards Typography; but two new processes were still necessary to success, viz. : a thicker ink than previously used, and some kind of press with which to make a regular and even impression.

The next step was the making of that interesting class of books called "Block-books." These consisted for the most part of a series of rude woodcuts the full size of the page, representing various parts of Scripture History, Heaven, Hell, Death, and the Judgment. The earliest known specimens of these works are printed in a brown ink similar to distemper drawings. Lampblack was already well known to the ancients as a basis for writing ink, and, mixed with gum water, formed that deep glossy hue so much admired in many old MSS. ; but how to thicken the ink so as to make it suitable for printing from a raised surface was a discovery of great importance, made long before typography was invented. This object was attained by prolonged boiling of oil and then grinding it with carbon or lampblack.

After experience in printing small wood blocks, the production of larger ones, such as are seen in the Block-books was an easy progression. Most of these were representations of Bible History, and a considerable variety of opinion is still held concerning their use. They were called "*Biblia Pauperum*," and have therefore been supposed to be books for *poor people*. This idea is evidently erroneous if we think for a moment how uncommon in those days was the ability to read, particularly among the great mass of the people. It is more probable that these pictorial sermons were used by the *poor friars*, many of whom could scarcely read, and in preaching trusted to memory and imagination. To such, the numerous suggestions of these pictures would be invaluable.



ds cūc' hoit ad p'mag'z t'ltitudis sūis

caus' iudic'is

FROM THE BIBLIA PAUPERUM. BLOCK BOOK. 15TH CENTURY.

In the later Block-books, engraved sentences and even half-pages of explanation are seen. The dislike of wood engravers to cut letters is the same now as it was four centuries and a-half ago, the mechanical nature of such work being distasteful to any one with artistic feeling. The idea, therefore, of using a second time sentences, already engraved and printed, simply by cutting them away from the old block, was very natural and



SCRIPTORIUM MONK AT WORK. (From *Lacroix*.)

would easily lead to the attempt to utilise the letters separately. Thus we float along the stream of gradual development, until we reach movable types, properly termed *Typography*. This was never an invention pure and simple which suddenly enlightened the mind of Gutenberg (as stated by Van der Linde, and echoed by Theo. De Vinne), but an end successfully accomplished, after numerous efforts and gradual advances.*

* The reader who has any real interest in these "firstlings" of the Printing-press should carefully examine the glass cases in the Grenville Library at the British Museum, where specimens of Block Printing, from the earliest to the latest, are displayed in chronological order.

The full meaning of the discovery of typography will be better understood if we call to mind the intellectual state of Europe in the middle of the fifteenth century,

With the eclipse of literature during the Middle Ages, the Church alone, and that in a sluggish manner, kept up the manufacture of manuscript books, principally for ecclesiastical use. But when, in the fourteenth century, the brain of Europe began to show unwonted activity—when the Lollard doctrines set men thinking and doubting—when in the fifteenth century all Europe became excited over the

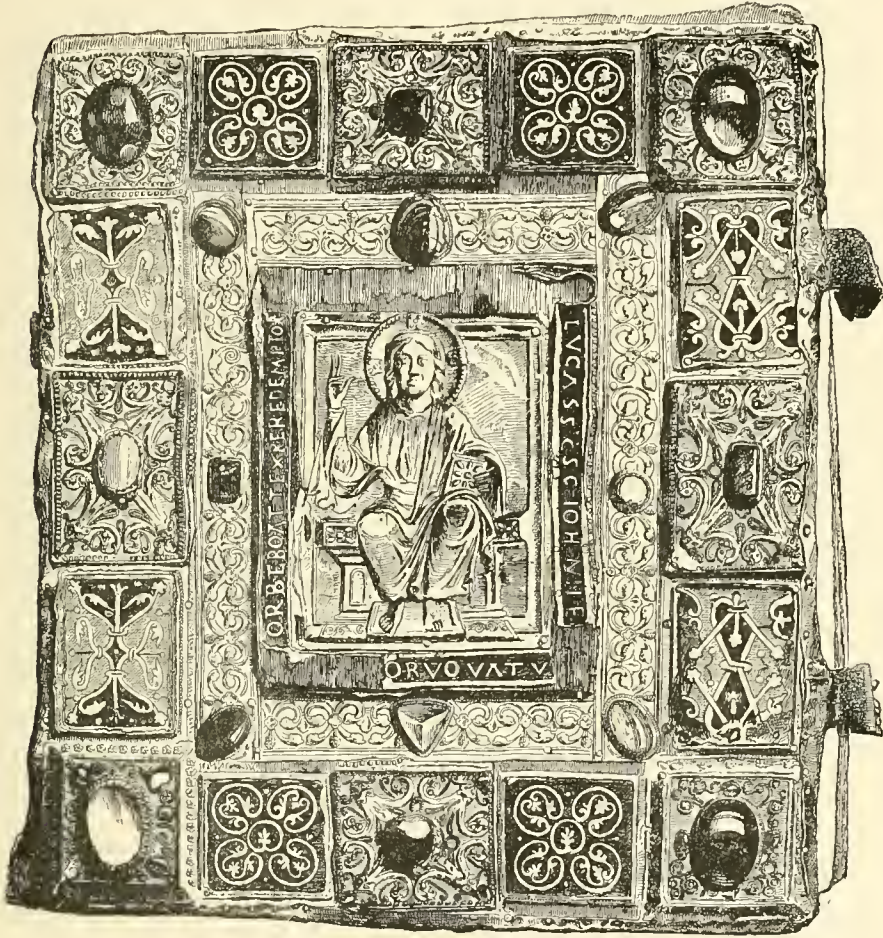


BOOKBINDER.—16TH CENTURY.

discovery of new worlds—when military tactics were revolutionised through the invention of gunpowder—when education became general, and colleges and schools were multiplied—then the minds of men everywhere began to long for books, more books; for Cicero and Boethius, for Bibles, Psalters and Legends, for Chronicles, Tales of Travel and Romances, for Donatuses, School books and Absies—at such a time the need was urgent, the demand imperative, and the Printing-press came.

The change, however, was by no means sudden. The first effect of the increased demand was to create a great division of labour in the manufacture of Manuscripts, so that whereas two or three Scribes had, in former times, been sufficient to complete a Manuscript, as many as fifteen different trades were now employed in Paris, Bruges and other centres to produce a single book. Long before the invention of typography, the book-makers of Holland had their Guilds, which included a variety of the trades concerned in the production, viz. : parchment-makers, boss-makers, binders, etc. Amongst them we now and then find enumerated “prenters,” that is, the printers

from engraved blocks, who had already discovered the use of the press and a thick ink. The most numerous craft, however, was that of

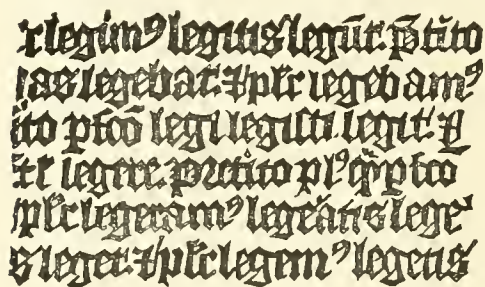


COVER OF A BOOK. 15TH CENTURY.

the Scribes, who wrote only the running text ; and in this portion of the work it was, where speed and accuracy were most wanted, that the Printing-press was destined to make its earliest triumphs.

The foundation of many colleges and schools in the fifteenth century led to an extensive demand for school books and grammars, the most popular of which were the "Donatus," a grammar so called from the name of its author, and "Catho," a kind of delectus in Latin. These were sold at a cheap price, and, to lessen the cost of their production, were often engraved on blocks of wood, from which the pages were printed. These and the Block-books already described were contemporary, and the immediate forerunners of separate types.

Think of the numerous editions of the Eton and Valpy Latin Grammar, which, two generations ago, were used throughout the kingdom, and you may well wonder how it is that there is extreme



FRAGMENT OF A XYLOGRAPHIC DONATUS.
(From *Holtrop*.)

difficulty in getting a single copy now. They have nearly all perished. It is the same with the school books of all ages; and we can, therefore, hardly wonder that the fifteenth century school books, manuscript, or printed from engraved blocks, are now amongst the most scarce of bibliographical rarities.

The process of cutting letters and sentences on wood is much more trying work than engraving figures; the Block-books generally show some approach to artistic feeling in the pose and drapery of the figures, but the engraver was very careless over the letters. Doubtless the tedium of the operation would suggest the idea of separating the letters, so as to use them again in a different combination for other sentences. We have indeed direct evidence of such attempts having been made; for (as noticed by Mr. Bradshaw in his "Memoranda No. 3," pp. 5 and 6) a Block-book edition of the "Biblia Pauperum," printed at Zwolle, was cut up, and the pieces used afterwards in a different combination. The same operation

took place with the blocks of the "Speculum nostræ Salvationis," which were cut up, and the pieces used again for an edition printed at Utrecht in 1481. This could not be successfully accomplished with separate letters, on account of their small size, but the attempt would be most natural. There is no known instance of separate wooden types having been used by any early printers, but in certain



To all that beleeve yma
ge of pite deuonly for Pe
nolter, v. Myles a d. of ppe
toully beholde, v. of
p's passyon at gansle. j
v. v. E. a. lo/peres of pardon

"IMAGE OF PITY." (WOOD BLOCK AND TYPE.)

without doubt, produced in the Low Countries, although they are all, as was natural for such unimportant books, without any printer's name and without the year of production, thus rendering it difficult to assign to them an unimpeachable date.

After much study I cannot help thinking that Holland was not only the birthplace of these Donatuses, etc., but that they gave the starting idea to the Mayence school of printers. The notice of the

editions of the "Speculum" we distinctly find metal movable types, with the woodcuts printed in one coloured ink, and the text in another. The types bear plain evidence that they were cast, but in an extremely rude way, showing a much more imperfect method of casting than appears in the German Indulgence of 1454 (which is the earliest known date of any printed piece), or the first books of the Mayence printers. There are also numerous fragments of the Donatus, of the Doctrinale, and of Catho, in various editions, and in cast types. The language of some, as well as the shape of the letters in all, show that these were,

invention of Printing written at Cologne from the mouth of the earliest printer in that city, one who had learnt his art from the first printers at Mayence, seems decisive. The Chronicler, who wrote in 1499, states that Ulric Zell told him as follows:—

(1) "*Item*: This most revered Art was discovered first of all at Mentz in Germany, and it is a great honour to the German nation that men so ingenious were there found. This was in the year of our Lord 1440. From that time until the year 1450 the Art and the things pertaining to it were greatly improved, and in this year men began to print, and the first book so printed was the Bible in Latin, the character of which was larger than that now in use for mass-books.

(2) "*Item*: Although this Art was discovered at Mentz in the manner now commonly used, yet its first prefiguration was found in Holland, in the Donatuses which had been already printed there. From these Donatuses was derived the origin of this Art, which is now more masterly and clever than before, and far more ingenious. . . . The first inventor of Printing was a citizen of Mentz, born in Strasbourg, and called John Gutenberg.

(3) "*Item*: From Mentz the Art was first taken to Cologne, thence to Strasbourg, and thence to Venice. This beginning and progress of the Art was told me by that worthy man, Master Ulric Zell, of Hainault, Printer, of Cologne, in this present year, 1499, by whom indeed the Art was first brought into that city."

Similar evidence is given by Mariangelus Accursius, an Italian writer of the fifteenth century, who, while attributing the invention of types as then used to Fust and Schæffer at Mayence, says that the idea was certainly taken originally from the Donatuses printed in Holland.

Now these "Items" are quite distinct in idea. The first tells us that Printing was invented at Mayence, and goes on to particularise what the writer means by Printing, viz.: a Latin Bible in large type. The second qualifies the first by saying that "*this* Art," which, of course, means the same art as was used for the Bible, was prefigured by Donatuses printed in Holland, but that John Gutenberg's invention was more masterly and skilful than the Dutch method. The third tells

us how the Art spread, and the writer's authority for his statements. We are here face to face with a plain statement which, to my mind, settles the point. The Dutch had already types cast in that rough and ready manner familiar to all of us who have studied the wonderful fac-simile plates in Holtrop's "*Monuments Typographiques*," or the "*Principia Typographica*" of Sotheby. Gutenberg, according to this account, commenced his study of typography in 1440, but it was 1450 before he had so far improved in his method of casting letters that he could venture to *begin* upon his great Bible.

How these ten years were spent, and how near to 1450 it was before the sight of Dutch Donatuses gave the final impulse to his genius, we shall probably never know.

Dr. Van der Linde and other writers who agree with him maintain that the Cologne Chronicler must have referred to xylographic, *i.e.*, block-book, Donatuses, and that the sight of such works developed in the mind of Gutenberg the idea of movable types. Unfortunately for this argument there is not a single Dutch block-book Donatus known, while there are nineteen different editions of early type-printed Dutch Donatuses already catalogued—a number which is being increased every year. Why, too, if Gutenberg derived his inspiration from the sight of a Donatus cut in wood, did he ignore those of his own country, which were before his eyes, in order to gain his impulse from non-existent Dutch ones?

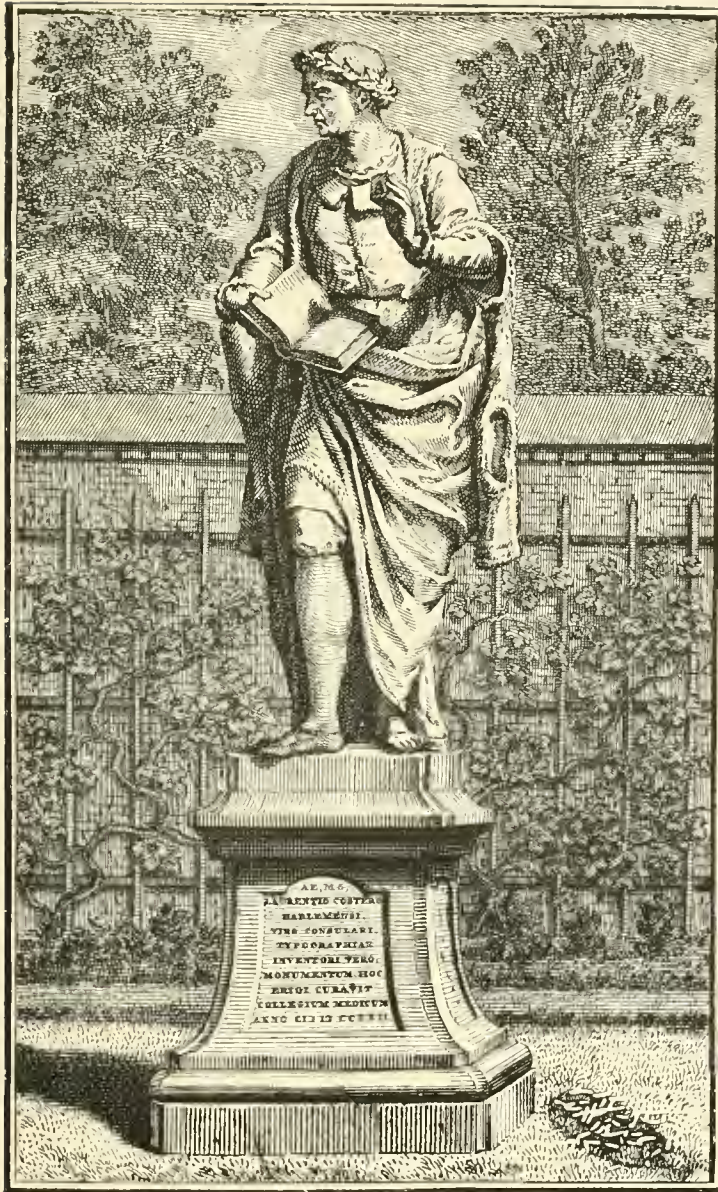
It is an important bibliographical fact that forty-seven different books, or fragments of books, exist, printed with eight different founts of type, all Dutch in origin, all without any name, date, or place, nearly all discovered in the bindings of fifteenth century manuscript or printed books, thirty-three of them on vellum, and four of them printed on one side only. What can we do with this interesting regiment of incunabula? To make them later than, or even contemporaneous with,

the earliest *dated* Dutch books seems impossible: we might as well attribute the language of the Canterbury Tales to the reign of good Queen Bess; but place them about 1450 and onwards, and they take rank naturally.

We will here notice one of the chief causes of the many and contradictory accounts of the origin of printing. It is the natural tendency of all writers to Hero-worship. The value of a central figure around which may be grouped the features of a story is fully appreciated by all authors: it strengthens the weak and adds vigour to the strong. This bias is recognised in the world's earliest records. Honour and glory, often semi-divine, are attributed to the inventor. For the discovery of letters we must have a Cadmus; Apollo first made harmony; Moses, according to Vergil, originated trumpets; Vulcan, iron weapons; Noah, ships—and so on. And so, Dutchmen who claimed the invention of printing for Holland found the embodiment of it in Coster; Germans, for a similar reason, revere Gutenberg; and Italians, their countryman Castaldi. The Hero obtained, definite records and historical particulars group themselves around him, and thus with a few personal details an impression of truthfulness is given to the story which carries conviction to the reader's mind, while at the same time artistic requirements are satisfied.

The duty of the historian and critic is to separate judiciously the kernel of truth from the husk, by which in the course of time it is sure to be surrounded—to preserve carefully the one and reject the other.

