

One
Hundred
Years

1796
1896

OVERSINE

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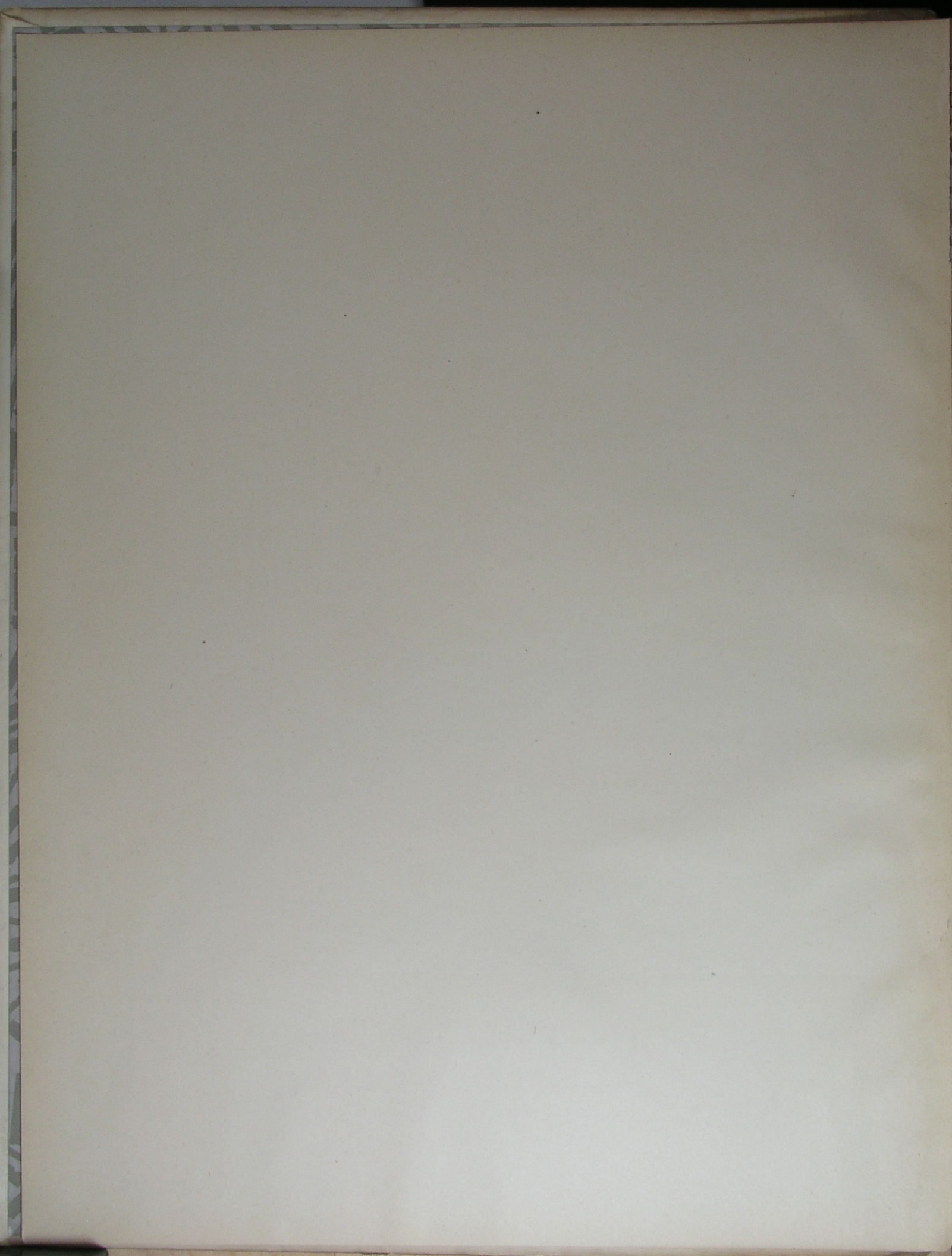
Mackellar, Smiths & Jordan
Company

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PENN STATE

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of this book, and oblige,

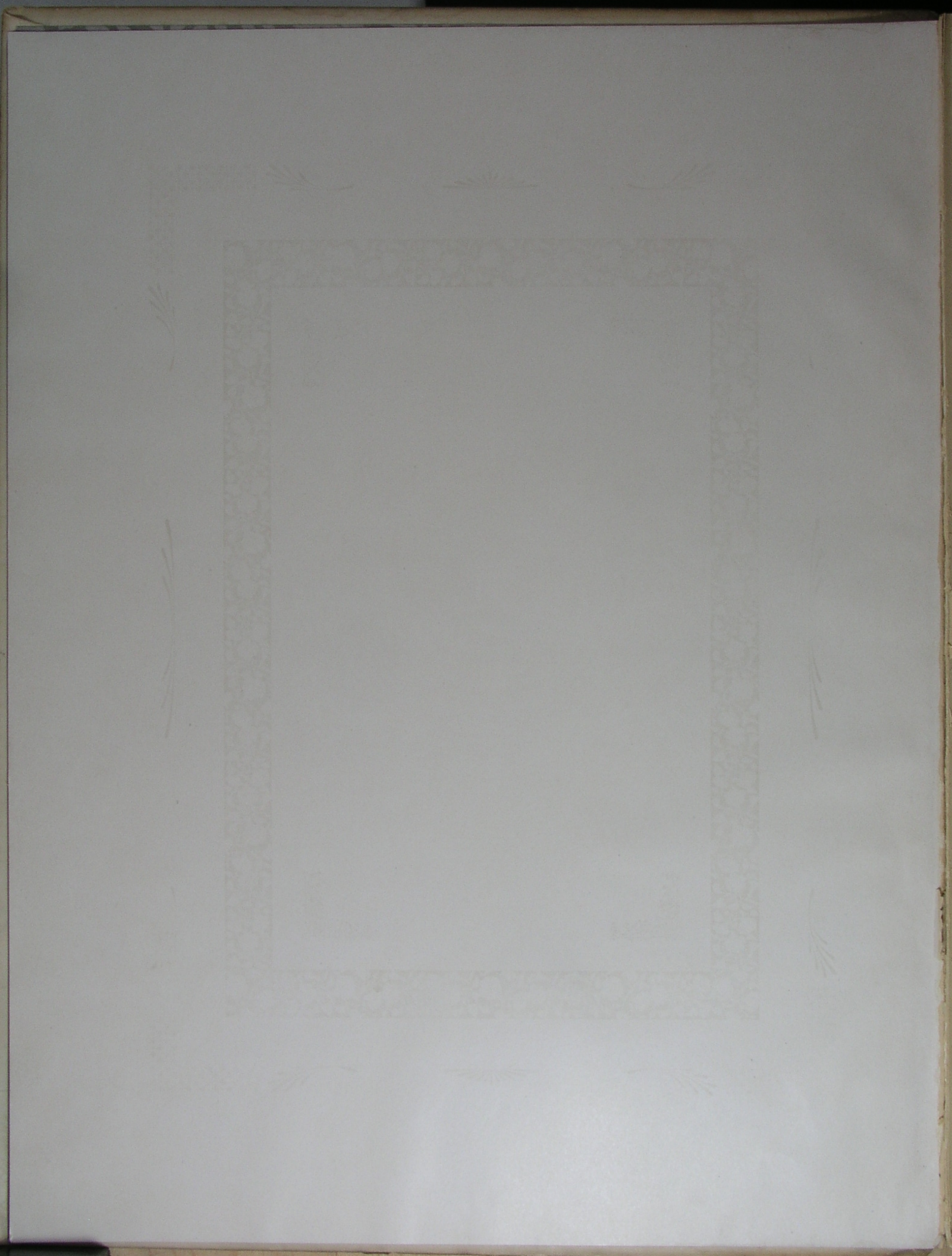
Yours truly,

American Type Founders Co.

MacKellar, Smiths & Jordan Branch

606-614 Sansom Street

PHILADELPHIA, PA.



American Type Foundry Company

1798-1898

.One. Hundred. Years.

**MacKellar
Smiths and Jordan
Foundry**

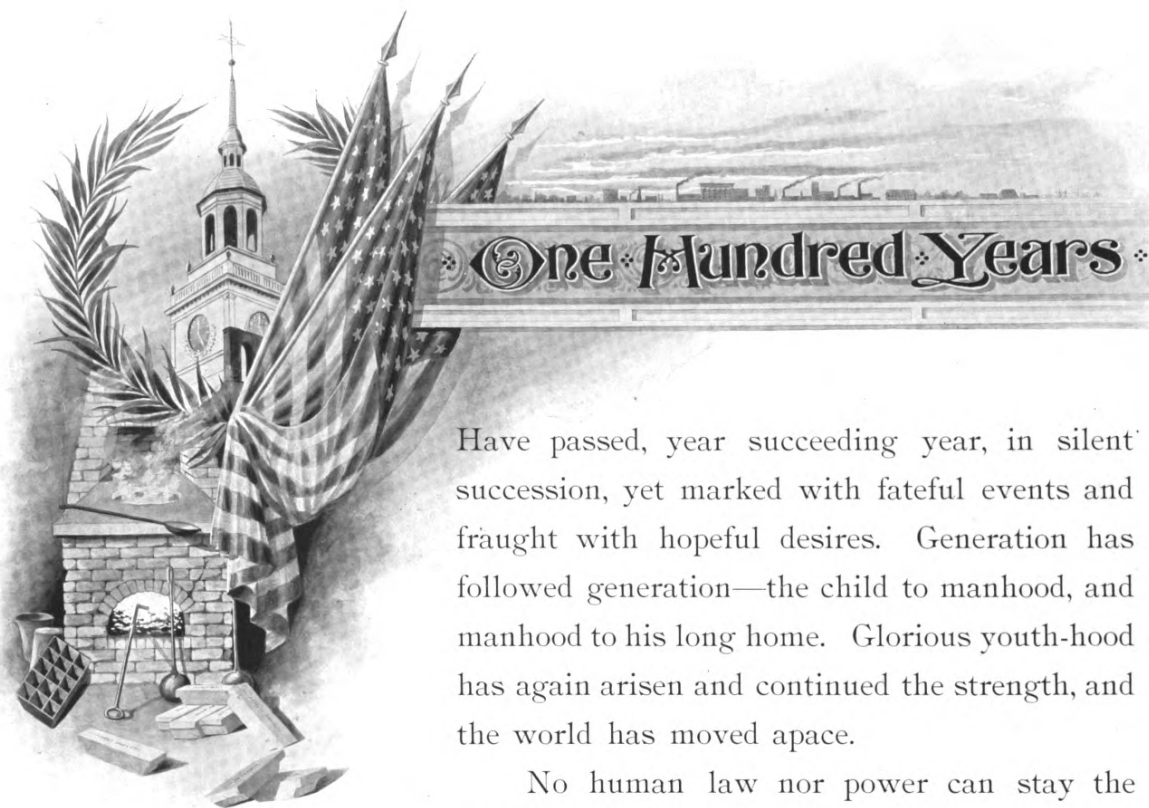
Philadelphia, Pa.



*To our Friends and Patrons this Souvenir is
Respectfully Dedicated*

**THE PENNSYLVANIA STATE
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Have passed, year succeeding year, in silent succession, yet marked with fateful events and fraught with hopeful desires. Generation has followed generation—the child to manhood, and manhood to his long home. Glorious youth-hood has again arisen and continued the strength, and the world has moved apace.

No human law nor power can stay the progress of time and events. It is eternal from the beginning, and knows no end. Further, no combined human effort can arrest the onward strides of improvement developed both physically and morally in the condition of the human race.

The nations were as far advanced a century ago, under the discoveries and conditions then existing, as they are to-day, considering the more favorable and enlarged facilities now surrounding them.

The past century has been one marked by phenomenal progress. As we look back through the vista of former days, and behold in bright view the giants of intellect in discovery and invention—Newton, Franklin, Fulton, and others of equal fame—we picture to ourselves the pleasure with which we could greet them, and present to their observation the growth and perfection of the seed sown by them.

We hail the new century with its unrevealed treasures of discovery in art, science, and mechanics! Born, November 1st, one hundred years ago, in our infancy we struggled for light; the dawn gradually broke, the rising sun pointed out to us our road and led us ever onward, until now the full rays of the orb shine across our pathway. The honored position of being the leaders in the world of our class is instinctively awarded to us. We look into the future with pride, confidence and hope, expecting and awaiting new triumphs and successes, and appreciating the responsibilities of the great advantages that have been afforded us and of others yet to come.

NOVEMBER 1, 1896.







A FOUNDRY, principally for German type, was established about the year 1735, at Germantown, Pennsylvania, by Christopher Saur, who executed in German the first quarto Bible printed in America, as well as other valuable works in the German language. In 1739 Saur published a newspaper at Germantown. His foundry was finally absorbed in that of Binny & Ronaldson.

A Dutch founder, Adam G. Mappa, settled at New York about 1787, and cast Dutch and German faces, as well as Roman styles and seven Oriental alphabets. Want of capital prevented his success, and many of his matrices passed into the possession of Binny & Ronaldson.

In the year 1796 type founding was begun at Philadelphia by Archibald Binny and James Ronaldson, natives of the city of Edinburgh, Scotland, where Binny had carried on the business.

Binny emigrated to this country in 1793. His means were limited; but becoming acquainted with his brother Scotsman, Ronaldson, whose biscuit bakery had been burned, a partnership was entered into. Binny had the tools and mechanical knowledge, and Ronaldson had the capital and business ability. The establishing of the first successful type foundry in America was the result of this combination.

The first account book of Binny & Ronaldson is still extant and in good condition. The volume comprises Ledgers A, B and C, and the first entry is November 1, 1796, and the last is April 4, 1801. The first charge is against John Scull, of Pittsburg, \$9.00, followed by Thomas Dobson, \$235.42. Shortly after these entries comes

Cash				Contra			
1797	Jan 1	To Type	14 8 66	1796	Dec 1	By John Binny	8 116 75
Jan 18	"	"	8 10			Secondary for business	98 11
April 6	"	John Scull	20 9 1			Metal	10 129 71
10	"	Thos Dobson	15 233 72			Tools	11 63 32
22	"	Gary & Markland	18 3 37			Household Furniture	7 31 6 1/2
26	"	Type	12 12 1			Expenses on Trade	12 39 3 1/2
	"	John Scull	20 8 1			House Rent	17 1 33
May 3	"	Type	10 6 82			Little	3 21
12	"	Bills due to Lee	65			Metal	10 6 1/2
17	"	John Scull	20 20 32			House Rent	17 12 12
	"	Type	14 3 20			Tools	11 4 7
June 7	"	Bills	1 1 2			Foundry	7 11 1/2
30	"	Bills Receivable	21 96 37			Arch. Binny	8 6 50
July 8	"	Type	27 12 36			House Expenses	23 304 23 1/2
20	"	Bills Receivable	21 63 08			Household Furniture	7 9 87
Continued on fol. 2 66377						Tools	11 13 37 1/2
						Expenses on Trade	12 20 11 1/2
						Foundry	7 11 34
						Metal	10 2 4
						House Expenses	23 32 47 1/2
						Tools	11 7 30 1/2
						Expenses on Trade	12 1 50
						House Expenses	23 39 58
						Type for wages	112 33 67
						Tools	11 8 15
				Continued on fol. 2 75 0335			

William Cobbett, the noted English radical and reformer, for \$12.08, who is credited with \$12.06 1/4—the shortage of one cent and three-quarters being duly carried forward for several years to Profit and Loss.

The firm rented a frame house on "Cedar Street, atwixt Ninth and Tenth Streets," at \$17.33 a month. In 1800 the frame house was valued at \$40, and cost \$82.09 1/2 "to shove it to its present location." The property was bought by the firm, which built another house on the same lot, at a cost of over \$2500, with \$72 a year ground-rent. Numerous entries of "House expenses" and "Furniture" indicate that one or both of the partners resided in the new building on Cedar Street.

Binny's tools were valued at \$888.88, offset by the same amount in cash by Ronaldson. On April 5, 1800, nearly \$3000 was passed to his credit, and nearly \$3200 to Ronaldson's. June 12, 1799, John Bain's tools were bought for \$300.

Cash paid for wages from June, 1798, to August, 1799, amounted to \$2011.57.

January 17, 1798, M. L. & W. A. Davis, of New York City, bought a bill of type for \$43, the freight costing \$1.25.

Binny & Ronaldson first began to manufacture the dollar mark (\$) in 1797, and under date of November 13, of the same year, it appears on Page 2 of Ledger A for the first time. The abbreviation for pound (lb) is first used on May 19, 1798. The items "Literary expenses," "Books" and "Garden" occur now and then. Exporting ashes to Greenock, Scotland, resulted in a net gain to Binny of \$1311.83¼, and a like amount to Ronaldson.

Probably no Specimen Book of types was issued during the period covered by Ledgers A, B and C. Incomplete copies of 1809 are extant which show a variety of Cuts and Printing Types, from Pearl to Six-Line Pica. Another Specimen Book was issued in 1812, and a third in 1814. A larger volume was got out in 1816 by "James Ronaldson, successor to Binny & Ronaldson." Binny having left the firm in August, 1815, Ronaldson inserted in the book a highly eulogistic paragraph concerning the outgoing partner. James Ronaldson published his last Specimen Book in 1822. Three years later Richard Ronaldson sent out some well-printed Specimens of Type. Copies of all the foregoing books are still in possession of the establishment.

In 1823, after the retirement of Binny & Ronaldson, Richard Ronaldson carried on the business of this foundry until 1833, when he in turn was succeeded by Lawrence Johnson and George F. Smith. Mr. Johnson, a man of great energy and enterprise, had introduced stereotyping in Philadelphia, and now both callings were incorporated. Ten years afterward Mr. Smith retired, and in the year 1845 Mr. Johnson associated with him Thomas MacKellar, John F. Smith and Richard Smith, who had, as it were, grown up with the business. The foundry now quickly grew in importance, and won a wide reputation. Mr. Johnson died April 26, 1860, and was succeeded by his three partners, who, with Peter A. Jordan, constituted the firm known as MacKellar, Smiths & Jordan,



under whose management the establishment was brought to a rank equal with and excelling most of the type foundries in the world. Mr. Jordan died March 25, 1884. In 1885, William Brasher MacKellar, G. Frederick Jordan and Carl Friederich Huch were associated with the remaining partners, and a corporation was formed under the name of The MacKellar, Smiths & Jordan Company. In 1892 the American Type Founders' Company was inaugurated, and this corporation was absorbed in it, becoming its principal Branch.

NAMES OF PRINTERS ONE HUNDRED YEARS AGO.

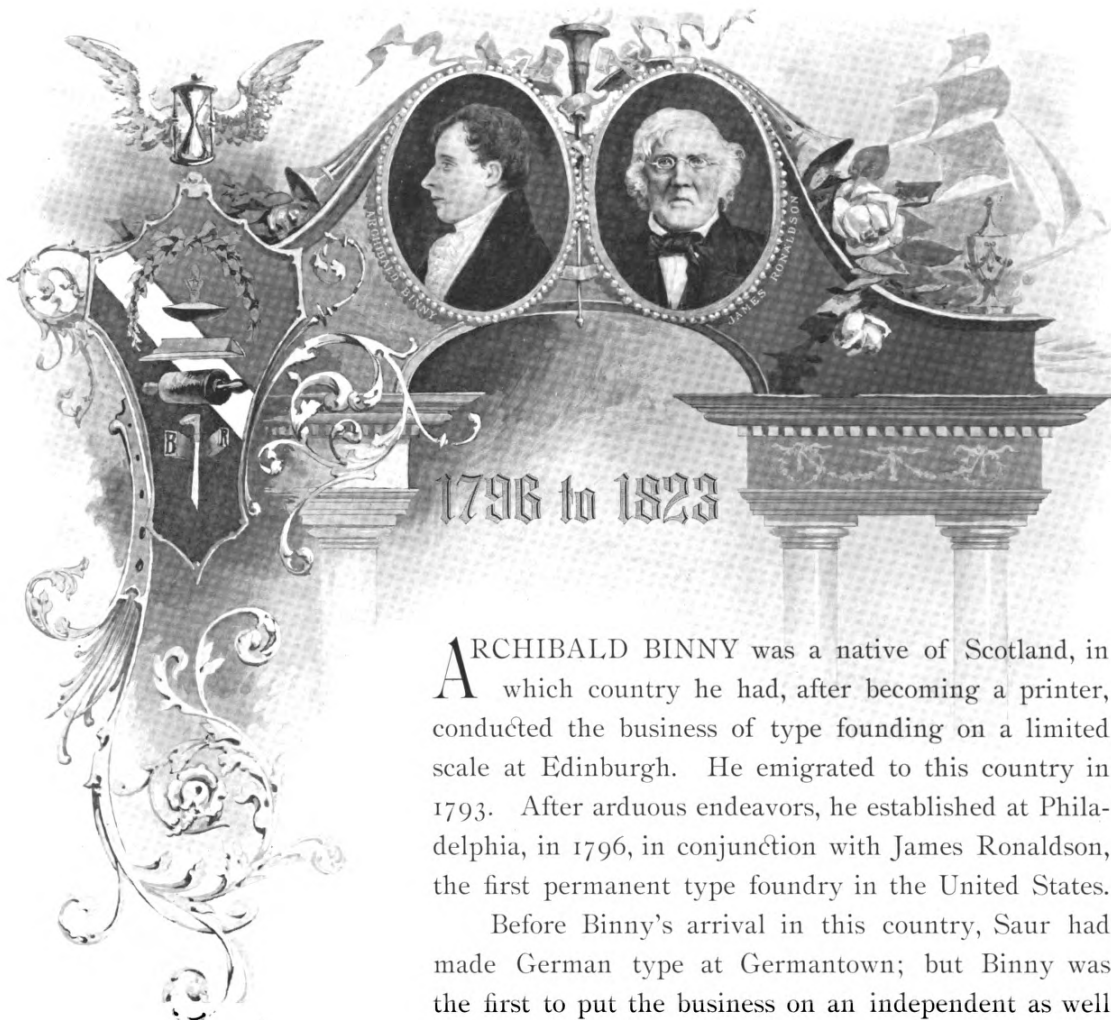
From Binny & Ronaldson's Ledgers A, B and C, 1796-1801.

- | | | |
|--|--|--|
| Jacob Albright, Lancaster, Pa. | D. Dinneston, New York, N. Y. | Meeker & Denman, Philadelphia, Pa. |
| Joseph Anthony, Philadelphia, Pa. | John Dixon, Richmond, Va. | Ming & Young, New York, N. Y. |
| Benjamin Franklin Bache, Philadelphia, Pa. | W. & R. Dixon, Lancaster, Pa. | Moreau de St. Mary. |
| Francis Bailey, Philadelphia, Pa. | Thomas Dobbin, Baltimore, Md. | Benjamin W. Morris, Philadelphia, Pa. |
| Bank of North America, Philadelphia, Pa. | Thomas Dobson, Philadelphia, Pa. | Thomas Ormrod, Philadelphia, Pa. |
| Barber & Southwick, Albany, N. Y. | George Douglass, Petersburg, Va. | Charles Parent, Philadelphia, Pa. |
| Thomas Bedwell, Philadelphia, Pa. | William Duane, Philadelphia, Pa. | —— Patterson, Philadelphia, Pa. |
| E. Beldin, Philadelphia, Pa. | John W. Fenno, Philadelphia, Pa. | —— Plowman, Philadelphia, Pa. |
| A. Bingham, Philadelphia, Pa. | Richard Folwell, Philadelphia, Pa. | George Plumstead, Philadelphia, Pa. |
| John Biorn, Philadelphia, Pa. | Fry & Kammerer, Philadelphia, Pa. | Edward Pole, Philadelphia, Pa. |
| Biorn & Madan, Philadelphia, Pa. | John Furman, New York, N. Y. | Read & Morse, New Haven. |
| William Young Birch, Philadelphia, Pa. | Simon & Haman Gratz, Philadelphia, Pa. | Peter Regnier, New York, N. Y. |
| W. Black, Dover, Del. | Green, English & Co., Georgetown. | W. A. Rind, Richmond, Va. |
| Abraham Blawvelt, Philadelphia, Pa. | F. Green, Annapolis, Md. | William Ross, Philadelphia, Pa. |
| Bonsall & Niles, Wilmington, Del. | Thomas Greives, Philadelphia, Pa. | John Rowlet, Philadelphia, Pa. |
| Richard Bowen, Winchester, Va. | William Hamilton, Lancaster, Pa. | John Scull, Pittsburg, Pa. |
| Samuel F. Bradford, Philadelphia, Pa. | John Hanse, Richmond, Va. | Samuel H. Smith, Philadelphia, Pa. |
| Thomas & William Bradford, Philadelphia, Pa. | G. Heberton. | S. H. Smith, Washington. |
| Andrew Brown, Philadelphia, Pa. | George F. Hopkins, New York, N. Y. | W. C. Smyth. |
| Brown & Relph, Philadelphia, Pa. | George Hough, Concord, Mass. | Snowden & McCorkle, Philadelphia, Pa. |
| Brown & Stansbury, New York, N. Y. | George Hill, Baltimore, Md. | Somerville & Halladay, New York, N. Y. |
| Peter Brynburg, Wilmington, Del. | Israel Israel. | Alexander Somerville, New York, N. Y. |
| Budd & Bartram, Philadelphia, Pa. | John Israel. | James Stewart & Co. |
| John Buell, New York, N. Y. | N. Johnston & Co., Savannah, Ga. | Henry Switzer, Philadelphia, Pa. |
| James Carey, Philadelphia, Pa. | B. & J. Johnston, Philadelphia, Pa. | T. & J. W. Swords, New York, N. Y. |
| Mathew Carey, Philadelphia, Pa. | Meriwith Jones, Richmond, Va. | Taggart & Smith. |
| Joseph Charles, Philadelphia, Pa. | Jones & Olden, New York, N. Y. | John P. Thompson, Carlisle. |
| J. Chivalier, New York, N. Y. | Haren Kimball. | G. Turner, Philadelphia, Pa. |
| Charles Cist, New York, N. Y. | John Kirk, New York, N. Y. | Stephen Ustick, Philadelphia, Pa. |
| D. & S. Claypole, New York, N. Y. | George Kline, Philadelphia, Pa. | Warner & Hanna, Baltimore, Md. |
| William Cobbett, New York, N. Y. | J. T. Lang, New York, N. Y. | C. P. Wayne, Philadelphia, Pa. |
| Cochran & Patterson, New York, N. Y. | Richard Lee. | Thomas Weir. |
| E. Conrad, New York, N. Y. | David Longworth, New York, N. Y. | James Wilson, Wilmington, Del. |
| Solomon W. Conrad, Philadelphia, Pa. | James Lyon, Richmond, Va. | Wilson & Palm. |
| G. Craft, Trenton, N. J. | John Markland, Philadelphia, Pa. | George Wilson, Knoxville. |
| J. & J. Cruikshanks, New York, N. Y. | Hugh Maxwell, Philadelphia, Pa. | W. W. Woodward, Philadelphia, Pa. |
| M. L. & W. A. Davis, New York, N. Y. | A. McMillan, Augusta. | John Wyeth, Harrisburg, Pa. |
| Mathias Day, Newark, N. J. | Samuel Meeker, Philadelphia, Pa. | W. Young. |









ARCHIBALD BINNY was a native of Scotland, in which country he had, after becoming a printer, conducted the business of type founding on a limited scale at Edinburgh. He emigrated to this country in 1793. After arduous endeavors, he established at Philadelphia, in 1796, in conjunction with James Ronaldson, the first permanent type foundry in the United States.

