ASPECTS OF MONOTYPE · I

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Edited and with additional notes by Paul Hayden Duensing

Introduction

In 1984, John Dreyfus addressed the members of the American Typecasting Fellowship assembled in Washington, D.C., on the subject of the history of The Monotype Corporation, Limited. Now, in 1996, as the centennial of Tolbert Lanston's invention looms, Mr. Dreyfus has kindly given his permission for the editing, updating and publication of his original manuscript. Some ancillary notes which bring the narrative closer to the present have been added by the Editor.

AFTER PONDERING over which aspects of Monotype were likely to be interesting and—to a reasonable degree—unfamiliar to members of The American Typecasting Fellowship, I decided to concentrate on three: first, how Tolbert Lanston developed his invention, and how others perfected it, (which I will explain with the help of illustrations showing the earliest Monotypes made between 1887 and 1907); next, I'll show and describe some of the people and places connected with the evolution of Monotype in England; and finally, I'll give you an account of what happened to the British Monotype Corporation over the last twelve years, from the time Monotype House was sold to the present new-found period of prosperity. [At this point, ancillary information will be added by the editor to bring the narrative to 1996.]

Allow me to start by describing to you the background to Tolbert Lanston's invention. Let us go back to the early years of the seventeenth century to show you an invention which later became of fundamental importance to the typographic arts.

Figure 1 shows the engraved frontispiece from a book printed at Rome in 1631. Under the coat of arms at the top of the engraving you may read the word *Pantographice* and this is the first printed description of the pantograph, a device

Figure 1

built in 1603 by a Jesuit priest named Christoph Scheiner.

Below that easel, in the bottom center of the engraving, is a Latin inscription which means "Look through this (meaning the eyepiece) and make your copy according to the original." The vertical rod to which the eyepiece is attached concentrates the eye while making the drawing.

To make the drawing on any desired scale, larger or smaller, the pantograph is used in the manner demonstrated at bottom right, by the little winged figure, who has in front of him a large drawing which he's copying on a smaller scale. Scheiner's book explained the principle of his invention in a series of text diagrams of which this one makes clear the parallelogram principle on which the device operated. In the

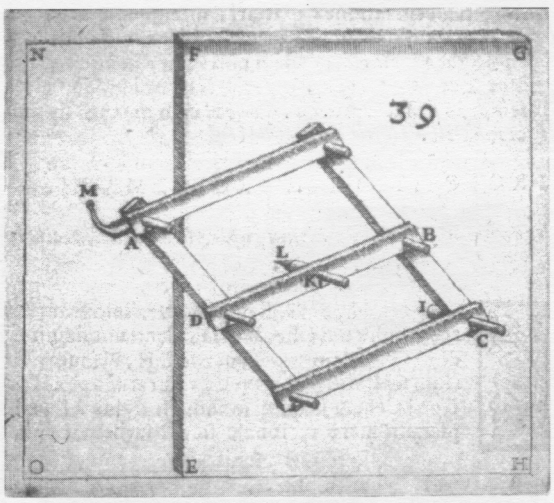


Figure 2

center, the letter L shows the tip of the drawing instrument. The surface of the sheet of paper on which the drawing is to be made is the rectangle marked E-F-G-H. The parallelogram-shaped pantograph is anchored at the left

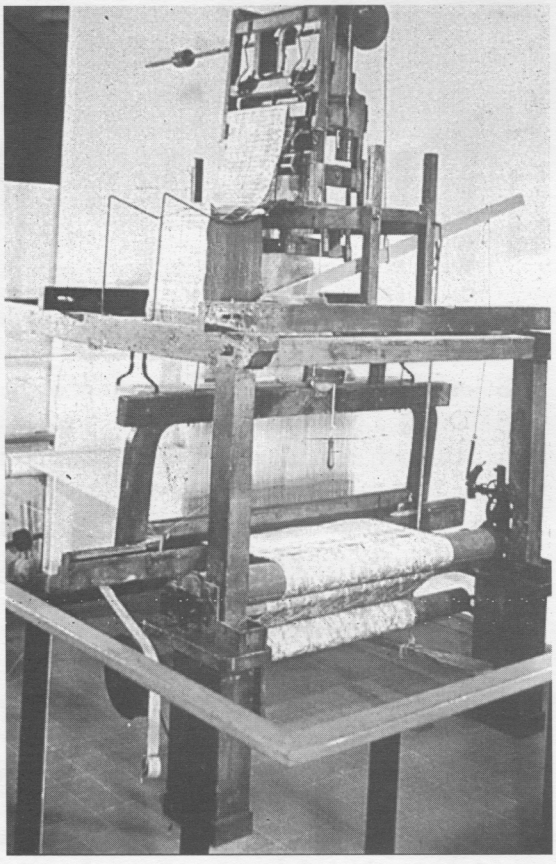


Figure 3

Figure 4

at the point marked M. The rectangular working surface on which the gadget is operated is marked to the left with the letters N and O and at the right with the letters G and H. (figure 2).

In 1834, an American, George Leavenworth, managed to combine a pantograph with a router to cut types in wood; but only in 1884 did Lynn Boyd Benton, another American inventor, devise his punchcutting machine which made it possible to mass-produce punched matrices for type-setting machines such as Linotype and Monotype.

The principle on which the Monotype operated was controlled by a method which had been prefigured in the loom (figure 3) a Frenchman, Joseph Marie Jacquard, invented around the year 1804. Jacquard was from Lyons, a city which contributed a great deal to the typographic arts. He had applied perforated cards in the first half of the eighteenth century to certain mechanical instruments. But Jacquard's loom is considered to be the first application of the punched-card system to control a manufacturing process. Of course the Jacquard loom was known to the great New York master-printer and scholar, Theodore Lowe DeVinne, and a

prescient remark by DeVinne in an article on "Speed in Composition" which was published in the Cleveland *Printing Gazette* in August, 1871 reads: "To the novice there is no problem in mechanics that appears more difficult than that of typesetting by machinery. Those who have seen most of the experimental machines [and Devinne devoted the greater part of his article to the invention of Dr. William Church] consider them wonders of complication beside which the Jacquard loom seems simplicity itself."

Tolbert Lanston (figure 4) who invented the Monotype, was twenty-seven years old when DeVinne published his remark about the comparative simplicity of the Jacquard loom. Lanston, a civil servant in Washington had studied law and had been admitted to the bar; but he had no training as an engineer. That didn't stop him from inventing a strange variety of gadgets that included an adjustable horse-shoe, an adding machine, a mail-bag lock and a hydraulic dumb waiter.