Although I think we must look to Holland for the earliest specimens of typography, it does not follow that we must believe all the story as given by Junius. There is no reason to doubt he gave the account of Coster as he received and believed it; and his was not an age in which criticism was expected, or was able to separate husk from kernel.



STATUE OF COSTER. (From *Zeis.*)

If we suppose the Cologne Chronicler of 1499 to have misunderstood his informant as to the Dutch "prefiguration"; or if the Laurenz Janszoon Coster of Junius and the Haarlem Archives was perfectly innocent of any typographical proclivities, it still leaves the Costeriana to be accounted for; and it is these silent witnesses, dug out from the earliest strata of typographical deposits, which by their evidence should determine the vexed question.

It is, however, necessary to know the story which was current when Junius wrote, and we therefore give it as the accepted truth in his time:—

"There lived, about 1440, at Haarlem, in the market-place opposite the Town Hall, in a respectable house, still in existence, a man named Laurens Janszoon Coster, *i.e.*, Laurence, son of John Coster. The family name was derived from the hereditary office of Sacristan or Coster of the Church—a post both honourable and lucrative. The town archives give evidence of this, his name appearing therein many times, and in the Town Hall are preserved his seal and signature to various documents. To this man belongs the honour of inventing Printing—an honour of which he was unjustly robbed, and which afterwards was ascribed to another. The said Laurence Coster, one day after dinner, took a walk in the wood near Haarlem. While there, to amuse himself, he began to cut letters out of some beech-bark. The idea struck him to ink some of these letters and use them as stamps. This he did to amuse his grand-children, cutting them in reverse. He thus formed two or three sentences on paper. The idea germinated, and soon, with the assistance of his son-in-law, and by using a thick ink, he began to print whole pages, and to add lines of print to the Block-books, the text of which was the most difficult part to engrave. Junius had such a book, called 'Spieghel onzer Behoudenis.' It should have been said that Coster was descended from the noble house of Brederode, and that his son-in-law was also of noble descent. Coster's first efforts were of course very rude, and to hide the impressions of the letters on the back, they pasted the leaves, which had one side not printed, together. His letters at first were made of lead, which he afterwards changed for tin. Upon his death these letters were melted down and made into wine-pots, which at the time when Junius wrote were still preserved in the house of Gerrit Thomaszoon, the grandson of Coster. Public curiosity was greatly excited by Coster's discovery, and he gained much profit from his new process. His trade, indeed, so increased that he was obliged to employ several workmen, one of whom was named

John. Some say this was John Faust, afterwards a partner with Gutenberg, and others say he was Gutenberg's brother. This man when he had learnt the Art in all its branches, took the opportunity one Christmas eve, when all good people are accustomed to attend Church, to break into the rooms used for printing, and to pack up and steal all the tools and appliances which his master, with so much care and ingenuity, had made. He went off by Amsterdam and Cologne to Mayence, where he at once opened a workshop and reaped rich fruit from this theft, producing several printed books. The accuracy of this story was attested by a respectable bookbinder, of great age but clear



COSTER COMMEMORATION MEDAL, 1856. (*From a Medal in the Author's Collection.*)

memory, named Cornelis, who had been a fellow servant with the culprit in the house of Coster, and indeed had occupied the same bed for several months, and who could never talk of such baseness without shedding tears and cursing the thief."

While giving Junius all credit for recounting this story as he found it handed down by tradition, we must be careful not to take it too literally. Stories of this kind although founded on fact, always grow by

repetition. The central truths illuminated by the Cologne Chronicle seem to be: (1.) The discovery of movable letters was a growth from small beginnings. (2.) The country was Holland and the place probably Haarlem. (3.) Gutenberg derived his ideas of printing from Holland.

Let us now expound the claims of Gutenberg as gathered from undoubted evidence and facts.

John Gutenberg is a real man in history. He was born at Mentz in 1399, and some members of his family are known. Several documents testify to his existence, but the first which by possibility connects him with printing is an action at law brought against him by a man named Dritzehen in 1439 to recover a loan of money. The original text of this document, unfortunately, cannot be verified, having been destroyed at the siege of Strasbourg.

Numerous witnesses gave evidence which showed Gutenberg as practising several arts by which he made money, one of which was a great secret carried on by him in a ruined convent near Strasbourg. Here he was surprised at his work by his creditors, to whom at last he divulged his secret, making partners of them. Some curious particulars of tools and four pieces of wood to form a press are given in the depositions, and apparently refer to experiments connected with printing. The want of capital to carry on his experiments is also very evident. Andrew Dritzehen had helped him for some time, but died before success crowned their efforts. Gutenberg then tried to obtain possession of all the materials which Andrew Dritzehen had left, but his partners stepped in and took them, although they were not sufficiently instructed to make any use of them. This action went against Gutenberg, who, now much impoverished, sold the last remaining portion of his paternal estate. Again and again he had to borrow money, and in 1450 entered into a five-years' partnership with John Fust, each to have half the profits of the business.

As time rolled on and nothing satisfactory resulted, Fust took advantage of his legal powers, and by a lawsuit to recover his loan compelled Gutenberg, in November, 1455, to give up all the printing plant, which he conveyed away, and with the assistance of Peter Schœffer, who married Fust's daughter, started a printing-office on his own account. Gutenberg, deprived of all his material and without money, but not disheartened, now found a new friend in Conrad Homery, Syndic of Mentz, with whose help new types and presses were made. Misfortune and debt still pursued him, and had not the materials been the property of Homery, he would have been again deprived of them. In 1460 the book known as the "Catholicon" was printed, and several other small books. The city of Mentz was sacked in 1462 and its trade entirely destroyed. The next we hear of Gutenberg is his appointment in 1465 to be one of the gentlemen of the Court to Adolphus II, in whose service he remained till his death, about 1468. Gutenberg's types were removed to Eltville, where his relatives, Henry and Nicholas Bechtermunze, printed with them in 1467.

The weak part of Gutenberg's case is that only in the year 1462 do we first meet with any mention of him as a printer, and that mention not in Germany but in Paris. This interesting reference was discovered by the Librarian of the Basle City Library, who examining a copy of "*Gasparini Pergamensis Orthographia*" preserved in the Heylin collection found a unique Prologue from the pen of Heylin the donor. The book, as is well known, was printed at the Sorbonne Press, Paris, in 1470, and the portion of the Prologue which is of most interest to us reads thus:—

" I imagine that the friends of literature will receive great benefit from the Art invented by the new sort of Printers, who in these our days have (like the warriors from the Trojan Horse) issued from the womb of Germany and scattered themselves abroad.

"In this country (France) the story is, that a certain John Gutenberg, not far from Mayence, was the first inventor of the printing art, by means of which books are made, not with a reed as of old, nor with a pen, as in our days, but with metal letters, and that rapidly, evenly, and elegantly."

Then after noticing the divine honours bestowed upon Bacchus and Ceres for endowing mankind with the kindly fruits of the earth, he adds :—

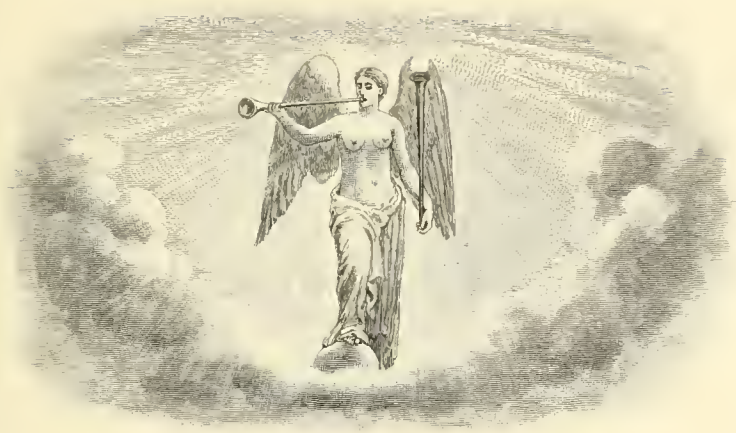
"Gutenberg has made a discovery still more fruitful and more divine for he has discovered a way by which letters may be engraved and by their means all that can be thought and spoken is at once reproduced and so passed on to posterity."

The remainder, though in praise of the new art, adds nothing to this testimony.

Here then we may leave the vexed problem of the Genesis of Printing.

It requires but a slight examination of the early Donatuses, whether Dutch or German, to be convinced that whatever the means adopted to make the types, they were quite dissimilar to those adopted at a later date. We shall probably never know the slow degrees by which the punch, matrix and type-mould were brought to perfection. The old types, apparently 15th century, described later in our chapter on "Leviticus," prove that in a most essential particular, viz., the regular height of each letter, there was great inferiority. But, although the crude method of casting in the 15th century was undoubtedly perfected by later generations, one thing is certain that the whole dispute concerning the invention of Typography as a development of, though distinct from, Printing, would be settled by a reply to the simple question: Where and by whom were the first movable types cast?

This question has become very involved, and has evoked so much bad feeling, been darkened by so many forgeries on all sides, and has roused such fierce national jealousy, that the necessary labour of sifting the true from the untrue is a thankless and wearisome task.



EXODUS.

“ Their sound is gone out into all lands.”



EXODUS.

IN these days of rapid inter-communication every good invention becomes public property in a very short time. Not so in the fifteenth century. Typography did not spread rapidly for many years after its birth. The workmen were probably bound to secrecy, and the Press itself had to create work for itself by educating a public up to the reading point. Indeed, so restricted was the sale of books at first, that in a commercial sense the profits were very poor.

In October, 1462, one printing-house at Mayence was at work, under Fust and Schœffer, who are supposed to have had many workmen in their service. It is not known for certain that Gutenberg, who a little later was printing at Eltville, had at that time a press in the same city: probably he had. Pfister at the same time was printing in Bamberg, and Mentelin and Eggestein at Strasbourg. Besides these we know no other presses then existing, and not much had yet been issued from these four put together. Bernard, indeed, says that several neighbouring towns had established printing-presses, although of this there is really no proof. But the captivity of the young giant was soon to end, for, in the month and year just stated, the famous city of Mayence, which had become the battlefield for two opposing archbishops, was captured by Adolphus of Nassau and

given up to pillage. From a flourishing city it became a half-burnt, forsaken ruin, and all who could, deserted it. Schaab gives a fearful account of the devastation and fire which befel this once populous city. Fust and Schœffer's printing-office was burnt down, masters and workmen were driven away. This Exodus of practical Printers formed an epoch in the history of the Art. Presses were soon established by the fugitives in Cologne, Rome, Augsburg, Nuremberg, and other places. In Cologne, especially, typography took deep root and flourished. Here Ulric Zell, who had learnt the art under Peter Schœffer, established a press, which proved very prolific. It was one of Zell's workmen who, in 1499, penned the remarkable statement about Germany having taken the first idea of printing from the Donatuses of Holland. Zell's first dated book bears the year 1466; but as nearly all his books were issued without any date, it is more than probable he began two or three years earlier. His types are bold and easily recognised; they are of three sizes, and all of the same style. A few years later several other printers were at work in the same city, which, by the end of the century, boasted of a considerable number of presses, that of Arnold Ther Hoernen being the best known.

In 1469 printing found its way to Nuremberg, where Henri Keffer, one of the original Mentz printers, joined in partnership with Jean Sensenschmidt, and published many books. Frederick Creussner was another Nuremberg printer of whose works many have survived; but the most celebrated was Anthony Coburger, one of the greatest and most artistic printers of the fifteenth century, who kept twenty-four presses going in this city, besides branch establishments at Basle and Lyons. In this town, too, was produced, in 1517, a piece of work, the technical peculiarities of which it has puzzled even printers and type-founders to understand. This was the celebrated "Theurdanck," a beautifully illustrated book printed for the Emperor

Maximilian, by Melchior Pfingzig, in which the flourishes and ornamentation rise or fall from one line to another in a manner apparently irreconcilable with types which must be cast in a mould. The typographical curiosities of this book are indeed most interesting, and afford evidence of skill in typefounding, which could only have been developed where Imperial funds were used for the education of both punch-cutters and typefounders. From that time until lately, no such work has issued from any printing-office. In Germany, however, and in America, the modern typefounders have in the last few years shown capabilities of combination in well devised types, which prove that were the "Theurdanck" to be placed in their hands to-day for reproduction, they could not only equal, but even excel that wonderful effort of the sixteenth century.

Berthold Rot, of Hanau, one of Gutenberg's workmen, carried the art to Basle, and set up his press before 1468; and six years later there were three printing-houses at work in that city.

A press was established in Augsburg, about 1469, by Gunther Zainer, who came from Strasbourg, and had the credit of being among the first to introduce the Roman character into Germany.

The City of Spire received printing in 1471, and speedily became famous, sending out in her turn several pioneer printers.

In ITALY the first press was erected in the monastery of Subiaco, a few miles from Rome, by two workmen, Sweynheym and Pannartz, whose earliest work bears the date 1465. In 1467 the same printers moved to Rome, where they soon became famous for their editions of the classics, which were published with remarkable speed one after another. Here, of course, the types used were Roman; that shape being as natural to Italy as the Gothic types to other countries. Had the sale of their books been at all commensurate with the rapidity of

their production, all would have been well, but at the end of five years the two printers found themselves burdened with heavy stocks of unsold books, and with empty purses, while several rival printers had erected presses in the same city. They appealed to the Pope for assistance, but with what success is unknown. Neither of them battled much longer with the ills of this life, Death claiming both printers in 1477, just as our Caxton was starting in his typographical career.

After Rome, the Printing-press travelled to Venice, where Jean de Spire introduced the new art in 1469. His name, however, was soon overshadowed by the renown of two celebrated typographers, Nicholas Jenson and Christopher Valdarfer, whose beautiful Roman types were much admired. Vindelin of Spire, brother of Jean, also was a famous printer in the same city.

Lucca, Foligno, Milan, and Florence received printing early, but there is no space to add particulars.

Considering the pre-eminent position held by Paris and its celebrated University in the fifteenth century, it is somewhat remarkable that printing did not take root in FRANCE until the year 1471. Printed books from other cities, however, were not uncommon, having been sold there continuously for nine years from the time that Fust brought the first printed Bible to Paris in 1462, and when Schœffer in 1468 sold there an edition of Cicero.

At last Guillaume Fichet, who was Rector of the Sorbonne, and, although by birth a German, was anxious to see some of his own writings printed by the new method, joining with Jean Heynlin, a Swiss, and professor at the same University, sent to Switzerland for workmen to start a printing-office in Paris. Three men, Ulric Gering, Michael Friburger, and Martin Cranz, all of Basle, answered to the call, and after occupying a year in preparation, completed the first book ever

printed on French soil, in the precincts of the famous Sorbonne. It was entitled "Gasparini Pergamensis Epistolæ," a work celebrated



PORTRAIT OF ULRIC GERING. (From *Philippe*.)

for the classical beauty of its style, to which Fichet added an introductory chapter. After an edition of "Sallust" and the "Orationes

Bessarionis" came Fichet's own work, "*Rhetoricæ Ficheti*." Of this he appears to have been very proud. He took great pains to have several copies carefully printed on vellum for presents, which were splendidly illuminated, and to each he added a specially printed preface written by himself, and suited to some particular recipient, so that in this respect each copy was unique. These copies were presented to the French King, to the Pope, to Edward IV of England, and a few other distinguished personages, whose names are all detailed in the interesting history of Parisian printing lately issued by M. J. Philippe.

After nearly three years' work, and when thirty books had been published, half in quarto and half in folio, with an average of seventy-two pages to each, the expense was found too heavy, and in December, 1472, the Sorbonne Press was relinquished.

It is curious to notice with reference to the earliest press of France, that the first Printers there were not Frenchmen, and that they printed their earliest books in Roman type; that the first twelve books printed in France were not in the French tongue; and the very first book issued in the French tongue was not printed in France. The first book, indeed, printed in English, and the first book printed in French, issued from the same press, that of Colard Mansion of Bruges. The English book was "*The Recuyell of the Histories of Troye*" and the French, "*Le Recueil des Histoires de Troye*." Both are undated, but were probably printed in 1474.

The Sorbonne Press having ceased work in 1472, Gering with his associates, started a fresh printing-house on their own account, two of their workmen doing the same. These men, by adapting themselves to the times, and printing, not classics in Roman type for a few scholars, but works popular with all who could read, succeeded well. These books were printed in a picturesque Gothic type made in imitation of the manuscript books to

which French readers were accustomed. About 1477 Gering's associates retired, and he was joined by a printer named Maynyal. To Englishmen this is a fact of some interest, as it was to this same Maynyal that William Caxton applied when he wanted help to print a Sarum Missal in 1484. In this missal Caxton's trade mark appeared for the first time.

The NETHERLANDS did not receive the new art until 1473; and, as if to make up for lost time, presses were erected at Alost, Utrecht, and Louvain, all in the same year. There is a beautiful statue in the city of Alost to Thierry Martens, who first printed there. In Louvain the well-known typesetter and printer, John Veldener, began work in 1473, and in consequence of the great similarity of his types to those of Caxton he is supposed by some bibliographers to have supplied England with the first printing materials used there. Veldener left Louvain in 1478 to print at Utrecht.

In Brussels the press was erected in a monastery, where "The Brothers of Common Life" printed from 1476 to 1487. The city of Bruges has a special interest for English bibliographers, as it was there that for thirty years William Caxton resided. Here Colard Mansion started a press about 1473, although the earliest date in any of his books is 1475. More particulars of this printer and his connection with the first English press will be given when narrating the story of Caxton's life. In Gouda, Gerard Leeu, also a friend of William Caxton, began to print in 1477. Antwerp did not see a printing-press until 1482, while Leyden and Ghent waited until 1483. Haarlem itself cannot show a book with a printed date earlier than 1483, but, as shown in the previous chapter, the probability is that printing was practised there much earlier.