Before Binny's arrival in this country, Saur had made German type at Germantown; but Binny was the first to put the business on an independent as well as a permanent basis. The foundry was improved according to the increase of printing and the consequent demands of trade. He not only made good type, but devised an improvement in the art of casting, which was the greatest advance step made after the invention of printing until the type-casting machine was invented. By a modification of the old mould, which he patented in 1811, Mr. Binny greatly increased the rapidity of production, and at the same time rendered the labors of the caster less arduous. He subsequently made energetic but fruitless efforts to invent a machine for rubbing type. The assortment of faces was not extensive, but it embraced the essential fonts—Brevier, Bourgeois, Long Primer, Small Pica, Pica, and Two-line letters.

After a prosperous career, Mr. Binny, in 1819, being advanced in years, retired from business, and was succeeded by his partner, James Ronaldson, who in turn was followed, in 1823, by his brother, Richard Ronaldson.

James Ronaldson, the son of William Ronaldson, was born in 1768, at Gorgie, near Edinburgh. In 1794 he came to Philadelphia in the sailing vessel Providence. Shortly after his arrival he renewed his acquaintance with Mr. Archibald Binny, whom he had previously known in Scotland. For a year or two after his arrival in this country Ronaldson carried on a biscuit bakery. His establishment was destroyed by fire

in 1796, so that he found himself out of an occupation. It is related that at about this time he encountered Binny in an ale-house. Their acquaintance ripened into a friendly intimacy, and they soon learned each other's views and prospects, the result being the formation of a copartnership, beginning November 1, 1796, establishing the first permanent type foundry in the United States. Ronaldson furnished the greater portion of the capital required, and assumed control of the financial branch of the business. Binny, who was a practical type founder, and had been in the business in Edinburgh, contributed his tools, stock of metal and types, and superintended the manufacturing department. The connection proved mutually advantageous, and a prosperous business was the result. American printers, who had hitherto relied on British founders for their supply

of type, patronized the new establishment, and, in Mr. Ronaldson's words, "the importation of foreign type ceased in proportion as the productions of Binny & Ronaldson became known to the printers throughout the United States."

In 1806 the type-founding tools and materials which Dr. Benjamin Franklin had brought from France for his own convenience in casting sorts came into the possession of the firm. They had become the property, after Dr. Franklin's death, of Mr. Duane, a relative of the philosopher, who, appreciating the zeal with which Messrs. Binny & Ronaldson strove for success, offered to lend them the tools. Mr. Ronaldson, after an examination of them, was so struck with the superiority of some of them over



their own, and fearing that Mr. Duane might change his mind, at once borrowed a wheelbarrow and lost no time in personally conveying such as he selected to their foundry during one of the hottest days in the summer of the year mentioned.

It is probable that Mr. Fürst, a die-sinker at the Philadelphia Mint, may have cut



punches for Binny & Ronaldson, as his name occurs as engraver under a likeness of Binny on the obverse of a medal, which has also the inscription: "A. Binny, Letter-Founder, Philadelphia." The inscription on the reverse of the medal, under an appropriate group of figures and tools, is: "Letter-Foundry of Philadelphia, established A. D. 1796."

After the retirement of Archibald Binny, in 1815, James Ronaldson carried on the business until 1823.

He was honest, just and upright in his actions, and of a philanthropic nature. He established the first Soup Society in Philadelphia. He was a founder of the Thistle Society, and a member of St. Andrew's Society, as well as a Master Mason of Lodge No. 1, of Scotland. At the founding of the Franklin Institute, of Philadelphia, in 1824, he was elected its first President, serving in that capacity until 1842, when he resigned; but he maintained his interest in the institution until he died, and left it by his will a legacy. An able scholar himself, he was interested in educational institutions. Although not a Director in the Model School established in Southwark by his friend, Thomas Lancaster, he was accustomed to interview and inquire into the progress of each scholar individually, and, there being about three hundred boys in the school, this was no easy task. He was a ready writer, and contributed many essays upon political economy and against the use of paper money. In politics he was a Whig, favoring a protective tariff.

In 1828 he accepted a nomination for Congress, but was not elected. In connection with his type-founding interests he owned the Hillsburgh Mills, on Ridley Creek, fifteen miles from the city, having, in 1823, twelve hundred spindles engaged in spinning cotton yarn.

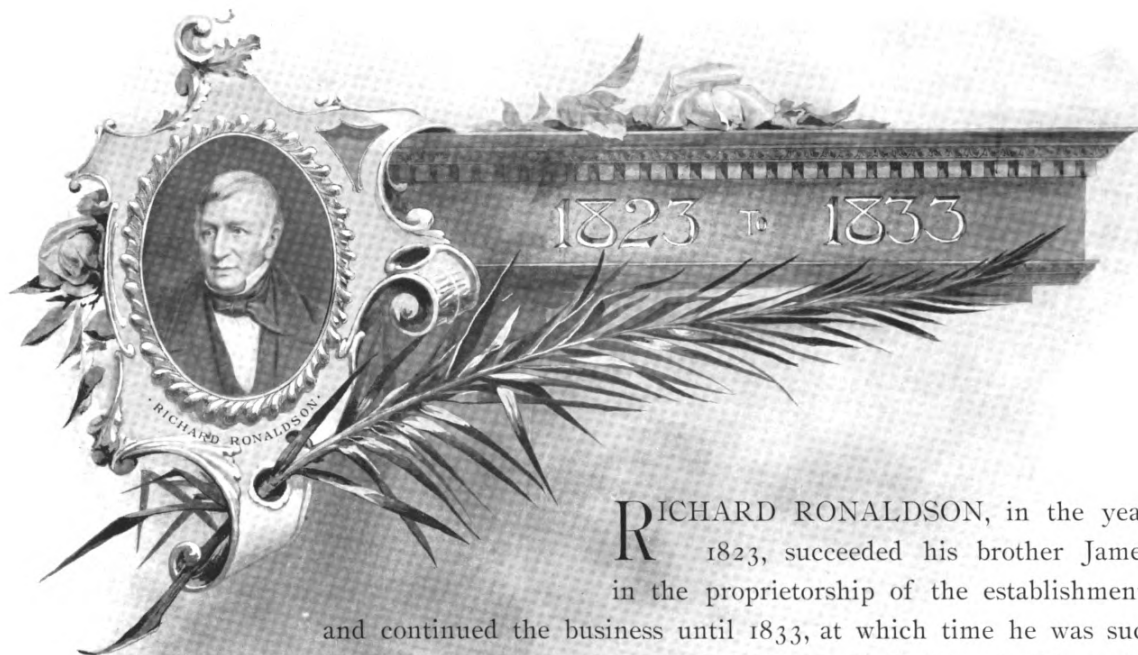
He was the owner of a lot of ground in Philadelphia, and he determined to lay out the



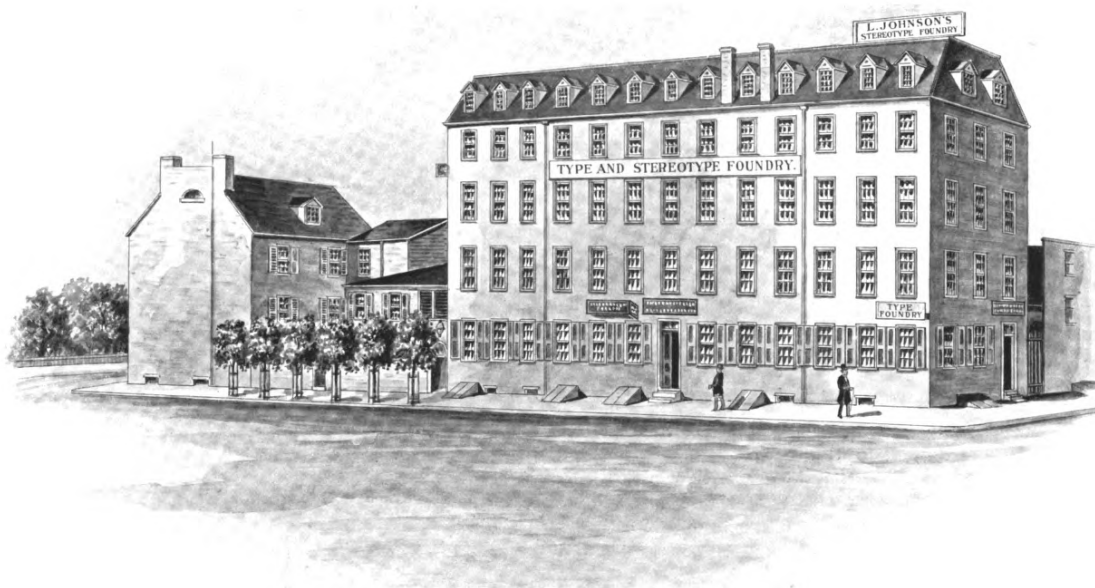
eastern portion of it for the purpose of a cemetery, "as burial places for the interment of deceased human beings other than people of color." Mr. Ronaldson displayed great taste in the establishment of this ground and in the manner of laying it out. The projector said, in relation to his original plan, that he wanted to erect within the inclosure of the Philadelphia Cemetery a dwelling-house for the keeper, or gravedigger, on one side of the gate, and on the other side a house uniform with the gravedigger's, this house to have a room provided with a stove, couch, etc., into which persons dying suddenly might be laid, and the string of a bell put into their hand, so that if there should be any motion of returning life the alarm bell might be rung, the keeper roused, and medical help procured.

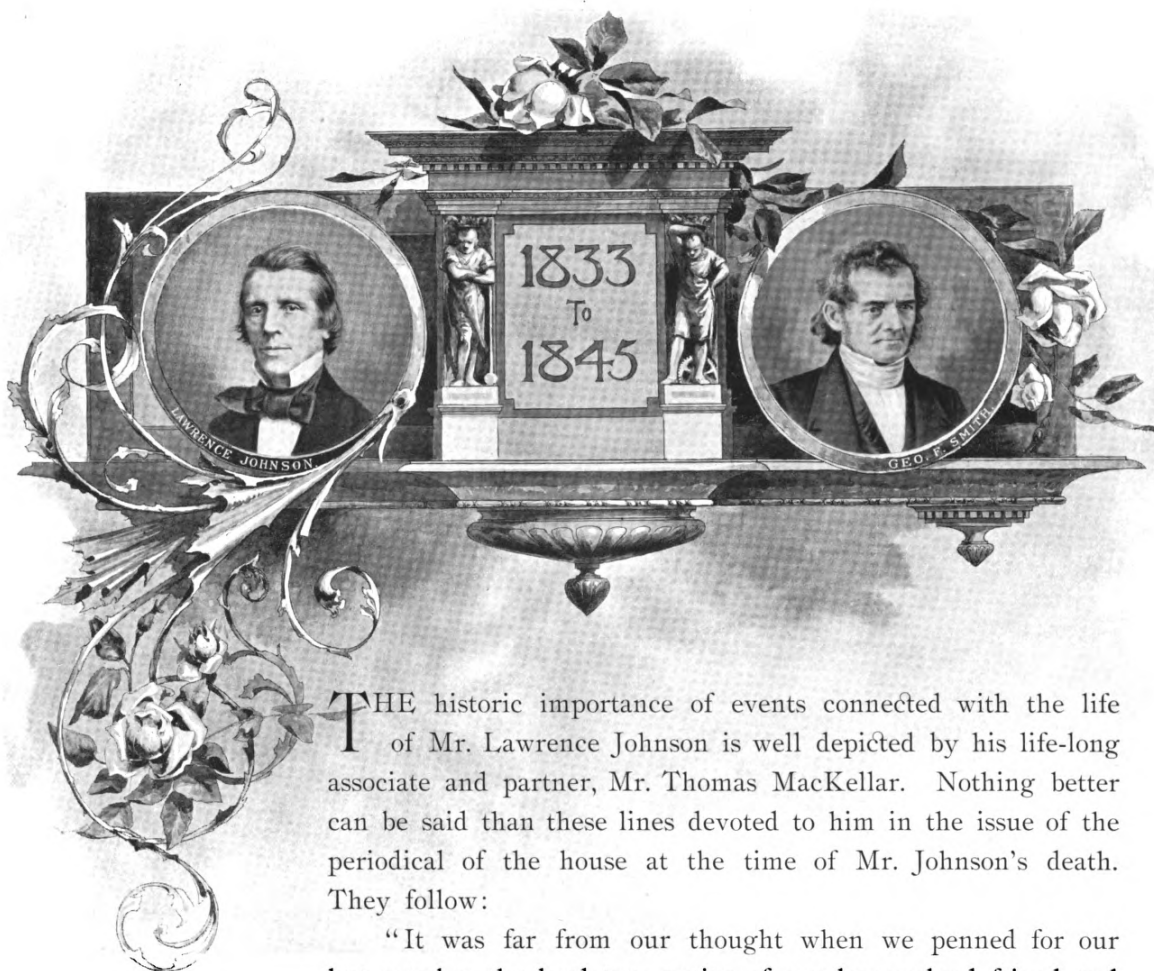
Mr. Ronaldson was enterprising and alert. He built a row of staunch brick houses on Ninth Street, north of the Cemetery. Well built, with massive walls, they promise to have several centuries before them. The door-steps are all placed at the right front end of the houses—not in pairs, as often seen. A friend inquired why he did so. He replied: "To prevent tattling women from gossiping on the door-step." He was a bachelor, and died at Philadelphia in 1842.





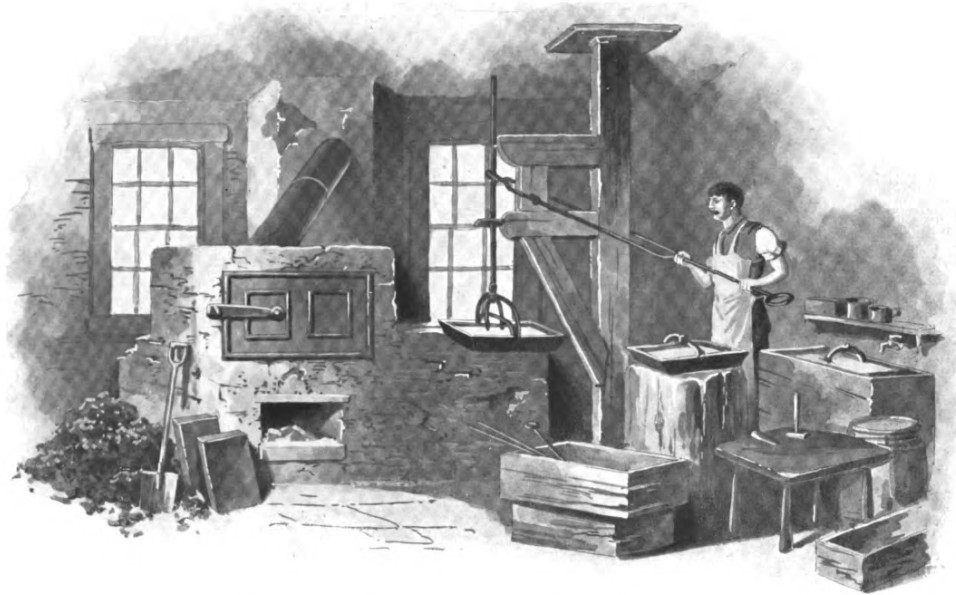
RICHARD RONALDSON, in the year 1823, succeeded his brother James in the proprietorship of the establishment, and continued the business until 1833, at which time he was succeeded by Lawrence Johnson and George F. Smith. Nothing of a noteworthy character occurred during his proprietorship. He did not evince the ability nor marked interest in the advancement of type founding that had been shown by his predecessors. When he retired from the foundry the industry was in a no more advanced condition than when he first engaged in it, and the development and restoration of its former well-earned reputation was left by him to the energy of Mr. Johnson and his partner, who rapidly brought it to the financial and commercial success which has ever since characterized it.





THE historic importance of events connected with the life of Mr. Lawrence Johnson is well depicted by his life-long associate and partner, Mr. Thomas MacKellar. Nothing better can be said than these lines devoted to him in the issue of the periodical of the house at the time of Mr. Johnson's death. They follow:

"It was far from our thought when we penned for our last number the laudatory notice of our long-valued friend and energetic co-worker, Mr. Lawrence Johnson, that it would soon become our sorrowful duty to chronicle his sudden decease. He had survived so many apparently mortal attacks, and seemed to be endowed with such amazing recuperating powers, that we fully anticipated that he would reach the limit indicated by the inspired writer, and descend to the grave 'like a shock of corn in its season,' ripened and matured for the harvest. In the mid-morning of the day when he was stricken, April 24, we stood together beside the stove, conversing in our old familiar way, and one of his remarks related to certain reminiscences which would be a source of pleasure to us when we should have become superannuated. This was our last interview. When we next beheld him the keen and sparkling eye was closed, the ear was dull, the ready tongue was speechless, the shrewd and richly-laden mind shrouded in eclipse. His loud and



peculiar breathing reminded us of the boyish day when we stood by the bedside of a mother similarly stricken, and whose death left us parentless—and we looked upon him without hope. A few more hours proved the reality of our prescience, and our hand lay upon the cold forehead of one who had left thousands to love and honor his memory. This fatal day was the 26th of April, 1860.

“Mr. Lawrence Johnson was born January 23, 1801, in Hull, England, and was apprenticed to the printing business in the office of John Childs & Son, at Bungay, England, at so early an age that he had served an apprenticeship of seven years before he emigrated with his parents to the United States, where they arrived in 1819, landing in New York. He early manifested those traits of persevering industry and indomitable energy which were to be the remarkable characteristics of his life. While engaged as a printer in Mr. Gray’s office, in Franklin Square, New York, he boarded in the house in which the office was located, and devoted himself to his business with such untiring assiduity that, as he himself assured us, he did not go out of doors from Monday morning till Saturday night. With a small capital, he afterwards removed to Philadelphia, and set up a stereotype foundry. Though imperfectly acquainted with the details of this new business, his excellent tact soon enabled him to overcome the obstacles consequent on this lack of experience. With many a hearty laugh was he wont, in after life, to describe the awkward positions in which he sometimes found himself. Nothing daunted, however, he pushed forward until complete success crowned his efforts, and he became established as a stereotype founder.

"In 1833 Mr. Johnson added type founding to his previous calling. The Philadelphia Type Foundry had been established in 1796 by Binny & Ronaldson, who, after a prosperous career, had been succeeded by Mr. Richard Ronaldson. He, in turn, sold out to Mr. Johnson and Mr. George F. Smith, who had been long engaged with Mr. Ronaldson. After the lapse of ten years Mr. Smith retired, and Mr. Johnson, having continued the foundry for two years on his sole account, in 1845 associated with him Mr. Thomas MacKellar, Mr. John F. Smith, and Mr. Richard Smith, all of whom had been in his employ for many years. At this time the health of Mr. Johnson was very precarious. Under the new arrangement, however, a large portion of the burden that was pressing him to the grave was removed, and he rapidly recuperated.

"A new Specimen Book was put through the press, and shortly thereafter the 'Typographic Advertiser' was issued. All lent a willing hand to bring up their manufactures to the highest point of excellence, and unparalleled prosperity was the result. The fame of the foundry was not only co-extensive with the limited number of printers of our own country, but spread widely in foreign lands. But death is no respecter of the prosperous, the learned, or the great, and suddenly, as in a moment, the summons came to our revered friend and partner, and he passed away. The monument, however, which he aided so effectually to build still stands, and will remain a noble memento to his memory.

"When the news of his sudden decease was made public a profound sensation overspread the community. It was felt that a good and able and noble-spirited man had fallen. We, who knew him well, had a keener appreciation of the magnitude of the loss, and a new and saddening tinge was given to the color of our life."

A very large concourse of personal and business friends of Mr. Johnson followed him to his last resting-place. The following associations were largely represented: Commonwealth Bank, Chestnut and Walnut Streets and Green and Coates Streets Railways, Typographical Society of Philadelphia, and Mount Vernon Cemetery Company. The book and newspaper publishers of Philadelphia, as well as the employees of the foundry, were also present.

The character of Mr. Johnson is well portrayed in the remarks of the President, and in the resolutions adopted, at a meeting of the Board of Managers of the Mount Vernon Cemetery Company:



Gentlemen—I have requested you to assemble to-day for the purpose of announcing to you, with deep regret, the death of Lawrence Johnson, our late valued and esteemed colleague. As a gentleman of unblemished reputation, liberal in his charities and benevolent in his disposition, possessed of a large and enlightened public spirit, and valued for his social and civil standing, we feel that the event of his death is to be regarded as a calamity in this community, where for so many years he has lived as one of its ornaments; and that his amiable intercourse, marked by so much urbanity of manners and kindness of heart, will be no less missed from the circle in which he has moved than his charities and counsels from his sphere as a citizen.

We recognize in his sudden demise an additional proof of the uncertainty of life, and of the truth of the inspired declaration that "man at his best estate is altogether vanity;" and we would lay to heart the lessons which Divine Providence reads in it to all.

By a vote of the Board, it was

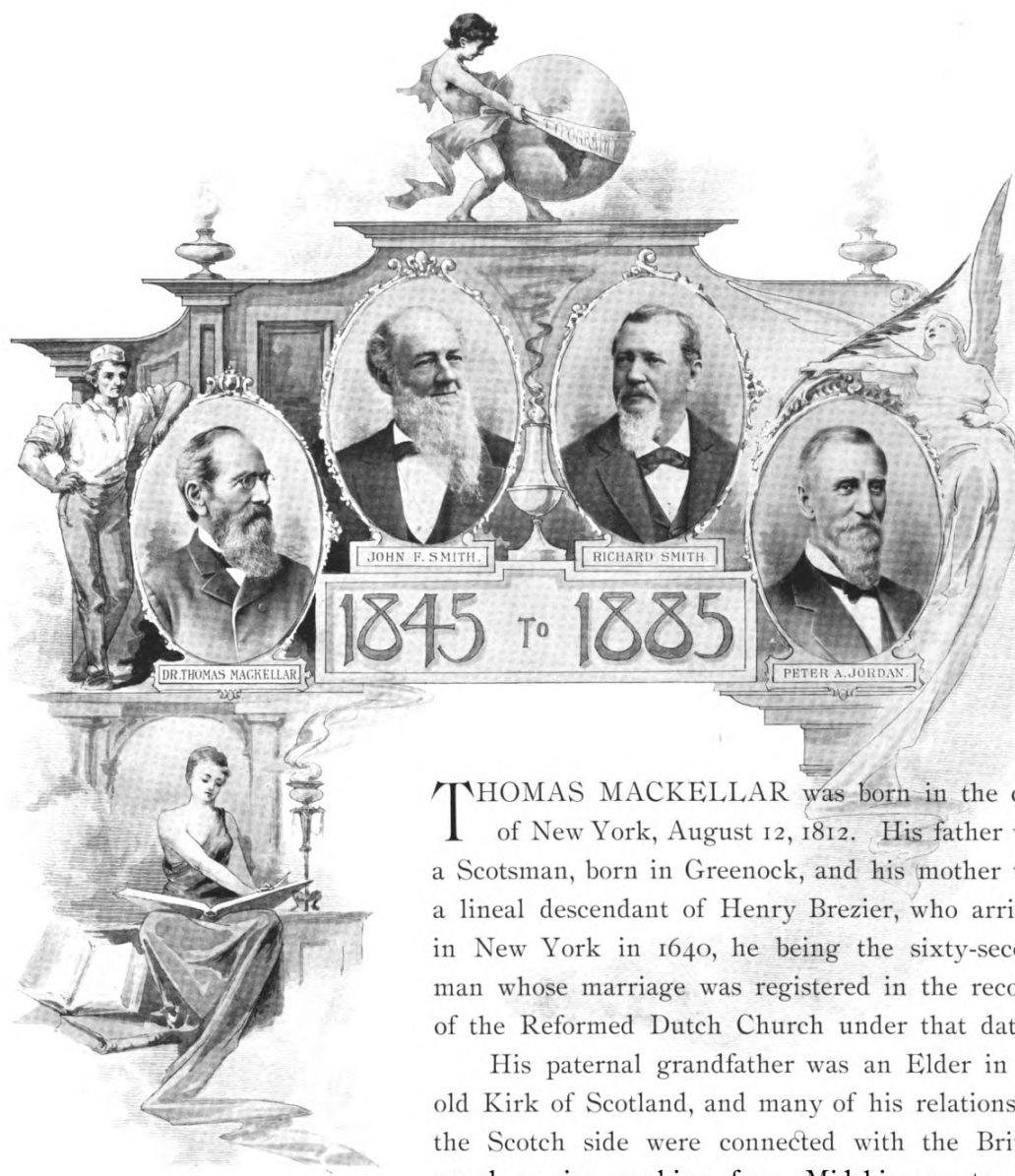
Resolved, That this Company especially tender their sympathies to his afflicted family, who have lost a husband and father most faithful and devoted. To the shielding care and paternal blessing of Him who is the husband of the widow, and in whom the fatherless find mercy, we would most reverently commend them.

Resolved, That this expression of respect be entered on the Minute Book of the Board, published, and communicated to the afflicted family of the deceased.

At a meeting of the book publishers of Philadelphia proceedings were also had, and resolutions adopted expressive of the friendly sentiments entertained towards Mr. Johnson by that intelligent class of our fellow-citizens.

George F. Smith, the partner of Lawrence Johnson, and the father of Richard and John F. Smith, was a practical type founder. He was a mechanic, and was the head of the manufacturing department of the foundry during the ownership of Richard Ronaldson. He married a ward of the latter. His successful management was no doubt a strong reason for Mr. Johnson making him his associate, in 1833, when the business was taken over from Richard Ronaldson. He retired from active labor in 1843.





THOMAS MACKELLAR was born in the city of New York, August 12, 1812. His father was a Scotsman, born in Greenock, and his mother was a lineal descendant of Henry Brezier, who arrived in New York in 1640, he being the sixty-second man whose marriage was registered in the records of the Reformed Dutch Church under that date.

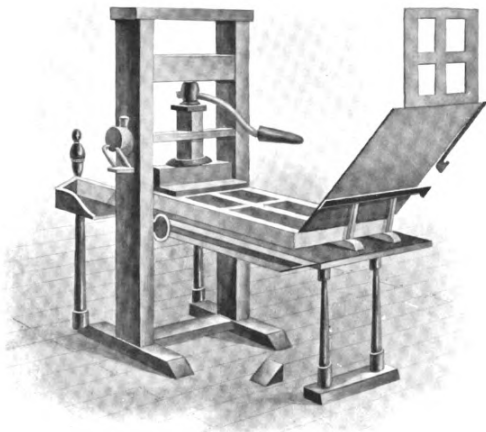
His paternal grandfather was an Elder in the old Kirk of Scotland, and many of his relations on the Scotch side were connected with the British naval service, ranking from Midshipman to Admiral. His father, meeting with adverse circumstances, declined in health, and, when nearly fourteen years old, young Thomas was compelled to forego his parent's intention of granting him a superior education. He left McGowan's Classical Academy the highest boy of his class in mathematical studies, and with a strong aversion to all poetry except Cowper's "John Gilpin."

He found his way into the office of a weekly newspaper, the New York "Spy." The composing of the types was done solely by himself and his employer. Here we

obtain the first glimpse pointing to his successful career that followed as a master printer. The first day he entered this printing office he learned the case, showing evidence of a clear head and a retentive memory. The paper was printed on an old Ramage press, which had a stone bed and a wooden platen; the platen being only one-half the size of the bed, two pulls were needed to print one side of the sheet. The inking balls were of felt, and two men were required—one to ink the form, the other to run the press. The "Commercial Advertiser," in the neighborhood, was printed on a one-pull Columbian press, invented by George Clymer, of Philadelphia. This was an imposing machine, with many levers, the last one with an eagle on its

end rising and falling as each sheet was printed. A skillful pressman ran off two hundred and fifty copies an hour on it, printed on one side only. This was considered a fine performance.