The basis for his invention of the Monotype machine could also have been provided by an opportunity he had to inspect the machine developed from 1880 onwards by Herman Hollerith for classifying and tabulating statistics in Washington in the Census Office, where a friend of Lanston's named Colonel Seaton was Director of the Census. Furthermore, Seaton was the son of a newspaper proprietor, and had connections with government printing contracts, so he was well-placed to give his friend Lanston a clear picture of the problems to be overcome by mechanical typesetting machines. Eventually Lanston overcame these problems with two pieces of machinery, the first of which was a keyboard of the pattern seen in figure 5. By striking the keys, the operator activated the mechanism which punched the paper ribbon that can be seen on the spool at top left. At the same time a weight-operated driving-gear advanced the paper ribbon and registered the thickness of the letter. It also advanced the scale pointer at top right to indicate how much of the line had been composed and how much remained to be finished. At the end of each line, the operator raised the weights dangling at bottom left by pulling a lever, and this action simultaneously returned the line indicator to its starting point. Each time a space was struck, an arm was moved up to indicate the number of spaces used; and at a certain distance from the end of a complete line, this arm moved radially over a segment of the disc. Finally, it showed how much justification was needed to fill out the line completely.

Lanston's second machine (figure 6) was introduced in 1887 and it was strangley unlike

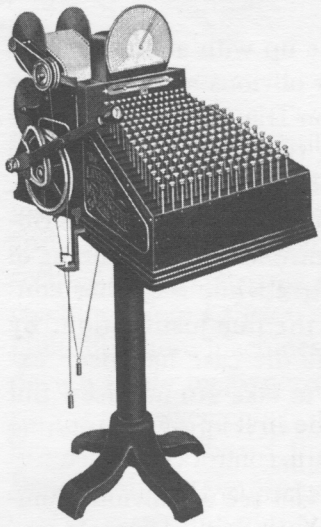


Figure 5

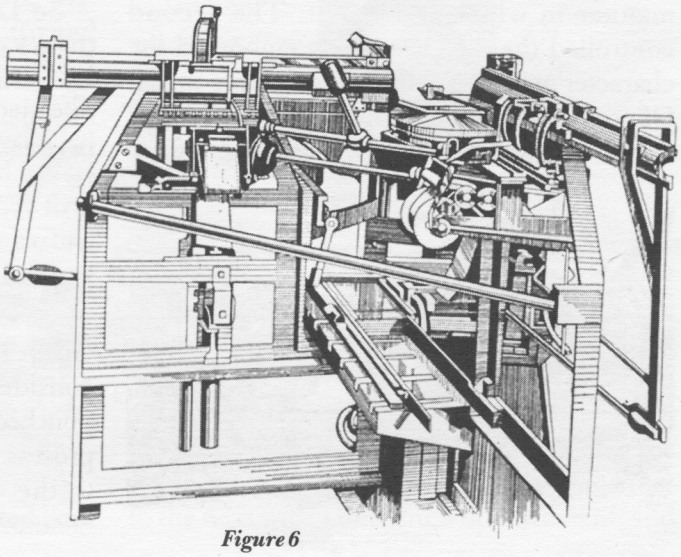


Figure 6

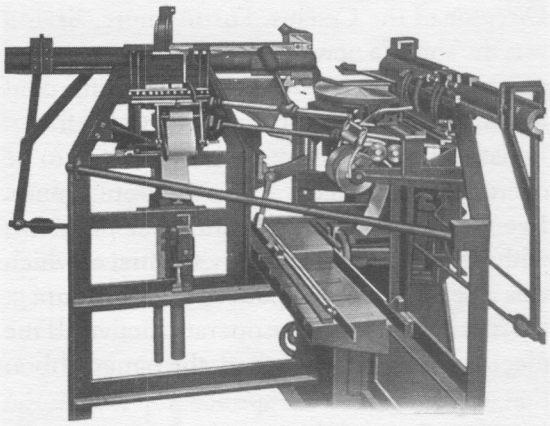


Figure 7

the casters which were later developed for the Monotype system: this machine was a type-maker and not a typecaster. Although the spool of perforated paper can be seen at the left, and another spool at the right, it may be difficult to fathom, from this drawing, how this elaborate piece of equipment actually functioned. In fact it was a machine for composing justified lines of type, but the types were not cast, they were cut off a strip of type-high type-metal, which was subsequently compressed to the required width and embossed with the required character. Another drawing of this same machine (figure 7) may help to follow a few more explanations about it. There are two rolls of perforated paper; one of them controlled the forward movement of the metal strip and the manner in which it was cut. The second controlled the die-case which embossed the character upon the cut-off piece of type-metal. Of course it is impossible to gain any idea of the actual die-case from this drawing, but we know that it contained 196 matrices. Trials proved that this embossing typemaker was too slow, partly because a pre-cast strip of type-metal militated against speed of operation. So Lanston came up with another device.

This drawing (figure 8) was the work of an English artist. It was published in *The British and Colonial Printer* for January, 1892. But this vast machine had been shown over here in a journal called *Paper and Press.* That journal carried, in 1891, the first description of this machine which was shown a couple of years later at the Chicago world's fair. It was the most massive and space-consuming of all the Monotype models ever built. It needed far too much attention from the engineers who operated it, and cost far too much to make, and in fact only one was ever built.

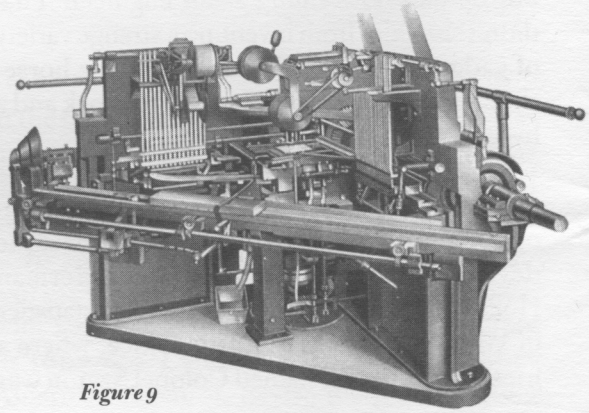


Figure 9

So Lanston came up with another model (figure 9) which for obvious reasons became known as the Lanston Triangle. Like Lanston's original embossing type-maker, it used two perforated paper ribbons, and the machine was actuated pneumatically. One ribbon controlled the positioning of the matrix while the other controlled the line justification. By now the die-case had been extended to take 210 matrices. But problems developed with casting and cooling.