In forming opinions upon debatable points in early printed books, much caution is necessary, and the more one studies the earliest specimens the greater becomes the conviction that all dogmatic

assertion not founded on positive dates should be avoided. Yet, before leaving the Netherlands, it may be well to draw attention to some points which ought to receive consideration with reference to the source from which the Netherland printers obtained their typographical knowledge. In a book intended for popular reading, technical peculiarities would be tedious; but to anyone practically acquainted with type-printing it is very difficult to believe that the early Netherland books, say the Colard Mansions and the Veldeners, could have been produced by men who had learnt to print from disciples of the Gutenberg School.

The books of Ulric Zell of Cologne show, typographically speaking, ways of working superior to and differing from the books of Caxton and Mansion; and it is against all probability that the Netherland printers, after learning their art in such a school would, upon returning to their own country, have adopted customs and habits of printing belonging to an early and imperfect state of the art, which they could never have seen in the workshops of their instructors. That the early specimens of Dutch printing shown with such wonderful accuracy in Holtrop's "*Monuments Typographiques*" could have been true descendants of the Mayence Psalter and Gutenberg Bible, is more difficult to believe than the origination of a Dutch school of typography which was improved by and merged into the German school.

The Exodus of the Press and its journeyings through the principal cities of Europe having been thus recorded, we have now especially to narrate the circumstances in which it took root and flourished in GREAT BRITAIN.

Although some of the older writers throw doubt upon the priority of William Caxton's press in England, there is now a general consensus of opinion that the claims of Oxford to have had a Press in 1468

cannot be sustained. To state and refute these claims, which are founded entirely on a typographical blunder in the printing of a date, would occupy too much space. It will therefore be better at once to trace the career of the Westminster Press.

William Caxton was not born in 1412, as nearly all his biographers assert, but about ten or twelve years later, as we learn from the records preserved at Mercers' Hall, Cheapside. His name is there inscribed as having been apprenticed in the year 1438. His birthplace was somewhere in the Weald of Kent, perhaps at a place called Caustons, near Hadlow. His father sent him to school—by no means a usual experience for lads in the fifteenth century—for which in his after-age he was deeply grateful. He was apprenticed at the age of twelve or fourteen to a wealthy mercer, a fact which, at a time when class prejudices were very strong, shows that his family were connected with the merchant princes of London. After a few years his master, Robert Large, died, and as Caxton's name, when he issued from his apprenticeship, does not appear in the Mercers' books, there is little doubt that he went abroad. In 1446 we find his name mentioned in the town records preserved at Bruges, where he was considered sufficient security for a sum equal to £110. In 1453 he paid a visit to London, and took up his livery in the Mercers' Company. Ten years later he had raised himself to the highest honour an English merchant could attain abroad—that of Governor of the Merchant Adventurers in the Low Countries. Here he had great responsibilities, and was consulted and employed by the English Government in various matters connected with trade in those parts. In 1468 the Princess Margaret, sister of our Edward IV, was married to Charles the Bold, Duke of Burgundy, at Bruges. Here Caxton would be brought into friendly intercourse with the nobles of the English Court, many of whom took refuge there when King Edward, in 1470, was driven from his kingdom. Several treaties about trade between England and the Burgundian dominions were ratified about

Cy commence le liure de lordre de -
cheuallerie. / . Prologue .

La loenge et gloire de
la pourueance diuine
dieu quy est sire et roy
souuerain par dessus
toutes choses celestes et
terrestres nous commencons ce liure de
lordre de cheuallerie pour demonstrier q
a la signifiante de dieu le prince tout
puissant quy seignourist sur les .vii.
planettes quy sont cours celestiaulz
et ont pouoir et seignourie en gouuer/
ner et ordonner les corps terrestres / Du
reullement doiuent les rois et princes
auoir puissance et seignourie sur les
cheualliers Et les cheualliers par simi/
litude doiuent auoir domination et
pouoir sur le menu peuple / et contiēt
ce liure .viii. chapitres / Le premier
desquelz dist comment le cheuallier
hermite deuisa a lescriuer la regle et or //

this time, in which Caxton took a leading part. In Bruges at this period there were magnificent libraries, consisting almost entirely of illuminated manuscripts; and no doubt a few books from the German presses, which we know were selling at Paris, were to be had at Bruges also. In these literary treasure-houses Caxton would be able to indulge that taste for books which was a prominent feature in his character. He became known to the Duchess, and from some cause which at present has not been discovered, resigned his post of Governor, and entered into her service. Whatever were the duties he undertook for the Duchess, his position was one of honour and trust, requiring his personal attendance upon her. Two causes may have influenced Caxton in retiring from his post of Governor. Reckoning from a lawsuit in which his married daughter was engaged in 1496, she would then have been twenty-six years of age, had her father married in 1469. As a married man he could not be a merchant in a foreign city, foreigners abroad as well as in England living a monastic life. Thus marriage may have been the moving cause. Added to this, the duties of Governor compelled him to make frequent journeys to other cities, and the occupation of so arduous a post for many years would naturally make him wish for relief and quietude.

Whatever the cause, his retirement gave him leisure to indulge his literary tastes, and he set to work to translate into English a French novel, which was then (1469) much admired in the Burgundian Court. It was a medley of Roman mythology mixed with Gothic knight-errantry and love adventures. Its title was "The Recuyell (collection) of the Histories of Troy," and the fact that it held its place in the popular esteem for at least two centuries later, shows us that it stood high in public opinion. After translating a few sheets, Caxton put it on one side, but "on a time," when conversing with the Duchess, he showed his attempt to her. This was in 1469. She commanded him at once to finish the translation, which he appears to have taken two years to

accomplish, continuing it, as he himself tells us, in Ghent, and finishing it at Cologne. And here it is important to notice that in both those



SUPPOSED PORTRAIT OF CANTON. (From *Lewis*.)

cities there is no question of his learning printing. All he mentions about himself refers to the translation alone. This brings us to

1472-3. The new book, patronised by the Duchess and the Court, was soon in greater demand among the courtiers than Caxton could possibly supply by manuscript. He was tired of so much writing, and naturally his mind turned to the new Art of Printing, specimens of which he had probably examined. Just at this time Colard Mansion, a

Man they of Crete had herd the resolution of
 Saturne they were gretly abasshed. ffor they
 knewe well that Saturne toke this mater gret
 ly to his herte, and that he was a terryble man to of-
 fende. And so they knewe that wrongfully he wyl-
 lyd the deth of his sone Jupiter that had restored hym
 to his lordship by his prowesse & vailliance. Many
 ther were that went in to an other kyngedom because
 they wold not be with the fader agens the sone ner
 with the sone agens the fader but ther was noman
 that durste be so hardy to replie agayn Saturne ner saie
 that he dide euyl for they dredde more his pre than to
 offende Justyce. What shall I saye after the comande-
 ment of Saturne/each man withdrewe hym vnto his
 hous full of grette and bitter sorowe in herte. And ther
 was not oon man but he had his face charged with
 grette greif and pesaunt anoyauce &c ::.

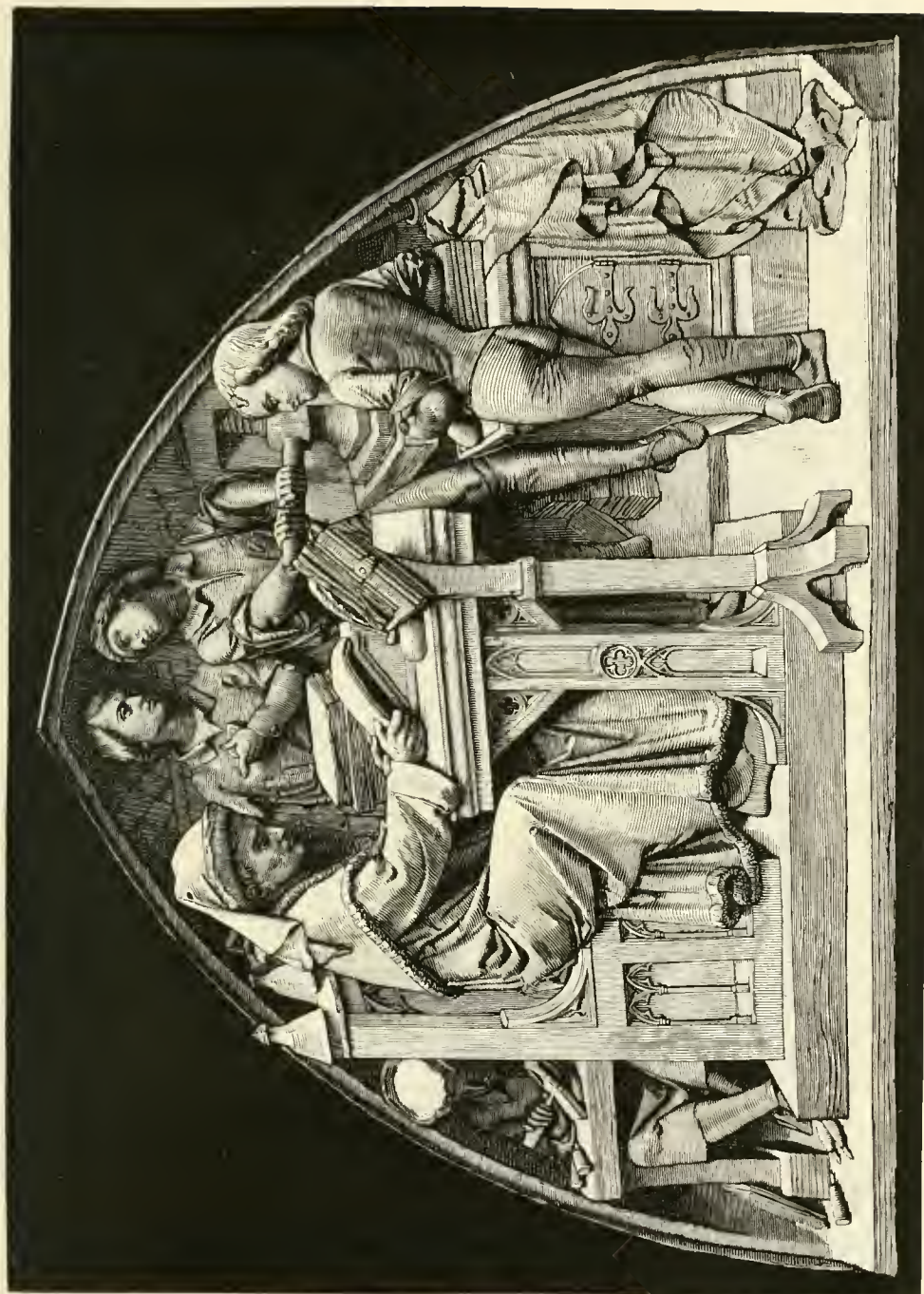
FROM "THE RECUEILL OF THE HISTORIES OF TROYE," 1474. (*Caxton's Type, No. 1.*)

citizen of Bruges, had erected a printing-press in a large room over the church porch of St. Donatus, and to him went Caxton. Colard Mansion set to work, Caxton helping him with money, and learning at the same time the new art and mystery. So it was that about 1474-5 the book was completed and a copy presented to the Duchess.

This was the turning point in Caxton's career; for although he did not immediately leave his Royal mistress's service, he spent some time in mastering the new art, and then, with a quantity of newly-cast types, made his way to England. There seems to have been no special reason why Caxton should choose Westminster as the locality of his printing-office. There was no Scriptorium in the Abbey, and the Abbot does not seem to have held towards him any other relationship than that of landlord, leasing to him a tenement in the Almonry, just where the Guards' Memorial now stands. Here Caxton settled down and worked for at least fifteen years. His first book which bears a date is "The Dictes and Sayinges of the Philosophers," finished in November, 1477. Upon the strength of this date the Caxton Quarcentenary Festival was held in 1877; but there can be no doubt that he printed many books of which no copies remain, some of which were doubtless earlier than the "Dictes."

Unlike some of the French and Italian printers who ruined themselves by printing classical books, Caxton began with small pamphlets, and short pieces of poetry by Lydgate and Chaucer. These were soon followed by books of greater pretence, historical, poetical, and religious. The most imposing book from Caxton's press was "The Golden Legend," a thick and large folio volume, full of rude woodcuts, and narrating the lives of all the Saints in the English calendar. In translating, editing, and printing, Caxton spent the remaining years of his life, and at a ripe old age was buried in St. Margaret's, Westminster, in the year 1491.

His character was that of a pious, diligent, and educated man, who, without aiming very high, led the life of an honest and useful merchant. He never foresaw, any more than his contemporaries, the wonderful capabilities and future strength of that printing-press which was to bring so many blessings to his native country. His successor



BAS-RELIEF FROM THE ENTABLATURE, JERUSALEM CHAMBER, WESTMINSTER ABBEY.

was Wynken de Worde, one of the founders of the Stationers' Company, a workman who, while quite young, came over with Caxton, and was a prolific printer for years after his master's death. The well-known printers, Pynson and Machlinia, had also worked under Caxton.

The city of Oxford was the next after Westminster in which the printing-press was erected in England. The first book printed there, the "*Expositio sancti Hieronymi*," is, indeed, dated 1468, but it is not worth while producing the reasons which have led all modern bibliographers to agree that an "x" has been omitted in the date, and that the real year was 1478. Rood and Hunte, who were the first Oxford printers, were Germans, and their books are very different from those of the Bruges and Westminster presses.

Cambridge, the sister University, had no press until 1521, when John Siberch printed there.

The only other press in England to be noticed in the fifteenth century is that of St. Albans, where a schoolmaster turned typographer in 1480, and printed for a few years. His most noted work was "*The Boke of Hawking and Huntyng, and Cote armor*."

Considering the close connection of Scotland with France, it is rather surprising that printing did not reach that country earlier than 1504. In that year Andrew Millar began to print some ballads.

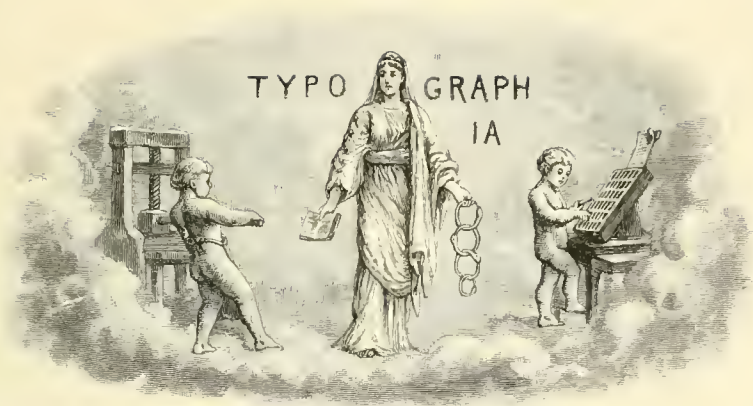
Ireland did not receive printing until the year 1551, when Humphrey Powell printed a prayer book.

In the New World the first City to receive a Printing-press was Mexico, where Cromberger worked in 1540. In the North, Stephen Daye erected a Press at Cambridge, Mass., in 1638.

The Latin names of towns are frequently seen on the title-pages of early books; and as these are extremely puzzling to young bibliographers, the following short list of those most likely to be met with may be found useful:—

Alta Villa	...	...	Etville	Lipsia...	...	...	Leipzig
Amstelædamum	...	...	Amsterdam	Lovanium	...	...	Louvain
Antverpia	...	...	Antwerp	Lugdunum	...	...	Lyons
Argentina	}	...	Strasburg	Lugdunum Batavorum..	...	...	Leyden
Argentoratum	}	...		Lutetia	...	...	Paris
Athenæ Rauracæ	...	...	Basle	Mediolanum	...	...	Milan
Augusta Vindelicorum	...	...	Augsburg	Moguntia	...	...	Mayence
Bononia	...	...	Bologna	Moscua	...	...	Moscow
Brixia	...	...	Brescia	Nannetes	...	...	Nantes
Bruxellæ	...	...	Brussels	Neapolis	...	...	Naples
Cantabrigia	...	...	Cambridge	Norimberga	...	...	Nuremberg
Colonia Agrippina	...	...	Cologne	Oxonia	...	...	Oxford
Daventria	...	...	Deventer	Patavium	...	...	Padua
Delphi	...	...	Delft	Rostochium	...	...	Rostock
Duacum	...	...	Douay	Roterodamum	...	...	Rotterdam
Eblana	...	...	Dublin	Rothomagum	...	...	Rouen
Erfordia	...	...	Erfuhrt	Sublacense Monasterium	...	...	Subiaco
Florentia	}	...	Florence	Taurinum	...	...	Turin
Firenze	}	...		Toletum	...	...	Toledo
Frankofurtum	...	...	Frankfort	Trajectum ad Rhenum..	...	...	Utrecht
Gandavum	}	...	Ghent	Treviri	...	...	Treves
Gand	}	...		Tridentum	...	...	Trent
Hafnia	...	...	Copenhagen	Turones	...	...	Tours
Haga Comitum	...	...	The Hague	Venetia	...	...	Venice
Hispalis	...	...	Seville	Vlma	...	...	Ulm
Holmia	...	...	Stockholm	Vlyssipo	...	...	Lisbon
Leida	...	...	Leyden	Vratislavia	...	...	Breslau

The cities and towns the names of which are the same, or nearly the same, in the Latin and native spelling have been omitted purposely.