It was his inordinate thirst for reading that first induced him and fixed his determination to become a printer. Here a large field was open to him for the gratifying of his desire for reading. He had, in a literary sense, devoured everything at home, and committed to the store-house of his mind all the contents of the books he could borrow, as his craving for knowledge seemed almost to be insatiable; but, as to the key of success, he saw that the end he aimed



for was to be won through the medium of hard, intense work. The "Spy" lived about two years, and in 1828 he entered the printing office of J. & J. Harper, in Cliff Street, where he was soon noted for the neatness and accuracy of his work, and in his seventeenth year he was made proof-reader. The press room was filled with rows of iron hand presses with skin inking rollers, and ten tokens were deemed to be a full day's work. A flat-bed machine was soon after placed in the middle of the room, and was propelled by a horse in the cellar, that ran around in a circle, as on the horse ferry-boats which once plied on the East and North Rivers.

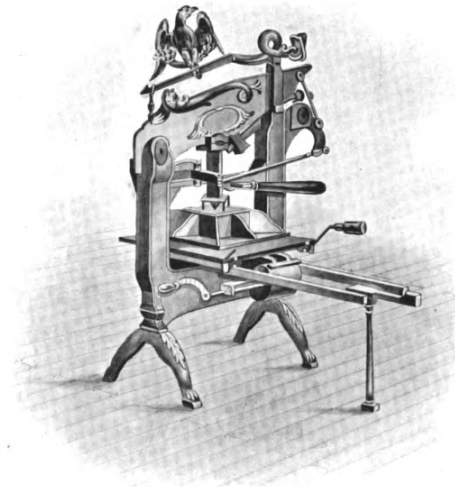
The first newspaper machine press in New York was in the printing office of Colonel J. Watson Webb's "Courier." This was propelled by a stout negro turning a wheel of considerable diameter. Whenever the New York "Spy" was short of matter the printer used to borrow from Webb the types of articles which had been published in the "Courier."

Death carried off his father and mother within a space of seven weeks of each other, when he was eighteen years old. Being the oldest son of the family he assumed a large portion of its cares and responsibilities.

To better fit him for the struggle he put literature under his feet with a natural sigh, and bent resolutely to the task of making himself master of his business. His energy and talent soon made him the acknowledged leader among the youth of the establishment, and he became the peer of the best workmen. Under the continued strain upon his eyes while proof-reading his sight was affected. He then devoted himself to the practical part of printing—the handling of type and forms, and working the press. All the difficult and perplexing work was given to him—the labor that required taste, skill and ingenuity fell to his lot. This he delighted in, as plain, solid type setting was too monotonous and devoid of interest to his active mind.

Having served a thorough apprenticeship in the establishment, he graduated a skilled artisan. On the 27th of April, 1833, ere the dawn of his approaching manhood, he arrived in Philadelphia, and on the 1st of May following he began work as proof-reader in the type and stereotype foundry of Messrs. Johnson & Smith. His purse was slender, but he felt that hard work and well-earned character would become his capital.

Then began the struggle of his life for success. Mr. Johnson was an active man—very energetic, and persevering to an extreme. Eleven hours a day, in busy times lengthened to fourteen, proved a heavy task to MacKellar; but he felt that close application and a good reputation would in the end win. And they did. After performing his double duties for some years, he relinquished proof-reading, and devoted himself to the management of the composing room, where more than twenty books were sometimes in hand at the same time. Many volumes, by native and foreign writers, had passed under his eye—works in Greek and Hebrew, such as the Greek Testament and Hahn's Hebrew Bible. For the latter, as well as for music type setting, he had to train special compositors. Commentaries, Law Books, Medical and Surgical Dictionaries, Bibles, Prayer and Hymn Books, Biographical Dictionaries, Ancient and Modern Histories, all sorts of literature, made his brain a composite encyclopædia, and he acquired an amount of general knowledge that served him well in after years. While all his daily time was taken up by labor, his night hours also were occupied with useful



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matters. One of the earliest mission schools was started under his superintendence, in one of the lowest sections of Philadelphia, and some of his best years were spent in endeavors to benefit those in the humblest conditions of society. For twenty-five years he acted as Corresponding Secretary of the Philadelphia Bible Society, and wrote its annual reports. Besides, his duties as a Presbyterian—he being an Elder for many years of the old Pine Street Church—led him to the bedside of the sick and dying. These duties brought him into close intercourse with the smitten poor, and many incidents of interest might be quoted growing out of these relations. Thus we see his aim in life was not a selfish one. While struggling forward in the path to success, he strove to rescue the fallen from the path of vice, and to encourage his brother man to live an honest and godly life. His valuable qualities were soon recognized by the senior member of the house, Mr. Lawrence Johnson, and he was accorded the position of foreman of the entire department, comprising the composing rooms and the stereotype foundry. The business of stereotyping was then in its infancy in this country, and many obstacles had to be overcome. Nevertheless, the imprint of the establishment began to appear on many standard and popular works published in various parts of the United States.

In 1845 he was taken into the business as a partner, together with the two sons of Mr. George F. Smith, who had retired a short time previous. The title of the house then became L. Johnson & Co.

With a portion of his hopes and ambitions realized, he was filled with new vigor to endeavor to outstrip all his former exertions for bringing the productions of the foundry to the highest standard. He gave personal supervision to the varied branches of work in his department. He would be frequently found at the case and stone manipulating the type to secure the choicest combinations and the most artistic display. A monument to his skill and care in typography rests in the large quarto Specimen Book that was brought out under his direction. As a trade book it was and is almost faultless. Every line speaks some quaint conceit or hides some quiet humor, and is expressive as a rule of the face or style of the type in which it is set. As an example of beautiful bookmaking it reflects the highest credit upon editor, compositor, pressman, paper maker and binder, and scarcely has an equal. This work will be sought for in future days by bibliographers as a curious and unique production.

The business grew in importance and magnitude; but competition was unscrupulous, and some forty years ago he proposed that the house should send out an exploring agent to South America, to visit printers and distribute among them the great Specimen Book got out under his direction. Mr. Johnson favored the proposal, and books were sent in advance to various points, followed by the traveling agent, who went down on one side of the continent, crossed the Andes, and returned home on the

opposite side of the country. The suits were good, and South American orders for material are seldom absent from the order-books of the house.

After Mr. Johnson's death, in April, 1860, his interest was bought by the three junior partners, Thomas MacKellar, John F. Smith and Richard Smith, who, in 1845, had been taken into the business with him—the last two being sons of a former partner. Peter A. Jordan was admitted into the new organization.

In 1855 Mr. MacKellar brought out the "Typographic Advertiser," in which, in 1856, he proposed a general Asylum for Decayed Printers, and the firm afterward offered one thousand dollars as a nucleus of a fund. The movement was not supported sufficiently, and the matter fell through. His old friend George W. Childs, with A. J. Drexel, some years afterward renewed the scheme, and, printers generally taking hold, the project became a splendid success. The "Advertiser" shortly became famous among printers at home and abroad for its beauty and for its specimens of the new styles of types produced in the foundry. These were exhibited in a unique manner, with many original maxims, jests and sentimentalisms. This periodical was edited by him for thirty years, when he transferred the pleasing labor to his son, William Brasher MacKellar. He afterward issued "The American Printer," which has reached its eighteenth edition.

Of his genius as a poet we have as yet made but slight mention. In the rare leisure intervals afforded by an exacting business, on walking home to dinner, or in a quiet evening home, the poetical spark which in his younger days he was forced to hold in abeyance, now, as he gained in years and position, burst into flame, and his heart gave utterance to the eloquence of poetry. His first piece, "The Sleeping Wife," was published in the "Public Ledger," and was written while he was yet unmarried.

He possesses the great merit of never straining after effect, but writes from the impulse of poetical emotions rather than from the less ennobling incitements of merely literary ambition. His poems have a spirit profoundly religious, and their expression is pleasingly natural.

He also wrote the Memorial Ode read upon the occasion of the unveiling of the Soldiers' Monument, at Market Square, Germantown, July 4th, 1883.



The works produced by him, omitting several smaller volumes, were "Rhymes Atween-Times," and "Hymns and Metrical Psalms." Two editions of the former and three of the latter have been printed. Following is a selection from the latter:

Sometimes, in quiet revery,
When day is growing dim,
The heart is singing silently
A sweet unwritten hymn.

The strains are not to measure wrought
By cunning of the mind,
But seem like hymning angels brought
From heaven, and left behind.

The misty hills of bygone grief,
Once dark to look upon,
Stand out like blessings in relief
Against the setting sun.

The rain may fall, the wind may blow,
The soul unhindered sings,
While, like the bird 'neath sheltering bough,
She sits with folded wings—

A brief and pleasant resting space,
A glance at Beulah land,
Before she girds herself apace
For work that waits the hand.

Then, giving thanks to Him who pour'd
Refreshment in her cup,
She hears the calling of her Lord
And takes her labor up.

Mr. MacKellar was married in 1834, and became a member of the old Pine Street Church. About twelve years after he was ordained an Elder. He was also, in latter years, elected an Elder in the First Presbyterian Church of Germantown, and served for many years as President of its Board of Trustees.

The high respect and estimation felt for Mr. MacKellar by the employees of the foundry was evidenced, in 1883, in the elegant token presented to him by them on the occasion of the celebration of the fiftieth anniversary of his connection with the estab-

lishment. The gift was a superb silver vase, some twenty inches in height by eight inches in diameter. It is of Etruscan amphora form, and executed in the highest style of workmanship. It contains many features of interest, and is symbolic of the art of type making and printing. An excellent vignette of the recipient appears on it. This mark of esteem was the result of a spontaneous action on the part of the donors.

Apart from his business, Mr. MacKellar has taken quite an active interest in several organizations. He has been a Director of several insurance and trust companies. Until recently he was President of the Philadelphia Book Trade Association. He was President of the Type Founders' Association of the United States. He is also a member of the Historical Society, the Academy of Natural Sciences, and other organizations.



In the conduct of his life he was governed by several important principles. The first was, Never to buy anything till he could pay cash for it; the second was, Not to buy anything that was not indispensable; the third was, To lay aside something every week, even if it were but a half dollar. These principles he adhered to for years, till his circumstances rendered their observance unnecessary; but withal he never withheld a hand of charity. When, in 1845, he was allowed an interest in the business, the first principle was adopted by the new firm, and cash was always paid for material bought and for services rendered. This custom has continued to characterize the house.

The honorary degree of Doctor of Philosophy was conferred on him some years ago by the Wooster University of Ohio.

The head of the banking interests of the house, from the year 1860 until he passed to his final rest, was John F. Smith, eldest son of George F. Smith, the former partner of Lawrence Johnson.

Mr. Smith was born in Philadelphia, January 20, 1815. His father was a skilled mechanic and an experienced mould maker, and was connected with the concern when under the control of the Ronaldsons.

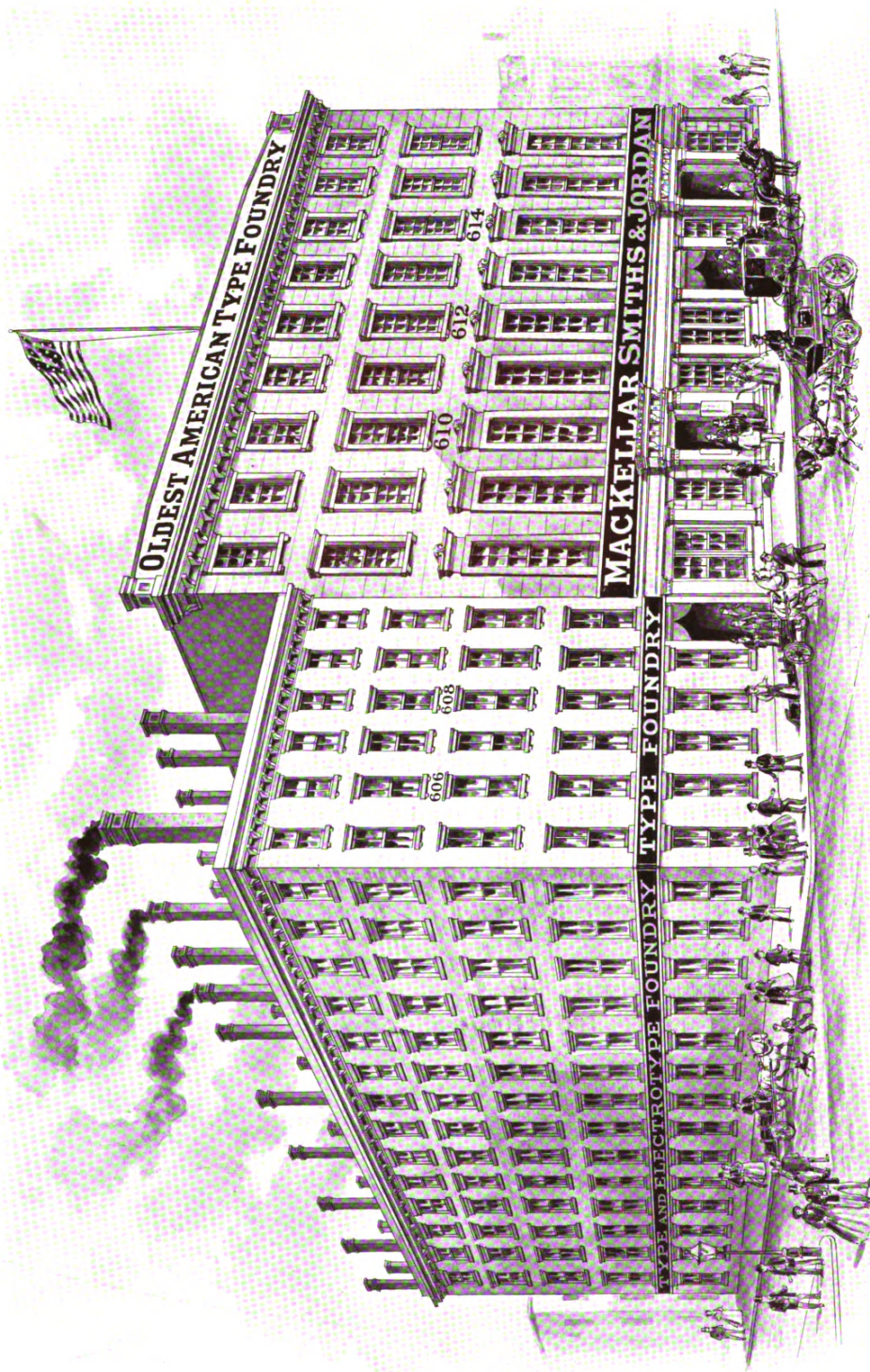
He was first employed in one of the leading mercantile houses of Philadelphia, where he acquired his early business knowledge. After remaining there for a period of some years he entered the foundry during the proprietorship of Richard Ronaldson.

In conclusion, we can do no better than quote the late words of a contemporary: "It is worth while to make much of such a man, and to hold up the history of his successful career as an example such as in these days is all too rare."

In 1845 he married Elizabeth W. Monroe, who died in April, 1885, leaving a son and daughter, who still survive. The memory of his wife has been highly honored by numerous acts of benevolence upon his part.

In connection with the financial position occupied by him, for many years he had charge of the extensive warerooms of the Company. In his business habits he was correct and methodical. He was thoroughly systematic, not only in the conduct of his private affairs, but also in all his transactions in connection with the positions held by him. While fully capable of enjoying all the advantages that could be offered in life, he was not in any respect ostentatious. His life showed marked evidence of carefulness and frugality, without meanness in living. He was domestic in character, universally gentlemanly in his deportment, sincere in his friendships, and outspoken in his views.

He attended to the banking interests of the concern during his entire connection with it with remarkable fidelity. After the formation of the Company into a corporation, in 1885, he served as its Treasurer with the same unswerving zeal.



THE MACKELLAR, SMITHS & JORDAN FOUNDRY, WITH VIEW OF THE OLD SWANWICK STREET BUILDING

Mr. Smith was a prominent member of the Union League, and also a Director of the National Bank of the Republic, being also connected in various capacities with numerous other organizations.

In the twilight of his life he showed his judgment and good sense in distributing a large portion of his fortune through various channels, which, during the remainder of his days, he could see was properly applied. Many of the leading Hospitals and Homes of Philadelphia have felt the touch of his gentle hand. His benevolence was not confined in this direction. Ample provision was also made by him for his own kinship. The gift of the beautiful steamship, the Elizabeth W. Smith, to the Sanitarium was a noble and trustworthy deed. This meant giving the pure air of heaven to thousands of the poor and homeless children of his native place.

Mr. Smith died at his home in this city November 1, 1889. It is no more than fitting that the following resolutions, passed as a tribute to his memory by the Type Founders' Association of the United States, should be here presented:

WHEREAS, Under the will of that Providence to whose ways we must all submit, our fellow-craftsman and business associate, Mr. John F. Smith, of Philadelphia, has been removed from our midst by death.

Resolved, That in the passing away of Mr. John F. Smith the type-founders of this country have lost a faithful friend and an honorable business associate, and the needy of his city a philanthropic and cheerful giver.

Resolved, That in our estimation Mr. Smith's life-work is one we can honestly urge upon our associates for thoughtful consideration and emulation.

Resolved, That the Type Founders' Association extends its sympathy to the bereaved family and long-time partners of its deceased member.

Resolved, That these resolutions be entered upon the records of this Association, and that two copies be engrossed for the family and for the house with which he was so long and honorably connected.

Memory at times brings to us pleasant remembrances. The closing career of John F. Smith will always linger as a halo of recollection among his friends.

Mr. Richard Smith was born in Philadelphia in the year 1821. He also was a son of George F. Smith. As a young man he had a liking for machinery, so he was placed in the mechanical department of the foundry. He spent several years in Europe studying the methods and systems of manufacture of some of the principal type foundries. After the retirement of his father he was given an interest in the business by Mr. Johnson, and assumed entire charge of its manufacturing interests. Mr. Smith was a close and attentive worker, and became proficient in the art of type founding. He was an active promoter of all that tended to the advancement of his calling and also of typography. He lived during the period of their great advancement. With the aid of his partners the foundry was raised to a degree of importance unequalled in this country or in the world.

Most of his fortune was willed to his native city for the erection of a colossal arch to perpetuate his memory. He also bequeathed five thousand dollars each to the Typographical Union, No. 2, and the Typographical Society, both of Philadelphia. He died in Paris, September 8, 1894. His remains were brought to his native city and entombed in Laurel Hill Cemetery.

The fourth of the honored quartet of MacKellar, Smiths & Jordan was their esteemed friend and partner, Mr. Peter A. Jordan. He was born in Philadelphia, May 30, 1822. His early commercial training was in two of the leading business houses of his native city.

In the year 1854 he entered the service of L. Johnson & Co. as bookkeeper. With a thorough training and a large share of natural talent he was eminently fitted later to assume the responsibilities of correspondent. In this respect he possessed the ability and happy faculty of adapting his commercial knowledge to meet the requirements and necessities of every demand.

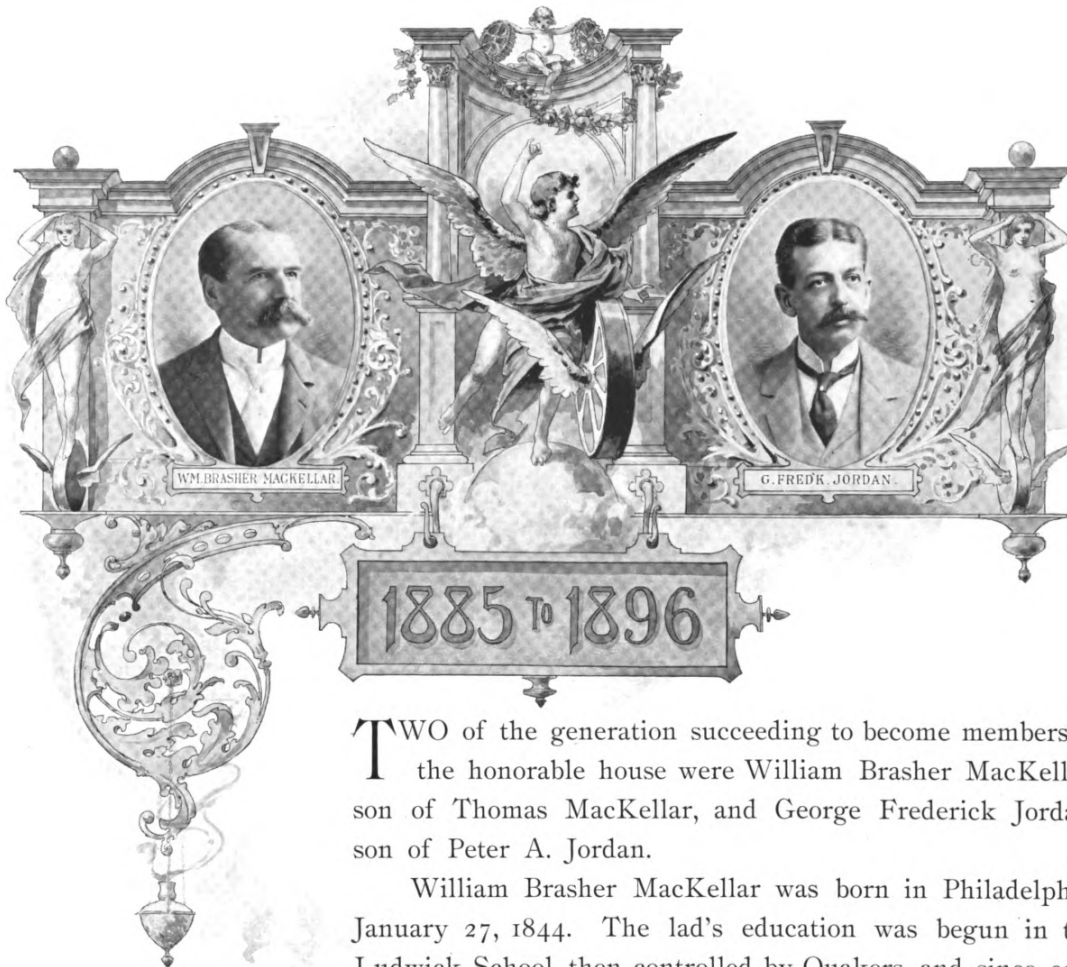
After the death of Mr. Johnson, in 1860, he became an associate partner with Mr. MacKellar and the two Smiths. He possessed a fine business capacity for the mercantile department of the foundry, and his tact and judgment in managing the credits of the concern were extensive factors in its financial success.

He devoted care and industry to every feature of the business, in his sphere, that would add to its prosperity and advancement. A number of the most striking and artistic type designs that made the Company famous may be attributed to his good taste and delicate conception. He was distinguished for his literary culture and his strong predilection for rare and handsome books and works of art. In poesy he never made his light conspicuous, though having considerable skill in versification and in the expression of heartfelt sentiment.

Mr. Jordan married Miss Adelaide Linton, a daughter of Mr. John Linton, a highly respectable tobacco merchant of Philadelphia, by whom he had one son, George Frederick, now the Manager of the Manufacturing Department of the foundry.

He was an Elder in the Buttonwood Street Presbyterian Church, and later in the North Broad Street Presbyterian Church. He took an interest in the historical and art associations of the city.

He was courteous in his deportment, and was a devoted and affectionate husband. This trait was strikingly evinced by his patient and unwearied kindness and attention to his wife during the long illness which resulted in her death at Denver, Col., in April, 1882. This loss he felt deeply, and his former vivacious and happy disposition did not possess him. He died March 25, 1884, leaving a vacancy in the establishment, following his successful career, which was difficult to fill.



TWO of the generation succeeding to become members of the honorable house were William Brasher MacKellar, son of Thomas MacKellar, and George Frederick Jordan, son of Peter A. Jordan.

William Brasher MacKellar was born in Philadelphia, January 27, 1844. The lad's education was begun in the Ludwick School, then controlled by Quakers, and since converted into lawyers' offices. In 1858 he entered the Central High School from the Livingston Grammar School.

When sixteen years of age he was taken into the type foundry of MacKellar, Smiths & Jordan, on Sansom Street, with which his father had been connected since 1833, for a course of practical training in the complex branches of the business. He entered upon this work with a fixed determination to succeed, and he carried that determination with him throughout his earlier years. In his nineteenth year he had been advanced to the position of foreman of one of the departments devoted to the preparation of the elaborate specimens of the productions of the foundry. He acquired not only a knowledge of type founding but also of type setting, and was therefore prepared to thoroughly acquaint himself with the financial and commercial branches

of the business. He remained at the books for several years, obtaining an efficient insight into the commercial character and standing of the many patrons of the house.

He became the Secretary of the MacKellar, Smiths & Jordan Company at its formation into a corporation, in 1885, and was one of its principal stockholders. He assumed control of the commercial portion of the business of the Company as well as of the credits, and, in addition to the work of an advisory and supervisory character, edited the "Typographic Advertiser," the trade paper of the house. He also edited its specimen books, the most elegant examples of printing extant.

He received a musical education, and was a vocal pupil of Signor Barili. For many years he was Organist of the Trinity Lutheran Church, of Germantown, the organ there having been built under his supervision. He has performed on some of the largest organs in the world, and when on a temporary stay in San Francisco was Organist of the Metropolitan Temple.

From his younger days much of Mr. MacKellar's time has been spent in working among the poor of his native city. He is President of the Bedford Street Mission, the most complete organization probably of its kind in the world. He was Secretary of the Type Founders' Association of the United States, and has been Treasurer of the Typothetæ of Philadelphia since its formation. He is a member of the Colonial Society of Pennsylvania, the Manufacturers' Club, and the Typographical Society of Philadelphia. He is also a member of the Philadelphia Consistory, Scottish Rite, of the Mystic Shrine, and of the Masonic Veterans of Pennsylvania.

He introduced to the notice of the printing fraternity a new system for the measurement of type composition, substituting the letter m in place of the em quad as a unit of measure.

Mr. MacKellar assisted in raising the funds and selecting the library presented to the Childs-Drexel Home for Printers, in Colorado.

At the formation of the American Type Founders' Company he was its first Vice-President. He is now a Manager in the Company and one of its Directors.

George Frederick Jordan, son of Peter A. Jordan, was born in Philadelphia, August 31, 1850. He received his early education in the public schools, finally graduating from the Friends' Central High School. In 1867 he entered the employ of MacKellar, Smiths & Jordan, and was given a position in the warerooms. By close attention to business he soon gained control of one of the leading selling departments, which he managed with ability and skill, gaining the good will of the many patrons of the house.

Upon the formation of the MacKellar, Smiths & Jordan Company, in 1885, he became a large stockholder, and on the retirement of Mr. Richard Smith from active duties he became its Vice-President.

Many of the mechanical improvements and labor-saving devices introduced in recent years in the foundry are in a great measure due to Mr. Jordan's skill and general knowledge of the requirements of the business.

Mr. Jordan was instrumental in introducing the Automatic Type-Casting Machine into this foundry, and under his personal supervision a large number of these machines have been constructed in the extensive machine shops connected with the establishment.

In 1892, upon the incorporation of the American Type Founders' Company, he was made a Director of the Company, a member of its Executive and Finance Committee, and Manager of the Manufacturing Department of the Philadelphia Branch, which positions he still retains.

Mr. Jordan is a steady, thoughtful and conscientious worker, and is always interested in the increasing success of the business. He has inherited his father's instincts for the love of finely-printed books and works of art. He is an active member of several of the leading clubs and societies of Philadelphia.

Carl Friederich Huch was born in the city of Brunswick, Germany, on the 5th of September, 1830. When fourteen years old he moved with his parents to a village where his father had charge of a custom house, and finished there, at the boarding school of a Lutheran minister, his school education, which included, besides the ordinary subjects, Latin, French and mathematics.