You will see an obvious similarity between this Triangle machine of about the year 1890 and

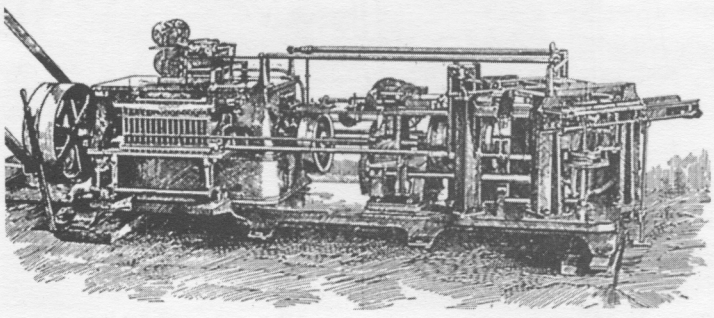


Figure 8

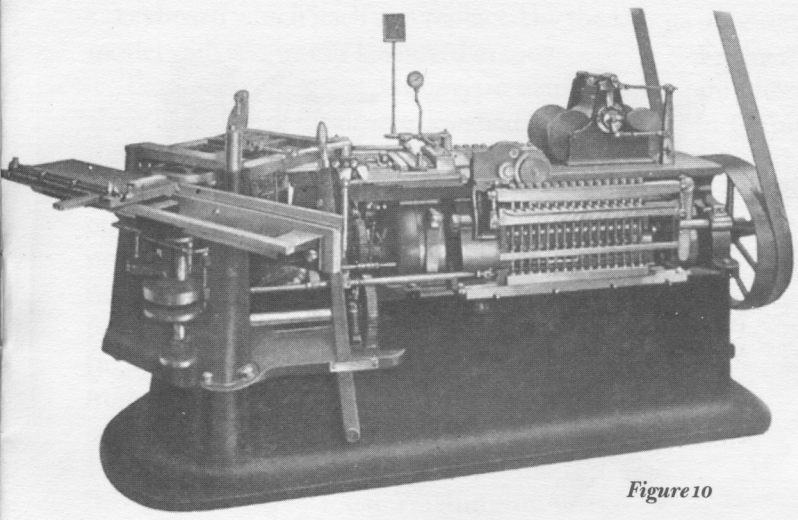


Figure 10

the later 1893 Angle-End Lanston caster (figure 10), which was again exhibited at the Chicago world's fair in 1893. This, too, was a massively heavy machine, with casting, delivery and galley mechanisms turned at an angle on one end (at the left), and with the paper tower visible at the right. By now Lanston had gone as far as he could go; so the development of the Monotype machine was turned over to one of his friends, a mechanical genius named Bancroft.

Figure 11

John Sellers Bancroft, (figure 11) worked in the highly regarded engineering firm of Sellers and Company in Philadelphia. That firm secured in 1894 an order to build fifty casting machines from Lanston's drawings. Later, it built fifty more machines from an improved design made by Bancroft, who also made radical improvements (as will be seen) to the design of the keyboard. But first let us see what Bancroft did for the Monotype caster.

The caster in figure 12 on which Bancroft had to improve was known as the Limited Font machine because it carried only 132 matrices. The model here was in fact the the first Monotype caster to be sent to England in 1897. One of the first of these machines was put into use a year later at Gibson Brothers in Washington, D. C. This model was very compact in comparison with those massive earlier machines. After Bancroft took charge of re-designing the casters, he came up with the Full Font caster in 1899. It provided composition from the greatly

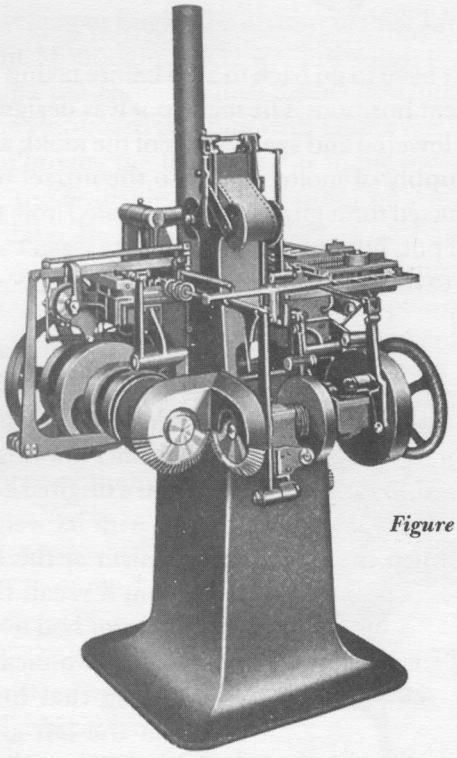


Figure 12

increased quantity of 225 matrices. And it became the basis for all subsequent Monotype casters of American and British manufacture. (figure 13)

The 225 matrices were arranged in 15 rows of fifteen matrices. The matrix case and the sizing wedge moved directly from one position to the next with a minimum of movement, and

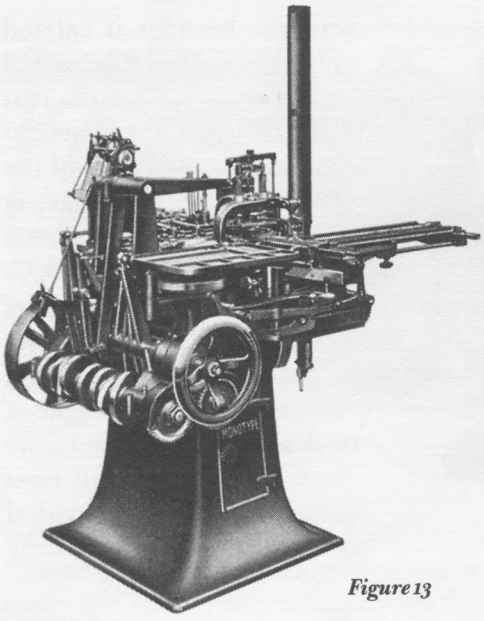


Figure 13

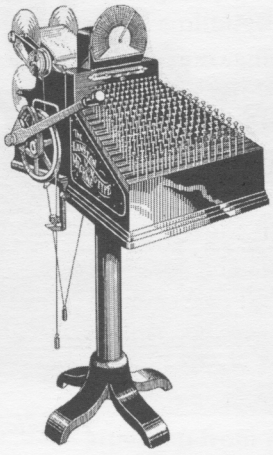


Figure 14

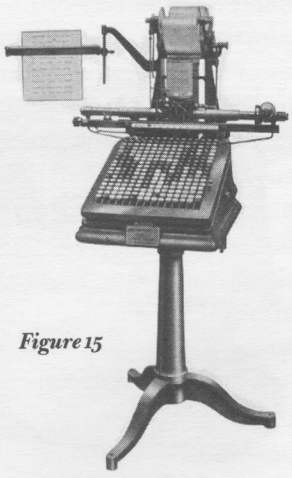


Figure 15

didn't have to go back to zero before taking up the next position. The metal pot was designed to be lowered and swung clear of the mold; and the supply of molten metal to the nozzel was conducted through a channel separated from the metal pot, but resting in it, so there wasn't any need to raise the whole pot each time a type was cast.