LEVITICUS.

"Here order in variety we see,

And here, though all things differ, all agree."—

POPE.



LEVITICUS.



THE Laws of Printing, that is, the rules by which artisans in the various branches of this Art do their work, are the theme of this chapter.

In the first place, the laws by which the *Typefounder* is governed in making good and true types, are explained. Then, the laws by knowledge of which the *Compositor* combines those types ready for printing. And lastly, the rules by which the *Pressman* is guided in obtaining impressions from the types.

From the extensive scope of this chapter it will be seen at once that it is only possible to describe the bare principles of each section, without attempting explanatory details.

THE TYPEFOUNDER.

Of the processes by which the first printers made their types very little is known. In none of the early colophons* is any allusion made to them; we are therefore confined to the internal evidence of manufacture discoverable in the types themselves.

* Bibliographers call the final sentence, which in many old books contains the printer's name, place, and date, the "colophon." It answered to the modern imprint, but was more full, and frequently contained important information.

The page of any early book shows a number of lines of type, all of them running from left to right beneath each other in straight lines.

It will be seen from the following diagram that each stamp stands on its own particular piece of metal, and the fact here to be noted is

I	n	t	h	e	b	e	g	i	n	n	g	G	o	d	c	r	e	a	t	e	d	t	h	e		
H	e	a	v	e	n	s	a	n	d	t	h	e	E	a	r	t	h	;	a	n	d	t	h	e		
E	a	r	t	h	w	a	s	w	i	t	h	o	u	t	f	o	r	m	a	n	d	v	o	i	d	.

the exact regularity of *all* the letters: for although a capital "E" seems to the eye much taller than a small letter "a," it will be at once seen by looking at the illustration, that in one direction, viz., from top to bottom, these and all the other letters are identical as to size. Each of the divisions here marked shows the size of the shank upon which every separate letter is cast, measuring this way | , and that measurement, which by printers is called the "body," must be identical for each and every letter, or else unevenness would be the result.

In the following specimen, a single letter in each line is made slightly larger in body than its fellows, the uneven effect being very apparent.

In the beginning God created the
Heavens and the Earth; and the
Earth was without form and void.

To obtain exact regularity was the great difficulty of the early printers. Letters of wood soon became unmanageable from warping or shrinkage, being affected even by change of weather. No doubt the experiment was made of cutting a quantity of letters upon metal shanks, suited to their width.

Concerning the Mayence Psalter of 1454, the first printed book with a plain date, we find opinions, even of experts, very various and contradictory. Some writers, devoid of practical knowledge,

declare all the letters to be separately cut in wood; others, whose opinions deserve respect, imagine the types to have been (as already suggested) cut separately, each on a cube of metal. Others, again, while admitting that these early types were cast in metal, consider that the original punches, or models, may have been cut in wood, and that matrices were produced by dabbing these into metal while in a semi-congealed state.

No writers in the infancy of printing deign to notice typefounding, although in 1508 we meet with the representation of a typefounder at work, which, however, is far too rude to teach us anything. Whichever way we turn, perplexity accompanies us, and the wisest course, perhaps, is to acknowledge that in reality we know very little about the methods of the *first* typefounders.

By careful examination of the types themselves, however, a few facts are ascertained, which, without revealing method, are full of significance. For instance, Colard Mansion, of Bruges, began to print with a fine, bold letter, called "bâtarde," shaped like that known in England as "German text." But when his first fount was worn he made another, every letter of which is slightly thinner in face than that used in the first printing, owing evidently to the fact that a single type of each sort had been chosen out, and, after being trimmed carefully by a graving tool, had been used as a punch to form a matrix of some sort for the second fount. The same thing exactly appears in the second casting of Caxton's No. 2 Type; and here, in many instances, the matrix has actually reproduced some slight slips made by the graver in trimming his pattern letters. These facts are interesting, and as yet indications of no similar process have been observed among the German printers. But we are as far off as ever from the knowledge of how the types were cast. From what has been said it is evident that the early printers had some method of casting types from a mould

which was adjustable as to width; so that while the same mould would cast a letter as thick as an "M," or as thin as an "i," it would make the "body" of each letter identical. This is the whole secret of typefounding; that this result was obtained we know, but how, we know not.

While in all probability we shall never know for certain the processes used to produce the earliest types, we have nevertheless some few data from which we may learn something. Mr. Madden in 1875

toritatibus p^risus nihil de p^risus in t^edo dicere
in sequentibus: sed dūtarat autenticorū in fac
pagina verba fideliter curabo onede s^r
potissimū: nisi qⁿ alium doctorem noia
p^r cuius verba statim sequunt^r verba bi
me: q^d ipse omnes videtur toiter mgtōi
tellerēvbi de dⁱfferentijs p^rtorum agitur

IMPRESSION OF A TYPE IN 1476. (From Madden.)

gave a fac-simile of a curious accident which he had noticed in a book printed by Conrad Hamborch, at Cologne, in 1476. A single letter

nō qui inuenit s^cd q^ui p^rdidit • Inuenit aut^e maria accipit in se su
pm gratiā gremiū: que • p^rdidit in a^mia dⁱginitatis
Quid ergo timet q^ui • iⁿ gaudia p^rit se ulor^e Ti
mōe nō ē obi diuinū • n^o pudoris • Quid timet cū que timēt q^ui timēt
omnia • Quid timet cui iudex ē causa affector integritas testis in
notēcia • Ne ergo timeas maria nec miteris q^d angel⁹ ad te

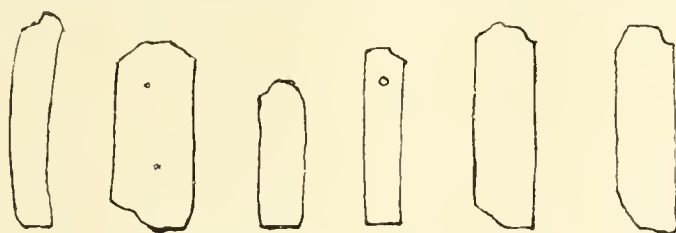
IMPRESSION OF A TYPE, CIRC. 1470, DISCOVERED BY BRADSHAW.
(From Reed's "Old English Letter Foundries.")

had by some means been left lying sideways on the face of a page of type, and when the sheet of paper was pulled, an extensive "batter" took place by the truant letter being squeezed into the face of the type,

the whole shape of the shank showing very accurately in the impression. Curiously enough, an identical occurrence was noticed about the same time by Mr. Bradshaw, in another early printed German book of about the same date. Again, M. Claudin of Paris possesses a number of actual 15th century types, which were found during a very dry summer in the bed of the Saône, opposite to where an old Printing office is known to have existed.

We give fac-simile representations of these three instances, and from them draw several conclusions.

1. We see that there was no standard height for the types. In the types of M. Claudin hardly any two agree, nor do the types of the two German books. It would be a necessity that the types of one



PROFILE TRACINGS FROM M. CLAUDIN'S TYPES. OCTOBER, 1883.

(From Reed's "*Old English Letter Foundries*.")

fount should all be of one height, and if no other founts were used for the work there would be no difficulty. This indeed seems the reason why, in the earliest books, we find little or no mixture of types.

2. We see that none of the types have any *feet*, and that therefore the "mould" as invented shortly after was then unknown. The great improvement by which, in a sliding mould, every letter must be of the same height has often been attributed to Schœffer—an improvement of which he now appears to have been utterly ignorant. Unless every separate letter is made exactly the same height, the result would be that some would be battered because they stood too high, while others would not print at all, because they stood too low. To obtain an

even measure for all, the mould was made to give the height in a very ingenious manner. The diagram shows a type as it appears when thrown from the mould. *a* is the top containing the letter which prints in relief; *b b* are the "feet" of the type, and *c* is the superfluous metal. Now when the piece *c* is broken off, it will leave *b b* untouched; these are the feet upon which the perfect type will stand.



To look at a type it does not at first strike one as so very difficult to make, and yet a good punch cutter must be a born artist, and a good mould-maker a model of skilfulness. Without attempting to describe the modern improvements in casting type by machinery, whereby the molten lead is pumped up into the moulds, and types ready for use come streaming out by thousands, we will try to explain the method used in 1689 by Moxon, who was the first English writer to describe the process with any exactitude. The same methods have been in all probability used by Caxton's successors in the sixteenth, seventeenth, and eighteenth centuries, and are still resorted to now when any letters have to be cast by hand.

The four principal requisites in a type foundry are: 1. The Punch. 2. The Matrix. 3. The Mould. 4. Good Type-metal.

1. The Punch. The punch-cutter, with the help of several tools, engraves each letter upon the end of a short piece of steel. Upon the beauty, congruity, and accuracy of this operation depends the success of the type. The art of engraving, reverse-way, a series of punches, all varying in shape, and yet all agreeing in the thickness and curves of the various down and up strokes—called by the Dutch "fats" and "leans"—is very difficult, and when successfully accomplished, the engraver may truly lay claim to that greatly misused word "artist." If in the humour, he can cut two single or one double letter per diem.



A PUNCH

2. The Matrix. The steel punch being engraved and hardened, it is held face downwards upon a small cube of copper, and then with a steady, an even, and a strong blow from a mallet, the punch is driven some distance into the softer metal, leaving a sunken impression. This, after due trimming and adjusting—called “justifying,”—is a matrix ready for use in the mould.



A MATRIX.

3. The Mould is a complicated instrument made in two distinct halves, which fit accurately, or rather lock into each other, leaving an opening between, into which the melted type-metal is poured. The matrix which only gives the “face” to a type, is kept close to the bottom of this cavity in the mould by a spring. The mould, which is imbedded in wood to prevent the heat reaching the workman’s hand, is held in the left hand. A small ladleful of melted metal is then poured in, the workman at the same time giving his hand a jerk upwards, a movement which drives the metal into the finest parts of the matrix. The workman then slides the mould open, and the type falls out, only requiring the superfluous metal to be broken off, and the burr on the edges rubbed down, to become fit for use. About 5,000 types can be cast in this manner per day by a skilful workman.

4. The Metal of which type is made consists of Lead, Tin, and Antimony, in various proportions. The alloy, however, varies considerably in different foundries. We will only mention in conclusion that the Antimony is used not so much for the hardness it imparts to the alloy, as for the anomaly, which belongs also to freezing water, that it expands in the act of solidifying.

THE COMPOSITOR.

The work of a Compositor in the fifteenth century did not differ in any essential particular from that performed at present. He received the types from the founder, placed each sort in its own assigned place

in the "case," ready for use, and within easy reach. The "case" was an arrangement of small wooden boxes placed on the slant for convenience of reaching, each box being appropriated to its own letter. Standing in front of the case, the compositor held in his left hand a

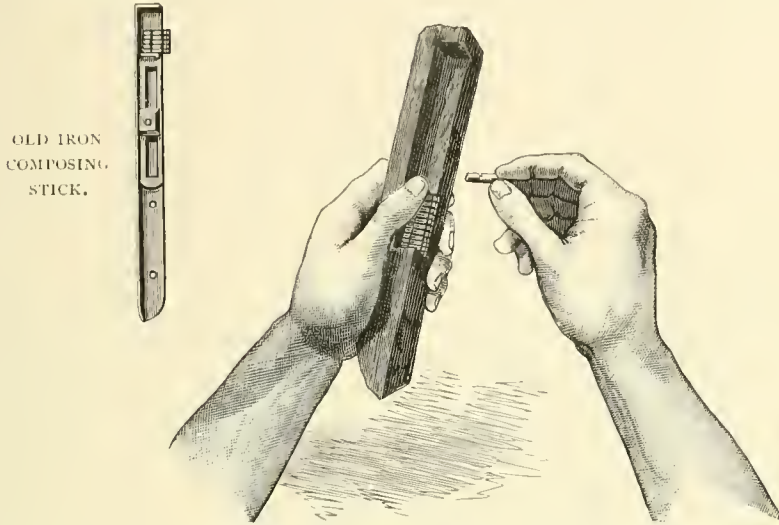
A	B	C	D	E	F	G	A	B	C	D	E	F	G
H	I	K	L	M	N	O	H	I	K	L	M	N	O
P	Q	R	S	T	V	W	P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J	x	y	z	æ	œ	u	j
1	2	3	4	5	6	7	à	e	í	ó	ú	§	†
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THE "LAY" OF A PAIR OF TYPE CASES.

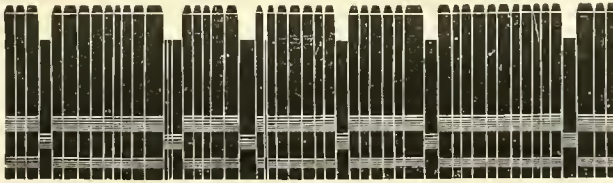
wooden "composing-stick," in which a rectangular trench had been cut to receive the letters. Reading and keeping in his mind a few words of his manuscript, he picked up the types letter by letter and placed them side by side until first words, and then sentences, were composed. When the end of a line was reached, and there was no room for more

words and yet some space left, the compositor by placing a little extra space between the words made the line fill out the stick. This was



A FIFTEENTH CENTURY WOODEN COMPOSING STICK.

called “justifying” the line. Each line was lifted out of the stick and placed on a wooden board; thus line after line was added until there were enough for a page.



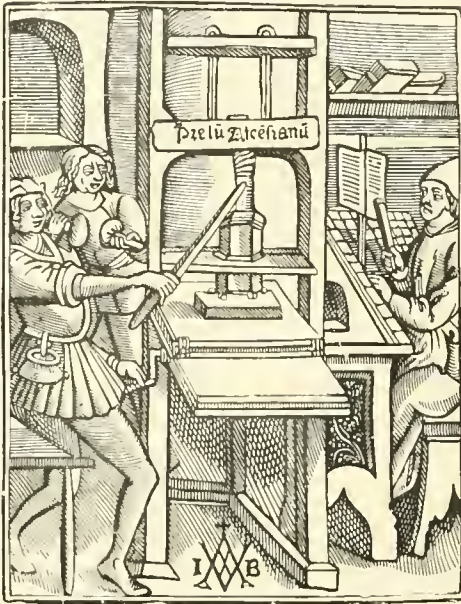
A LINE OF COMPOSED TYPE.

When two or four pages were ready, they were placed upon a flat surface within an iron frame called a “chase,” the proper distance between each page being regulated by small blocks of wood suited to the size of the paper on which they were to be printed. The pages being properly arranged, were all bound together tightly by means of screws, or by small wedges of wood called “quoins.” When all was

secure, the whole, now styled a "form," was lifted up in one piece, and taken to the press, where a first proof was pulled for the "Reader." The necessary corrections having been made by the Compositor, the "form" was ready for the Pressman.

THE PRESSMAN.

The first printers had but small presses made entirely of wood. Their power was also slight, and they printed, as a rule, but one page



OLD WOODEN PRESS. 1508.

at a time. The screw was of wood, and worked by a "bar," much the same as a modern napkin press. The chief thing was to obtain an even surface on the "bed" upon which the page of type rested; and, secondly, an even surface for the "platen," which was lowered as the "bar" turned the "screw," and thus pressed the paper upon the face of the type. The evenness of impression, as well as of colour, in many old books, shows that this object was accomplished with great success, and proves what good mechanics they were four hun-

dred years ago. It is a task which we could not now accomplish so successfully were our modern tools and appliances withdrawn.

The ink was doubtless a sore trial to the early fathers of the press. It was only by long experience upon block-books and wood engravings that the working together of boiled oil and lampblack was found to give that consistency which would be stiff enough not to spue over the sides of the letters when pressed, and yet not so thin as to run away into unevenness of surface or want of colour.

There were nearly always two workmen to one press. One "beat" the "form," that is, he dabbed two big, soft balls covered with ink over all the type; the other placed the white paper on the "tympan," and ran the whole, by means of a winch, beneath the "platen," and then made a strong pull at the bar.

Modern pressmen know nothing of the skill and experience requisite in olden times to beat a "form" properly. First the balls, which were made of prepared skins padded with wool, and fastened on

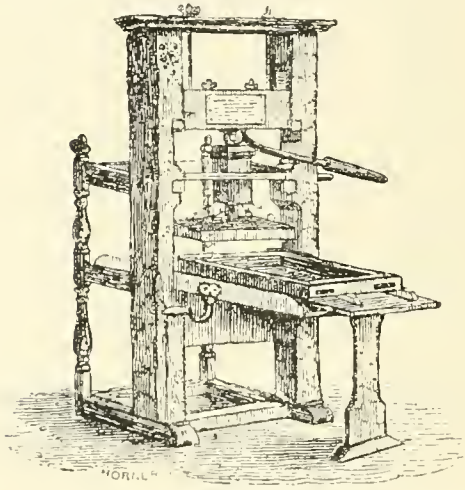


INTERIOR OF A 17TH CENTURY PRINTING OFFICE. (From *Mallinkrot*.)

to a "stock," had to undergo peculiar treatment requiring both experience and sagacity. Extremes of heat and cold, of dampness and dryness, called out all the resources of the pressman in order to keep the skins of his balls in the proper state to receive and distribute the ink evenly. The distribution was effected by taking a small portion of the ink upon one ball; then began a series of twists and twirls, and punching of the balls together, worthy of an acrobat, until the ink, by an elaborate manipulation of one ball against the other, was

evenly spread over the surface of the "form." Whilst the "man at the bar" was placing the sheet of paper in such a position that it should be printed with the proper amount of margin all round, his fellow or "partner" was dabbing the ink over the face of the pages. In this he had to be very careful not to miss any part: if missed, the impression appeared very pale, and the blunder was called a "friar"; but if blotched with too much ink, and the face of the type filled up, it was a "monk." This race of antiquated pressmen is now almost extinct. One of the last worked in jacket and hose at an old wooden press at the "Caxton Celebration" in London, in 1877,

where he attracted great notice.