Anxious to learn a trade, he returned to Brunswick, in 1846, and served two years as an apprentice in a printing office. Not feeling satisfied with his occupation, he entered, in 1848, the college in Brunswick to study mechanical engineering. He took great interest in the German Revolution of 1848, during which he became imbued with republican principles, and served in the company of the People's Guard formed by the Collegians and Turners. After its failure he considered America the land of promise, and concluded to make it his future home. He therefore left Bremen in a sailing vessel, and arrived in Philadelphia on the 6th of November, 1850, the first of his family. His parents and sisters followed him a few years afterwards.

Being without means and unable to find employment in the line of his college studies, he accepted, a few weeks after his arrival, in answer to an advertisement in



the "Public Ledger," a position as compositor in an English newspaper office, and continued to work as a printer for several years in New York, Norfolk, Cincinnati, and again in Philadelphia, in King & Baird's office, on Sansom Street. In January, 1854, he became a clerk in the wareroom of the type foundry of L. Johnson & Co.

In 1856 he was appointed Bookkeeper and Cashier, and continued in this position under the firm of MacKellar, Smiths & Jordan. After the death of Mr. Peter A. Jordan, when the remaining partners secured a charter for the formation of a stock company, he became one of its incorporators and directors, and at the death of Mr. John F. Smith he was elected Treasurer of the Company, which office he still holds. He was an accurate accountant, and was always greatly interested in the financial success of the Company.

Outside of his business he was very active in German singing and liberal societies, and always took much interest in the game of chess. He helped to found the Republican party among the Germans of Philadelphia.

In 1873 he married Miss Anna Creutz, a native of Philadelphia, and has a daughter and three sons. When the foundry was transferred to the American Type Founders' Company, in November, 1892, he retired from business, and resides during the summer on his farm in Sullivan County, Pennsylvania.





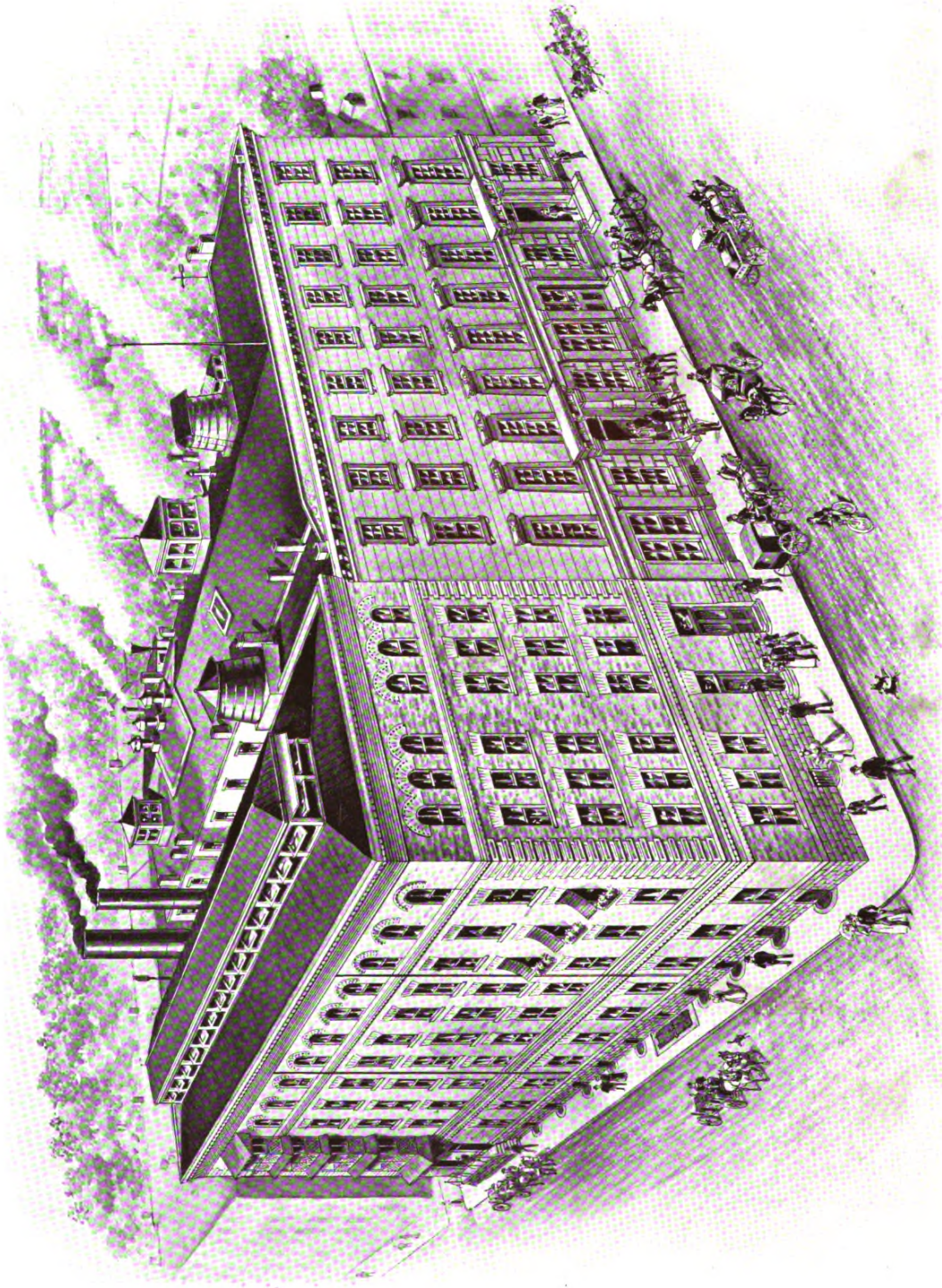
Viewing the Foundry

WITHOUT typography the history of the world would not be what it is. It was once said that if Cleopatra's nose had been an inch shorter, the whole face of the world would have been changed. So it may be said that had it not been for types

and type-making the affairs of the world would be very different from the manner we know them.

This idea strikingly suggests itself in a walk through the foundry, in which it is apparent that the progress of so many of the industrial arts and sciences has been utilized and placed under contribution to bring about the result of making one little metal type. The art of printing has itself, perhaps more than any other one influence, helped and encouraged and led to the advancement of the arts and sciences, which in turn, as even the most casual view of the extensive foundry shows, are called upon to aid in perfecting and fostering modern type-making.

On the third floor of the new building, situated for convenience near the centre of the busiest operations, is the office of G. Frederick Jordan, Manufacturing Manager, which is tastefully and conveniently fitted up with a view of dealing quickly with all the technicalities involved in the manufacture of type. It is in telephonic communication with the various parts of the great establishment, which, covering so much area, and with intricate machinery extending from the powerful engines and great cauldrons in the basement to the human-like type-fashioners on the upper floors, is a veritable little world in itself.



BIRDS-EYE VIEW OF THE MACKELLAR, SMITHS & JORDAN FOUNDRY, PHILADELPHIA

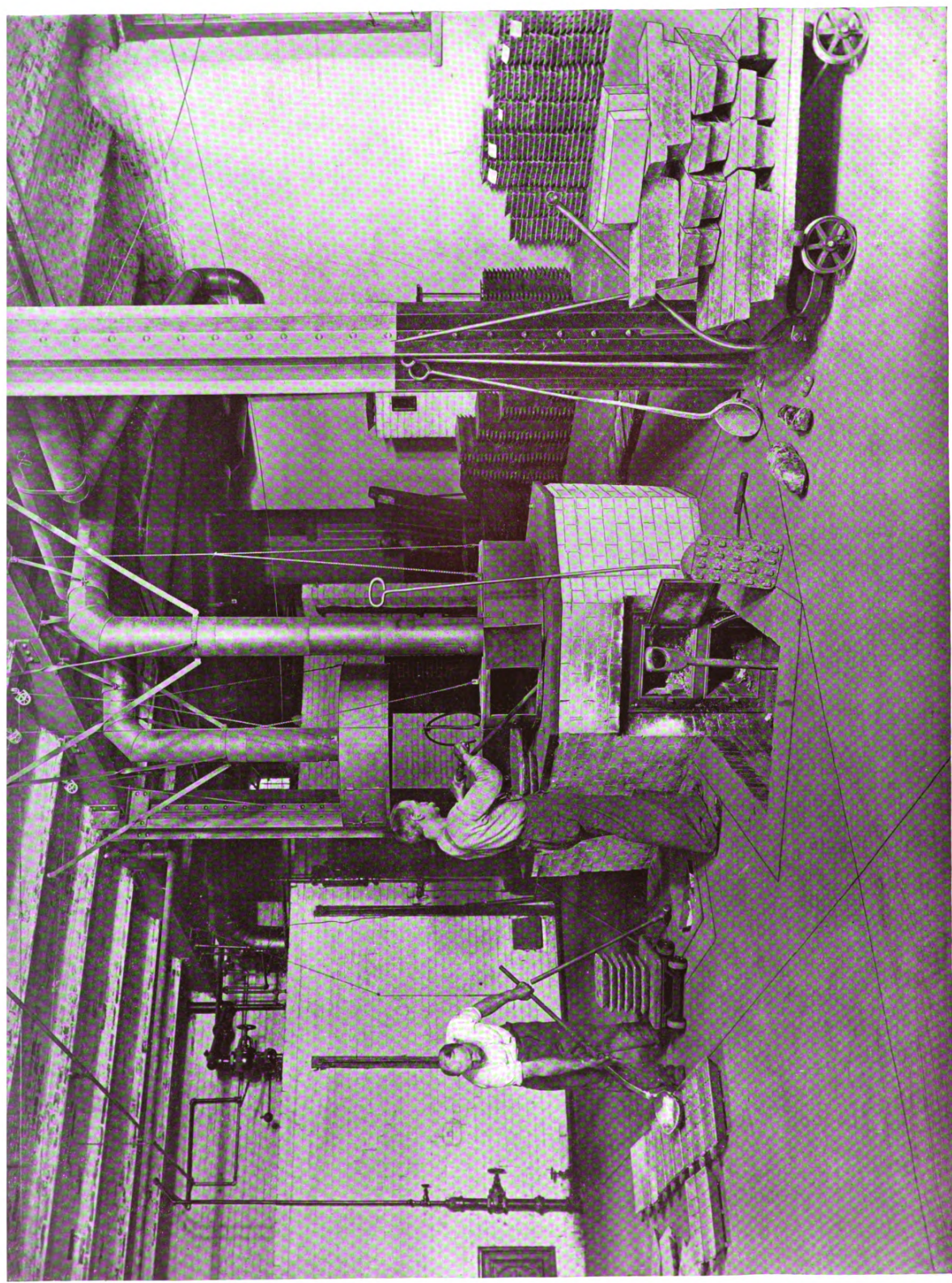


Among the many interesting objects in this office are the various diplomas for excellence in type-making, received by the foundry from this and foreign countries, including the Centennial Award, in 1876; that of the American Exhibition in London, in 1877; the Silver Medal at Paris, in 1878; the Silver Medal at Melbourne, Australia, in 1881; the Award at New Orleans, in 1885; the Gold Medal at Paris, in 1889; the Gold Medal at the International Exhibition at Jamaica, in 1891; and the Diplomas and Medals awarded at the Columbian Exposition, Chicago, 1893.

MIXING THE METALS.

One-half the entire space below the street, is devoted to the amalgamation of the various metals used in casting type. It is a spacious place, and unusually large quantities of lead, tin, antimony and copper, not yet fused or combined, may be seen there.

The importance of lead in the type foundry of to-day, and the enormous quantities required, cannot easily be estimated. It is what gives ductility and malleability to the metal composition intended for type purposes, just as antimony gives the hardness.



METAL-MIXING DEPARTMENT

Tin, on the other hand—that commodity which has caused so much economic discussion on political platforms—is what gives toughness. It enters largely into type-making, and large quantities of it are used. Among industrial metals it is the least acted on by air and water, and acid has but little effect upon it. Its sensitiveness to heat makes it easy to combine, but it cannot be used in large proportions in type owing to the effect of cold upon it. In Russia, bars of the metal have been known to break into small particles during very cold winter temperature.

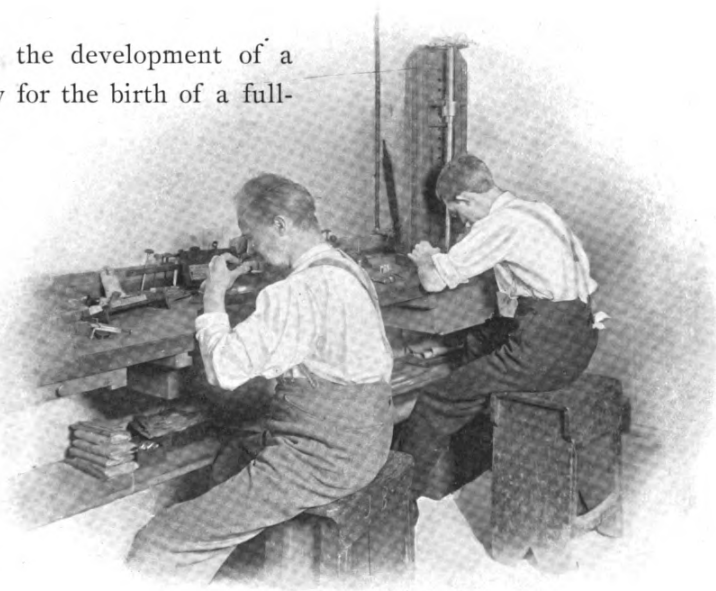
Antimony is very largely used on account of its intense hardness and the fact that it does not rust, which give it its chief value in the useful arts, especially in type founding. This establishment has had for many years the reputation of being the largest consumer of this metal in the United States.

Copper, the first of metals employed by man in either the warlike or the peaceful arts, and which like gold is found in but few places, is used to add increased toughness and hardness to the composition.

The formulas for mixing the different metals vary according to the character and size of type, and the overseer in charge of the department is an expert. A great portion of the science of metallurgy may be seen illustrated in the metal vault, where two pots or cauldrons over furnaces are almost constantly full of molten metal. The fumes from the molten metal in the cauldrons are carried off by large pipes connected with a chimney specially constructed for that purpose. The metal vault is the most complete and thoroughly equipped in the United States, and a larger supply of the various kinds of metals used is kept in stock there than in any other type foundry.

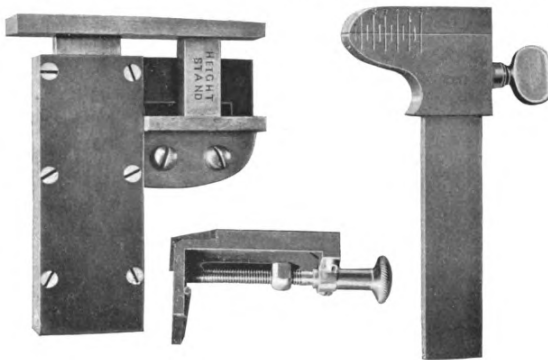
MAKING THE MATRIX.

Equal almost to the stages in the development of a butterfly are the processes necessary for the birth of a full-fledged type. Long before the casting, the matrices, which give the type its face, have to be constructed, every part true to a fineness alongside of which a hair's breadth is bulky; and the very tools by which the matrix is formed have to be made also, each after its own plan and design, according to the style and character of the letter desired. It requires patience, artistic skill, and the most minute attention to



details to do this. To cut the punch or steel letter, for instance, not only requires an operator who is an engraver, and has a complete knowledge of the proportion and relation one printed letter should bear to another, but the steel has to be of the finest quality. The steel is first annealed to make it workable, and then, in order to overcome the resistance of driving it into the piece of copper forming the unfinished matrix, it has to be retempered. The operation of punch-cutting and of building-up and fitting the matrices is as fascinating as anything in the foundry, and to see a man cutting a punch and driving it into other metal, and examining and measuring and correcting the impression, it looks as if everything else depended upon the success of this operation—which, as a fact, it does.

Around the bench where the punch-cutter works are scattered magnifying lenses and delicate tools and instruments made to measure even the ten-thousandth part of an inch.



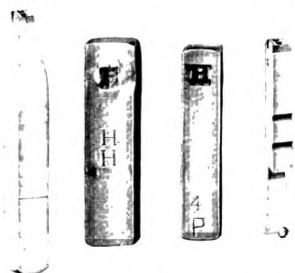
Quite as delicate in the care required as in making the movement or “insides” of a watch is the operation of preparing the matrix or oblong rectangular piece of copper which gives the form of the letter to the face of the metal type in the mould. It requires a series of experienced and specially trained operators, and some very ingenious and finely-adapted machinery, to bring into existence one little speck of type—for it is not a thing that can be made haphazard—and every point and part and proportion has to be as carefully studied in advance as the adjustment of a telescope to catch some eclipse or stellar phenomenon.



Three different methods are followed in the making of matrices. In one, the most ordinary method, a slab of flawless copper, with a very highly-burnished surface, is fixed in a block, and by means of a sharp blow the steel punch is driven in, leaving its impression behind it. This drive, as it is called, when the burr caused by the displacement of the copper is smoothed away and the impression mathematically tested by instruments, becomes the matrix in which the letter of the type is to be

formed. From that little thing may come the figure which in stock quotations may announce the wreck of a fortune or the letter which, by a typographical blunder, may ruin a young poet's reputation.

Most every one in reading has noticed a peculiarly sharp outline about script and italicized letters which makes its impression upon the eye in print. That is because



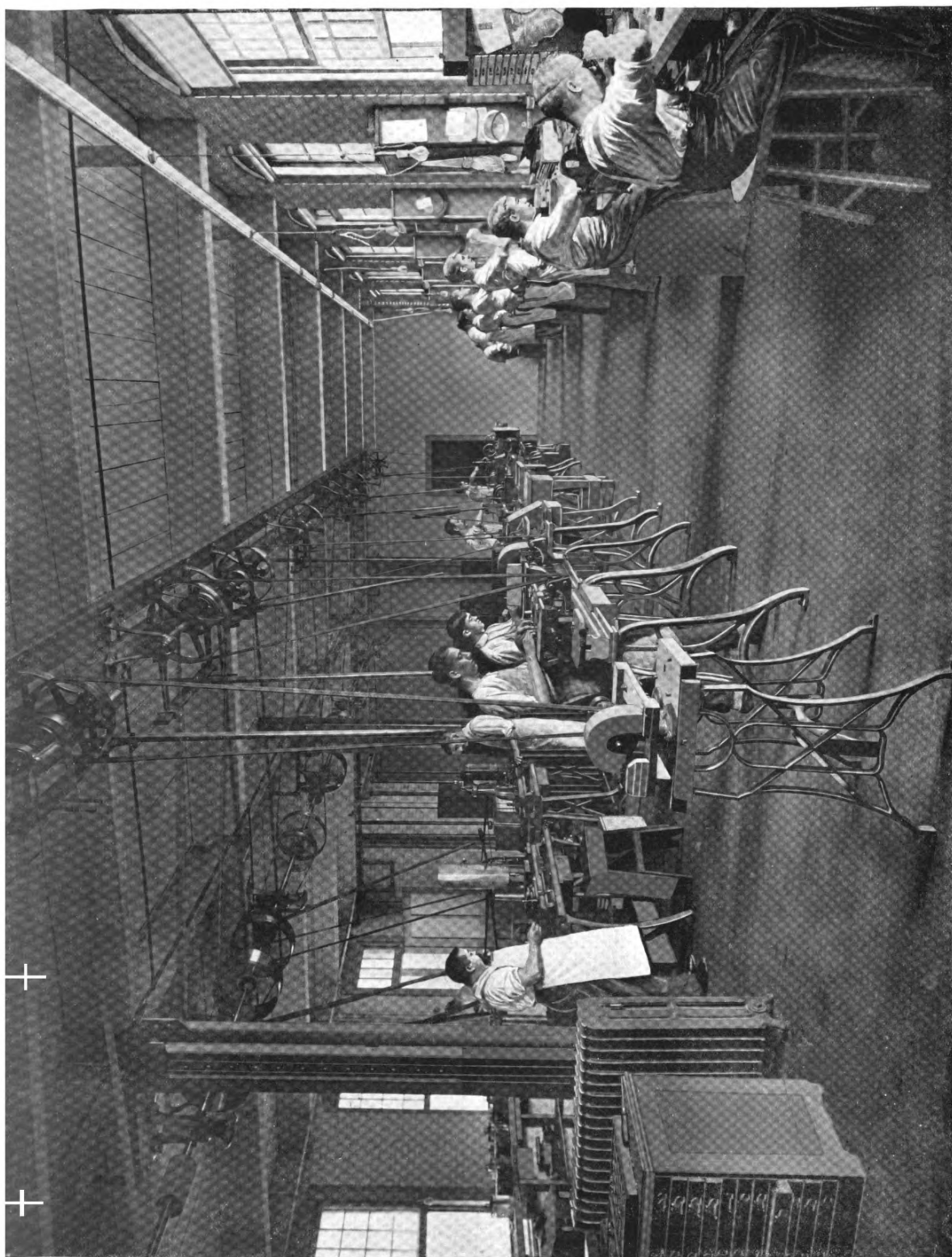
most of these, like Roman and other body type, are cast from matrices made with the punches which are cut on steel in the manner described. Few large-faced type, however, are made from such matrices.

Strange to say, it is by the electrotpe process that some of the most satisfactory and uniform matrices are produced, and it has the additional advantage that whole fonts, including ornaments and everything, can be made at once, or small quantities of different letters be turned out quickly and with ease. Nevertheless quite as much care is required in the preparatory stages of this process of matrix-making as in punch-cutting, though in this no punch is used. Pieces of a metal softer than that of which type are made (which would be too brittle) have the letters cut on them very sharp and clear, and these specially engraved type or ornaments, or whatever they may be, have the letter or figure on them reproduced in the battery, the action of which causes copper to be deposited around the face of the type in the holes of the brass plates, of which there is one for every figure, letter, or point, to be made. The portions of the plates not intended to be exposed to the action of the battery are covered with wax before they are put in. Matrices can be made this way in the battery now by an improved process in a few days.

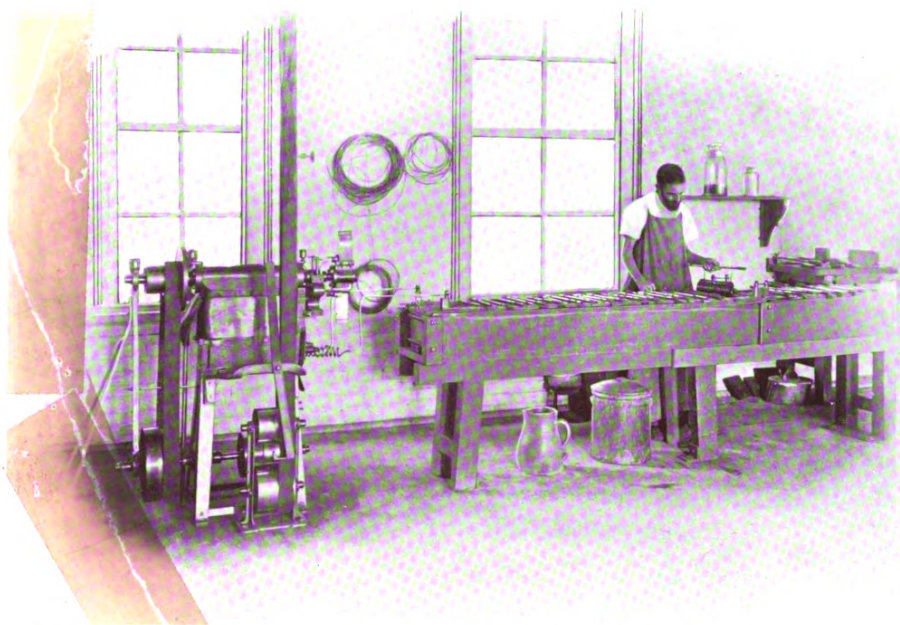


When the metal letter types are withdrawn from the plates their images appear imbedded in copper, and this, when filed and attached to a brass plate, becomes in its turn a matrix ready to reproduce type after its fashion and proportions. when it has been finished, though the finishing requires some expensive machinery, and also dexterity on the part of the fitter.

Like the dies or stamps for coin in the Mint, it is the matrices that give the type its character and accuracy and face value, and it is not surprising that they are

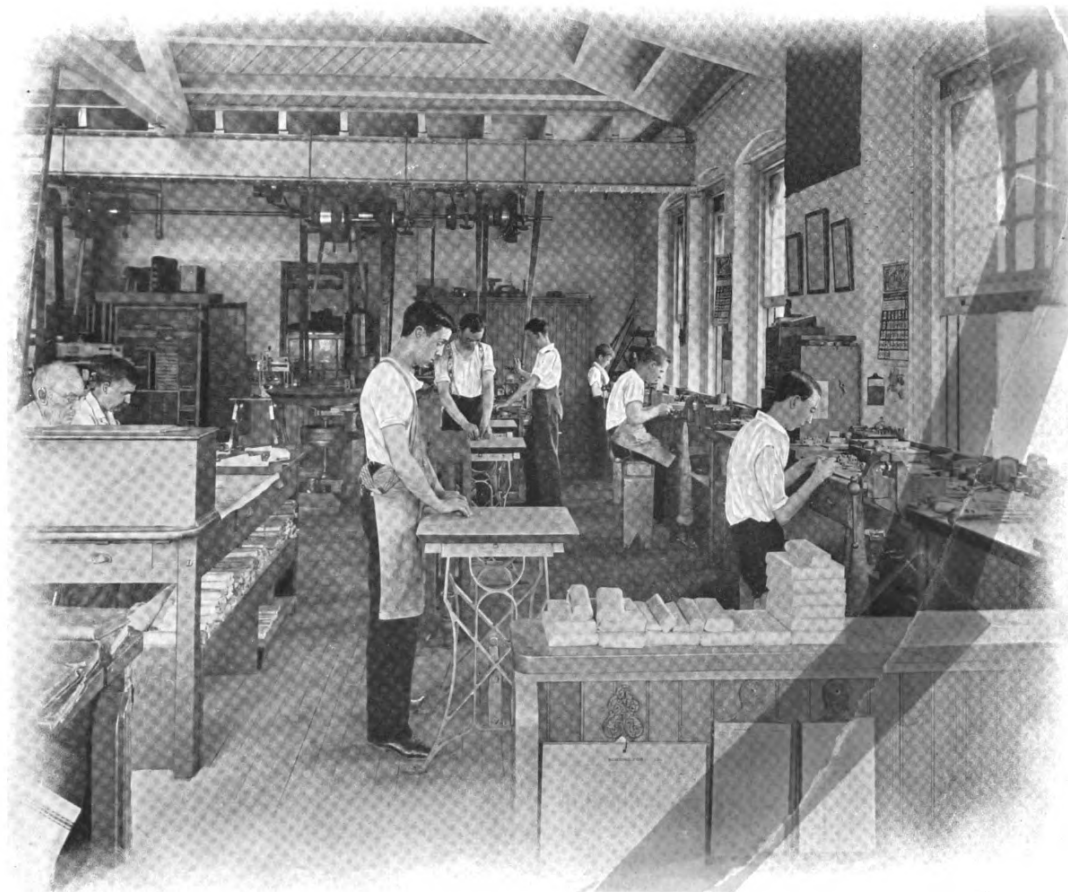


MATRIX-MAKING DEPARTMENT



carefully preserved and locked in vaults as among the most precious possessions of the establishment. In number they reach into the hundreds of thousands, and have been accumulating since the place was founded, some of them growing even more valuable as relics of the past printing age than for practical use in this busy epoch, with its own distinctive, if varied, typography. Among them are matrices from which came the first type ever made in Philadelphia. There are matrices which have furnished the type from which famous books have been printed—volumes that stirred the world of thought in their day. Here laid away like mummies of Egyptian sages, or the ghostly remains of Westminster's celebrities, are the forms that have stirred the literature of their times, and from which have emanated Bibles, great dictionaries, school text-books, early family almanacs, and such works as Macaulay's History of England, Thiers' Napoleon, Allibone's Authors and Dr. Kane's Explorations. Indeed, it has been asserted by a writer who saw the collection of matrices (the insured value of which is greater than that of almost any building given over to purely industrial purposes), that they form a complete record of the changes, improvements, and progress of typography, in America during the last hundred years.