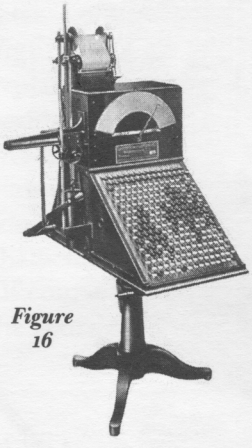


Figure 16

Bancroft also made radical improvements to the keyboard (figure 14). Another drawing of Lanston's original keyboard, with its weight mechanism at the left (and you'll recall that the operator had to reverse the line indicator by pulling that huge lever at the left after completing each line) shows some of these innovations.

This C-pattern keyboard (figure 15) incorported Bancroft's mechanical keyboard. Through keybars, the keys operated rockshafts that moved the bars which carried the punches for perforating the paper ribbon. The C-keyboard was built under Bancroft's supervision by the Taft-Pierce Company in Rhode Island and was the first keyboard to be operated by compressed air. The improved drum for reading off the data needed for justifying lines just beneath the spool of perforated tape can be seen here. This C keyboard was replaced in 1907 by the D keyboard, which most usefully adopted the QWERTY typewriter layout for the keyboard, and reduced the air valves from 225 to 33.

All this was a vast improvement on the first keyboard sold in England (figure 16) and shows how swiftly the design of Monotype keyboards

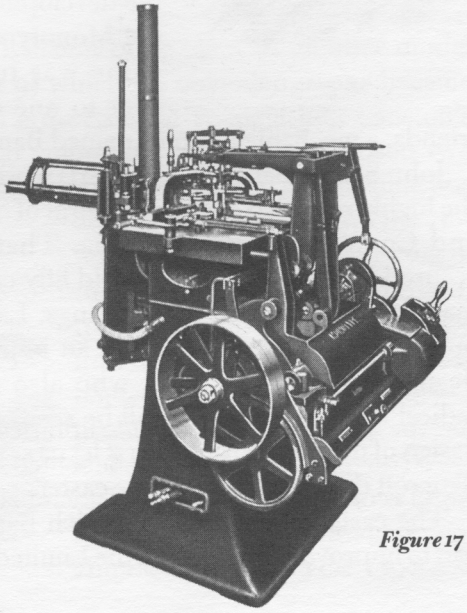


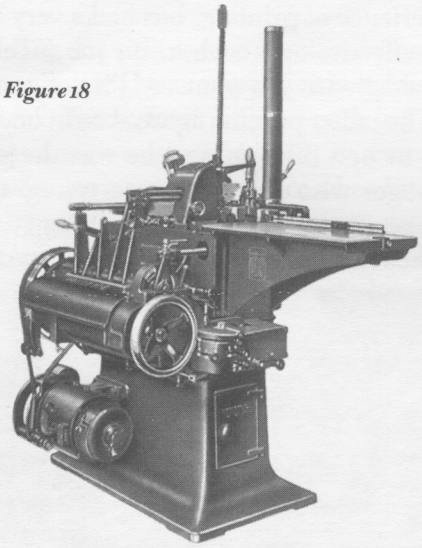
Figure 17

improved between the model of 1897, and the C keyboard which itself was replaced by the D model with its QWERTY keyboard in 1907.

Two other views of Monotype machines show how both of them were designed to exploit the potentialities of the caster. First the Type, Lead & Rule caster which, like the Super Caster, was a compact and versatile machine that was not operated by punched tape, and was created not to cast composed type, but to cast single type, leads, rule and other spacing material (figure 17), This machine could cast in sizes from 5 to 36 point, and by the early 1920s it had become quite popular, with 55 installed in the Philadelphia area alone, and with machines installed in three local Washington newspapers: *The Washington Herald, The Washington Post* and *The Washington Star.*

But in 1929 the British printing trade was introduced to an even more versatile machine: the British-built Monotype Super Caster (figure

Figure 18



18). It was capable of casting type from 5 to 72 point, and a wide variety of rules and ornaments, not to mention every kind of spacing material. The success of this machine was helped in Europe by the creation of loan libraries from which display matrices could be rented by the day at very low prices. The Philadelphia company, however, took a dim view of this very real threat to sales of their Monotype Giant Caster and for many years discouraged or prohibited its importation into the United States.

Figure 19 represents no less a person than the Right Honourable Windham Thomas Wyndham-Quinn, Fourth Earl of Dunraven and Mount Earl. We'll call him Lord Dunraven for short, or shorter still, Dunraven. He was a well-known yachtsman who went after the America's Cup three times. But perhaps the luckiest thing that ever happened to him at sea was to meet two Americans aboard a transatlantic steamer in May, 1897. The Americans were travelling to England with four of their Limited Font Monotype machines, intending to raise capital in London for their further development. The shipboard meeting with Dunraven led to him buying the British rights in the invention for the equivalent (at the time) of a million dollars. In December, 1897, The Lanston Monotype Corporation, under the chairmanship of Dunraven, was founded with a capital of just over half a million pounds. A large tract of land was bought about halfway between London and Brighton; to take charge of the new Monotype Works built on this site, a redoubtable American named Frank Hinman Pierpont (figure 20) was engaged by the British company.

Figure 19

Figure 20

Pierpont was a man of inventive ingenuity and of considerable stature as a leader and organizer. He had gained engineering experience with the firm of Pratt & Whitney in Hartford, Conn., the state where he had been born in 1860. In 1875 he worked with a patent lawyer who involved him in drawing parts of the Paige Typesetting Machine for the United States Patent Office. Nine years later patent business took him to Berlin where he had to

Figure 21

negotiate with a firm that had bought rights in the Typograph machine. Before long, Pierpont became managing director of the German Typograph Company, and in that role, began to make a great many patented inventions, including a *camera lucida* for drawing typefaces, and a spacing and casting mechanism. He also created a highly skilled team of men who set up production-line methods for making matrices. Two of these men, the brothers Demming, came with him to the Monotype Works at Salfords when he took up his appointment as Works Director. Another invaluable employee from the Typograph Company named Fritz Steltzer, a highly skilled draftsman, also came to work under Pierpont at Salfords.