IMPROVED WOODEN PRESS. 1640.

As a matter of convenience many of the early printers made their pages just of the size to agree with one page of the MS. The advantage of this plan was that they had no occasion to compose straight on, but might print page 8 with page 1, and page 7 with page 2, without noticing the intermediate pages, thus getting the first sheet of a quaternion out of the way.

Signatures, which are of great use to the binder, were letters and figures at the foot of certain pages, which served as signs to show the sequence of the various sheets. They are by no means peculiar to printed books, nor were they, as some writers assume, invented by the early printers. The manuscript-writers knew their use long before Gutenberg, and where a MS. is still intact, nothing having been cut off the bottom edges, the manuscript signatures may often be recognised at the extreme edge of the sheet. Sometimes the signature was put in the back, and so, when bound, became invisible.

Catchwords were the first word from the top of a page repeated below the bottom line of the previous page, thus assuring the correctness of the collation.

After a time the pages, especially if small, were arranged so that four or eight might be printed at a time. A sheet of quarto required four pages on one side, and four pages on the other side of the sheet. Octavo had eight pages on one side and eight pages on the other; and these had so to be placed that when the sheet was folded the pages came in proper order.

Some of the earliest books were issued without any Title page, in this respect agreeing with MS. books.

The omission of head lines to the pages was common among the first Printers.

The numbering of pages was a development of numbering the leaves, which last custom is also a peculiarity of early printed books; as is the custom of manuscript initials at the beginning of Chapters.

Thus in a very imperfect manner the outlines of the laws upon which the old printers worked have been given; but ten minutes in a printing-office would explain more than ten chapters of ear-knowledge, and there is no difficulty nowadays in obtaining permission to see any of the great printing-offices.





NUMBERS.

*“Who, departing, left behind them
Footprints on the sands of time.”*

LONGFELLOW.



NUMBERS.

IT is always a pleasant task to any one who realizes the magnitude of the debt under which the whole world lies to the printing-press to enumerate the many great and noble men who have served God and their country as printers. The biographical difficulty is in the selection, for every country has its typographical roll of fame, upon which are inscribed numbers of names of heroes of the Press, who, instead of courting fortune, have spent laborious and self-denying lives with the sole object of diffusing that knowledge by which ignorance is dispelled, and man raised above the beast. Such names should be household words. An account, necessarily brief, of a few of them is here attempted.

HOLLAND.

I believe this to have been the premier country in typographical development. Some one printed those old Dutch fragments which carry with them their own certificates of birth; and even if it is difficult to prove the printer to have been LOURENS JANSZON COSTER, his works remain, and "Costeriana" is a well understood and convenient term by which to designate them.



I Joannes Gutenberg. II Joannes Faustus. III Laurentius Costerus. IV Aldus Manucius. V Joannes Frobenius.

GERMANY.

Of the celebrated trio, GUTENBERG, FUST and SCHÖFFER, who invented what Fichet, Rector of the Sorbonne (who also was their contemporary), calls "a *new* sort of printing." Schœffer alone was left after 1468. Other Germans were however at work then or soon after. PFISTER and SENSENSCHMIDT were printers at Bamberg; ZAINER was hard at work at Augsburg; EGGESTEIN and MENTELIN at Strasbourg; and VENDELIN at Spire. These are well known names; but still better known is that prolific typographer, ULRIC ZELL, of Cologne, whose workshops seem to have been a training college for young printers all over Europe, and whose works are so numerous that no writer has yet mastered their bibliography. So little cared he for worldly fame that he scarcely ever put his name to a book printed by him, although the individuality of his types and the "get up" of his works announce their parentage as plainly as if certified in a Colophon "Per me Ulric Zell." Before leaving Cologne, we will only mention P. DE OLPE, TIERHOERNEN and KOELHOFF, all famous printers. After the first two generations, however, Germany pursued the new art in a sober manner, no name appearing of surpassing merit until the middle of the sixteenth century.

"Optime meritis" was the description attached by Rothschoitz to the portrait of SIGISMUND FEYERABEND (1527-1587), of Frankfort-on-the-Maine. A learned and able man, with great artistic taste, he employed the best engravers of the day to illustrate his books, which became famous throughout all Europe, and are now held in great esteem by bibliographers.

JOHN PETREIJUS, of Nuremberg (1497-1550), is a name which should not pass unrecorded. He was an excellent typographer, and especially noted for the correctness with which he printed in Greek and Latin. He was a practical printer in a very real sense, for he

made his own presses, cast his own types, and manufactured the ink with which he printed. His extensive correspondence shows that the most celebrated scholars of the age were in constant communication with him, on terms of close friendship. When he died they wrote, as was then customary among Scholars, many classical epitaphs to his memory.

ANT. KOBURGER, too, was very famous, and perhaps the most prolific of all Germany's fertile printers. He worked at Nuremberg, where he kept twenty-four presses employed. All his books are of great excellence, and he is specially noted for his Bibles, of which he issued twelve editions.

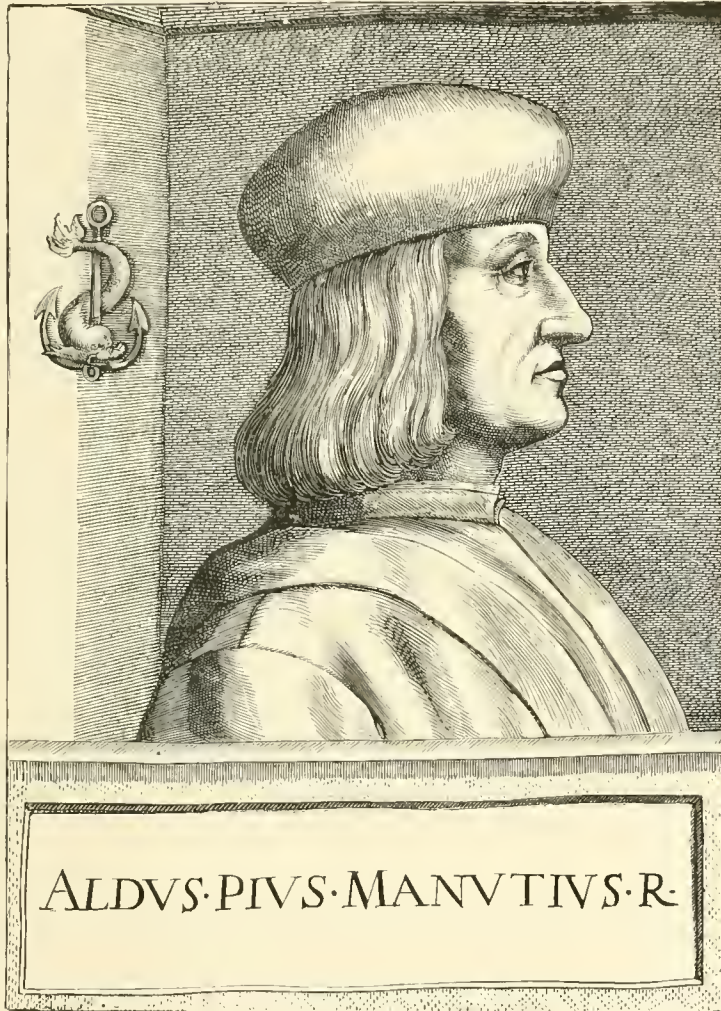
In the same city ALBERT DÜRER erected a press, at which he printed the text to his own wonderful engravings. After his death his widow carried on the business for some years.

In modern times Germany has given us EMMANUEL BREITKOPF, who, about 1750, improved greatly the hand-press, and invented a new set of music types; while H. BROCKHAUS, at Leipzig, has a European renown as printer and typefounder.

ITALY.

In this country the printing-press originated, as we have seen, with SWEYNHEYM and PANNARTZ, first at Subiaco and then at Rome, who from 1465 to 1474 issued many editions of the Classics. In addition to the famous names already recorded when noticing the introduction of the art into Italy, ULRIC HAIN, PHILIP DE LIGNAMINE, SILBER, PLANCK and RIESSINGER, noted typographers of the fifteenth century, deserve mention. But the lustre of all fades before the fame of the celebrated ALDUS PIUS MANUTIUS ROMANUS. This great printer was born at Bassanio, in the Roman States, in 1449. He studied for many years in Rome, and from that fact assumed the name of

Romanus. In 1482 he lived in the same house as Picus Mirandulus, and afterwards abode with Prince Alberto Pio, who allowed him to



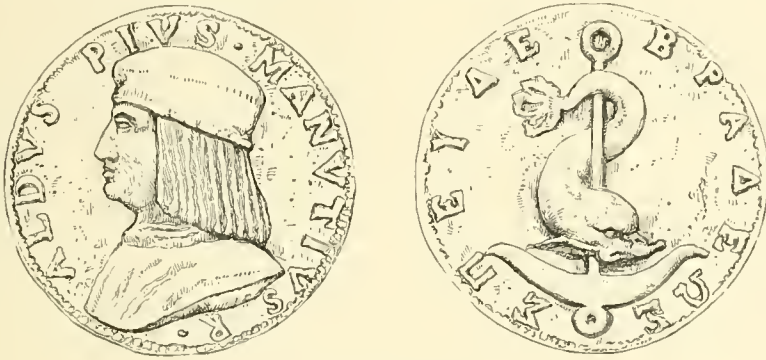
PORTRAIT OF ALDUS.

adopt the name "Pius." Being strongly impressed with the potentialities latent in the printing-press, he determined, about 1489, to

devote his whole attention to the publication of classical literature. After organising in Venice the most complete printing-office hitherto seen, he began his typographical career by the issue of the Greek Grammar of Lascaris. This was in 1494. In the prologue to that book Aldus declares the determination of himself and his co-workers in the following noble words:—"We have determined henceforth to devote all our lives to this good work. I call God to witness that my sincere desire is to do good to mankind, as indeed I hope has already been shown by my past life. I will indeed labour continuously to make constant progress; for although we might have chosen a tranquil country life, we have preferred a life busy and full of hard work. A good and learned man will not give himself up to base pleasures, but to work and to do something worthy. Cato has said truly, 'Man's life may be compared to a sword; use it and it keeps bright; neglect it and rust will soon be its destruction.' Therefore if work seem sometimes irksome to a man, let him be sure of this—that sloth would be much more detrimental to him than the hardest kind of labour."

These were words from the heart of Aldus, and in this conviction he worked until his death. In 1501 he established an academy of learned men and scholars. Constantinople had just fallen into the hands of the Turks, and among the Christian refugees were many scholars of fame and repute. To these Aldus offered a safe and quiet asylum, asking from them in return that a portion of their time should be devoted to the collation of manuscript copies of the classics, which in the course of time had become very erroneous through the carelessness of successive copyists. He also employed them in reading his printed proofs and revising them for the press. In this way many good scholars lived on terms of great friendship with Aldus, and were entirely supported by him. Surely modern lovers of literature owe an incalculable debt of gratitude to Aldus for preserving by these means an accurate text of the great classical writers of antiquity.

The expense of this great undertaking was of course very great ; and partly to reduce the cost of production, and partly to place copies of the books he printed within the reach of poor scholars, Aldus employed the artist Giovanni de Bologna to design for him a new and compressed type which would enable him to print nearly two pages in the same space as one. From the country of its birth this letter has ever since been known as *Italic*. Its elegant shape has been much, perhaps too much, admired. The appearance is somewhat marred by the invariable use of Roman capitals, which, throughout a page of *Italic*, is certainly not agreeable to the eye.



THE MEDAL OF ALDUS.

The fame of Aldus's printing-office soon spread throughout Europe, and his little pocket editions of the Greek and Latin classics were esteemed as much for the beauty of their dress as for the accuracy of their text. The visits of the curious, as well as of the learned, became at last so troublesome that Aldus placed the following notice over the chief entrance : "Whoever you are that wish to see Aldus, be brief ; and when business is finished go away ; unless indeed you are able and willing to assist him as Hercules did Atlas in his need : and even then remember that whoever gains here a footing must work hard and with perseverance."

Aldus himself took no relaxation; scarcely would he afford himself any sleep until fatigue compelled him to rest. He died in 1515, the King of Printers, with an immortal halo surrounding him.

Aldus adopted for his device an anchor, with a dolphin twisted round it. This emblem is justly celebrated in the annals of typography under the name of the Aldine anchor, and is very appropriate to the work of a Printer. The dolphin is the emblem of swiftness, on account of the rapidity with which it cleaves the waves. The anchor is the emblem of stability and reliance. So the printer should be speedy at his work, but consider his plans carefully and soberly. This was admirably summarised in the motto adopted by Aldus—"Festina lente" (Hasten slowly). On a rare contemporary medal the motto appears in Greek, "ΣΠΕΥΔΕ ΒΡΑΔΕΩΣ."

Another great Italian Printer was GIAMBATTISTA BODONI, whose name certainly stands next to that of Aldus. He was the son of a Piedmontese printer, and was born in 1740, the year when all Europe celebrated the Jubilee of Printing. At the age of eighteen he was working as a compositor at the Propaganda Printing-office, Rome, where he did good service by studying hard to learn the Oriental languages, and then restoring to a proper condition for use the fine collection of Oriental types in that office, which had long been in a state of confusion. It was about this time that he turned his attention to the art of engraving new types, in which he soon showed great talent. In 1768 he was placed by the Duke of Parma at the head of his new printing-office, which he soon rendered the most famous in Europe. He devoted great attention to the shape of his Greek types, for which he took as a model the most beautiful manuscripts obtainable. His "Homer" is perhaps the work which gained him more renown among scholars than any other. In his "Manuale Tipografico," which is a specimen book of all his types, some copies of which were

printed on pure vellum, the lover of typographical excellence as presented by elegantly-shaped letters, glossy ink, and faultless press-work, may revel to his heart's content. Bodoni died in 1813.

As a curious freak of fickle fashion, we must notice the recent fate of a most interesting collection of books, all from the press of Bodoni, collected during many years by the Marquis Saporiti della Sforzesca. These were sent to London and sold publicly in December, 1886. The number of separate works was over 500, including, with hardly an exception, specimens of the whole produce of the Parmese Press. No such a collection has ever before been brought to the hammer, and had it been sold in Dr. Dibdin's time, when Bodoni's fame was at its height, there can be little doubt that £2,000 at least would have been realised. To day, when "black-letter" governs the market, and sentiment rules over taste, Bodoni's master-pieces of typography are of less money-value than a Seven Dials ballad. The whole of the Marquis's collection realised in the gross but £50 7s., a sum far below the prime cost of two or three volumes, and hardly enough to pay for printing the sale catalogue.

Italy may well be proud of still another typographical son. G. VIESSIEUX, of Milan, who lived 1779 to 1863, if not remarkable for excellence of workmanship, was successful, notwithstanding great opposition from the ruling classes, in obtaining for his native country that inestimable boon—freedom of the press.

FRANCE.

We have already noticed the introduction of the art to Paris, where it spread with rapidity even in the lifetime of Ulric Gering. ANTOINE VERARD is celebrated for beautiful editions, many of them with splendid illuminations; but space would fail to speak of SIMON VOSTRE, of PIGOUCHET, of DUPRÉ, of the artistic and learned GEOFFREY TORY, of the martyred DOLET, MOEL, and many other worthy printers.

But of all the great printers that France has produced, there are none of whom their countrymen may feel more proud than the family of the ESTIENNES, who flourished from 1502-1664. The two most celebrated were Robert I and Henri I, father and son. They both printed, not for lucre, but from real love of their work and classic literature. So intimately indeed is the biography of these two great men associated with the mental growth of the nation that, as Feugère says, "it rises to the dignity of history."

HENRI I was the founder of the family. He printed and published at Paris for twenty years, and laid the foundation of the family fame during the period 1502-1522.

ROBERT I, his eldest son, succeeded in 1526 to his father's printing-office, placing over his door a printer's mark, afterwards of world-wide fame. It was an olive-tree, with the motto "*Noli altum sapere sed time*" ("Be not high-minded, but fear"). He married a daughter of another famous Parisian printer, BADIUS ASCENSIVS, he whose printer's mark—a printing-press, two pressmen, and a woman composing types—is well-known to all lovers of old books.* It is curious to note that all three of the daughters of Badius married printers. For thirty-three years Robert Estienne worked hard as author, collator, corrector, printer, and publisher, producing volumes which for beauty of workmanship and accuracy of text may vie with the productions of any other press. So important were the Greek authors which he for the first time collated and printed, that the publication of those classics may be almost said to have begun with him. It was to some extent the same with Latin authors. Thus with Greek, with Latin, with Bibles, with dictionaries and grammars, Robert Estienne was the father of such a series of works as have never been equalled before or since. Patronised and favoured by Francis I, it was

See ante (p. 54).

the high opinion of his capabilities, added to the desire to outshine the efforts of other countries, which induced the King to defray out of the public purse the expenses of a new series of specially cast Greek types. With this view Angelo Vergecio, the most artistic penman of his time, was engaged to design the models for the letters; and the cutting of the punches was entrusted to Garamond, one of the most skilful engravers of his day, who himself was a good scholar, and had taught Greek to Henri Estienne when a boy.