MAKING TYPE-MOULDS.

Very important in the process of making a type—in fact, next to the matrix—is the mould in which the type is formed. These moulds are all made in the establishment, require the constant attention of skilled workmen, and are made of the very finest steel. Owing to the extreme variations of temperature to which they are subjected, allowance to a great nicety must be made for this in their construction.

The old hand-mould, used in casting type for a hundred years, consisted simply of two pieces of steel set between wooden blocks with the matrix inside. It is practically obsolete. If any one doubts the extent of the improvement made in the mould as to results, all they have to do is to compare some book or magazine printed even as late as the forties with the artistic publications of to-day.

At the first glance it would seem that there is comparatively little difference between the primitive device for casting type and that now in use. In reality the mould now used has been made not only more durable and reliable, but is fashioned

with great care, and devised on studied mathematical principles. Improvements in the processes of hardening steel, a better understanding of fused metals and their combination, and the skill and experience resulting from a century of activity and invention in one particular branch connected with the business, are all very important factors that enter into the advance made in recent years in producing type-moulds capable of turning out the finest and most accurate type.

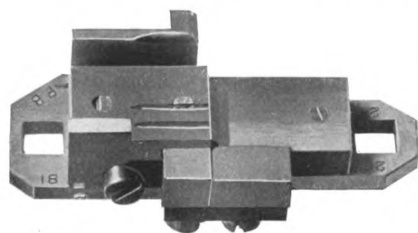
Whatever improvement in type there has been made in four hundred years, and that is a very long time, is more than anything else the result of improvement in the mould. It is apparent, for instance, that a finely-made mould, as nearly perfect in all its parts as it is possible to make it, and upon which a great deal of time has been expended, will turn out better and more uniform type even than if each individual type was made by hand, as they were in the infancy of the printing art.

The moulds used in this foundry in casting most of the type on the hand and steam casting machines are made of the finest steel, ground so as to be perfectly accurate in all their parts. Usually there are twelve or thirteen pieces of steel in a mould, all fastened together very solidly, but so arranged that they can be adjusted very readily by steel screws of a special make. This construction, when put together, is as smooth and slippery as silk, so fine is it finished. As to size, it can be held in the hollow of a man's hand, and weighs about a pound, though there are moulds intended for much larger type that weigh nearly three times as much. The parts are made from templets of hardened steel, all so exactly alike in their construction that the part of one mould, when necessary, can be transferred to another.

Every one of these parts is ground to a standard shape and size on laps of lead, tin and emery. The grinding is the most particular part of the operation, and is done entirely by hand. As this work progresses the pieces are constantly gauged by the workman in order to get them true to the standard. Every bit and particle of steel that enters into the mould has, of course, to be carefully hardened and tempered, as in the process of casting the type it has to undergo great heat and quick change of temperature in cooling, and the slightest variation in the mould would make imperfect type. All the filing, drilling and grinding of the parts composing the mould are done in the establishment, as it is absolutely necessary that the oversight, manipulation and fashioning of every part should be in the same experienced hands by which it is put together. If every part of the mould is not exactly right, it will cast a wing or burr on the type, or cause some other blemish that will condemn it.

One of the important functions of the mould, in casting the type, is making the nicks. These are cut in the steel and ground with emery to the required standard, shape and size. It is a most difficult task to fit the nick or nicks into the groove in the body of the mould, so as to prevent a burr being cast upon the type at that

point—for, although a mould might be perfect in every other respect, if there was the slightest flaw or irregularity in cutting the nick-grooves, the type that would be turned out, while otherwise accurate, would have a burr on the nick. Even some very slight inaccuracy somewhere else in the mould might not materially affect the type, but the nick must be accurate, for its smoothness and correctness are of primary importance to the compositor who handles the type in setting it up. It takes an expert an hour to make and fit a single nick in a mould, and some moulds have as many as four nicks.

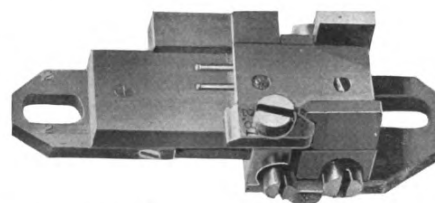


In every mould a piece of stout steel wire is placed in a drilled hole in the upper body, which must be a perfect fit and point, otherwise the mould is useless. This pin-mark is used for discharging the type out of the mould after it is cast. When the upper half of the mould is raised the pin point lifts the type with it.

That part of the mould which forms the jet attached to the type has also to be of the proper size, to insure solidity to the type, and large enough to let the metal get to the matrix and form the letter before it is chilled, face. If the jet is not in the mould will not the type. A particular mould consists in the fix-which regulate and give width to the type. This is done by three screws holding a register which can be adjusted to the standard to keep it true. As a matter of fact, in repeated use and subjected to such extraordinary variations of temperature, one moment full of molten lead and the next chilled, the mould does vary in accuracy, which necessitates frequent testing with the standard matrix.



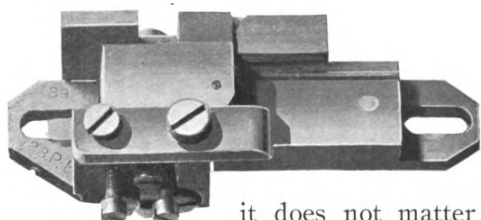
MOULD FOR CASTING ORDINARY TYPE.



But if everything else were accurate about the casting of a type it would all be useless without a perfect alignment of the type. The letter must be so cast on the face of the type, no matter how large or small the body may be, that when any number of types are placed together they will all be in a perfect line. Otherwise they would be zigzag, or up and down like a school-boy's pot-hooks and hangers. This alignment of the letters is secured by a piece of steel ground perfectly flat, and adjusted to a seat on the lower register, and that held by a strong steel screw to prevent any change in the line. A small piece of brass is also inserted, by means of which the line of

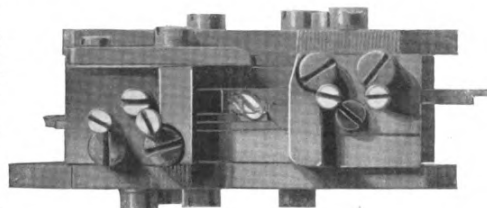
type may be raised or lowered in the casting. This little piece of brass is only one sixty-fourth of an inch in thickness. The importance of this is apparent when it is remembered that type has to be made now, in large quantities, that is distributed and used with type made, perhaps, twenty years ago, and both must line as perfectly as if cast in the same mould.

As to accuracy in all its parts, it is impossible to have a mould too correct.



The more time, care and mathematical precision given to a mould the better the results will be. The body of the type, the height, line and set, have all to be considered and gauged. If the body of the type is not exact,

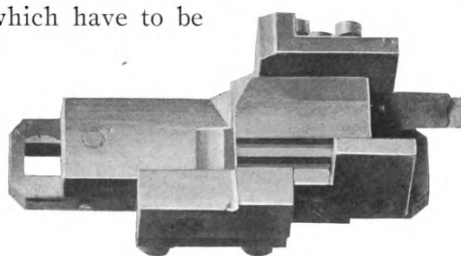
it does not matter how correct the matrix may be, the letter will then be on the end of a piece of metal, but it will not be a type. The variation of one ten-thousandth part of an inch in the gauge of a mould is sufficient to condemn it—which is not surprising when it is considered that through a crevice no larger than a pin-hole a stream of that must resolve itself but eloquent tongue of perfect as it is possible metal to be. Moulds are what are known as opened the reverse of



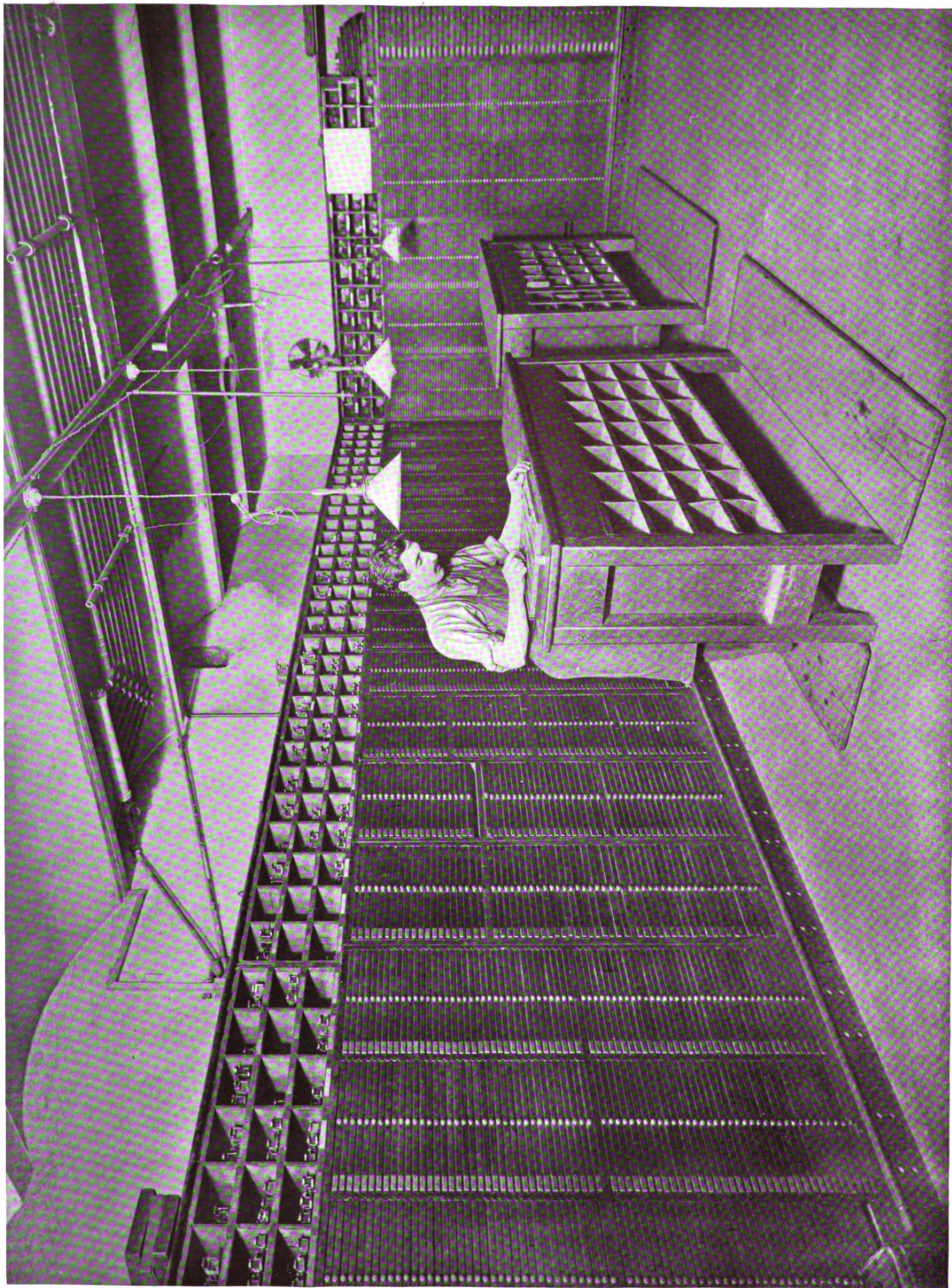
MOULD FOR CASTING SCRIPT TYPE.

This is in order to allow the kern on the flange of the letter to discharge. By the use of adjustable beveled slides, which look like knife-blades, the same moulds also cast characters without kerns. These moulds are much more difficult to make than ordinary type-moulds on account of the slides, which have to be a perfect fit in all respects.

For casting cored type a contrivance is used which is practically a machine as well as a mould. It is so adjustable in its parts that in the casting it forms the mortise in the letter. Thus, for instance, a capital T, instead of hav-

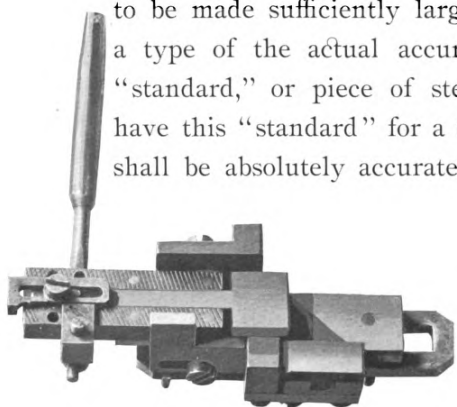


ing a mass of metal on each side as wide or wider than the cross line on top, is cut out, so that the body of the type follows closely the shape of the letter itself. This makes the type lighter in weight, and allows other letters to set close to it. A man can make an ordinary mould in about the same time that it takes to make the cored body alone of this machine. Every part of it has to be gauged to the standard, and the work of construction involves a great deal of mathematical nicety and precision.



FIRE-PROOF VAULT FOR STORING MATRICES AND MOULDS

Every character requires a distinct and separate setting of the core. The mould has to be made sufficiently large in all its parts to allow for the shrinkage, and turn out a type of the actual accurate proportions in every respect. To do this there is a "standard," or piece of steel, the hardest procurable, and every mould made has to have this "standard" for a test or gauge. It is so important that these pieces of steel shall be absolutely accurate that they are kept constantly in about the same temperature, as any material variation of heat or cold, even the heat of the hand, causes them to vary. They are the key to this branch of the business, since no type-mould nor type can be accurately made without them. Every different type body requires a distinct standard of its own.



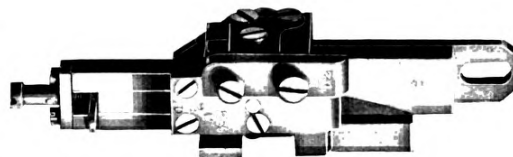
As may be easily imagined, the moulds requiring such care, skill and time to make are very valuable, and are kept in a vault as carefully as if made of gold. This establishment has about one thousand moulds, some of which date back many years. There are moulds, such as those for musical notation, which have been in use for half a century. An average mould can be used continuously for three months, but

after that it requires overhauling and readjustment, or the replacement of some of its most delicate parts. The moulds are numbered, and a register is kept of their birth and history. All repairs are also recorded. Every mould has to be at all times in perfect trim and



MOULD FOR CASTING CORED TYPE.

condition, ready to turn out perfect type. In this way each mould becomes individualized, and has its separate and distinct history. From one may have emanated the type that has gone into a family almanac, a doctor's treatise, a child's school-book, or a great daily newspaper. Another may have contributed to tell the story of a Sunday-school festival, stirred up enthusiasm in a political campaign, or done duty for a theatre poster. Thus the history of every type is locked up in the mould, and it can always reproduce that which it has produced before.



It takes a competent man about a week to make a complete mould, including the work in the rough. The men who do the work are taken as apprentices at sixteen years of age, and do nothing else until they become competent and proficient.

With the old hand-mould a man could cast from two to three thousand types a day. With the mould now used he is able to average about fifty pounds, or forty thousand types a day.



HAND TYPE-CASTING DEPARTMENT

CASTING THE TYPE.

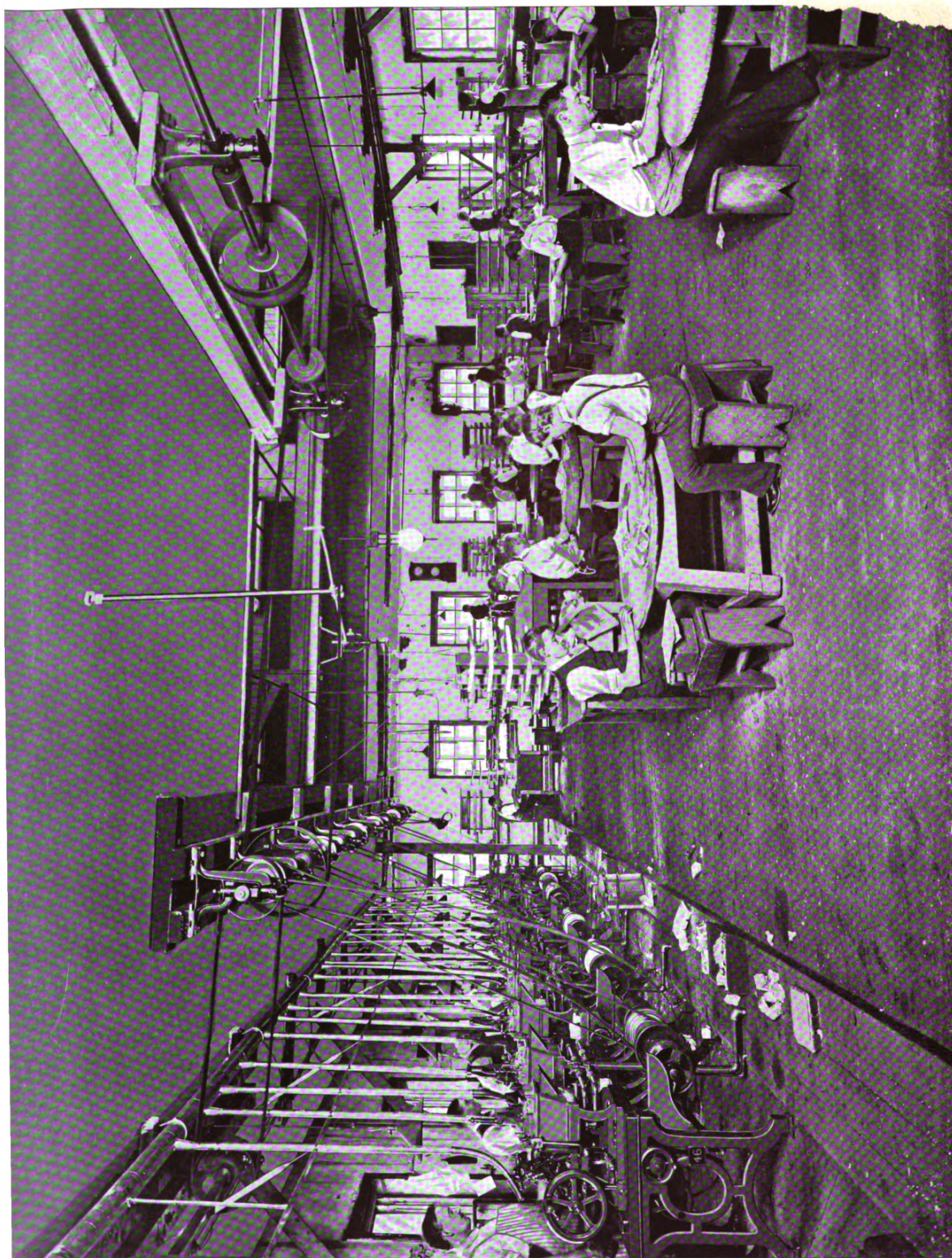
Next to the coining of money, as seen in the mint, there is no process in the manipulation of metals more interesting than the making of type. In a walk through the foundry this strikes the visitor most impressively. There is demonstrated almost at a glance the practical development that has taken place within a comparatively few years in all metal-working processes, but especially in type founding. Even the change from the Conestoga wagon to the mile-a-minute locomotive is not greater nor more surprising than the transformation from the old hand-mould, in which type was cast for so many years, to the perfecting machine which acts automatically and in a second does all the work, even to finishing the type that formerly occupied many hands, and required much labor and extended time.

The ordinary hand-mould is, of course, a thing of the past, and is no longer seen in the establishment, except in the Matrix-Fitting Department, where it is used in the process of fitting.

Each half of the hand-mould screwed together and held in a wooden box was the counterpart of the other. One-half had a ridge to form the nick on the type, and the other half had a spring for holding the matrix in position. The metal, taken from a little kettle, was poured into the opening in the mould in which the spring held the matrix tight. In order to have the molten metal penetrate to the finer parts of the matrix to produce a sharp face, before it cooled, the workman had to give the mould a quick jerk. Of course, in such a process there were many imperfect type. After the mould was opened, hooks which were fastened to its sides were used to discharge the type. This was a slow and tedious process, which could not possibly supply the enormous demand for type nowadays. It seems strange that this primitive method—the same, with little variation, in vogue since the first metal type was cast—should have continued so long; but it was not peculiar to type founding, for in cannon and bell casting, and almost all forms of metal casting, the same primitive and early methods were long preserved.

For ordinary type production this rudimentary process has given way to what is known as the hand-casting machine, which





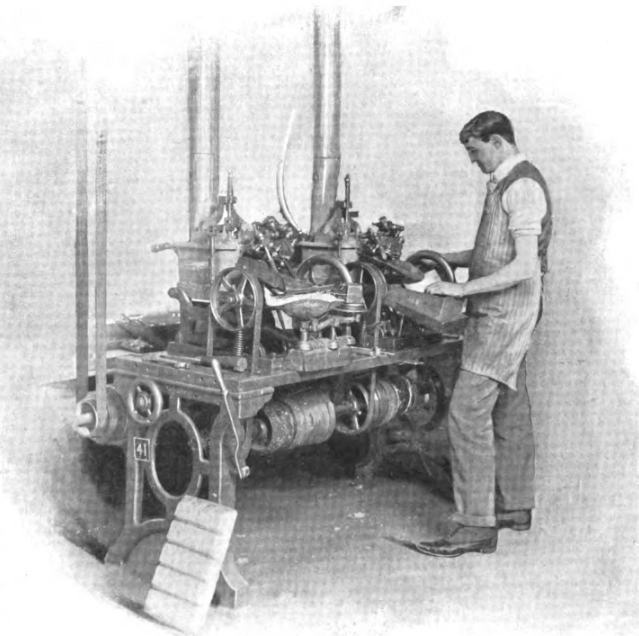
STEAM TYPE-CASTING, RUBBING AND DRESSING DEPARTMENT

requires a skillful and intelligent operator. From two thousand to three thousand letters a day of ordinary body type was a good day's work by hand-mould casting for one man, who now with a casting machine turns out a vastly increased number of better type and with much less labor. The construction of the machine, with its various attachments, is such that a type is cast at every revolution. The larger the type the slower the work, because the metal takes a longer time to set or cool. This difficulty, however, is in a great measure overcome by the use of adjustable pipes, through which currents of cool air are forced directly on the mould, when necessary. The pump in the melting pot over the furnace forces the hot metal into the mould through a nipple. The mould is very much the same as in hand casting, and the matrix is similarly held by a spring and lever. At each revolution of the machine only enough metal is forced into the mould by the pump to fill it. As the mould returns to its position the upper half is raised and the type is released.

There are in the foundry sixty hand-casting machines, and their click and clatter and uniform motion when in operation is only comparable to the rhythmic movement and whirr of the spindles and rattle of the looms in a large woolen or cotton mill. For small orders and job work the hand-casting machine has the advantage over the modern steam-casting machine and the automatic perfecting machine in that it can be handled easier and can be more quickly changed from one body to another. Nothing so far has been devised to take its place for all practical purposes.

It frequently happens that sorts are cast on these machines which in an hour afterward are doing service on a printing press. Some very quick work in this particular line has been done in this foundry.

On the fifth floor of the new building, which is high and well ventilated, with twenty-four windows looking out on two streets, there are, in addition to the sixty hand-casting machines, fourteen steam-casting machines. In these the mould is fastened to the machine by screws and bolts, the matrix in the mould being governed by a spring and lever, and the mould held together by a steel arm, to insure uniformity in the size of the body of the type.



During a day's work of ten hours one of these machines turns out from fifty to one hundred pounds of type, according to the size of the body.

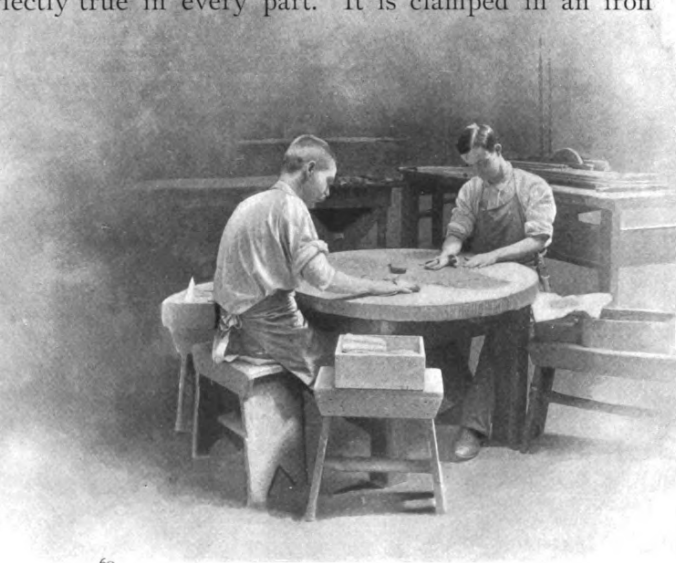
Even the hand-casting and steam-casting machines show the great advance that has been made within the past sixty years, when type was cast by the slow, old process of the hand-mould.

As the fonts are small and the matrices have to be changed frequently, the hand machine is used for casting job type. It requires more time to cast job type of the larger sizes, and the necessary care and slowness make the hand machine the best for this purpose. In the case of body type, the weights of the fonts frequently running into thousands of pounds, the matrices do not have to be changed often, and it is therefore cast mostly by steam machines, two of which are operated by one man with ease, thus doubling the production.

When the type having been cast leaves the mould it is yet in an unfinished condition. The jet or piece of metal attached to the foot of each letter has to be carefully removed, which is done by boys, who are called "breakers." Rubbing the type to remove the burr and give uniform smoothness is the next process. Peculiar flat files, made for this purpose, are on tables, and over these the workmen rub one type at a time, first on one side and then on the other, or else, as in the case of plain type, rub them on large circular stones.

The type is then set up in single lines, on wooden sticks about three feet long, each character separate. This places the type in a condition ready for the dresser and picker, usually separate workmen. The dressing consists of cutting a groove in the bottom of the type where the jet has been broken off, giving it feet on which to stand, and in smoothing off the body. This operation is performed on a steel rod, three feet long, which must be perfectly true in every part. It is clamped in an iron bench, and accurately adjusted for that purpose. Picking consists of examining each letter under a powerful magnifying glass, and discarding all the bad and imperfect type. This completes the various processes necessary in making a type, excepting in the case of such letters as require to be kerned on their sides.