An important figure in the British company since its earliest days was William Isaac Burch (figure 21) on the right in his shirtsleeves, trying his hand at an inscription under the close supervision of Eric Gill, the bearded figure standing behind him. Burch was the British firm's first company secretary, taking that appointment in 1898 and then holding the appointment of Managing Director from 1924 until his death in 1942. He was an exceptional man in two ways: he realized that Monotype's position, confirmed by patents in so many improvements to the original Lanston machines, carried with it a duty to the printing trade. He accepted the importance of after-sales service, and the importance of engaging the best new artists and scholars to produce typefaces for the machine. His personal involvement is shown in the photograph of a Managing Director trying his hand at an inscription, guided by one of his type designers. For scholarship in matters of typeface design, he turned to Stanley Morison (figure 22) at the left in this photograph, with an English engineer named Dick Elliot, who was the genius responsible for a number of improvements made to Monotype hot-metal machines in England. He had little previous experience of printing, but had a very simple and effective approach to his job. "Tell me," he said, "what *you* want and I'll design it."

The rather porcine figure at right on his feet was named Silcock, and he was the general manager who hired me as a typographical adviser to the Corporation in 1955, and I cannot remember having anything to do with him afterwards. My job was mainly in the London office, and Silcock spent most of his time at the Monotype Works at Salfords. Seen from the air (figure 23) in the mid-1950s this was just about the moment when the first Monotype filmsetting machines were coming onto the market from this facility.

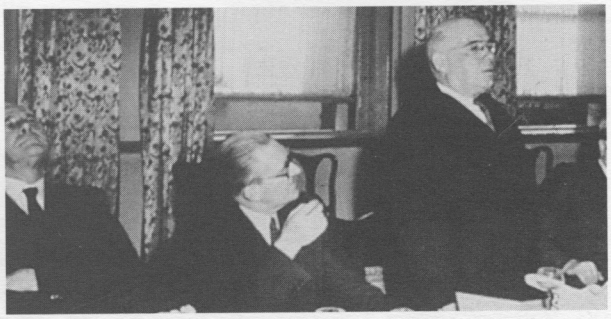


Figure 22

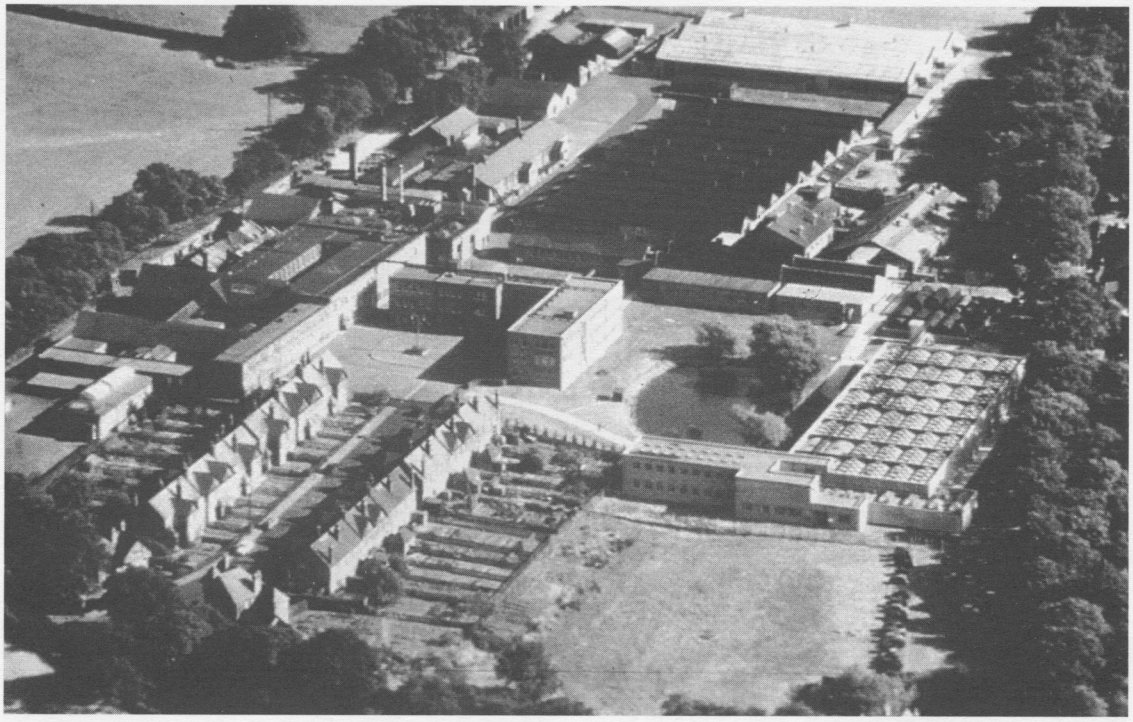


Figure 23

During the fifties, many of the trains from London to Brighton stopped at a special halt named Salfords, from which a path led to the Works. A sign was put up with an arrow and lettered MONOTYPE WORKS. Once when I stepped off the train in the mid-1970s (when the company was in severe difficulties and was closing some sections) some disgruntled wit had pencilled in below the words MONOTYPE WORKS—NO IT DOESN'T. But when this picture was taken in the mid-1950s, all was still working smoothly. In the center of the photo is the office block, and L-shaped building next to an artificial lake and at one corner of the same lake was located the Type Drawing Office (figure 24), the two story building in the photo, with the matrix factory including the punchutting department at the left. It was the Type Drawing Office (figure 25) in which the die case arrangement and apportionment of unit widths were planned by highly experienced supervisors, and where extremely accurate 10-inch drawings were made, before creating patterns in relief to guide the pantographically-operated punch-cutting machines.

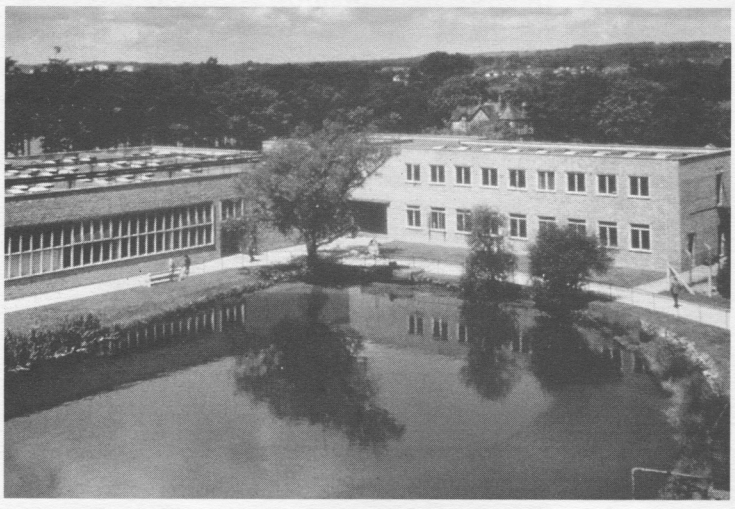


Figure 24

In figure 26 can be seen the follower of the punch-cutting machine being led around the relief pattern for a bold cap R in Eric Gill's typeface named Perpetua Bold. The follower is one

Figure 25

Figure 26

of a graduated series which can be inserted at the end of the stylus held here by the operator's right hand. Progressively smaller followers are used as the stylus is brought closer to the edge of the pattern. The pantograph principle causes a punch to be cut at the upper end of the machine of which this stylus is only one of its many moving parts.