The production of beautiful and correct editions of the Bible formed a special feature of the labours of Robert Estienne; and this, thanks to the hatred of the priests, whose stronghold was in Sorbonne, brought upon him the bitterest persecution. To print the Latin Vulgate for every one to read was bad enough, but when Robert Estienne published his three-column Polyglot, with Hebrew on one side and Greek on the other—Christ between two thieves, as they called it—their rage knew no bounds. So fierce was the persecution that had our printer stayed in Paris, he would probably have been, like Dolet, burnt alive. So in 1551, having under various pretences sent away his family, he despatched his types also, and quietly followed to Geneva, where, although subjected to many annoyances, chiefly due to his own ill-considered opposition to the civil government, he was allowed to print without hindrance. Here he embraced the Protestant faith; and in 1559, after a life of manly and unselfish labour, embittered by the persecution of those who ought to have been his best friends, but sweetened by the knowledge that his toils and sufferings were for the benefit of mankind, he died.

HENRI II succeeded his father at an early age, and followed in his footsteps. He travelled extensively in all the chief countries of Europe, returning laden with new MSS. and new ideas, which were soon apparent in his books. At one time he worked for about a year

in the printing-office of Paulus Manutius, after which he returned to Geneva, devoting himself with fresh energy to his work. His father left him the Genevan printing-office on condition of his carrying it on in that city. This restriction was very irksome to him, and what with quarrelling with the authorities and constant journeyings, his business greatly declined, and in 1570 he was insolvent, dying some years later. The work he got through in his prime was immense, and often prolonged for so many hours at a time as seriously to injure both mind and body. His mental attainments and general knowledge were very great, but employed fitfully.

The old typographical fame of France has been well maintained in more modern times by the DIDOT family, whose history from 1713 to the present time is the history of French printing for that period. PIERRE DIDOT (1761-1853) not only emulated Bodoni in the beauty of his workmanship, but took extreme care—more, indeed, than the great Italian Printer—to have accuracy of text. He was an excellent classical scholar, and himself read for press the works of which he was most proud.

Nor must we omit to mention his nephew, AMBROSE FIRMIN DIDOT, who, in addition to his intimate knowledge of classic literature, was a good antiquarian, learned in bibliography, a first-rate connoisseur of old engravings, and a weighty writer upon all subjects connected with his own art.

France indeed may well be proud of her position in typographical history. Other cities may boast of individual celebrities, an Aldus, or the Elseviers, a Plantin, a Bodoni, or a Baskerville. But at Paris, from Gering, through Verard, Badius, Ascensius, Kerver, the Estiennes, Dolet, the great Didot family, and numerous others, there has been such an unbroken succession of great and famous printers as must always command the wonder and admiration of posterity.

It should be added that several French printers, in modern times, have laboured for the mental improvement of the men and boys employed by them, and with considerable success. The efforts of M. A. CHAIX, of Paris, in this direction have received emphatic acknowledgment from the State and all philanthropists.

SEBASTIAN CRAMOISY, who by the order of Louis XIII founded the Royal Printing-office, must not be overlooked; nor must ANTOINE VITRÉ, who combined excellence of type-founding with excellence of printing. He was the first in all France to print with Syriac types. His famous Polyglot Bible of 1645 keeps his memory green among bibliophiles.

SWITZERLAND

May justly pride herself on being the mother of Parisian, and therefore of French, typography. To one of her sons, ULRIC GERING, who, with two companions left Basle, and began printing at the Sorbonne, France owes her first press. At Basle, too, JEAN AMERBACH gained great reputation in the beginning of the sixteenth century, as also did OPERINUS. But the most famous printer was JOHN FROBEN, of Basle, who was justly proud of his accuracy. Competition, and consequent reduction in price, were evils strongly felt and resented by Froben. In his Preface to the Concordance of 1525 appears the following dialogue, which is somewhat curtailed from the original :—

CUSTOMER.—Well, Froben, what book have you there?

FROBEN.—One which is equally your interest to buy as mine to sell.

CUSTOMER.—Something quite new, then?

FROBEN.—Neither new nor old, for it is both.

CUSTOMER.—You talk in riddles.

FROBEN.—It is a book called ‘The Concordance to the Sacred Scriptures.’

CUSTOMER.—Why, that has been printed ever so many times.

FROBEN.—True! but if I have reprinted it, it is for the good of all. The sun itself does not appear every day, when it does shine it is just the same sun, while my book here is a decided improvement on the usual text.

CUSTOMER.—You can assure me of its correctness.

FROBEN.—You know that it is almost an impossibility to ensure positive freedom from error, but if the care I have bestowed upon it has not been thrown away you will find it very correct. Moreover, there is more in it than in the previous edition.

CUSTOMER.—I congratulate you, but I fear you will get but little credit for all your labour; besides, do you not find so much toil hastens old age?

FROBEN.—What matters it? 'Tis my destiny. And if she does bring me old age and its troubles, you have the power to ease them.

CUSTOMER.—Indeed, how?

FROBEN.—By purchasing this volume at once, and thanking me for offering it to you.

CUSTOMER.—But have you no compunction in thus selling your own child?

FROBEN.—Not the least. It was for you and not myself that I begot it.

CUSTOMER.—What is its price?

FROBEN.—Stoop, and I will whisper it in your ear.

CUSTOMER.—Oh! goodness; much too dear.

FROBEN.—There! take it home and look at it. If you then repent your bargain I will return your money.

CUSTOMER.—You could not say fairer.

FROBEN.—Everyone can be prodigal of words, but Froben holds to what he promises.

CUSTOMER.—Here, then, is the purchase-money in full tale.

FROBEN.—And here is the book in good condition, and I hope we shall both be pleased."

THE NETHERLANDS.

J. BELLAERT, of Haarlem, 1483, is the first printer whose name we find in Dutch typographical annals; and of the numerous other names in the fifteenth and sixteenth century, but few call for special notice.

Perhaps the most celebrated printer who flourished in Holland was ABRAHAM ELSEVIER, who was born at Leyden in 1592. Baillet calls him "the Prince of Printers, not only in Holland, but throughout all Europe," and no doubt for many years that character was true.



THE PLANTIN MUSEUM, AT ANTIWERP.

The family flourished for more than one hundred and thirty years as printers, and to this day some of the books which issued from their presses are among the chief treasures of the bibliophile.

W. J. BLAEU, in the early part of the seventeenth century, was not only remarkable for the excellence and diminutive size of the books he issued, but deserves honourable mention for greatly improving the old wooden presses used in his day.

The "Pensioners" of Holland and the "Doges" of Venice were important persons in their day; that day has passed, and now who thinks much about them? But our Elseviers and Aldines live still, not in name only, but as vital realities; and their books continue to be prized not only for their beauty and rarity, but for the standard accuracy of the text.

BELGIUM.

After the printers who first brought the art to Belgium we meet with no one of special note until the time of CHRISTOPHER PLANTIN,* who founded a family of printers of world-wide fame. His great Polyglot Bible of eight folio volumes, published in 1569-72, is a wonder of erudition and good workmanship. The last descendant of the family, ED. MORETUS, has lately disposed of the old house and all its contents to the town of Antwerp, who have opened it to the public as a museum, where may be seen five portraits of the family painted by Rubens, and many other noteworthy objects of art and typography. No one should visit Antwerp without paying a visit to this most interesting museum.

SPAIN.

The only name of great repute in this country is that of IBARRA, who printed some excellent books at Madrid in the Bodoni style. He died in 1785.

* Portrait on page 76.



*Vincis dum pateris, Plantine, tuosque labores
 Eternum æternum fama loquetur anus.
 Nec laudare opus Invidia tu tunderis æstu
 Illisires tantum tundit at iste viros.*

PORTRAIT OF CHRISTOPHER PLANTIN.

ENGLAND.

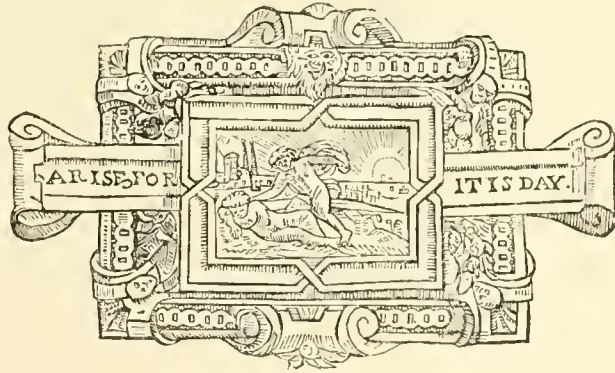
After the death of Caxton, in 1491, his workmen set up for themselves. WYNKEN DE WORDE, who succeeded his master, was the most celebrated, and issued many hundreds of books. Dibdin, some seventy years ago, quoted over 400, and there are probably now more than 600 known to bibliographers, the whole sadly in want of an enthusiast who would devote a few years to their study. PYNSEX and

WOLFFE were prolific typographers, and JOHN DAY, the printer of the Reformation, gave to the world over 350 books. In the 16th century, however, the Government interfered and placed the Press under severe restrictions, upon pretence of stopping treasonable and heretical publications. A series of barbarous enactments soon reduced printing to a dangerous and unremunerative employment. The effects were seen at once by the degraded condition to which both master printers and their workmen were reduced; ignorance and incapacity being the leading characteristics of the craft, instead of learning and intelligence. Thus, while in France and Germany the printer held an honourable position, above that of the trader, in England he was a mere slave to the Stationers, to whom Government deputed tyrannical powers of oppression and suppression.



PORTRAIT OF JOHN DAY. 1562.

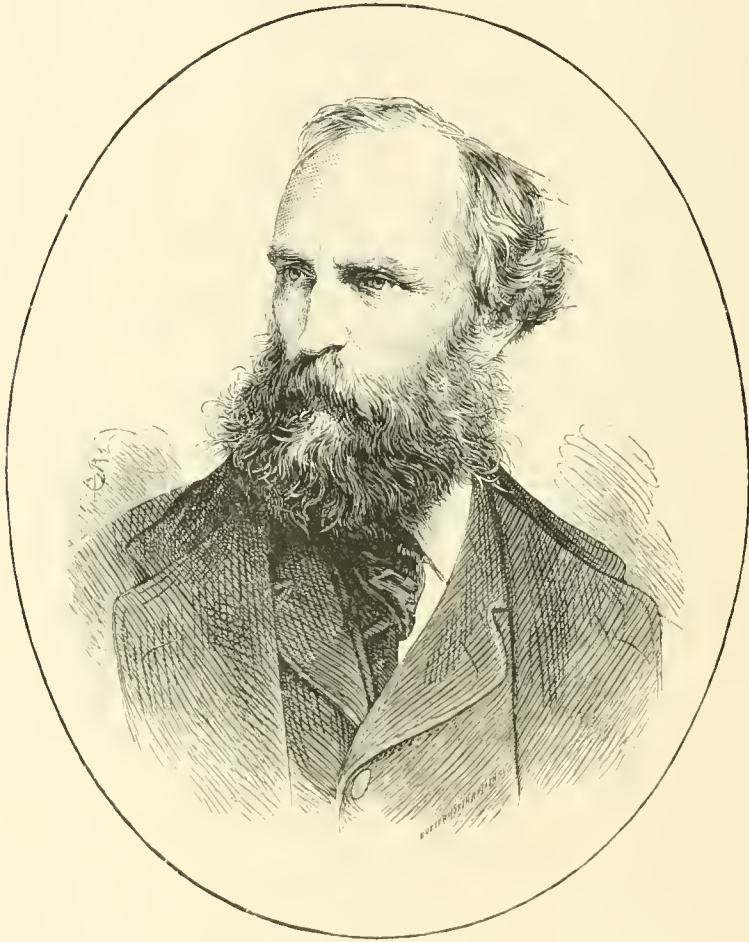
With the restoration of freedom a great improvement took place; and the names of JOHN CAVE, who originated the *Gentleman's Magazine*, the WOODFALLS, JOHN NICHOLS, BENSLEY,



JOHN DAY'S TRADE MARK.

BASKERVILLE, and others, raised the fame of English printers to a great height. The SPOTTISWOODE family are also celebrated in

our typographical annals, and none more so than the philosopher, the antiquarian, the great man of science, the hard working printer,

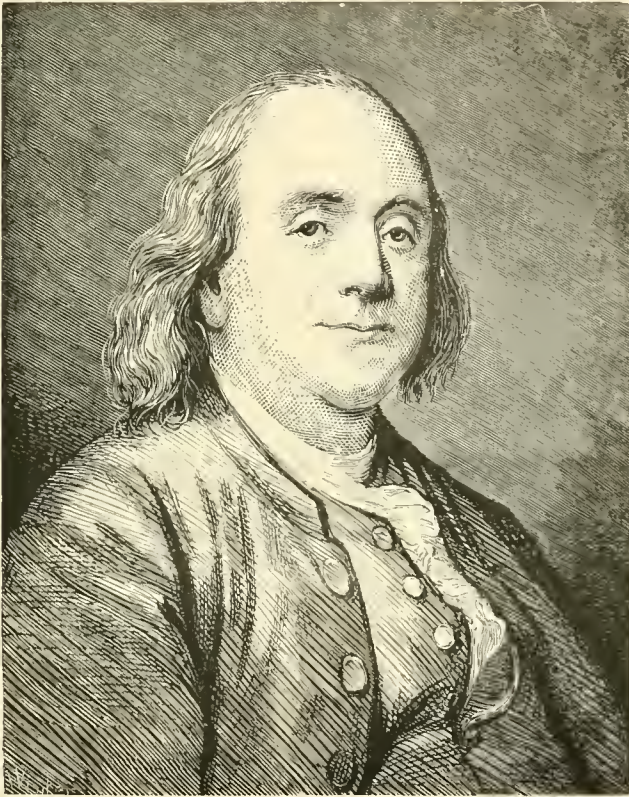


WILLIAM SPOTTISWOODE.

and the warm friend, WILLIAM SPOTTISWOODE, F.S.A., F.R.S., who died in 1881.

AMERICA.

In the New World, the most famous name in the annals of printing is that of BENJAMIN FRANKLIN, who, as a lad, learned his trade in the printing office of Samuel Palmer, in London, in 1724.



BENJAMIN FRANKLIN.

On his return to his native country two years later, he entered into business as a printer in Philadelphia. His literary and scientific tastes soon made him a man of mark, and America to this day claims few more distinguished sons than the philosopher and statesman, one of

Philad^a July 5. 1775

Mr Strahan,

You are a Member of Parliament;
and one of that Majority which has
doomed my Country to Destruction. —

You have begun to burn our Towns
and murder our People. — Look upon
your Hands! — They are stained with the
Blood of ^{your} Relations! — You and I were
long Friends: — You are now my En-
emy, — and

I am,

Yours,

Bth Franklin

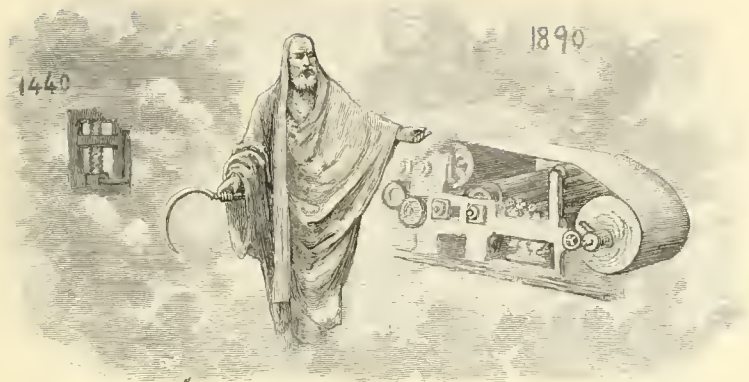
whose chief boasts it was that he had served his time at the press. The actual press at which he worked in London is still in existence, and is preserved by his countrymen, as a precious relic, in the Smithsonian Institute, at Washington.*

In our own days, America has, in the person of THEO. L. DE VINNE, of New York, a worthy type of the enlightened and artistic printer.



STATIONERS' HALL.

* A cut of this press is given on page 56.



DEUTERONOMY.

“ They have sought out many inventions.”—

ECCLES.



DEUTERONOMY.

IN Leviticus we traced the laws which governed the earliest stage of the printing-press. In Deuteronomy—which is the repetition and development of the law—we see an expansion and a second birth of the press, almost equal in importance to the first—viz., the invention of the Steam Printing Machine. The advance then made towards rapid and cheap printing has had almost as revolutionary an effect on the education and opinions of the nineteenth century masses as had the original invention of printing upon the sixteenth century middle-class. And as at first the art of printing was developed and improved both in excellence and speed for many a year after Gutenberg, so the modern machine, which started in 1814, is still developing its wonderful capacity for improvement and speed until the mind wonders if any limit can be assigned to its powers.

In 1790 all printing was effected by hand-labour. The types were hand-cast—the compositors' hands were employed in arranging them—the paper was hand-made—the pressman's muscles were called into play to handle the bar. Sheet by sheet he took up the paper and placed it in position upon the tympan, brought down the frisket to keep it in place, turned it over upon the ready-inked type, ran the whole by means of a winch under the press, pulled the bar or lever

which gave the impression, turned the winch again, raised the tympan and frisket, and released the now-printed sheet. This series of movements, all requisite to print one side only, took really a shorter time in action than is here taken in the description; but the strongest workman, with muscles indurated by years of labour, could, with the help of a "fly-boy" to take off the sheets, and a "partner" to beat the form, scarcely exceed 250 pulls per hour, and that only on one side of a sheet—a snail-pace at which all *cheap* printing was impossible.