There are, besides the various letters in the Roman and Italic body type, many characters in the

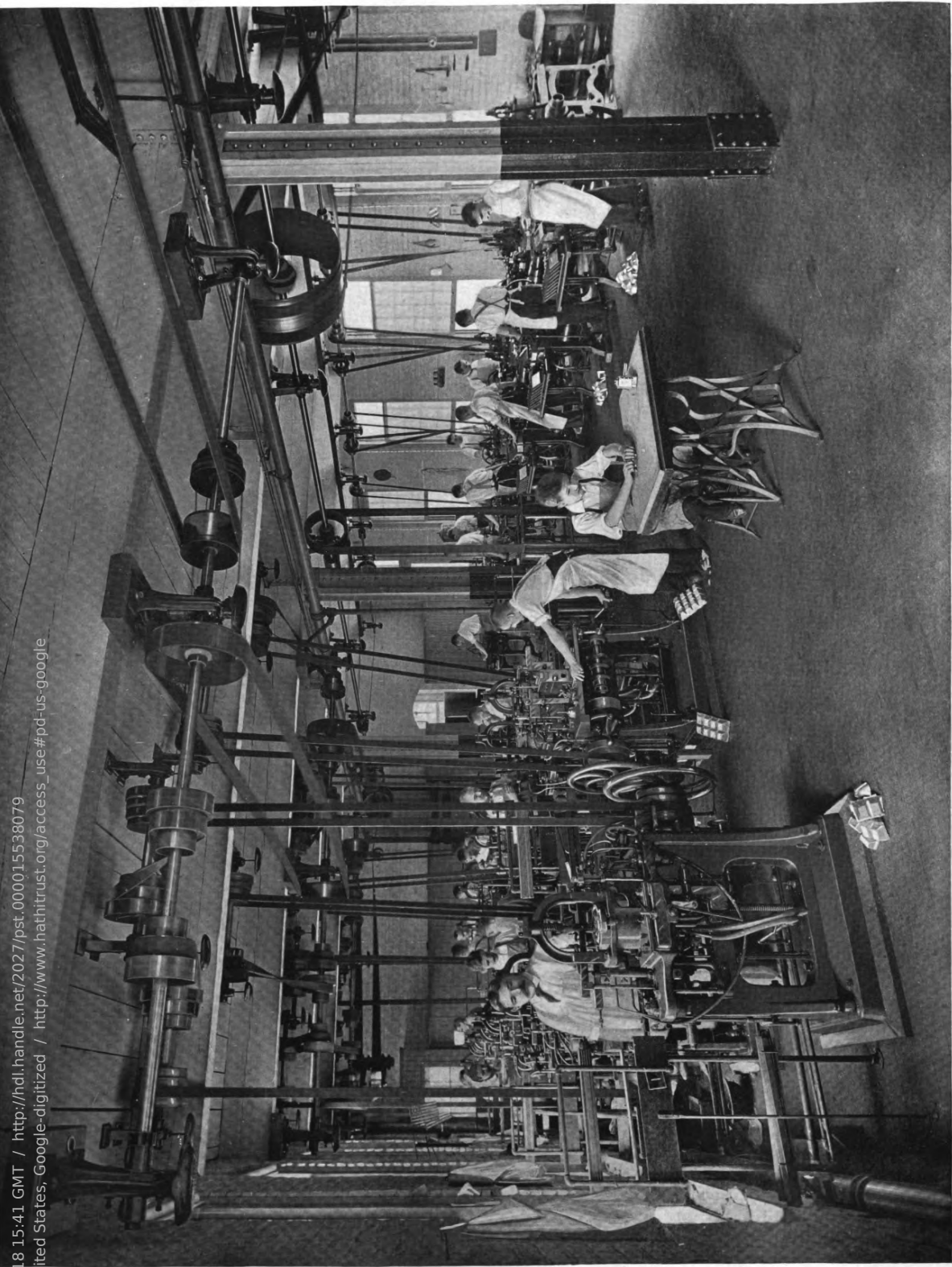


jobbing designs, and especially in the numerous script faces, which must have some of the metal cut away after the type is cast, in order to allow the letter which follows in the formation of words to come close enough to maintain the regulation space between them. This process is called "kerning," and is a very intricate operation, requiring skill and dexterity on the part of the operator. As the kerning of type varies both in the depth of cut and the slope, it is done on machines of which there are three different patterns specially constructed to meet all the requirements necessary. The type to be kerned is held by the operator, one at a time, against an adjustable gauge set to the required angle, which is slotted to admit the type, thus holding it securely while the sharp teeth on a rapidly-revolving wheel cut away from the side of the body, directly under the face of the type, as much of the superfluous metal as is required, without injuring the face in the least.



Surprising as are the various hand and steam-casting machines, it is not until the new automatic perfecting machines are seen, and their remarkable results confronted, that one wonders if it is possible for anything else to be accomplished in type-making. With the precision of clockwork this intelligent, compact mass of steel transforms the molten metal into the completely-fashioned and finished type, ready for the compositor's case. To watch them in stealthy, quick, automatic motion, doing their work so thoroughly and without a flaw, is a striking exemplification of the magic of mechanical accomplishments in this day of marvelous achievements.

Up to within a few years ago the annual output of finished type by this foundry averaged about five hundred thousand pounds. To-day, with the latest devised machinery and improved facilities in the various departments, and an increased demand for its productions, the annual output averages over one million pounds of finished type, which is used by printers all over the world.



AUTOMATIC TYPE-CASTING DEPARTMENT

The first automatic perfecting machine used in this foundry was of German invention, and it cast, broke, rubbed and set the type mechanically. Shortly thereafter several machines of English invention were introduced. Unlike the German invention, these machines discharged the type from the mould by a projecting body-piece very similar to the type itself. Passing through a channel and breaker, and making a turn in quadrant, the type was rubbed before adjustable knives, and a cutter took off the shoulder. It was then turned a second time and dressed. In the German machine the body of the type was carried horizontally, and in the English machine perpendicularly, and, among other things, saved a turn. One of these machines could produce on an average about sixty pounds of type a day.

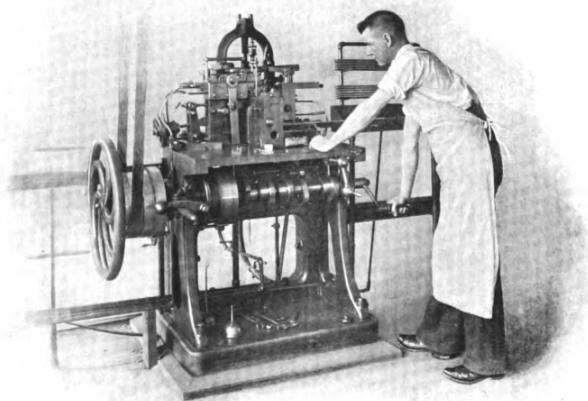
The automatic perfecting machine now most extensively used, with its improvements, many of which originated in this foundry, has not only all the good points of the old machines preceding, but many others which they did not possess.

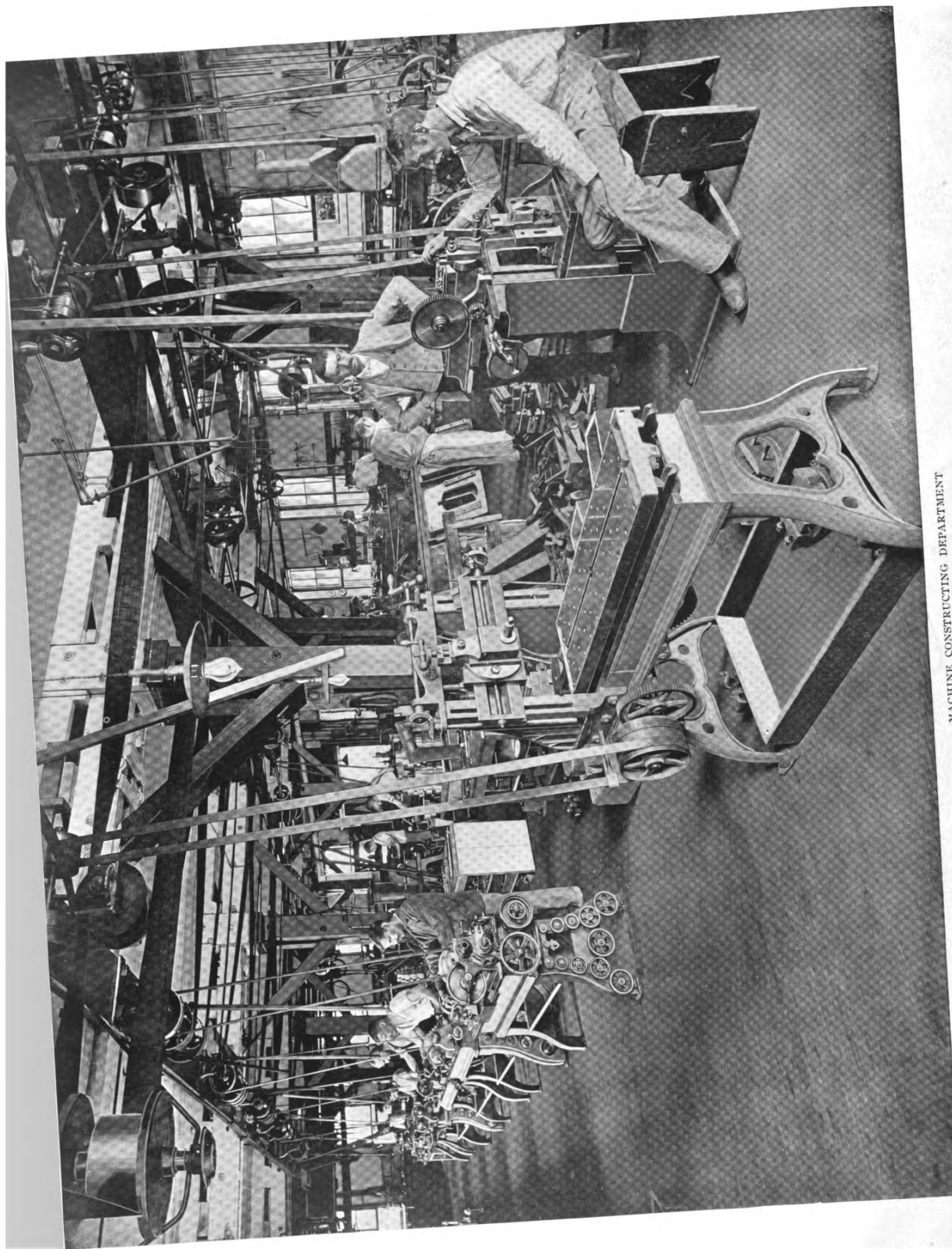
The mould used in the improved machine is a most ingenious and intricate piece of mechanism, is made of the finest selected steel, carefully hardened and tempered, and is constructed of many parts, all beautifully fastened and dove-tailed together. A different mould is required for each body of type.

In the hand-casting machine the matrix is held by a spring and lever, and comes in contact with the mould as it closes to receive the molten metal. The matrix is then released by a spring and roller, and the mould opens and the type is discharged; but after that it has to be broken, rubbed, set and dressed, all by hand, whereas in the machine now used all this is done automatically.

In the automatic perfecting machines the matrix is held in a steel box entirely separate from the mould, which comes in contact with it as it closes, when the type is cast. The matrix is then relieved by a lever and two pins, the slide on top of and attached to the mould opens, and the type is discharged on a platform supplied with breakers and a device for grooving. As the type passes under the face of this, it is broken and rubbed by a series of cutters, after which it passes to a channel, where it is dressed. The type, all finished, are received on sticks, after which they are picked and paged.

In picking ordinary steam machine-made type it is found that about five per cent. is rejected as being bad, whereas it is not one-eighth of one per cent. in type





MACHINE CONSTRUCTING DEPARTMENT

cast on the automatic perfecting machines. Moreover, the perfecting machine casts one-third more type than the steam-casting machine, the face of the type is much sharper, there is more regularity in thickness and body, and more general uniformity.

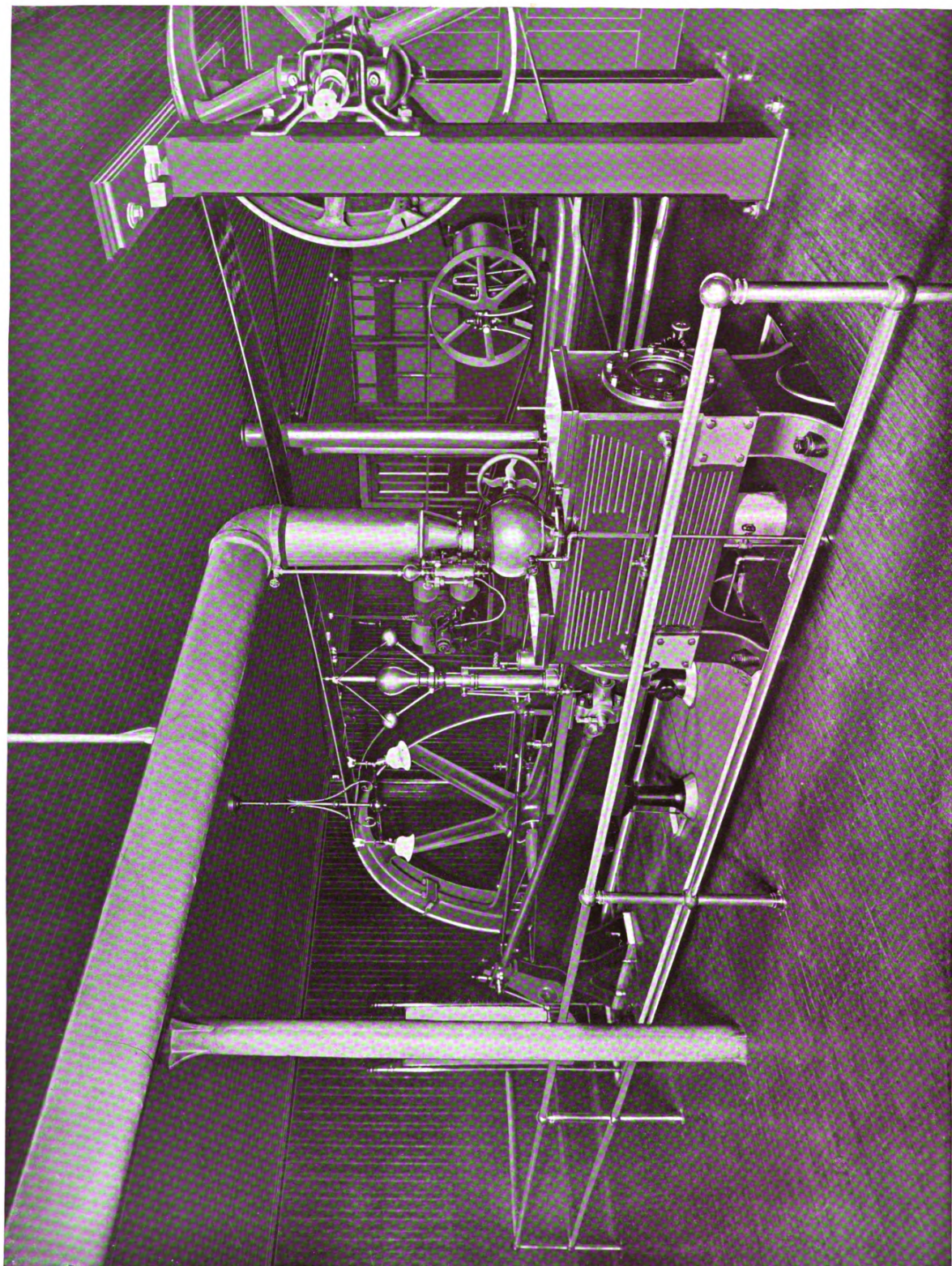
Equally complete and finished in its results is the automatic space and quadrat machine, invented in this establishment, and acknowledged to be the best device for the purpose in existence. It has an average output of seventy-five pounds, as against forty pounds on the hand space and quadrat machine. The spaces and quadrats coming from this machine are made and finished with a mathematical nicety equal to the type, and have long since acquired an established reputation wherever used.

The automatic perfecting machines and the space and quadrat machines in their every part, as well as other machines used, are built in the large Machine-Constructing Department connected with the establishment. This branch of the business, which is located on the fourth floor, is equipped with the latest improved machinery necessary to meet the demands made upon it. It gives employment to a large force of skilled mechanics, who are kept busy adding to the already large number of machines and tools in use, and repairing such others as get out of order from continual wear.

The effort to bring about uniformity in the size of type bodies in all the type foundries of the United States has resulted in the adoption of a uniform system of point bodies, known as the American Point System. In this system one point equals one-twelfth of a Pica, therefore Pica measures twelve points and Nonpareil six points. The value of the system gradually dawned upon the mind of the intelligent printer, and met with general recognition and approval.

Taking into consideration the daily association of printers with type, it is to be supposed that they would become intimately acquainted with all its distinguishing characteristics. Such, however, is not the case.

Different parts of a type are designated as the face, the counter, the beard, the shoulder, the shank or body, the kern, the pin-mark, the nick, the groove and the feet. It is worthy of note that a considerable portion of this nomenclature is similar to names applied to the human frame. The face is the part from which an impression is taken, and various portions of its surface are called stem, ceriph and kern. The straight flat stroke of a letter is the stem; the fine lines at the top and bottom of a letter are ceriphs, and a projection over the shank or body, like that at the top of the letter f, is a kern. The counter is the space between the lines of the face. The lower portion of a type, on which it is supported whenever it is doing service as part of composed matter, is divided by a groove, made by the type-dresser, and, probably on account of this division, is called the feet instead of the foot. The nick is a hollow cast in the shank or body of the type, one or more nicks being inserted in various fonts, and their position being varied. While the nick in all American and English



ENGINE ROOM AND DYNAMO

type is always cast on the same side as the bottom of the letter, and, while the number and position of the nicks used in any one font are uniform, a wide diversity is purposely made in the number and position of the nicks of different fonts of letter. In England the body of the letter is called the shank. This word is not in general use in the United States, but it serves a good purpose in drawing a clear distinction between the sizes of type established by the respective standards and the metal which supports the face of a letter. By some writers that portion of the top of a type not occupied by the face is called the shoulder, while others call this part of a type the beard. The true system, however, seems to be to call that portion of the type the shoulder which is between the top of the body and the face of the type. The beard is the sharp edge on the upper part of the body running parallel with the top and bottom of the face. The pin-mark is a circular indentation on the side of the body near the face, made in the process of casting by a small pin in the mould.

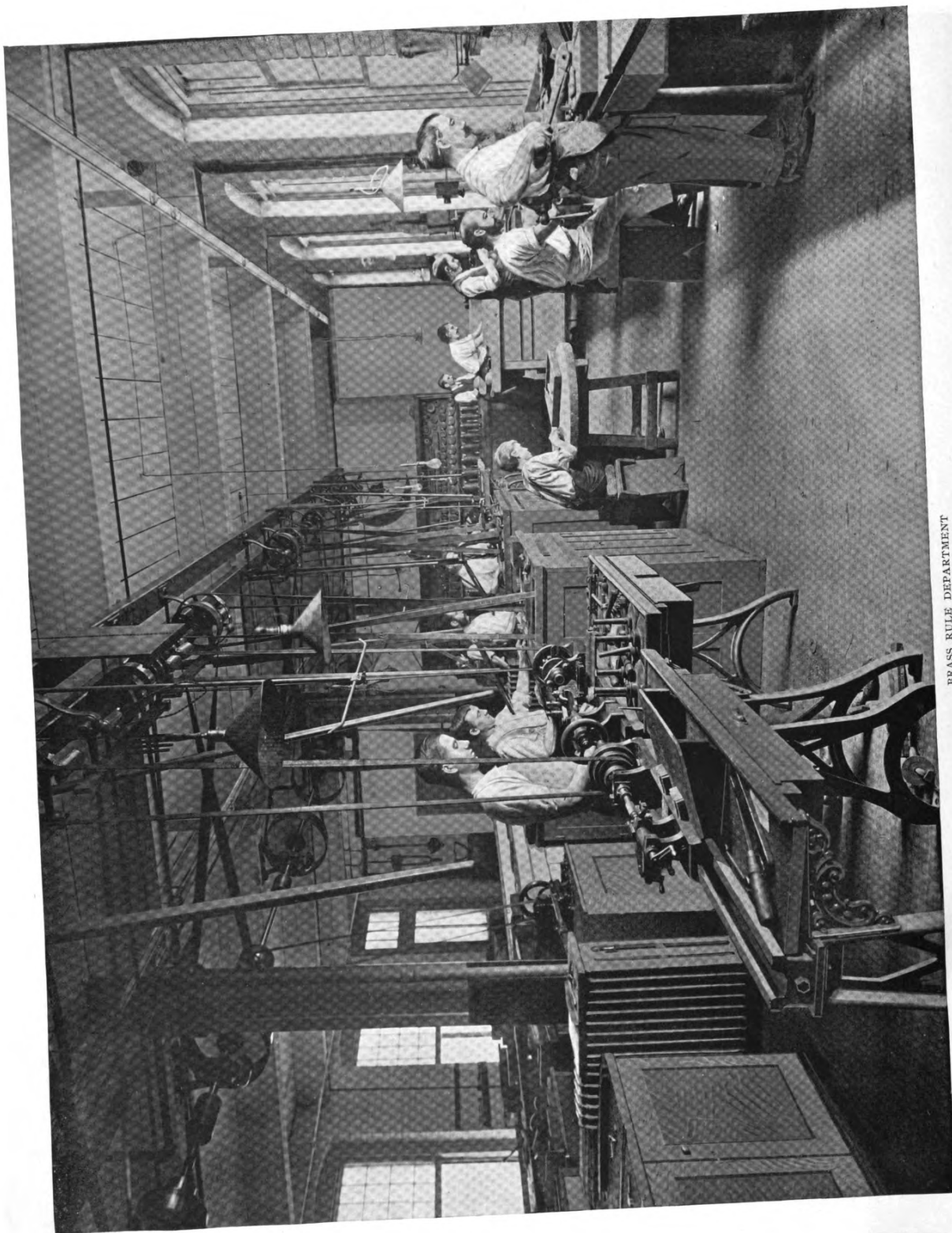
MAKING BRASS RULES.

Just as trifles go to make up the sum of life, or as sands make the mountain, so the small things assume great importance in typography, and a comma or dash is often as expressive as a whole printed sentence. This is especially true with brass rules, as they are called, which serve a variety of purposes in printing, such as outlining pages, inclosing a special or distinct matter like addresses, programmes or menus, or marking the close of a chapter or the end of an article.

In times past, when borders, often made of blocks of wood, were used by the printer, brass rule was a comparatively simple affair, and there were but a few styles made. Nowadays, owing to the exacting demands of the artistic printer, a greater variety of styles and more care in the cutting are necessary.

There are made in this foundry no less than five hundred and eighty-five distinct designs or faces of brass rule, and in their general division they consist of single, parallel, double and triple lines; dotted, hyphen, block, waved and turned rules.





BRASS RULE DEPARTMENT

The brass is manufactured in strips from sixteen to thirty inches in length, the thickness varying from one-twelfth of a Pica, or one point, to eighteen points. Brass rule must gauge as accurately as type—the thickness, or bodies, corresponding with those of type and fractions thereof. Eighteen strips of one-point rule must equal in thickness one strip of eighteen-point rule.

The brass strips are placed singly between the steel jaws of an iron bench and securely fastened, then the edges are planed perfectly flat and square with the sides. The planes used for this purpose weigh about ten pounds each, and are handled about as a carpenter would use a plane. Four such planes are used in making a single-faced rule. By the use of a graduated index on each plane, which is regulated by the workman as he progresses in his work, uniformity of face and accuracy of height are secured. If a strip of this rule is cut into a hundred pieces and these set up, reversing their former positions, they will form and print as perfect a line as before cutting. The same process is applied in the manufacture of parallel, double and other brass rules having straight lines.

Much of the rule now made is put up in fonts comprising pieces ranging in size from one Pica em to fifty Pica ems, including also right and left mitered pieces of various lengths. This is called labor-saving rule, and is used in all printing offices. It is a modern addition and convenience to the printer's art, and meets the urgent and accurate demands of the time.

For cutting labor-saving brass rule, circular saws eight inches in diameter are used, which make about four thousand revolutions a minute. The numerous pieces of different lengths which go to make up a font of labor-saving rule are all cut to the accuracy of the micrometer. After cutting, the pieces are rubbed on a stone to remove the burr caused by sawing, and the size in Pica ems, or fractions thereof, is then stamped on the side. They are then put up in quarter, half and whole fonts, and properly labeled.

This is the only type foundry in America which makes music type, and as a requisite adjunct the stems, lines, bars, and quadrats for music notation are made of brass, and cut in the same manner as brass rule.

Brass braces, for music and mathematical work, dashes, slotted corners and centre pieces, which are made in large quantities, involve



more intricate cutting and more complicated machinery than ordinary brass rule. In their manufacture a lathe is used, on the mandrel of which a series of small cutters or saws are placed in combination, in order to obtain the formation desired. When these cutters are fastened together, they form a milling tool for cutting both sides. The designs of these dashes, braces, corners and centre pieces number several hundred.

For making brass circles, ovals, and borders of different shapes, such as are used for label printing, this foundry has exceptional facilities. The brass circles vary in size from one-eighth of an inch to nine inches in diameter, and have been made as large as twenty-four inches. They are made of the finest strip brass, joined with silver solder, and are turned on lathes constructed for that purpose.

Thousands of strips of brass rule are kept in stock in large dust-proof cases, awaiting the printer's orders for full-length strips, or to be cut into required sizes at a moment's notice. There are also in stock hundreds of pounds of labor-saving brass rule cut to the regulation sizes, with mitered pieces for corners.

Whoever reads extensively nowadays, whether it be the newspapers or books, cannot but be impressed with the sharpness of outline and variety of the borders, rules and dashes, made of brass, which are used in all modern printing. This is the result of the care, system and delicacy with which these valuable accessories of the typographer's art are now made.

ELECTROTYPING.

Whether it be in the Moulding Department or the Finishing Department, located one above the other and both overlooking Swanwick Street, the process of electrotyping commands attention and excites surprise. The clever machinery, the ease with which it does its work, the seeming simplicity of the process, and yet the amount of detail and the practical knowledge involved, give these departments a fascination peculiarly their own. Following is an outline of the process:

A moulding case, having been slightly warmed on the steam heating table, is placed on a level iron table, and melted beeswax is poured into it from a clean ladle through a fine wire sieve, to keep out any foreign substance which may have fallen into the melting-pot. Great care must be exercised to run the wax over the case while it is hot, so that it may not, by cooling too quickly in any part, cause irregularities. The air bubbles which rise to the surface must be touched with the heated building-iron in order to make them disappear.

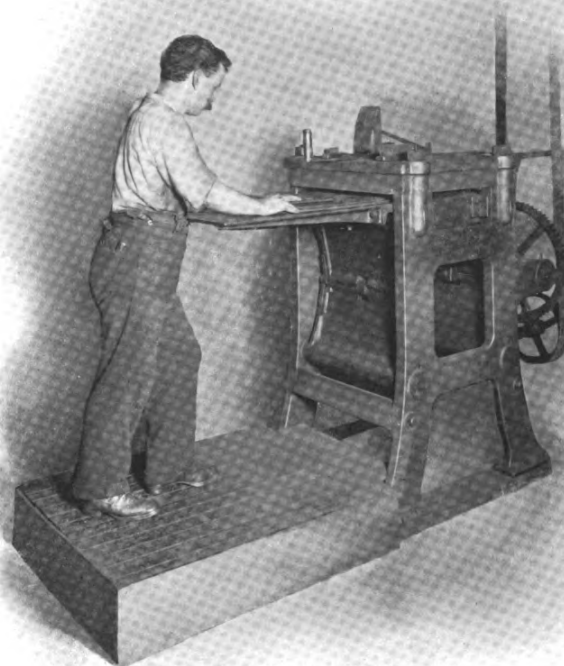
After the case of wax has been shaved to the required thickness on a machine constructed for that purpose, and carefully prepared in the manner described above, it is thoroughly rubbed over with black lead and polished by means of a soft brush, after which the wax is ready for the impression.

To make the impression of the form, engraving, or whatever it may be, in the wax, a great and steady pressure is needed. The moulding presses used consist of a massive iron frame, having a planed bed, over which is a fixed head. There is a projecting table on which the case of wax and the form of type, which is also black-leaded and brushed, are arranged before sliding them in the press to receive the pressure, which is put on them by raising the bed against the head-piece. This is done with a screw and the aid of two toggles, driven by steam power. It requires a large amount of experience to know just how much pressure is required to make a perfect, even impression in the wax. After the press is opened, the case and the form of type are withdrawn and separated. Great care must be exercised by the operator in doing this, otherwise the mould may be spoiled.

When low spaces are used in the composition, it is customary to make a preliminary impression with a thin sheet of gum cloth interposed; this is then removed and the pressure put on again. Where the cloth is not used, it is necessary to shave off with a wide, thin knife the projecting ridges.