Next to the building which housed the Type Drawing Office was the Punch-cutting Department (figure 27), equipped with a battery of machines designed by Pierpont for the English company.

Figure 27

The next stage (figure 28) is the striking of composition matrices, carried out in the back along the windows, and the checking of the matrices for accuracy by the men seated on the right. All the essential data which needs to be checked for each matrix struck is contained on the stack of cards seen on the table in the left foreground.

As typographical adviser, my concern was not with these manufacturing stages in the works, but with the people responsible for deciding what new typefaces should be added to the Monotype range. The two with whom I dealt most frequently were Stanley Morison, the Corporation's first typographical adviser, and Beatrice Warde, the publicity manager.

Figure 28

Morison had been appointed in 1923, after preliminary discussions in 1922. Beatrice Warde was an American lady who wrote under the pseudonym of Paul Beaujon. After the management of the Corporation had invited Mr. Beaujon to join them in 1926, they were at first dismayed to discover they had hired the estranged wife of the American typographer and type designer, Frederic Warde. But they couldn't have picked a better person for the job. When I wrote an obituary of her in 1969 for *The Times*, a sub-editor gave it the title "First Lady of Typography". She wrote compelling copy and

Figure 29

got on famously with all sorts and conditions of men—printers, students, typographers and the reading public at large. She boasted a few years before her death that what she was really good at was "standing up in front of an audience with no preparation at all and for fifty minutes refusing to let them wiggle an ankle."

Stanley Morison exerted tremendous authority. He was fascinated by power and thoroughly enjoyed exercising it. He was almost invariably dressed in black, with a black tie and black shoes, and a white shirt. He was very conscious of his image, and very careful to preserve it.

But he was no charlatan: he had a formidable intelligence, deep learning, and a sound grasp of the realities of life.

Morison and Warde (figure 29) often joined forces in issues of the Corporation's admirable but irregular publication, *The Monotype Recorder*. The first number was published in January, 1902, long before either of them had joined Monotype. Let me quote a few lines from this English publication:

> The Monotype came from that ever prolific birthplace of inventive genius and its product, the United States, in 1897. The primæval stage goes back to the early "Eighties," and has now become buried in the "misty past;" but in 1897, on its arrival here, it might be called in its mediæval state. The keyboard was a mechanical one with but 132 keys and the caster which was built by "hand", (i.e. without jigs, templates or other standard tools) was only capable of manipulating the same number of matrices.
>
> Since that period three great changes have taken place—firstly, the fount was raised from 132 to 225 matrices, involving changes on both caster and setter; secondly, the mechanical board was superseded by a vastly superior pneumatic board, giving wider measure, greater speed, and less liability to derangement; and thirdly, the caster was improved not only in the details of design but in of some of the important working parts ...

It then went on to describe the improvements made to the machines.

What Morison and Warde did later was to convert this humdrum publication into a major organ of publicity for the Monotype Corporation (figure 30) with an appeal to the reading public at large, and not only to those engaged in

The MONOTYPE RECORDER and Monthly Circular

Monotype Keyboard — Casting Machine

No. 1. JANUARY, 1902. ISSUED MONTHLY; POST FREE.

THE MONOTYPE RECORDER.

In introducing the first number of this little pamphlet to our readers we will frankly admit that it is an advertisement, but it is by no means a mere puff of the "Monotype." It aims at giving the printers of the United Kingdom a ready means of estimating the progress made by the most highly perfected mechanical composer on the market, and of deciding whether it has come within the range of "practical politics," from their point of view or not.

With this object a note of all items of interest referring to the capability of the machine or to the success achieved by the Companies exploiting it will be found from month to month.

A page of composition of more or less difficulty showing the diverse uses to which the composer may be put will appear regularly, and in addition, as the Lanston Monotype Corporation are always at work cutting new faces, the latest product added to the stock and ready for delivery will be shown on the third page.

The RECORDER will help to keep users of the "Monotype" in touch with the Corporation and will contain hints as to the solution of those small difficulties which inevitably crop up from time to time in the case of all machines recently introduced to a new office, where the operators must necessarily be more or less strange to their work.

Opportunities will be made for assisting the ever growing number of those enterprising printers who have already adopted the Monotype by suggesting methods of raising the efficiency of their installations and increasing the production obtained from them.

In fine, the RECORDER will be made as useful to its readers as the space afforded by its columns will permit, but these columns will be rigorously kept within their present bounds so that the printer's valuable time will not be unduly encroached upon.

The Monotype has "*come to stay*," and the interests of the Corporation owning the rights in this invaluable invention (or, more properly speaking, inventions) will be pushed in a straightforward manner. The Corporation has something to sell which the printer only needs to see in practical work to appreciate. The Corporation asks nothing more than to have the capabilities of the machine tested, and, if found to be superlative, that the machine should be adopted. All they desire is that the Monotype shall have "a fair field and no favor," and that printers will refuse to be beguiled, by temporarily cheap offers of rivals, into doing their quota towards keeping a better machine permanently off the market.

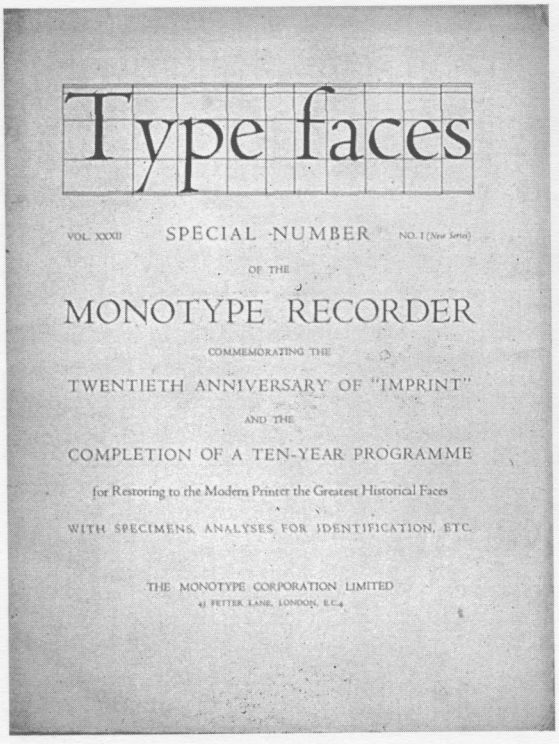
As this is the first issue of this *brochure* it may be permissible to give a slight sketch of the history of the Lanston Monotype—to give the machine its full name.