In this same year, 1790, the shadow of a great change soon to be effected in printing was thrown upon the scene. John Nicholson, a clever mechanic, took out a patent for printing by machinery, in which he specified those very principles of action which have been the basis of every successful printing-machine since made. Nicholson, although clever in many ways, had none of the qualities which ensure success in life. Improvident, without tenacity of purpose or perseverance, his brains benefited others but not himself, and he died in 1815 without seeing the success of any of his numerous inventions.

Until the year 1811, when Kœnig succeeded in the attempt, the possibility of a machine being invented which could successfully perform all the varied operations just described was considered by all master-printers as a scheme fit only for Utopia. Thus it happened that Nicholson, bankrupt and disheartened by misfortune, let his plans slumber in the Patent Office neglected and unnoticed, simply because no one had sufficient faith in him to advance capital for the purposes of experiment.

Of a very different mould was Frederick Kœnig, a young German, who about 1804, began to work out his ideas for improving the mechanism of the old wooden press. Endowed with mechanical genius, great perseverance, and, above all, a firm belief in himself, he worked unceasingly to accomplish his aim, and to him, without doubt,

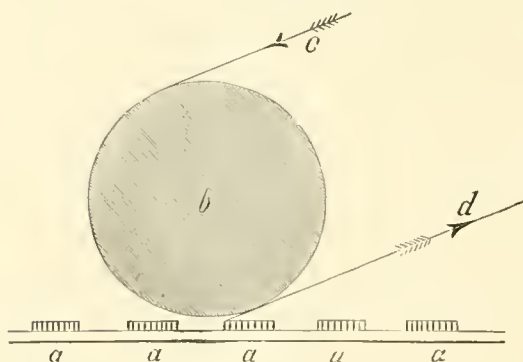
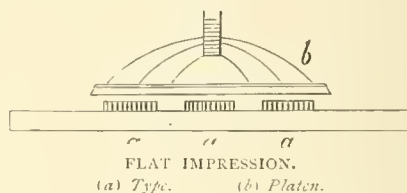
must be awarded the honour of making the first workable Printing-machine. His early attempts were quite unsuccessful. Neglected in his native land, and befooled in Russia, he at last came to London, where, after a period of want and disappointment, his evident cleverness and perseverance interested the well-known printer, J. Bensley, in his designs. Although in after years bitter feelings existed, and still more bitter words passed between these two, it should never be forgotten that Bensley was Kœnig's earliest and best friend in London. He was the first to recognise his powers, and without his assistance, Kœnig would, in all probability, have gone to his grave—



CENTENARY MEDAL OF THE WALTERS, OF "THE TIMES." 1885.

as many other inventors quite as clever have done—his genius unrecognised, and his whole life embittered by disappointment. Mr. Walter, of *The Times*, although more interested than any one in the improvement of the press, did not see enough in Kœnig's first machines to induce him to assist, until success had made assistance safe; but Bensley year after year supported him, and found funds for costly experiments, which, although displaying great cleverness and ingenuity, led to no successful result. From 1806, when he came to London, to 1811, Kœnig made two complete machines (not including his first wooden trial), but both were unsuccessful, because they were founded on the false principle of the old hand-presses, viz., impressions

from a flat surface or platen. Disheartened by failure, and, as he himself confessed, at his wits' end what to do next, an accidental occurrence put him on the right road. Bensley, his partner, by chance visited Nicholson, to obtain from him some information concerning those patent laws with which a long and sad experience had rendered him familiar. He found him in the debtors' gaol, and then he heard for the first time of Nicholson's patents. Fluttered and anxious, Bensley took Kœnig straight off to read the particulars. Kœnig did read them, and read them carefully, but with great contempt for their crudeness, and immediately forgot all he had read! (at least he declared so fifteen years later). However this may have been, he at once set about constructing a new machine, in which all his previous plans of impression were thrown aside, and (wonderful coincidence!)



SINGLE CYLINDRICAL IMPRESSION—TYPE OR PLATES
ON THE FLAT.

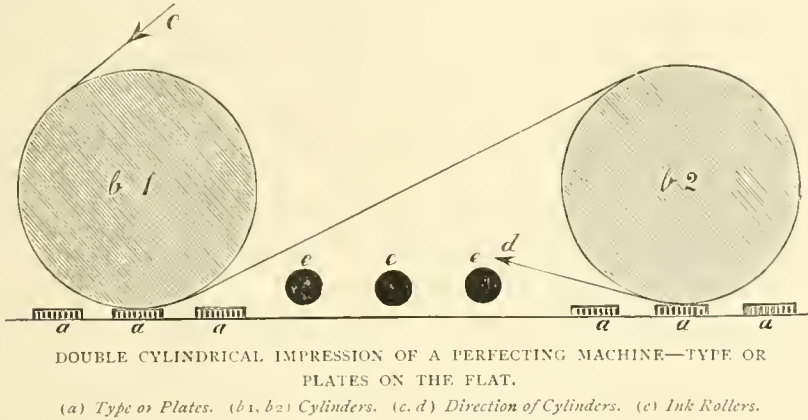
(a) Type or Plates. (b) Cylinder. (c, d) Direction of Cylinder.

Nicholson's method of pressure, by means of a cylinder, beneath which the type ran, was adopted. This was the turn in the tide which led on to fortune, at least the magic word "success" crowned Kœnig's toil.

John Walter, of "The Times," now approved and adopted the new machine; and

from that time to the present improvements have been made by a succession of clever mechanics, until the printing-machine of to-day is a surprising piece of human ingenuity, which by its simplicity excites the wonder, and by its cleverness the admiration, of every beholder.

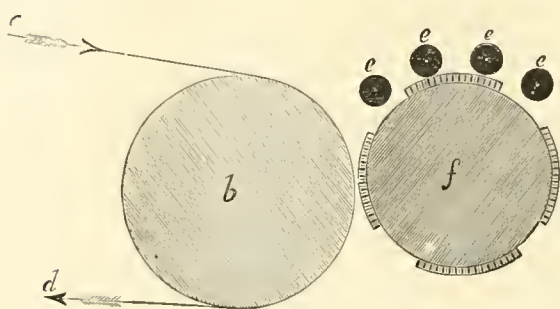
It is here only fair to state that Herr Goebel, the German biographer of Kœnig, and all who sympathise with him, are very indignant at this version of the story. They utterly deny that Kœnig owed *anything* to Nicholson, and have heaped scorn on the heads of unbelievers in their hero. But the plain sequence of facts is against them. First, we have Kœnig unsuccessful in his trials with a platen machine; secondly, we find him reading Nicholson's plans for a cylinder machine; thirdly, we see Kœnig rejecting at once his first ideas, and successfully adopting those of Nicholson. I adhere to my opinion that, while



admitting the great mechanical genius of Kœnig, as shown throughout his career, he nevertheless at this critical point owed his success to the undeveloped plans of William Nicholson.

To consider this as derogatory to the genius of Kœnig is to take a false view of things. No one doubts Handel's genius because he built some of his melodies upon the themes of previous musicians, or thinks the worse of Shakspeare for adopting the old story of "Romeo and Juliet," and weaving therewith his immortal tragedy. Why, then, should Germans resent the statement (which is simply historical) that Nicholson supplied Kœnig with an idea which his mechanical genius at once made his own, and successfully developed?

Kœnig's first success was a machine which printed one side of the paper only. He next constructed one which, by duplicating the parts, printed both sides of the sheet. Donkin and Bacon made the great advance of using a composition of glue and treacle for rollers, instead of leather, which had never been satisfactory. In 1815 Cowper took out a patent for placing curved stereotype plates round a cylinder, the principle of which had already engaged the attention of Nicholson. Cowper carried this plan to a great pitch of perfection in the machines made for *The Times*, and from that time to the present every year shows new improvements and higher efficiency. The varieties

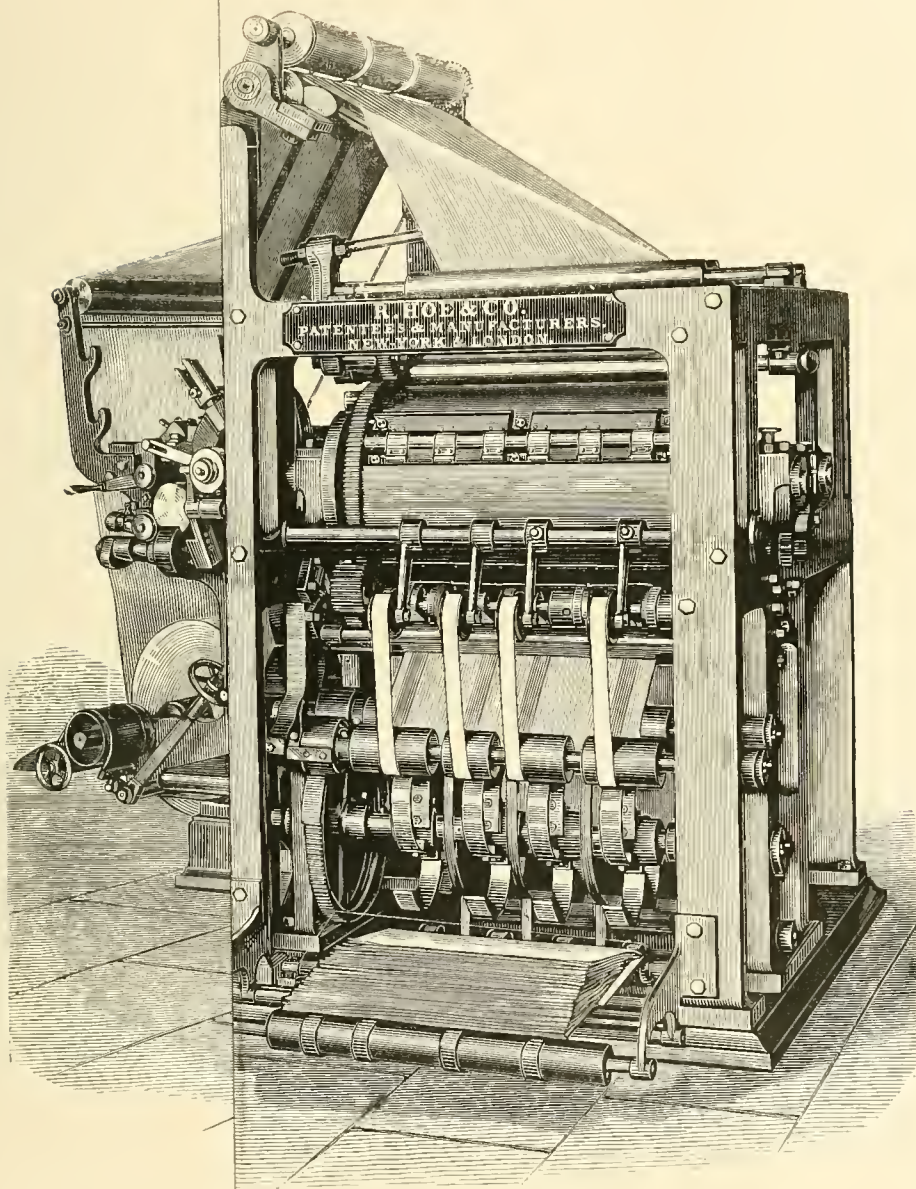


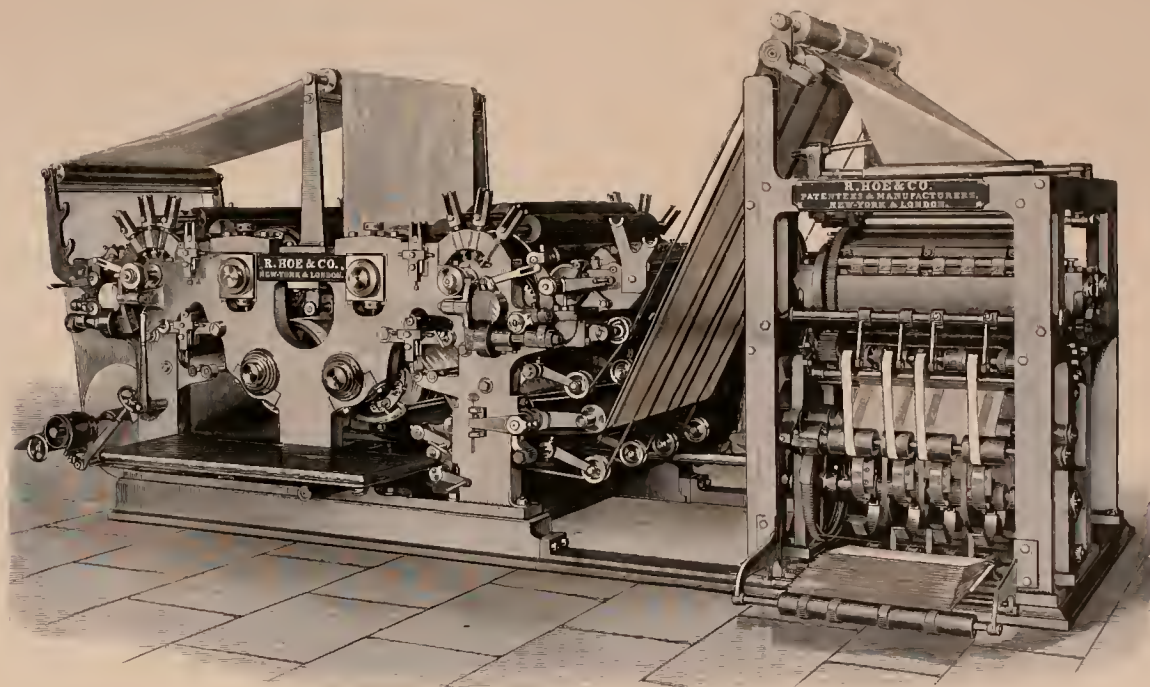
CYLINDRICAL IMPRESSION FROM CURVED STEREOTYPE.

(b) Cylinder. (c, d) Direction of Cylinder.
(e) Ink Rollers. (f) Cylinder on which are mounted Curved Stereotypes.

in modern printing machines are innumerable, and their management requires great intelligence on the part of the "minder," who, if he understands his duty, deserves and can command high wages.

Few sights are more impressive than the machine-room of one of our daily papers in the small hours of the morning. Suppose you have obtained an order to see the paper put to press, the best way is to engage rooms for the night at a neighbouring hotel. If the stage has attractions for you, there will be plenty of time for a leisurely supper after the play is over, and then, about two o'clock, to sally into Fleet Street, which, even at this hour, is anything but a neglected thoroughfare. Entering the printing-office, we visit the foundry-room first, where the foreman explains the use of various tools and arrangements, and has scarcely finished when the first page of the paper comes down from the composing-room. There is no dawdling now. The page of type is quickly placed beneath the platen of a press, and a thick sheet



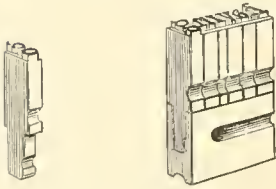


THE "HOE" NEWSPAPER PRINTING MACHINE.

of a soft material—a mixture of *papier-maché* and plaster of Paris, called the flong—is placed upon the face of the type. The platen descends, and by pressure forces the type into the soft flong, and makes a complete mould. The flong is then dried rapidly while still adhering to the type. When taken off, it is placed in a beautifully made steel mould. This mould is curved to a quarter-circle, and when the flong is placed inside it, and the liquid metal poured in, the result is a curved plate, with a cast from the type on its outer surface. This plate is placed upon a saddle, and all excrescences rapidly removed with great skill from the edges and various spaces; it is ready then for the machine-room. So soon as eight pages are fastened on the cylinder of the first machine the printing begins. At one end of the machine is a heavy reel of paper, sufficient to make about 6,000 complete papers. It is wound round a core like that used for a garden-hose, and forms a solid mass, which unwinds rapidly when the machine grips it. A knife with unerring precision cuts off each paper as soon as printed, and delivers it onto a collecting board. Soon after No. 1 machine gets to work, No. 2 is supplied with plates and started; so with the other machines, until eight or nine are all printing at once, each delivering about 12,000 complete copies an hour, so that with eight machines the delivery would be 96,000 per hour. The din is something awful, and entirely prevents the asking of questions. Relays of men are always hurrying away from each machine loaded with printed papers. These are counted into quires in the warehouse, and at once delivered to the newsagents. A curious and interesting circumstance attending such speedy printing is the large amount of electricity excited by the friction of the paper in its passage, and the storing of this electricity in the printed heaps. I have seen quite a long spark dart out of a heap into a man's knee; and occasionally much inconvenience arises from electrical repulsion and attraction, interfering with the passage of the sheets.

The laws of printing machinery are not the only phase of the Art in which the original invention has been supplemented by a second.

The compositor's work is so specially intelligent that it was thought no machinery could ever be brought to supersede it. Early in the present century, however, an attempt was made to economize labour by cementing into one piece common words, or combinations of letters of frequent recurrence. These "logotypes," as they were styled, were introduced by Mr. John Walter, of *The Times*, and used in the composition of that paper, as well as in general bookwork, for some years. But the difficulty of adapting the "case" for these numerous additional "sorts" proved a bar to their general adoption, and in a short time the compositor reverted to the single letters.