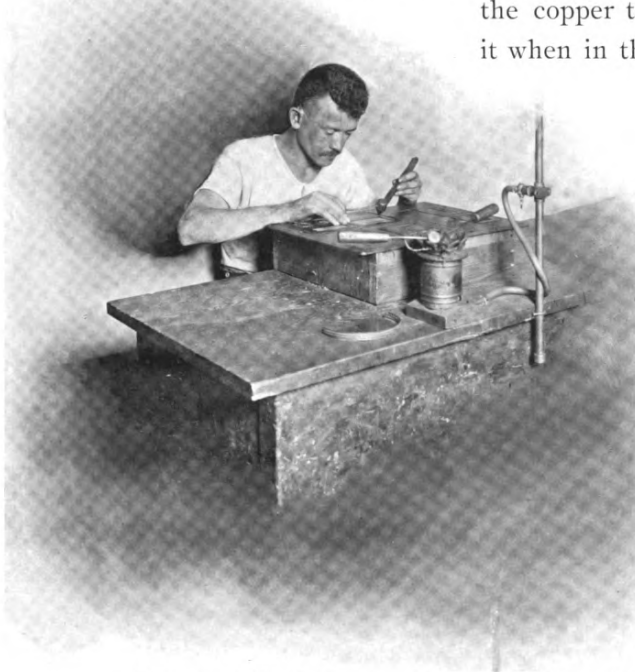
Where the form is large, one impression is usually taken, but small ones may be applied several times, by shifting them over the surface of the wax.

The case of wax, or mould as it is now called, is next placed on a table ready for the process of building. This operation requires skill and a steady hand. A well-built mould will save much trouble in the stages which follow, as the object is to obviate as much as possible the necessity of chiseling the plates. The process consists in running melted wax on such places of the mould where blanks may occur. It is done with the building-iron, which is heated and applied to a strip of wax, causing it to melt and flow down from the point of the iron on to the blanks of the mould. This process cannot be easily taught; but it must be acquired by careful practice. The principal difficulty is to prevent the wax from running where it is not required. A quick eye and a steady hand are necessary to do this.



The wax used in building is usually cut in thin strips eight to ten inches long, and must be kept perfectly dry, otherwise it would spatter when coming in contact with the heated iron, thereby endangering the mould. An overheated tool, or a slip of the hand, is apt to cause the melting wax to run into the impression, which would entail extra labor in finishing the plate. Very often the damage is so serious as to necessitate the making of another mould. A safe method is first to try the heat of the building-iron on some portion of the wax which is not a part of the impression.

After the wax mould has been carefully built in the manner described it is ready for black-leading, which is necessary to give it a conducting surface and cause the copper to be gradually deposited over every part of it when in the solution. To do this the mould is placed



on a carriage which runs forward and backward in an air-tight compartment supplied with black lead and vibrating brushes, which cover the face of the mould thoroughly with the powder, and give it a high polish. After polishing the mould, the superfluous black lead is washed away with water passing through a rubber hose to which a sprinkler is attached. By means of another wash, composed of a solution of sulphate of copper and iron filings, a film of metallic copper is added to the plumbago-covered surface of the mould, and it is then ready for the solution.

It was Silas Knight, of New York, who discovered this means whereby an instantaneous coating of metallic copper could be thrown on the plumbago films before the mould was placed in the solution.

In the early part of the present century it was discovered that some of the metals could be restored from their salts by passing a current of electricity through their solution; but no result of any particular importance occurred relating to the art of electrotyping until Professor Daniell gave to the world a generating cell or battery, bearing his own name, constructed entirely different from the simpler forms hitherto used. By means of this cell the fragmentary incidents, as ascertained by Wollaston, Cruickshank, Davy, and others, took more tangible form.

It was noted accidentally in Daniell's cell that sulphate of copper deposited in metallic form, faithfully copied the surface of the vessel, and when stripped off showed

the slightest scratch or abrasion. On October 5, 1838, utilizing this idea, Professor Jacobi communicated to the St. Petersburg Academy of Sciences his process of producing copies of engraved copper plates by the agency of electricity—the first direct knowledge of electrotyping extant.

Shortly previous, Mr. Thomas Spencer, of Liverpool, arrived at a somewhat similar result, accidentally, through using a copper coin for the copper element, and employing a neutral jar in place of the copper-containing vessel. The coin became entirely incrustated with the deposited copper; on stripping it off, he found it a faithful copy of the coin—"intaglio" instead of "relief."

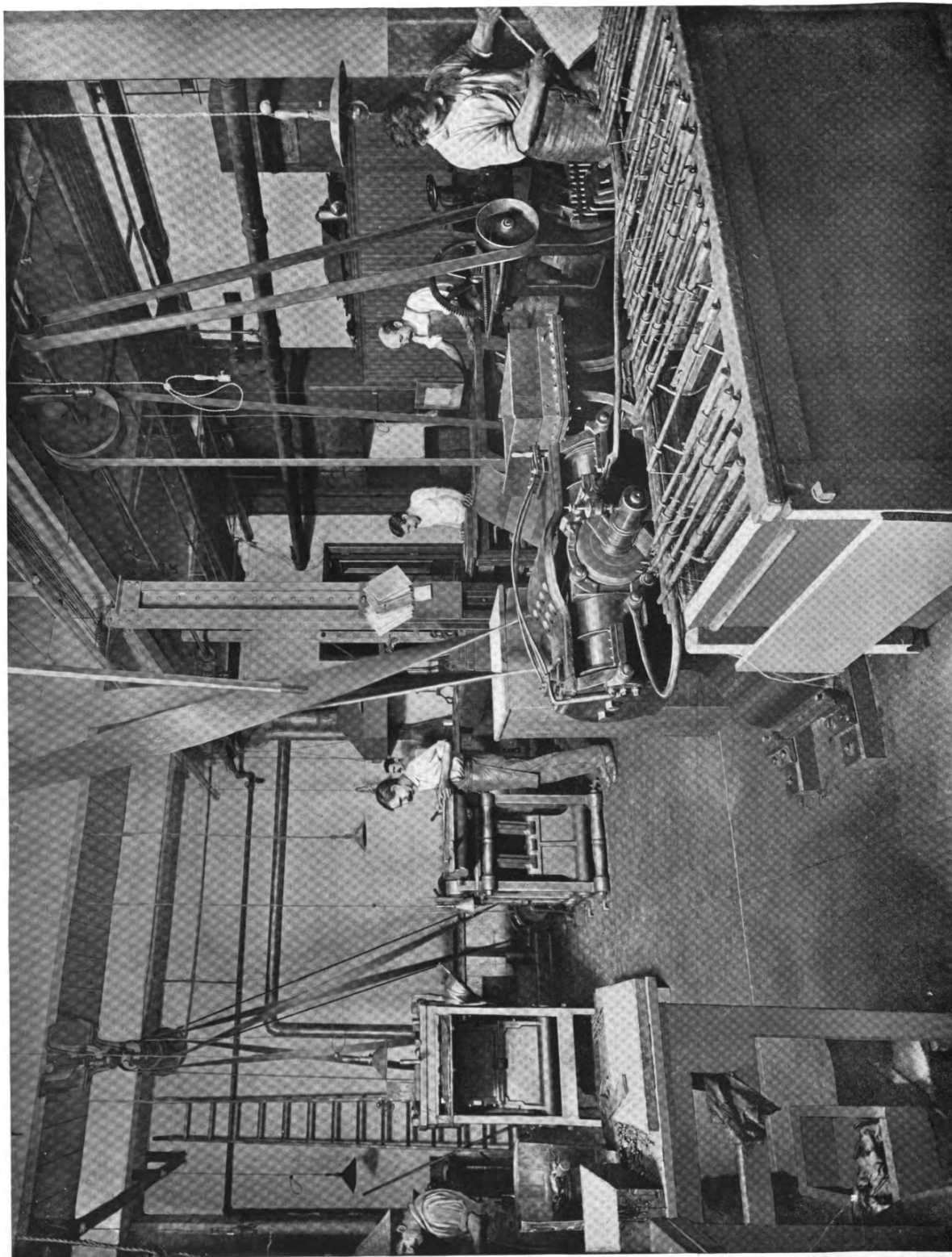
The direction of the "deposit," or rather the knowledge of controlling the same, so that certain portions of an object might be coated and the rest remain intact, was discovered accidentally by Mr. Spencer while employing a copper-containing jar. Having spilled some varnish on the inside of the copper vessel, he discovered that wherever the varnish adhered, though ever so thin a film, no deposit took place. A knowledge of this fact led the way to many interesting experiments in copying coins, medals, and various other metallic objects.

When Mr. Murray, in 1840, found that a variety of non-conducting articles could be made conductive by a thin film of black lead brushed over them, a great advance was made in the electrotyping art; and when he suggested a separate battery for the depositing fluid, the use of any kind of battery was made available, whereas previously no form of cell was adapted to the use of electrotyping except the Daniell.

Some twenty years ago a process was discovered to render the face of the moulds more conductive after being blacklead. A difficulty existed, in moulds of any considerable magnitude, in "coating" the entire surface evenly with a uniform thickness of copper, the deposition taking place first where the negative electrode connected with the mould, and then gradually spreading over the entire surface. By the time the more remote parts of the service were covered by the copper deposit, that portion near the conducting wire was unnecessarily thick. This defect was an obstacle in the way of the rapid production of work. The new process mentioned consists of the use of iron filings and a portion of the copper solution.

Of late, the magneto-electric machine has been displaced for practical use by the dynamo-electric machine, or dynamo, the distinction being that in the former a permanent magnet is employed, while in the latter its place is taken by an electro-magnet.

As the current passes through the bath the solution becomes decomposed, its copper being gradually deposited on the cathode or mould, while the liberated sulphuric acid dissolves an equivalent proportion of copper from the anode; or, in other words, the copper is deposited on the mould at the same rate that it is dissolved from the anode.



ELECTROTYPE MOULDING DEPARTMENT

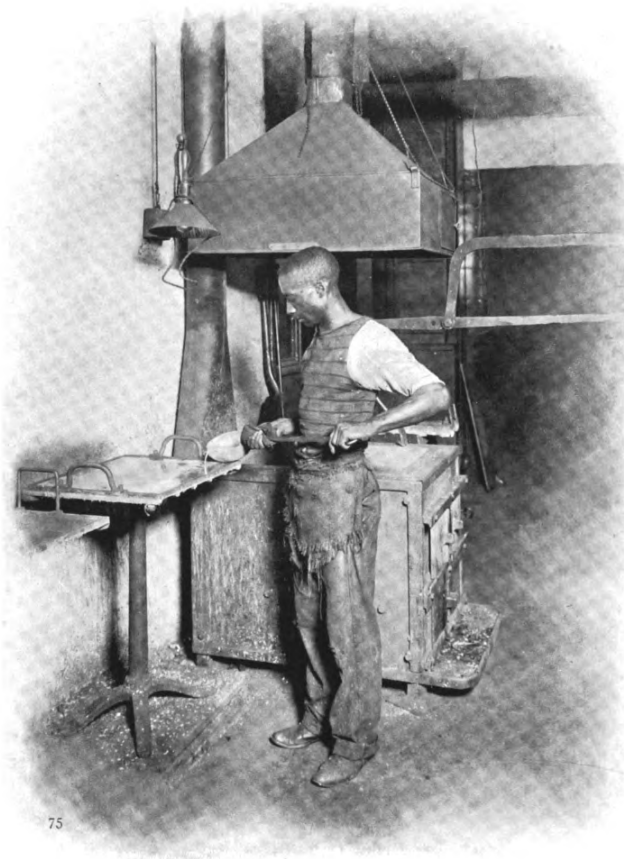
When the desired thickness of shell is obtained, the mould is taken out of the solution and placed in a slanting position in a trough, and the connections liberated by means of a sharp-pointed tool or knife, after which the operator pours hot water over the back of the shell and lifts one corner. The heat of the water melts the surface of the wax immediately in contact with the under part of the shell. This permits the operator to remove the shell from the mould while the water is pouring over it. After the shell has been separated from the wax and thoroughly cleaned with a hot solution of lye, it is placed face down on an inclined, lead-covered plate, and the soldering-fluid is then applied with an ordinary brush.

Electrotype metal will not of itself amalgamate with copper, and it is therefore necessary to unite the metal with the shell by tin-foil. Sufficient tin-foil to fully cover the back of the shell is laid thereon, after which it is placed in the previously heated backing-pan. When the pan has attained the same heat as the molten metal the tin-foil melts and amalgamates with the copper shell, whereupon the operator immediately pours molten metal on the shell, allowing the same to run carefully and evenly until it reaches a little higher than the tops of the bevel on all sides of the backing-pan. After cooling, the plates are ready to undergo the process of finishing.

Much as we are indebted to the scientific men of Europe for many of the earlier discoveries in this beautiful process, to the electrotypers of the United States alone belongs the credit of its practical application to the purposes of the printer. Their ingenuity and skill, and the application of labor-saving machinery and appliances, have brought the art of electrotyping to its present state of perfection.

In nothing else is this better exhibited than in the many details which follow the backing of the shell, and which are known as "finishing."

After the plates are sawed apart they are carefully inspected, and the operator beats down with a suitable hammer those portions of the guards which are higher than the printing



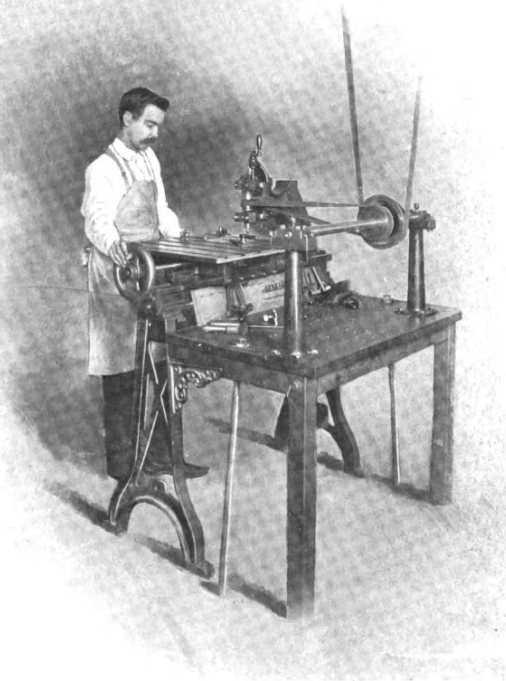


ELECTROTYPE FINISHING DEPARTMENT

face of the plate. STOCK RO that the face may be examined under a straight-edge, and if found uneven the corners are partly or rough straightened, in order that they may lie level on the bed of the planing machine. The first cut is now taken from the back of the plates, after which they are straightened. This is a delicate operation, and careful judgment is necessary, as the operator must not only understand the condition and composition of the metal, but he must also realize the value of every stroke of his hammer, in order to avoid battering or damaging the face of the plates. In order to locate the sinks, or low spots, the face of the plate is rubbed lightly with a piece of hard rubber. By this means low spots are left unpolished, and may be indicated on the back, opposite the sinks, by means of calipers used expressly for the purpose. The plate is then turned over and tapped lightly on the back, and cleaned with a stiff brush in order to free it from any particles of metal or grit, which, if allowed to remain, would be liable to be imbedded in the face of the plate in the operation of beating up the sinks or low spots. It is next laid face down on the steel plate, and the places marked on the back by the calipers are carefully beaten up to a true surface with the face by means of the ball-end of a hammer or punch, after which the sides and ends are brought up and the plate made level and tested with a straight-edge.

Anyone who sees an ordinary electro plate, whether it be a page of a book, the side of a newspaper, an illustrated circular, or the reproduction of a half-tone photograph, sees only a complicated conglomerate shadowy mass of metal. Few realize, however, that to produce this requires a careful application of science and chemistry. There is hardly a step taken, from the first move until the plate is ready for the printer, that is not based upon practical principles and dependent for success upon the skill and intelligence of the way in which it is done.

After the plates are straightened they are made true to the standard thickness in a shaving machine. When the guards are cut off the plates are beveled on the sides and the head trimmed to within a thin lead of the folio or running title. This is done to guard against an imperfect register when printing from the plates. The blank spaces in the plates are cut down sufficiently low by a routing machine to prevent the ink from blacking the paper during



the process of printing; imperfect letters are cut and perfect ones inserted. Plates not intended for patent blocks are generally styled *work*, and are usually shaved to Small Pica gauge, after which they are trimmed on all sides and mounted type-high on either wood or metal. The wood on which the plates are mounted is

kiln-dried cherry, planed to the desired thickness. Most electrotypes intended for newspapers, or from which duplicates are to be made, are mounted on metal bases. Plates intended for book printing are shaved to a standard thickness, and are provided with beveled edges so that they can be used on patent blocks.

There are in this department besides the various routing, beveling and shaving machines, a number of machines known as "trimmers," which were built by the Machine Constructing Department of this foundry, and which are really wonderful contrivances, acting with almost human intelligence, and adjusting the plates and the metal bases of cuts with the greatest nicety possible. These machines are in constant use for squaring and dressing

purposes. Special care and attention is also given by this department to the insertion of original half-tone engravings in the electrotyped pages of books and magazines, and much work of this character is done.

The MacKellar, Smiths & Jordan Foundry was the pioneer of electrotyping in the city of Philadelphia, having introduced the process in 1848.

In addition to the large amount of electrotyping done for the trade, this foundry makes over five thousand different styles of electrotyped cuts, comprising date lines, check blanks, card and billhead logotypes, state seals, national and society emblems, business cuts and other designs, most of them made from original engravings, and which are copyrighted. Besides a large number of these cuts, which are finished and ready for the printer, there are stored away in cases and carefully numbered thousands of shells of cuts, any one of which can be backed with metal, finished and blocked at a few moments' notice.

THE FOUNDRY STOCK ROOM.

The world is not so very old compared with what it may be, and yet it is a great step from the receptacles of the baked-clay records of the Chaldeans, the most venerable of preserved characters, to a modern foundry stock room fitted with every convenience and labor-saving device, including a system of arrangement that is the outcome of a whole century of practical experience.

Portions of the papyri of early Egypt are still preserved as sacredly as the mummies in the sarcophagi; but in present living interest they do not compare in importance with stacks of Pica and tiers of Nonpareil that blink and wink in mute eloquence from the thousands of shelves of the main type repository, dumb as oysters, but waiting the hour when, in answer to the click of the compositor's stick and the roll of the press, they will speak—telling perhaps things that have not yet happened—to readers yet unborn.

Even the large, square apartment with its millions of type, weighing tons and tons, tucked away exclusively in nooks and corners to themselves, has memories of deepest interest clustering around it—for previous to the year 1862, when it was utilized as a part of this establishment, it was known as Old Sansom Street Hall, a place of fashionable and popular resort, where the earliest flower shows and some of the handsomest banquets and most brilliant assemblages were held. Every rafter has reverberated with eloquence and music and song in days gone by, and piled away between them now are the little leaden missives that will tell the tale of to-morrow.

It was said of Darius, the great Persian king and commander, that he knew the name and identity of every man in his immense army, and similarly there is not one servitor in the metal-clad legion of this gigantic typographical army but is known and can be identified at a moment's notice. System prevails everywhere—not the ordinary system of a lawyer's office, nor of some miscellaneous store, but a system like that of a carefully conducted bank, where every coin and note and piece of value has its own place, according to its denomination and relation.

The spacious, high apartment on the second floor, used as the foundry stock room, looks as much like an immense library as anything else at first glance, with cases full of compartments reaching from the floor to the ceiling and extending the four sides of the room. Counters or stands are also arranged along the sides and at intervals through the centre of the room, and on these are stacks and rows of made-up type, not yet put away. The shelves for the material are so constructed as to furnish an opening or shelf-space above the counters for each fixed division. By the use of slip shelves, kept in place by the uprights at the sides, the space can be separated into one-half, one-third or one-quarter divisions, furnishing more or less room for each kind of material, according to trade demands.



THE FOUNDRY STOCK ROOM

The type, in neatly put-up packages, is placed on the shelves, classified alphabetically, according to face or style, and arranged numerically as to the size in each class. Space is allowed between each section to provide for additions, and at the same time allow the stock to be kept in symmetrical good order.

The motto of this most interesting part of the establishment appears to be "a place for everything and everything in its place." Not even the Astor Library, with its carefully-studied plan, formulated on the best points of the systems of the libraries of the world, has any superior arrangement of classification, whereby what is wanted can be had instantly, without mistake or delay.

In the extensive addition to the stock room, in the new building, the newspaper and book type is all arranged according to class, each size subdivided alphabetically for convenience in handling.

Sorts of all the job letter made are kept in small boxes with sliding metal lids, the characters separated by leads to prevent mixing. These boxes, which number thousands, are stored under the counters, and are arranged alphabetically. Sort orders can thus be promptly filled and everything kept in good condition.

The place for every style of type is indicated by a label, specifying the character and size. Drawers for labels, each in its place, pigeon-holes for order-blanks and special material of every kind, all systematically arranged, make matters so convenient that any one having a knowledge of the business may, in a short time, be instructed where to find anything wanted. Indeed, there are boys who, at a moment's notice, can produce specimens of any kind of type amid a multitude of made-up metal so bewildering that without this system finding anything would be a task beside which the proverbial "needle in the haystack" would seem easy.

Nothing could give a more impressive idea of the importance and value of system in detail than these vast spaces with myriads of compartments, each place filled with a certain kind of letter, or a particular group of letters or characters, which, like the presto of the conjurer's wand, leap from hiding places at the beck of a finger to begin active service in the dissemination of the printed page.

A certain amount of obscurity shrouds all relating to the origin of the different bodies of type, and even their nomenclature, which goes back to the earliest typographical antiquity. The sizes of type were probably named at first by the early printers according to the works on which they were used. It seems that in England type bodies were not reduced to a definite scale until the sixteenth century. In France an attempt by public decree was made, in 1725, to not only regulate the scale of bodies, but the standard weight of type as well. It must be remembered that the early printers were their own type founders, and to trace the Roman characters, for instance, would involve a research of the early literature of European countries.

Pica and Primer, large and small, Bourgeois, Brevier, Minion and Nonpareil have each a history of their own—not all told, however, in the name—and the Italic letter is popularly understood to be an imitation of the handwriting of the famous Petrarch.

The smaller sizes of type, from three-and-a-half point to twelve point, are received from the manufacturing department in packages, while the larger-sized bodies are



delivered on wooden galleys, protected from any possible injury by wooden covers. Job letters are received from the casting room in bulk, and are arranged in fonts by boys on a table or galley specially made for that purpose.

The making-up of fonts of body type is a peculiar process, done after carefully-prepared schemes. The proportion which one letter should bear to another is something about which ideas differ. Without going into details the general proportions of letters to one another in a font of one hundred pounds may be thus illustrated:

Lower case, e, six pounds; a, n, o, four and one-half pounds each; h, r, s, t, three and one-half pounds each; m, d, three pounds each; i, two and one-half pounds, and the other letters varying from two pounds down to two ounces each. Points, etc., vary from one and one-fourth pounds of commas down to one ounce each for reference marks. Figures average five ounces each, with one ounce each for fractions. Caps average six ounces each, a greater proportion being allowed for A and E, while J, K, Q, U, etc., are in the minority. The small caps average about one-fourth the weight of the caps, varying from three ounces down to one-half ounce. Braces, dashes and leaders are given in small quantities, as they are seldom drawn upon for use, except on special work. Twenty pounds of spaces and quadrats are needed in a one-hundred-pound font, ranging from six pounds of “three-em” spaces down to three ounces of “hair” spaces.

In making up fonts of jobbing type schemes of different proportions are used, according to the size of the body and the character of the type. These schemes are based on a certain number of capital A's and lower-case a's, with the other letters and signs in proportion. The boy who makes up these fonts starts with the letter a, and if the required quantity should be two hundred fonts of a fifty-a scheme, he places fifty a's along the galley as a guide, so that the quantity to the top of the board may be the same, and he fills in with a's until all are used. The a's are held in place until the b's are filled in the same way, continuing to the end of the alphabet. After

all the characters are laid out, the quantity is made even, the galleys removed and the material arranged according to a sample pattern. Then all the type is examined carefully, about the fourth or fifth examination it undergoes, for proportion according to the scheme, and finally by the foreman for any defects in manufacture that may have been overlooked in the previous inspections. This is to prevent anything but first-class material going out of the foundry. After this examination the fonts are taken off the boards in small galleys and carried to a table, and there tied, wrapped, and a label placed on each, indicating the size, style and price. This label extends over the package and indicates the contents, when on the shelf, without moving a number of weighty parcels that may be one above another. Before they are placed in stock the fonts are weighed, and the weight is compared with a record kept of all the type manufactured, thus insuring not only correctness in proportion, character and finish, but also full weight, according to the price charged.



Newspaper or book letter is divided into fonts varying in size from twenty-five, fifty and one hundred pounds, up to thousands of pounds, according as the material is required for a small job office or a large newspaper or book-publishing concern.

This establishment sells a single character or fits out an entire establishment, often making to order an entire new dress of type for some great metropolitan daily.

A very interesting part of the room is that devoted expressly to foreign orders. Accents for every language are kept in papers and sort boxes, classified like the other material, and convenient of access.

A memorandum of all type manufactured is kept for reference, so that at any time the date, quantity and character of all material handled in the room may be easily determined. A stock book shows the sales of every font delivered, so arranged as to exhibit at a glance the proportion of monthly sales for any period, extending over many years, and forming a valuable record.

FINANCIAL AND COMMERCIAL DEPARTMENTS.

No part of the spacious establishment gives such an impressive and comprehensive idea of the extent of the business transacted as the Commercial Departments on the first floor of the main building, fronting on Sansom Street.

Adjacent to the main entrance is the handsome and spacious office of William Brasher MacKellar, the Manager. From this office are managed all the various ramifications of the above-mentioned branches of the business, and the supervision of supplies of stock to the various branches and agencies of the Company. Besides all the usual



clerical requirements, many books of reference of value and variety, and specimen books of the type foundries of the world, dating back to the eighteenth century, are contained in its library. Copies of the editions of all the specimen books printed and distributed by the foundry during the past century are also carefully preserved. Portraits of the founders of the establishment, and their successors, adorn the walls.

On the side opposite to the Manager's office is the Bookkeeping Department. In system, elaborateness, and appropriateness to all requirements, this department is in strict keeping with the other divisions of the manufactory. Involving as it does so much technicality and absolute accuracy, it is operated under a system devised especially for the necessities of the business.

Directly in the rear of the offices, and extending back one hundred feet, are the Sales Departments. There the stock for current orders is kept, and each variety of type, printing machinery and material is replaced and filled up as the supply is drawn upon. All of the many styles of type are arranged alphabetically on the numberless shelves with respect to series and sizes of each design. There are about five thousand sizes included in the many series of jobbing designs, some of them nearly obsolete, but kept in stock because occasionally called for.

Most of these jobbing faces are made from special designs by trained artists, and have been produced at great expense. Others have been reproduced from original letters taken from old manuscripts in great public or private libraries, and from antique missals treasured in the monasteries of the Old World.

Whenever it is deemed that some original face will become popular, on account of beauty or utility, it is patented to prevent imitation. By a large outlay, and by securing the best designs, this establishment has for a long period of years furnished the most extensive assortment of tasteful and beautiful faces of any foundry in the world. It is also a well-known fact that the fonts are put up on a more liberal scale than in most of the American foundries, giving them additional practical value.

Not only is the Roman letter used in English printing found in all its variations, but the stock includes type for use in the French, German, Italian, Portuguese and Spanish languages, with appropriate accents, which are frequently shipped in large quantities to Mexico, South America, China, Japan, the Continent of Europe, and other foreign countries. There is also furnished type for the Greek, Latin, Hebrew, Russian and Rabbinic languages, all recut from old models.

This is the only type foundry in the country making music type. All the characters, lines and notes for this work are furnished in their entirety. Most of the extensive and valuable music books and collections of compositions published in this country are printed from the type made by this foundry.