The Monotype came from that ever prolific birthplace of inventive genius and its product, the United States, in 1897. The primæval stage goes back to the earlier "Eighties," and has now become buried in the "misty past;" but in 1897, on its arrival here, it might be called in its mediæval state. The keyboard was a mechanical one with but 132 keys, and the caster which was built by "hand" (*i.e.*, without jigs, templates, or other standard tools) was only capable of manipulating the same number of matrices.

Since that period three great changes have taken place—firstly, the fount was raised from 132 to 225 matrices, involving changes on both caster and setter; secondly, the mechanical board was superseded by a vastly superior pneumatic board, giving wider measure, greater speed, and less liability to derangement; and thirdly, the caster was improved not only in the details of design of some of the important working parts, mainly directed towards increasing the life of the machine and securing greater perfection

Continued and Cont on the Monotype.

Figure 30


Type faces

VOL. XXXII SPECIAL NUMBER NO. 1 (New Series)

OF THE

MONOTYPE RECORDER

COMMEMORATING THE

TWENTIETH ANNIVERSARY OF "IMPRINT"

AND THE

COMPLETION OF A TEN-YEAR PROGRAMME

for Restoring to the Modern Printer the Greatest Historical Faces

WITH SPECIMENS, ANALYSES FOR IDENTIFICATION, ETC.

THE MONOTYPE CORPORATION LIMITED

43 FETTER LANE, LONDON, E.C.4

Figure 31

the printing trade. Notice the difference between this first number of *The Recorder* and a number issued in 1933—ten years after Stanley Morison had drawn up a program for the recutting of some of the best (but lost) faces of the past, as well as new faces by contemporary designers such as Eric Gill, Bruce Rogers and Frederic Goudy. This later number (figure 31) was devoted to the completion of Morison's program, and inside was a displayed page written and designed by Beatrice Warde in a style which later became familiar to thousands throughout the world by her poster in similar style for display at the entrance to a printing office.

It reads:

> To the reader of books—final arbiter of typography—unconscious censor of all letter design that is unworthy of his general standards of good taste in life and literature—staunch supporter during the past ten years of all those efforts which have been made on his behalf by scholars, *type designers, publishers, printers and designers of books—this issue of* The Monotype Recorder *is dedicated by his respectful servants—The Monotype Corporation Ltd.*

Morison and Warde had their offices in this building (figure 32) in Fetter Lane, occupied by The Monotype Corporation since 1904. Fetter Lane runs north from fleet Street where so many national newspapers are still printed today.

But during the Second World War, the building was hit by bombs on the 10th of May 1941. That was the night when tremendous destruction was done to Westminster Abbey, The Houses of Parliament and The British Museum. On the following Monday, several Monotype employees arrived, among them Burch and Morison who both tried to put out the fire with buckets of water to stop the ground floor from collapsing onto machines in the basement, used by The Monotype School. Eventually the ruined building was found to be so unsafe that it had to be torn down (but not before two machines were salvaged, and not before Morison had saved a valuable box-full of books, some of them sixteenth century writing books).

Figure 32

For years the site lay derelict; at last, ten years after the end of the war in Europe, a new

Figure 33

Monotype House, (figure 33) was opened in 1955—a building of eight floors, the lower two occupied by the Corporation, the rest rented to other firms, except for the penthouse where the caretaker lived, and where the Monotype Board had at their disposal a dining room and a bedroom.

The late Professor Heathcote Parkinson had an uncanny knack for formulating what sounded like preposterously improbable laws—until you came to test them against actual cases. One of his laws was to the effect that a company's decline begins the moment it moves into a new building. And to some degree his law applied to The Monotype Corporation after its move into Monotype House in 1955—although I'm happy to say the company eventually revived after moving out of Monotype House in 1972, and after consolidating its position at its works in Salfords. For a few years after moving into Monotype House, the Corporation had in fact prospered with its headquarters in London. The move had coincided with the introduction of Monophoto filmsetters, but this new development did not halt Monotype's efforts to improve the performance of its hot-metal machines.

A marvelously ingenious system for setting 4-line mathmatics was introduced in 1958; and the flexibility of Monotye hot-metal machines was markedly improved in 1963 by introducing the 16x17 matrix case with a unit shift device which vastly increased its flexibility. Many fine exhibitions were mounted at Monotype House, not only of new machinery but of work by great typographers such as Eric Gill, Adrian Frutiger and Gotthard de Beauclair. What seems to have been overlooked is the true value of that prime piece of property in the heart of the city of London where Monotype House stood. Its value was overlooked (until too late) by the Board of Directors who controlled the fortunes of The Monotype Corporation; but not by asset strippers with eagle eyes for quick profits and who had no interest whatsoever in typesetting equipment—hot, cold or electronic.

In April, 1982 notice was received by the Monotype Board that holdings amounting to 28% of its equity had been sold across the floor of the London stock exchange. Seven months later, in October, 1972, a formal offer was received from the Grendon Trust to buy the entire issued capital of the Corporation. Alarmed by this turn of events, the Monotype Board sold the freehold of Monotype House. In the Corporation's accounts for 1970 its value had been shown as totalling just over £ 1.5 million. On 19 January 1973, the property was sold for just under £ 4.25 million, a difference of nearly three million pounds, and this was the sum which *The Financial Times* reported in August, 1978 had been stripped between the time the Monotype Corporation was acquired by Grendon Trust, and the time when the sum of £ 3.5 million was provided jointly by Barclays Bank and the National Enterprise Board as part of a rescue operation to keep Monotype afloat.

The takeover in 1973 had been a complicated and scandalous affair: by the spring of 1973, Grendon Trust had bought enough shares to obtain control of the Monotype Corporation, virtually adding all the buildings and land owned by the Corporation to the Trust's portfolio of property. But in the autum of 1973, Grendon Trust itself was taken over by a controversial young financier named Christopher Selmes through two of his numerous companies, C.S.T Investments and another named Eastminster. The Selmes bid led to a searching enquiry conducted by the Stock Exchange Panel and by the Takeover Panel, which severely criticized several members of the Grendon Trust board for their part in the takeover. Further troubles led members of the Board of Grendon Trust to resign, and in 1974 a new board took over. Later it emerged that Grendon had been in serious financial trouble even before the Selmes bid, and a rescue operation had to be mounted. The onus of this operation fell on Keyser Ullman, the merchant bankers who had advanced money to Selmes. Two of the merchant bankers in that firm were criticized for having advanced £17 million to Selmes, who then left England. By 1975 Keyser Ullman reported a loss of nearly £70 million after providing £64 million against bad debts incurred after trouble in the property

market. By now, Barclays Bank had quite close links with Keyser Ullman, and it was to Barclays Bank that the merchant bankers turned when the rescue operation had to be mounted in 1978.