EARLY LOGOTYPES.

Of late years the composing machine, formerly but a plaything, has made great strides towards perfection. The help of electricity has here also been called in, and as fast as the hand can move, the separate types make a continuous and rapid flow into perfect lines. More wonderful still, a distributing machine has been made, which takes the pages of types after they have fulfilled their duty, and without the aid of hands sends each letter down a separate channel to its own particular destination, and that at a speed with which a compositor could never compete.

One more marvel : Before me is a book which to the eye appears printed as other books with types, and yet not a type has been used. It is truly an anomaly, typography without types. The machine is worked by means of keys something like a piano. Behind is a block of teak wood, properly placed in its position. This block shifts and adapts itself automatically to the various positions requisite for it to

occupy. Suppose the first word of your copy is "Print," you touch the right key and out darts a steel punch, on the end of which is a "P." This punch is driven into the wood an exact distance, and in the exact position proper for the first word of a sentence. The blow given, the punch retires, and leaves a beautifully clear matrix in the wood. The punch "r" follows in the same way; the "r" key is pressed, and the punch is driven in just by the side of the former. The other three letters follow in due course, and so on with word after word, until a whole line is complete, when the block automatically shifts itself, and a fresh line just beneath the other is commenced. By a clever arrangement, the lines are all made of one even length, and when a page is thus completely punched, the block of wood is used as a mould from which stereotype plates are taken, which print evenly and beautifully. The speed and accuracy of this wonderful machine is truly astonishing, but there are too many drawbacks to the method to commend it for most practical purposes. Correction, for instance, entails entire re-composition; while as regards the appearance of the matter in print, it must be admitted that, excellent as the result is, considering the method and material in which it is produced, it cannot for a moment compare for delicacy and regularity with the result to be obtained by the old-fashioned use of types, set by the compositor's hand. The great merit claimed for these machines and others of a similar kind (amongst which the "Linotype" may be mentioned as mechanically the most ingenious), is speed and cheapness,—qualities which do not always assort with fine work, or even easy legibility.

The last invention I will mention is the method of producing printing surfaces by photo-typography—a plan which to a great extent supersedes stereotype plates, especially where any change of size is desirable. A zinc plate is prepared photographically, and the drawing or page of a book to be used is focused with a camera to the size

ordered. An image is thus taken on the metal plate, which is chemically rendered insoluble by acids in the parts where the image has impinged. The plate is then treated to an acid bath, when all the parts where the image is not are eaten away, and in half an hour to an hour a raised surface, sufficiently high to print from, is left. For work without very fine lines this process is extremely useful.





A CHAPTER ON JUDGES.

*“’Tis with our judgments as with our watches; none
Go just alike, yet each believes his own.”—*



A CHAPTER ON JUDGES.

THIS work is intended to be a popular outline only of an extensive subject; but, in order to assist any reader who wishes to study the question more deeply, a list of authors, who by their works are entitled to be called Judges, is here given. Several works well known to bibliographers, such as those of Dr. Dibdin, have been purposely omitted, because, however pleasant to read, they carry no weight historically or bibliographically. The titles of English works have been preferred when the author has written with care and knowledge; but as the subject in its entirety cannot be mastered without consulting also the writings of French and German Judges, such of their works as supply new facts or arguments unnoticed in English bibliography are also admitted on the list. Full titles are not necessary and occupy much room; and as all the works quoted ought to be in every good public library, short titles have been considered sufficient, the name under which they should be sought in the catalogue being printed in italics.

The bibliography of the GENESIS of Printing may be divided into two classes—external and internal. The external, or historical, aspect has been of late subjected to a searching scrutiny never contemplated

a generation ago. The result has been to nullify the testimony of many witnesses whose evidence was considered unimpeachable by former judges. One good result has been effected: the innumerable writers who have founded their theories and arguments upon what now are acknowledged to be spurious documents may be swept out of our path. The real judges are now few.

1. "The Haarlem Legend," by *Dr. Van der Linde*, was originally published in Dutch, in 1870. Translated and printed in English, in 1871. This work sweeps away all the so-called historical evidence upon which the claims of Coster to be the Inventor of Printing were founded.
2. "Gutenberg." By *Dr. Van der Linde*. 1880. Here, in addition to demolishing the Coster-myth, the author narrates the invention of Printing by Gutenberg, with full historical references.
3. "Gutenberg: Was he the Inventor of Printing?" By *Dr. Hessels*. 1882. All the original documents concerning Gutenberg, as quoted by Van der Linde, are here examined critically; many are shown to be false, and the residue not decisive as to Gutenberg's claims to the invention.
4. "Geschichte der Erfindung der Buchdruck-kunst." By *Dr. Van der Linde*. 1886. The subject is treated in three immense folio volumes, padded and watered to an unlimited extent, no attempt being made to uphold the genuine character of the documents disallowed by Dr. Hessels. This work is not likely to be translated on account of its swollen bulk and uncritical character.

The internal evidences deduced from the character of the types, the evidence of individual workmanship often apparent, and what may

be called the "habits" of the early printers, are of the greatest importance. They are, to some extent, noticed in works 1, 2, 3, and 4, but may be specially noted under the names of:—

5. *Fournier, Henri*; "Traité de la Typographie."
6. *Didot, Amb. Firmin*; "Essai sur la Typographie."
7. *Bernard, Aug.*; "De l'Origine et des Débuts de l'Imprimerie en Europe."
8. *Dupont, Paul*; "Histoire de l'Imprimerie."
9. *Faulman, Karl*; "Geschichte der Buchdruckerkunst."
10. *Ottley, W. T.*; "Inquiry concerning the Invention of Printing."
11. *De Vinne, Theo.*; "The Invention of Printing."
12. *Skeen, W.*; "Early Typography."

Excellent fac-simile plates will be found in

13. *Sotheby, S. L.*; "Principia Typographica."
14. *Berjeau, J. Ph.*; facsimiles of the "Biblia Pauperum," "Speculum," and several other block-books, not so good.
15. *Holtrop, J. W.*; "Monumens Typographiques des Pays Bas."
16. *Weigel & Zestermann*; "Collectio Weigeliana,"—best of all.

This list by no means exhausts the books to be consulted under this head, but will furnish the student with an ample basis for further research.

The EXODUS, or spread, of Printing is treated generally in the works 1 to 9. To these must be added the following useful books:—

17. *Cotton, Rev. H.*; "Typographical Gazetteer," series 1 and 2.
18. *Panzer, G. W.*; "Annales Typographici."
19. *Hain, L.*; "Repertorium Bibliographicum."

The special works on the first Presses of the various countries are so numerous that only a few can be noted :—

For England :

20. *Herbert's* Edition of Ames' "Typographical Antiquities."
This edition is preferable to Dibdin's.

For Caxton and Westminster :

21. *Blades, Wm.* ; "Biography and Typography of William Caxton."

For Cambridge :

22. *Bradshaw, Henry* ; Introduction to reprint of "Bullocks' Oratio."

For St. Albans :

23. *Blades, Wm.* ; Introduction to reprint of the "Boke of St. Albans."

For York :

24. *Davis, Rob.* ; "Memoir of the York Press."

For Oxford :

25. *Latham, H.* ; "Oxford Bibles and Printing in Oxford."
26. *Reed, Talbot B.* ; "Old English Letter Foundries," Chapter 6.

For Scotland :

27. *Watson, Jas.* ; "History of the Art of Printing."
28. *Dickson, Robert* ; "Introduction of the Art of Printing into Scotland." *

For Aberdeen :

29. *Edmund, J. P.* ; "The Aberdeen Printers."

For America :

30. *Thomas, Isaiah* ; "History of Printing in America."† The reprint of this work, in its omissions and careless inaccurate extracts, is a disgrace to the Society which issued it.

* Since the death of the Author, *Messrs. Dickson & Edmund's* "Annals of Scottish Printing" has appeared.

† See page 113.

Numerous monographs exist, describing the first Presses in most of the large Cities of Europe; but our space prohibits their enumeration here.

The LEVITICUS is treated of in a large number of books on the Mechanics and Practice of Printing; amongst others—

31. *Smith Jno.*; "The Printers' Grammar" is the oldest instructor.
32. *Moxon, Jos.*; "Mechanic Exercises"* is the oldest mechanical handbook.
33. *Johnson, J.*; "Typographia."
34. *Hansard, T. C.*; "Typographia."
35. *Luckombe, P.*; "History and Art of Printing."
36. *Savage, W.*; "Dictionary of the Art of Printing."

For Typefounding:

37. *Mores, E. Rowe*; "Dissertation upon English Typographical Founders and Foundries."†
38. *Reed, Talbot B.*; "History of the Old English Letter Foundries."
39. *Hansard, T. C.*; "Treatises on Printing and Typefounding."

For an account of the early mechanics of Typefounding, see *Moxon*, (No. 32 *ante*).

The NUMBERS of Printers whose biographies exist have not been very numerous. The best known are:—

For the first German Printers:

40. *Gessner, C. F.*; "Die so nöthig . . . Buchdruckerkunst."

For the early Printers generally:

41. *Madden, J. P. A.*; "Lettres d'un Bibliographe."

* See page 108.

† See page 112.

For the Aldine family :

- 42. *Renouard, A. A.* ; "Annales de l'Imprimerie des Alde."
- 43. *Didot, A. F.* ; "Alde Manuce et l'Hellénisme à Venice."

For Jenson :

- 44. *Sardini, G.* ; "Storia Critica de Nic. Jenson."

For the Junta :

- 45. *Bandini, A. M.* ; "De Florentina Juntarum Typographiâ."

For Bodoni :

- 46. *Bernardi, Jac.* ; "Vita di Giambattista Bodoni."

For the first Parisian Printers :

- 47. *Philippe, J.* ; "Origine de l'Imprimerie à Paris."

For Geofroy Tory :

- 48. *Bernard, Aug.* ; "Geofroy Tory, Peintre et Graveur."

For the Stephens :

- 49. *Bernard, A. J.* ; "Les Estienne."

For the Dutch Printers :

- 50. *Ledeboer, A. M.* ; "Alfabetische Lijst der Boekdrukkers
. . . in Noord-Nederland."

For Colard Mansion :

- 51. *Van Pract, J. B. B.* ; "Notice sur Colard Mansion."
- 52. *Carton, C.* ; Colard Mansion."

For Martens of Alost :

- 53. *Gand, M. J.* ; "Recherches Historiques sur . . . Thierry
Martens."

For Plantin :

- 54. *Rooses, Max* ; "Christophe Plantin, Imprimeur Anversois."

For the Elzevirs :

- 55. *Picters, Ch.* ; "Annales de l'Imprimerie Elsevirienne."
- 56. *Willems, A.* ; "Les Elzevier."

For English Printers before 1600, consult *Herbert* (No. 20, *ante*).

For English Printers generally :

57. *Timperley, Chas. H.* ; “ Encyclopædia of Literary and Typographical Anecdotes.”

For Day :

58. *Strype, J.* ; “ Life of Parker.”

For Bowyer :

59. *Nichols, J.* ; “ Life of William Bowyer.”

For English Printers in the 18th century :

60. *Nichols, J.* ; “ Literary Anecdotes.”

For Baskerville, consult *Reed* (No. 38 *ante*, Chapter 13).

For Scotch Printers :

61. *Dickson & Edmund* ; “ Annals of Scottish Printing.”

The DEUTERONOMY, and modern developments of Printing, are dealt with in numerous current hand-books, of which the following may be named :—

62. *Wilson, F. J. F.* ; “ Stereotyping and Electrotyping ” ; also
“ Printing Machines and Machine Printing.”
63. *Southward, Jno.* ; “ Practical Printing.”
-

Facsimile Title pages of a few curious works, not included in the above list, but worthy to rank among the JUDGES, are appended.

A
 DECREE
 OF
 Starre-Chamber,
 CONCERNING
 PRINTING,

*Made the eleuenth day of July
 last past. 1637.*



Imprinted at London by *Robert Barker*,
 Printer to the Kings most Excellent
 Maiestie: And by the Assignes
 of *Iohn Bill*. 1637.

THE
Original and Growth
OF
PRINTING:

COLLECTED
Out of *HISTORY*, and the *Records*
of this *KINGDOM*.

Wherein is also Demonstrated,
That *PRINTING* appertaineth to the
Prerogative Royal; and is a Flower
of the *Crown of England*

By *RICHARD ATKYNS, Esq;*

White-Hall, April the 25th. 1664.

By Order and Appointment of the Right *HONOURABLE*,
Mr. Secretary MORICE, Let this be Printed.

THO: RYCHART.

L O N D O N:

Printed by *JOHN STREATER*, for the *AUTHOR*
MDCLXIV.

Neu = Aufgesehtes

Druck- und Buchlein /

Darinnen abgesezte Figuren / wie man die Columnen
aufschreiben soll / in allen gemeinen Formaten /
mit samdt deren Abtheilungen /

Allen

Der Eöblichen Buchdruckeren = Kunst Erfahrenen /
besonders denen Setzer = Gesellen / vnd Lehrlingen /

ganz nützlich vnd befürderlich zugebrauchen / weilen es
nicht alles in Gedächtnuß fañ behalten werden /

In der Landesfürstlichen Haupt-^{Don} Stadt Grätz / in den Druck gegeben /

Georgen Wolffger / B. G.

1670.

MECHANICK EXERCISES:

Or, the Doctrine of

Handy-works.

Applied to the Art of

Printing.

The Second. VOLUME.

By *Joseph Moxon*, Member of the Royal Society, and *Hydrographer* to the King's Most Excellent Majesty.

LONDON.

Printed for *Joseph Moxon* on the West-side of *Fleet-ditch*, at the Sign of *Atlas.* 1 6 8 3.

P R O E V E
D E R
D R U K K E R Y E
V A N

Mr. ABRAHAM ELZEVIER,

In zijn Leven Drukker van de Univerfiteyt tot
Leyden.

Bestaande in vier fchoone

D R U K - P A R S S E N,

Waar onder drie met kopere Degels zijn,

Als mede

Verscheyde foorten van Arabifche, Sirifche, Samaritaanfche,
Æthiopifche, Griekfche, Hebreeuwfche, Rabbijnfche,
Latijnsche, Curfijfsche, Hoog-en Neerduytsche,
en meer andere

L E T T E R E N.

Nog verscheyde Arabifche, Sirifche, Hebreeuwfche, La-
tijnsche en Curfijfsche Matryfen, wyders Arabifche, Si-
rifche, Hebreeuwfche Ponçons, of Stempels,
en verscheyde Vormen om in te gieten.

Een fchoone groote Kagchel, curieuſe Houde en Loode
Letteren, Finaaltjes, Yfere Ramen, Letterkaſſen Nat-
en Spoelborden, vijf Korrigeer ſteenen, en verder
Gerectſchap tot de Drukkery behorende.

*Welke verkocht ſal werden tot Leyden in de Academy,
op Maandag den 20. February 1713. 's morgens ten
9. uren precys.*

Alles ſal daags te vooren van de Gegadingde kunnen gezien
worden, en de Catalogus is te bekomen by, François
Heeneman, op de Haarlem-ſtraat in de Vergulde Son.

THE
HISTORY
 OF THE
Art of Printing,
 Containing an Account of It's
Invention and Progreſs
 IN
EUROPE:
 WITH
 The NAMES of the Famous PRINTERS,
 The PLACES of Their Birth,
 And the WORKS printed by Them.
 AND
 A Preface by the *Publiſher*
 TO
 The PRINTERS in SCOTLAND.

EDINBURGH:

Printed by **JAMES WATSON**. Sold at his Shop, opposite to the *Lucken-Booths*; and at the Shops of **DAVID SCOT** in the *Parliament-Cloſe*, and **GEORGE STEWART** a little above the *Croſs*. M. DCC. XIII.

THE
L I F E
OF MAYSTER
Wylliam Caxton.
OF THE
Weald of KENT;
THE
First Printer in ENGLAND.

In which is given

AN ACCOUNT of the Rise and Progress of
the ART of Prynting in *England*, during his
Time, till 1493.

Collected by JOHN LEWIS,
Minister of Mergate in KENT.



L O N D O N .

Printed in the Year M.DCC.XXXVII.

A DISSERTATION UPON ENGLISH
TYPOGRAPHICAL FOUNDERS
AND FOUNDERIES.

BY EDWARD ROWE MORES, A. M. & A. S. S.

M, DCC, LXXVIII.

THE
HISTORY OF PRINTING
IN
AMERICA.
WITH A
BIOGRAPHY OF PRINTERS,
AND AN
ACCOUNT OF NEWSPAPERS.
TO WHICH IS PREFIXED A CONCISE VIEW OF
THE DISCOVERY AND PROGRESS OF THE ART
IN
OTHER PARTS OF THE WORLD.

—•—
IN TWO VOLUMES.

—•—
BY ISAIAH THOMAS,
PRINTER, WORCESTER, MASSACHUSETTS.

—•—
VOLUME I.
—•—

PRINTING dispels the gloom of mental night—
Hail! pleasing fountain of all cheering light!
How like the radiant orb which gives the day,
And o'er the earth sends forth th' enlight'ning ray!

—•—
WORCESTER :
FROM THE PRESS OF ISAIAH THOMAS, JUN.
ISAAC STURTEVANT, PRINTER

—•—
1810.

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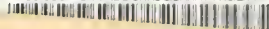
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