The earliest specimen of music type known, it appears, was used at Westminster in 1495. The square notes were formed of ordinary type-high quadrats, and the staff-lines of metal rules imperfectly joined. In other countries music was occasionally shown, but not in type. It was usually printed from wooden blocks. About 1500 a music press was established in Venice, and soon other European presses followed, but music printing did not become general until 1550, when Grafton printed Marbecke's Book of Common Prayer, noted in movable type, the four staff-lines being printed in red and the notes in black. About 1660 the detached notes hitherto used began to give place to the new type notes, by which the heads of sets of quavers could be joined. At Oxford University punches and matrices of the music type used there about 1667 are still preserved.



SALES DEPARTMENT AND SHIPPING DEPARTMENT

Besides type of all kinds, the department contains a great diversity of other printing material. This includes printing presses from the smallest to the largest size, steam-power and lever paper cutters, lead and rule cutters, perforating machines, proof presses, hand presses, mailing machines, wire-stitching machines, and all the paraphernalia necessary for the printer to use, which is often received in car-load lots at a time.

There is always on hand a full line of wood goods, indispensable in a printing office, such as cabinets, stands, planers, cases, labor-saving wood furniture, galley racks, mallets, imposing stones and frames, etc.

In addition, there is kept in stock an assortment of miscellaneous printing-office conveniences, printers' books of reference, gauge pins, oil cans, press blankets of both rubber and felt, and similar material.

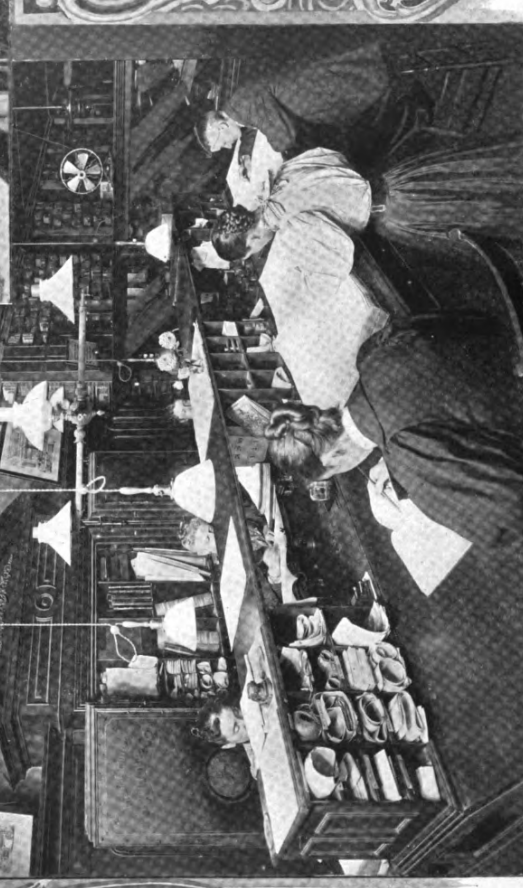
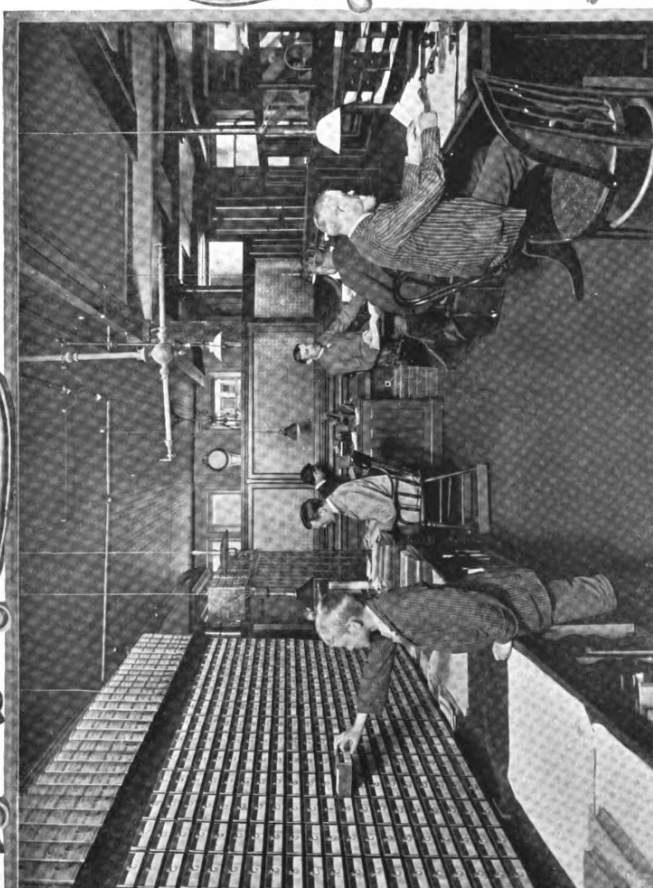
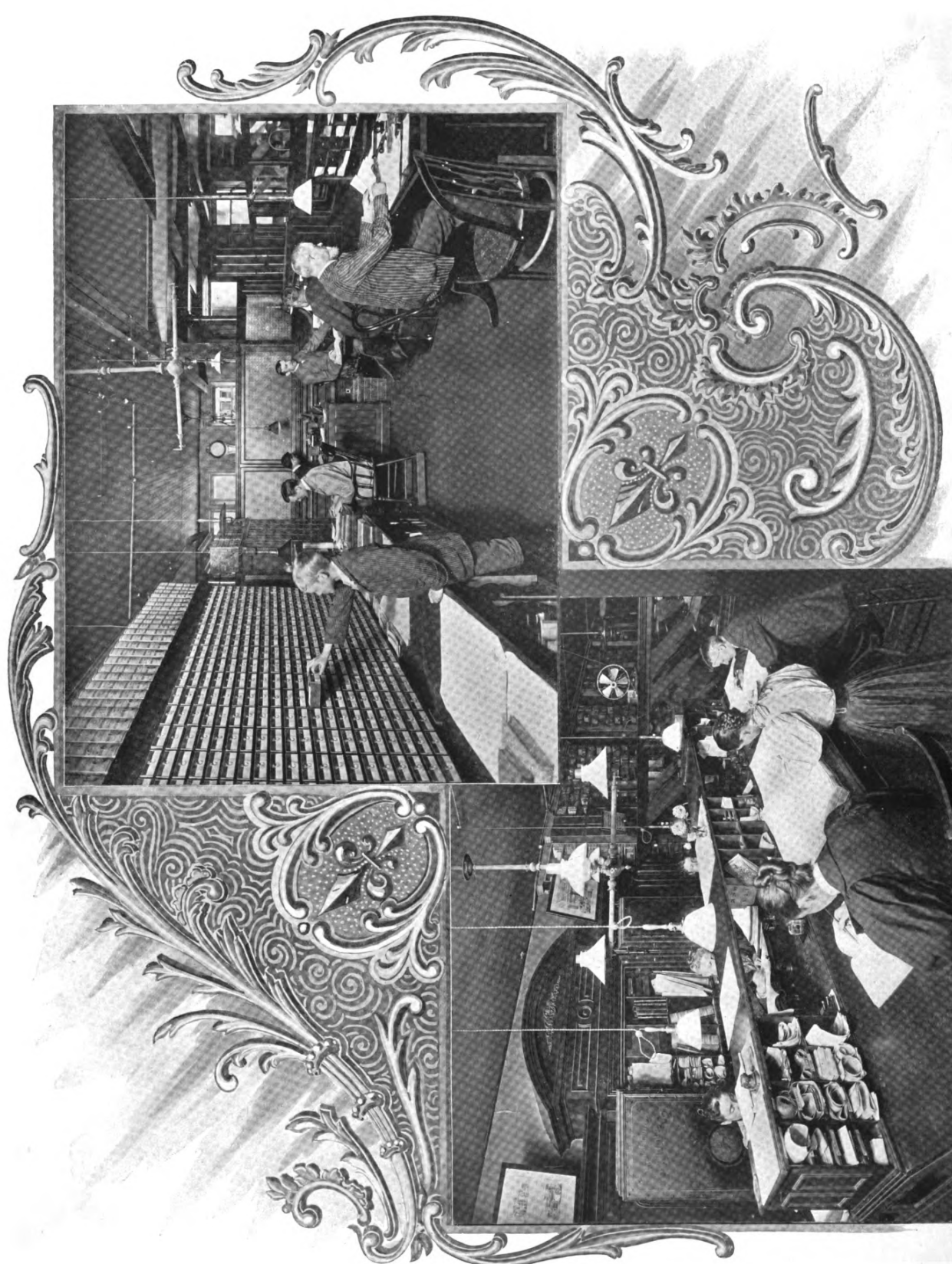


For over fifty years this establishment has done an extensive foreign business. Qualified representatives have from time to time been sent out to the Central and South American States. Frequently the type has been carried on mules over the Andes and into the various large cities of the equatorial republics.

Not only is much of the printing of the United States Government done from type made here, but from this foundry has gone forth the material for the official printing done by the governments of Mexico, Brazil, Guatemala, and other countries.

The establishment has an agency in London, which has its branch in Paris. It also has its selling agents in India, at Madras; in Australia, at Melbourne, Sydney, and Adelaide, and at other distant places, some of which take several months to reach via London. Through these mediums large quantities of type and printing material of all kinds are frequently shipped.

Indeed, the foreign trade of a type-making establishment on such a scale as this may be said to embrace all the Caucasian people of the world, and to extend its transactions wherever the later light of civilization has penetrated.



BOOKKEEPING DEPARTMENT AND CORRESPONDENCE DEPARTMENT

Transacting so much foreign business, and having sent out in a period of a century such an amount of type for the printed page, and disseminated widespread such quantities of literature in foreign climes, the claim may with justice be made that a great influence for the increase of intelligence and enlightenment has emanated from this single establishment, which has encompassed the globe.

In furnishing supplies to the printer, promptness is as equally important as correctness in the filling of orders. A special delivery system is in vogue, by means of which printers in the city have their orders filled immediately. Delivery wagons are also in constant use for large packages, for supplying orders to the various newspapers, publishing and printing houses, the vast majority of which receive all their printing material from this foundry.

The large force connected with the City Department includes city salesmen, who visit the trade each day with a view of ascertaining what is wanted, and giving prompt service. This department also handles electrotyping orders, and the best work of this character is produced. Entire works of many volumes, pamphlets, almanacs, and about everything important in this branch is done here on a large scale. Included in late work were the plates for a State publication of 1800 pages.

In the Country Department, all orders from the trade outside the city, including foreign orders, are handled, and during the busy season tons of type are shipped each week, going not only all over the United States but to different parts of the world. It is no uncommon thing to furnish entire outfits of type at short notice, as in the case of newspaper plants destroyed by fire, which have to be entirely renewed. The packing facilities for such service are on an elaborate scale, and special teams for hauling packages of heavy weight to the freight stations are required.

Such numerous transactions make a large correspondence system necessary, and the foreign and domestic letters of the concern, nearly all relating to orders, are extensive in number, and are usually of a character requiring practical judgment and prompt attention. This work is simplified by the use of stenographers and typewriters, who are kept constantly busy answering the many communications received during the course of the year.

Records are collected of all new improvements in printing machinery and the appurtenances of the printer, and all such information is kept on file in such a manner that it can be furnished without delay.

Under the jurisdiction of this department are traveling salesmen, who are constantly visiting the trade in different parts of the country soliciting orders, or, as is often the case, anticipating wants.



IT has frequently been said that the price of superior excellence is the most unremitting diligence. Practical printers are aware how well this true maxim applies to that art which is, probably more than all others, solely dependent upon care and accuracy for accomplishing the very best results. No matter how fine or finished the type may be, both the composition and presswork must be perfect in order to meet the exacting requirements of the time.

This has been found imperatively necessary in the Specimen Printing Department of so large an establishment as this. Printers, when purchasing type, very rarely see samples of the type wanted, but make their selections and order from the printed specimens, which must be clear and sharp impressions of the type. These specimens very often pass the judgment of the leading printing experts in the country, consequently they must be perfect examples of the typographical art.

It need only be said that in preparing specimen illustrations of the type the same care, thoroughness and accuracy are followed in properly displaying the designs as in the making of the type. Experienced men, modern presses, superior ink and paper, and careful oversight will produce the same beautiful typographical results in any printing establishment with the same type.

The composing room of this department is, without a doubt, one of the most thoroughly equipped of its character in the United States. Besides the large number of jobbing fonts for everyday use, which are laid in cases carefully numbered and labeled, there are stored away on shelves thousands of pounds of body letter, comprising all the sizes and styles made by the foundry.

Besides doing the composition for all their own specimen books and similar publications, much is done for the printing trade in general in the way of books, pamphlets and almanacs in all the modern languages, calendars, title pages, jobbing and fac-simile work, of which electrotypes plates are furnished. In the earlier years this department did the type composition on books which have been powerful in modeling the thoughts of rising generations and of the men who for many years have been most prominent in professions and in public life.

It is a well-known fact among printers that the books printed from plates made at the MacKellar, Smiths & Jordan Foundry, when the composition is done by them, are in their typography and style among the best printed in this country. In the make-up of the pages, in the clearness, beauty accuracy, and style of type, they are models; and where they are still preserved, as many of them are in libraries, they equal, if not surpass, the most artistic productions of modern times. The type composition on books done in this department for the last fifty years is far beyond what one would imagine. They include Bibles, school books, histories, volumes of poetry, books of hymn and prayer, books of music and song and the most diversified variety of publications. There has not been a move nor improvement, nor any development in the printers' art of book-making, during the past century, with which this department has not been identified or in which it has not taken the lead.

Any reference to the influence this type foundry, the oldest in the United States, has exerted on the printing art would be incomplete without calling attention to the beautiful specimen books of typography which have from time to time been issued from its Specimen Printing Department.

The first specimen book was issued in 1809. Two copies of this edition are preserved in the foundry library: one with no title at the beginning, containing some specimens of type, followed by a title in Part II, which consists of cuts and ornaments.

The next book in order is dated three years later, and was doubtless considered by Binny & Ronaldson as their first regular specimen book. The title of this book reads: "Specimens of Printing Types from the Foundry of Binny & Ronaldson, Philadelphia, 1812." In the preface to this book special mention is made of the fact that all their fonts are furnished with the accents used in the Spanish language. The book shows an assortment of type, from seven-line Pica down to Pearl, together with several pages of German, Greek and Hebrew, and some borders.

Another specimen book was issued in 1816, and still another in 1822. These were issued by James Ronaldson, successor to Binny & Ronaldson. In the preface to the 1816 book he pays a high compliment to his retiring partner. He also says that "in some cases it became necessary for Binny & Ronaldson to imitate the Europeans, and, in some instances, contrary to their own judgment."



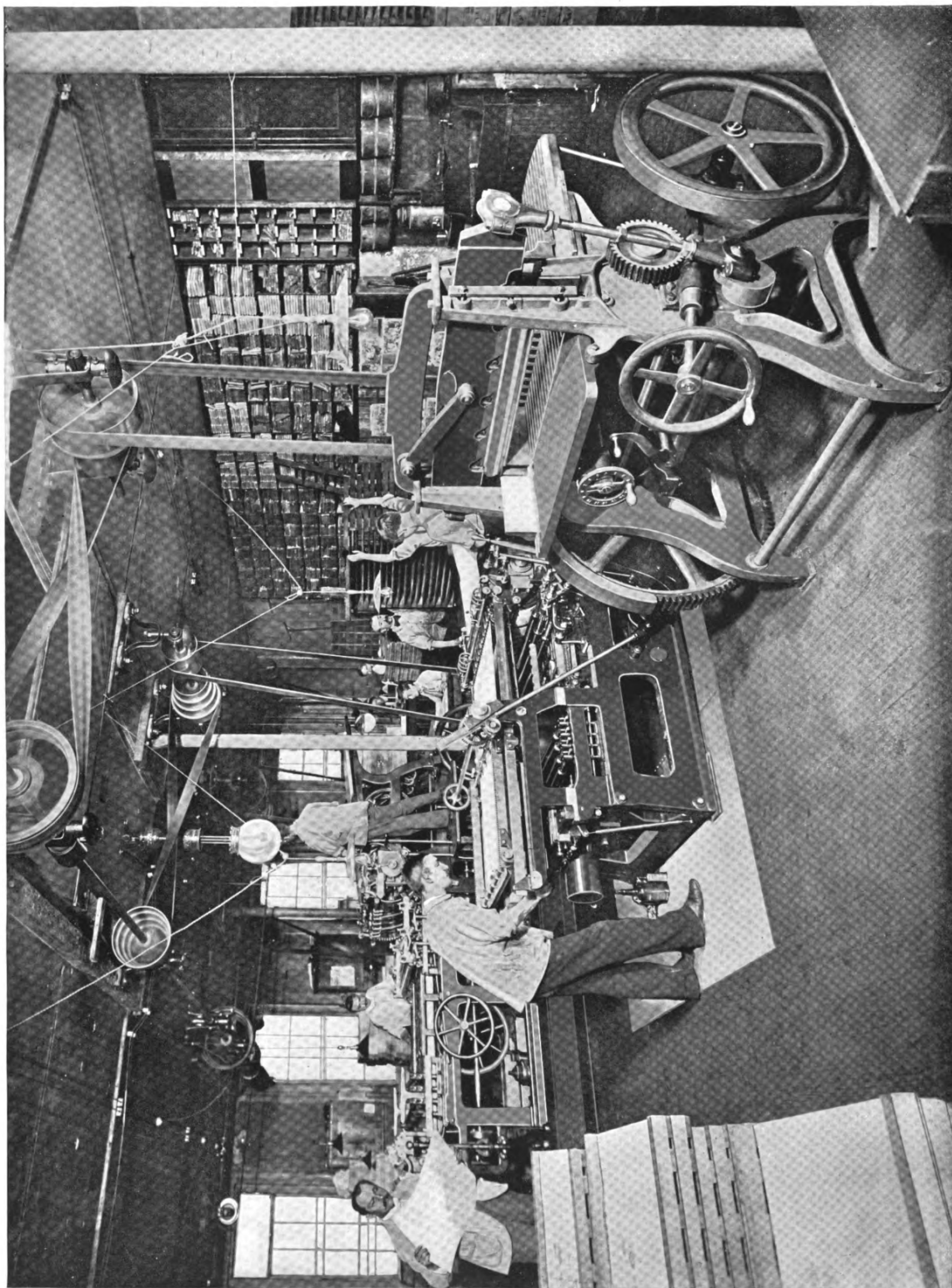
SPECIMEN PRINTING DEPARTMENT—COMPOSING ROOM



Following this a book was issued by Johnson & Smith, in 1834, and at that time was considered a masterpiece of typographic art. This book, with numerous additions from time to time, appears to have been the representative specimen book of the foundry until 1854.

The Minor Specimen Book, the first of its class in the country, and original in its conception and general make-up, was issued by L. Johnson & Co., in 1854. This book was too large for forwarding through the mail, and printers were requested to direct how it might be transmitted to them.

To save time, trouble and expense on the part of their customers, and to facilitate their own business operations, L. Johnson & Co., in 1857, published a comprehensive pamphlet for general circulation among the craft which furnished a large amount of information interesting and important to the printing fraternity. Illustrations were given of all kinds of printing machinery and appliances, also dimensions, prices and capabilities of the same. The catalogue of printing types, enumerating the prices



SPECIMEN PRINTING DEPARTMENT—PRESS ROOM

and sizes of every font, was so complete that printers could acquaint themselves beforehand with the cost of every article required. In addition to these, the pamphlet contained a list of signatures for book-work, specimens of proof-reading marks, a table showing the quantity of paper required to print a thousand copies of a book in any form, and numerous other items of interest to the printer.

The Eleventh Specimen Book, the Handy Book, and the Compact Book of Type Specimens, which have been issued continuously for the past twenty years, are too well known to the printers throughout this continent to require special mention.

To the credit of the Specimen Printing Department it may be remarked that at the World's Columbian Exposition, held in Chicago in 1893, the Specimen Book of this foundry received the Highest Award for "Illustrating the use of Type, Borders and Ornaments in combination. For Forms varied in size and unique in design. Absolutely without fault as to artistic effect and justification."

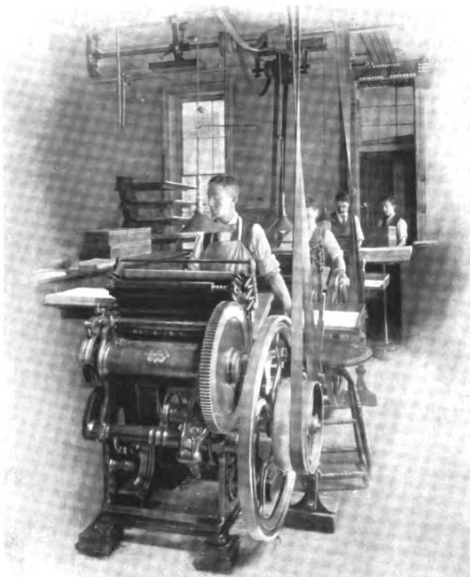
Early in 1894 the American Type Founders' Company commenced work on its Collective Specimen Book, bringing out the Eastern edition two years later. Nearly all the work necessary in producing this book, and placing it before the printers throughout the United States and Canada, was done at the Specimen Printing Department connected with the MacKellar, Smiths & Jordan Foundry. This specimen book is by far the most extensive ever produced by any type foundry in the world. In it are displayed all the leading book and newspaper types and original jobbing designs, besides a large variety of borders, ornaments, cuts, brass rule, and other material made by the various type foundries connected with the American Type Founders' Company. Over seventy tons of paper were consumed in the printing of this book.

This Souvenir, in its entirety, is also a product of the Specimen Printing Department connected with this establishment, and augurs well the class of work which it is capable of executing.

The type from which the pages of this Souvenir are printed is a new size of the famous Ronaldson Old Style, and was cut and cast on a fifteen-point body especially for this purpose. This series has had the largest sale of any old-style letter ever produced in this country. It was named after James Ronaldson, one of the founders of this establishment, and is known all over the world.

In reviewing the numerous editions of specimen books of various dimensions and sizes which were issued from this department, sight should not be lost of the Typographic Advertiser, the pioneer of its class in the world. It may be appropriate to look back to the period of its early history, and to note its marked influence as a factor in the advancement of all that pertains to typography.

The first edition was printed and issued in April, 1855, with Thomas MacKellar as its editor. In the initial number it was stated that the design of the periodical



was to bring the printer into more intimate relations with the type founder.

The discerning printer soon discovered in its columns hints of no small value, and ideas of typographic adornment which tended to beautify the work of his skillful fingers. Publishers of books also found it to their interest, as well as to the improvement and cultivation of their taste, to consult its pages.

Its aim was to present a sheet that, whether the elegance of its outward seeming or the usefulness and purity of its sentiment were regarded, should be auxiliary in promoting the advancement of the typographic art, and prove creditable and profitable alike to the printer and publisher. As the years advanced the approbation with which

the *Typographic Advertiser* was received, and the appreciation of its merits awarded to it by the craft, fully confirmed that its original mission and intentions had been more than realized and effected.

It was always a model of suggestive presswork, and an exponent of the beautiful in the originality of display and of artistic combination in type designs. Its special typographic features created a spirit of emulation for improvement, so that typography kept pace—in fact, led the advance—in the wonderful strides that were made in the kindred branches: the field of printing machinery and other like material.

During the many years of its career the *Typographic Advertiser* was received by all as a welcome friend. It penetrated every nook and corner of the globe where a printing office could be found.

In 1885, the editor, Dr. Thomas MacKellar, in his postscript, said: "We have let the robe drop quietly from our shoulder. During its many years of wear it had never become soiled nor spotted, and a comfortable garment it had always been. It was the first of its particular pattern, and the only one of the kind ever made. It produced the magnetic power of bringing our readers into our mental presence, and, as it were, enabled us to talk with them inaudibly, and to see their invisible faces; so it never lay heavily upon us."

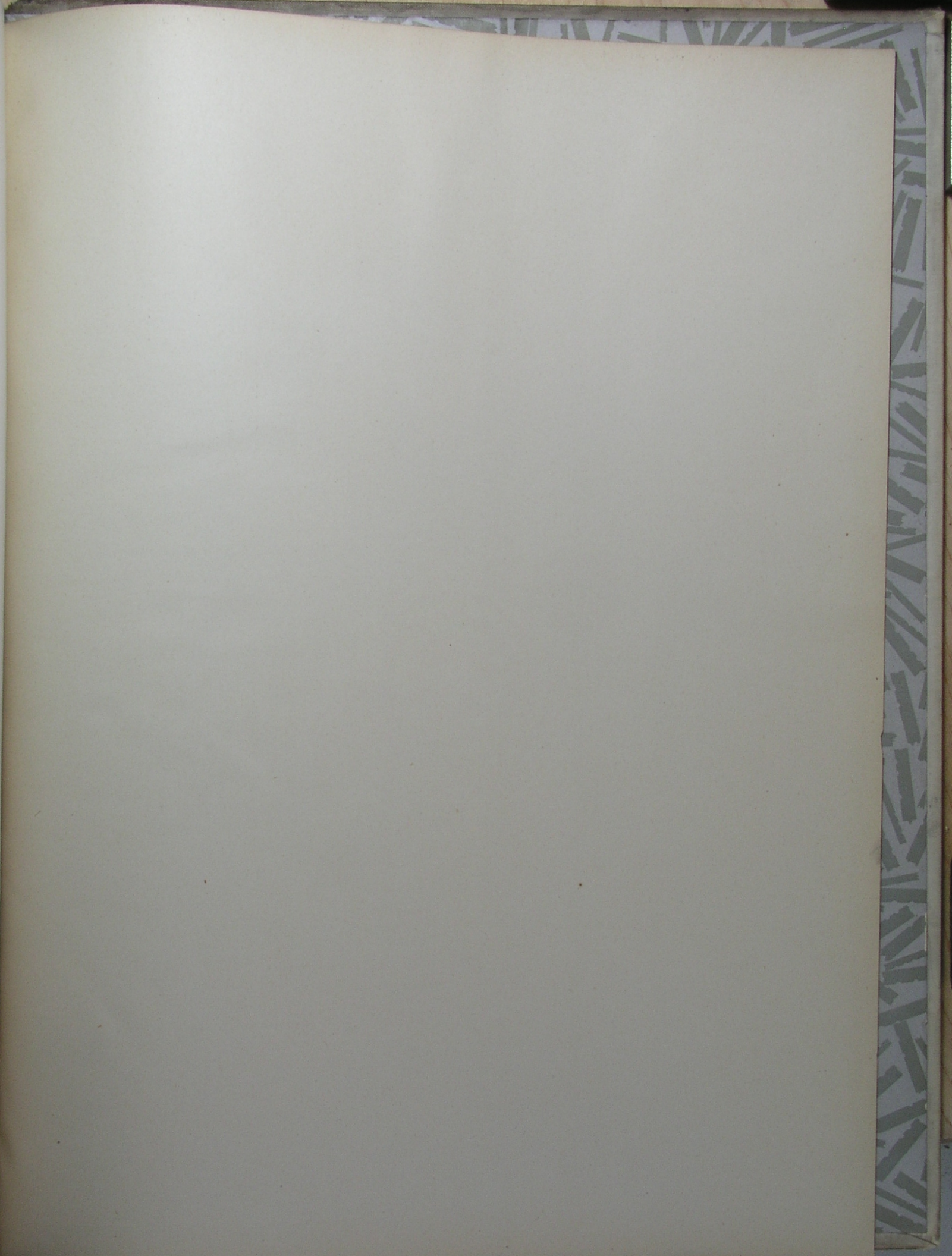
William Brasher MacKellar succeeded his father as editor, and the *Typographic Advertiser* continued regularly to appear until 1895, when its publication was temporarily abandoned. It was revived in July, 1896, and is now published regularly by the American Type Founders' Company and distributed by its branches and agencies.

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