In that year, Monotype's accounts showed £12 million worth of stock, much of which was, in fact, quite unsaleable because production for stock had been going ahead without enough regard to the real needs of the market. By 1981 the value of this stock had been reduced by £10 million. The new Managing Director, Roger Day, who joined the Corporation in July, 1980, had taken vigorous steps to correct over-production, and this also led to staff reductions, which in turn involved large separation payments. The Corporation also had to contend with heavy interest payments on the loans which had been made to keep Monotype afloat. Nevertheless, development investments in the Lasercomp machine were stepped up, and by July, 1981 the corner had been turned.

By 1982 the company was operating at a profit. But with heavy interest charges, the position at the end of the year was virtually one of break-even. However the year ended 31st December 1983 showed a profit of £ 1.3 million and the outlook for 1984 looked very promising. The situation was greatly helped by the formation, on 1 January 1985 of a new company which took over all operating assets other than property. Between January and July of 1983, new institutional investors were brought in with the help of a firm of stockbrokers. With their injection of £ 1.5 million at the end of 1983, representing a 60% stake in the company, Barclays Bank bowed out and were replaced by National Westminster Bank. A 40% stake in the company was still kept by the National Enterprise Board, a government agency, and operations continued to be supported by the Export Credits Guarantee Department.

There were then, three separate and autonomous divisions within Monotype Corporation, and each ran as a separate business. The best known and best selling piece of equipment made by this division was the Lasercomp, first introduced as part of the System 3000 in 1976. The second division, named Monotype Typography, grew from a decision taken in 1981 to place the typographical expertise acquired by the Corporation during more than eighty years of service to the printing trade at the disposal of the big office equipment manufacturers with whom the Corporation did not intend to compete. Having involved itself with the problems of digitization since 1967, and having so successfully applied its own horizontal method of digitization to providing fonts for its Lasercomp machines, the Monotype Typography division proceeded to master the art of applying its deep typographical knowledge to a wider range of technologies than any other company. In the electro-erosion sector 600-line resolution had been successfully applied to the bonded paper, black-lacquer and aluminum material used by the IBM 4250 machine. Typefaces had also been digitized for the IBM 3800 machine, preserving the differences in proportions of letters, which are essential for high-quality, short run printers.

Finally, in case one might think that hot metal is no longer any concern of the Corporation, there is a division called Monotype Limited. This continues to manufacture and market keyboards and casters for hot-metal printing through many of its 20 wholly-owned branches and subdivisions overseas, most of which still supply and support Monotype typesetting machines. Further, this division continues to sell matrices and takes orders for special matrices. On top of this, some five million composition matrices are available from stock, and drawinigs for virtually all the types ever made by The Corporation are kept in the Type Drawing Office ready for further use. Display matrices can be rented from the Loan Library, and the prospects for this division continuing to trade are very fair indeed. A lot of business is done with India, where railways and the government printing offices are important customers. Trade continues on the African continent, with China, and with several countries behind the former Iron Curtain, notably Poland. A great deal of essential layout material is still available such as Alphabet Tracing Sheets and type specimens.

[Editor's Postscript]

It was in 1973 that the Monotype Corporation, following the stripping of over £2 million in assets, was forced to leave the stock market after nearly 42 years as a public entity. In 1978 the firm was acquired by Barclays Bank, The National Enterprise Board and City Computer Systems from the Grendon Trust and Dr. Peter White was appointed Chairman. In 1983, further re-structuring took place when Barclays took over the property interests of the Corporation, which also contnued to recieve support from the N.E.B., Electra Investment Trust, Dayton Consolidated Investment and Grosvenor Development Capital. In 1984 the N.E.B. withdrew, its position being assumed by a consortium of financial interests. In 1986 the Corporation regained the status of a public company with a quotation on the Unlisted Securities Market and raised £ 4.67 million for re-investment. In 1988 its quotation was upgraded from the Unlisted Securities Market to a full quotation on the stock market.

The Monotype Corporation was acquired in 1990 by KBA (King Black Associates) , an American investment group. With the change in ownership, Richard Black replaced Roger Day as Managing Director. Now things changed at an accelerated pace. In 1992, on March 5th, the Corporation appointed an administrative receiver. Then Cromar Holdings, a Swiss investment house acquired The Monotype Corporation and Monotype Inc. (except for Monotype Typography). The purchase also included five other direct subsidiary companies in France, Germany, Italy, The Netherlands and Singapore. The firm was named Monotype Systems Ltd. and Peter Purdy became Chairman. Now Cromas Holdings re-organized its publishing interest with the formation of International Publishing Assets Holding Ltd., effectively controlling Monotype Systems, QED Technology Ltd, and GB Techniques Ltd. That same year, The Merrion Monotype Trust was founded to preserve the hot-metal operations and was formed into the Type Museum in London. The latter is seen as a working museum, demonstrating their specialties in punch-cutting and matrix-making, while also continuing to supply matrices to hot-metal installations world wide. In 1993, on February 16, René Kerfante, who was earlier employed by D. Stempel typefoundry in Frankfurt, and later by Linotype-Hell in Eschborn, Germany, and who now managed part of the former Monotype empire, formed a management team which acquired Monotype Typography and he became its Managing Director. This deal had been delayed for over a year because of continuing litigation with the American firm, International Typeface Corporation, which Monotype finally successfully concluded. The scope of the takeover included operations in England, the United States and China Type of Hong Kong. At this point Ira Mirschnick, Executive Vice-President was instrumental in finalizing arrangements in the United States.

Thus the once-great Monotype Corporation has been reduced to a fragmented shadow of its former self, fighting to keep up with the computerized world it helped create, and the Type Museum struggling to find the donations and grants necessary to stabilize its situation in a world far more interested in the bottom line than in the base line of type characters. One can only speculate at the wonder with which Tolbert Lanston, were he alive today, would regard all that has followed upon his quest to mechanize the setting of type.

Colophon

The Dreyfus manuscript was transcribed from original handwritten notes onto a floppy disk by Paul Duensing who, in turn, sent the disk to Rich Hopkins for formatting into the document you see here. Most illustrations are taken from *copies of slides* used by John Dreyfus in his original presentation and that fact accounts for their relatively poor reproductive qualities. Pages were made up and dumped to the imagesetter via Pagemaker 6 on the PC. The typeface used is Bulmer with so-called *expert* characters (ligatures and ranging figures) which were commonplace in the halcyon days of hot metal. This project is a combined keepsake prepared for the 1996 American Typecasting Fellowship Conference at Charlotte, N. C., by Paul Duensing and Rich Hopkins.