

CHARON'S QUINCE

*Excerpts from the journals of a young
Typographer in Europe.*



by Dana Atchley

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F O R E W A R D

The man responsible for this book was a Senior Fellow this past year at Dartmouth College. That means he was on of ten or so undergraduates of the junior class ‘of such intellectual caliber, independence of character, and imaginative curiosity that they have become interested in some personal project of study which will contribute largely to their own intellectual growth’ and deemed best able to use the freedom from ordinary academic accounting conferred by the fellowships. He offers the book to satisfy the obligation assumed in his fellowship application, where, after outlining the itinerary for a first visit abroad, to take in various principal centers of graphic arts and typographical interest he said, ‘On returning in January, I will prepare a book incorporating in its design and content the knowledge and, I hope, something of the artistic inspiration gained in Europe.’ Accordingly he has written and edited the text, designed and cut the blocks, set up the display types and arranged the machine-composed letterpress, selected the papers and cloth, imposed the pages and put the sheets through the press and taken a hand in the binding operations. It might fairly be said that he has *lived out* this book; the taste and judgment and, to a considerable degree the skills, it demonstrates are pretty much his own all the way through, for better or for worse.

The same fellowship application statement answers at least part of the inevitable question: how could a liberal arts college student learn enough about typography, printmaking and book

design to achieve such a result? As a sophomore, Mr. Atchley recounts, he Entered the field by way of a historical course in graphic arts, from Dürer, to Baskin in which lectures and discussions are given another dimension by individual attempts in the studio to grasp the principles and methods in the 'making or manifolding of visual symbols based on writing or drawing'. He followed this another course on similar lines but emphasizing the design sources in book, that is, illustration and development of letter forms, and their spatial relationships. In the fall term, along with courses in and out of other fields of art, he took and advanced studio course in book design; and startled himself and others by the depth of his commitment in acquiring an aged though workmanlike half-ton of a job press for the purpose. This was added to the graphic arts workshop and therefrom a booklet designed and illustrated by the printer, *Five Poems*, presently appeared with the Stygian Press imprint. All this was topped off by his selection for the summer internship program offered by the Stinehour Press of Lunenburg, Vermont, to qualified college students. Here the student and amateur began putting professional finish to his work. At the same time his reading of Edward Johnston and Updike and the rest perked up as never before. He began hunting DeVinne manuals and Morison and Maunde Thompson for his personal reference collection.

So much for the circumstantial data. They cannot fully take the measure of the man in the middle. The person at core is not to be explained in any such way, but may be revealed by his work and in this way find his own measure too. Let us see. At this point, anyway, I am glad to join the chorus of congratulation on a completed self-assignment well done. Am I mistaken in thinking all this is education, liberal education?

Ray Nash

E N G L A N D

11 October 1962

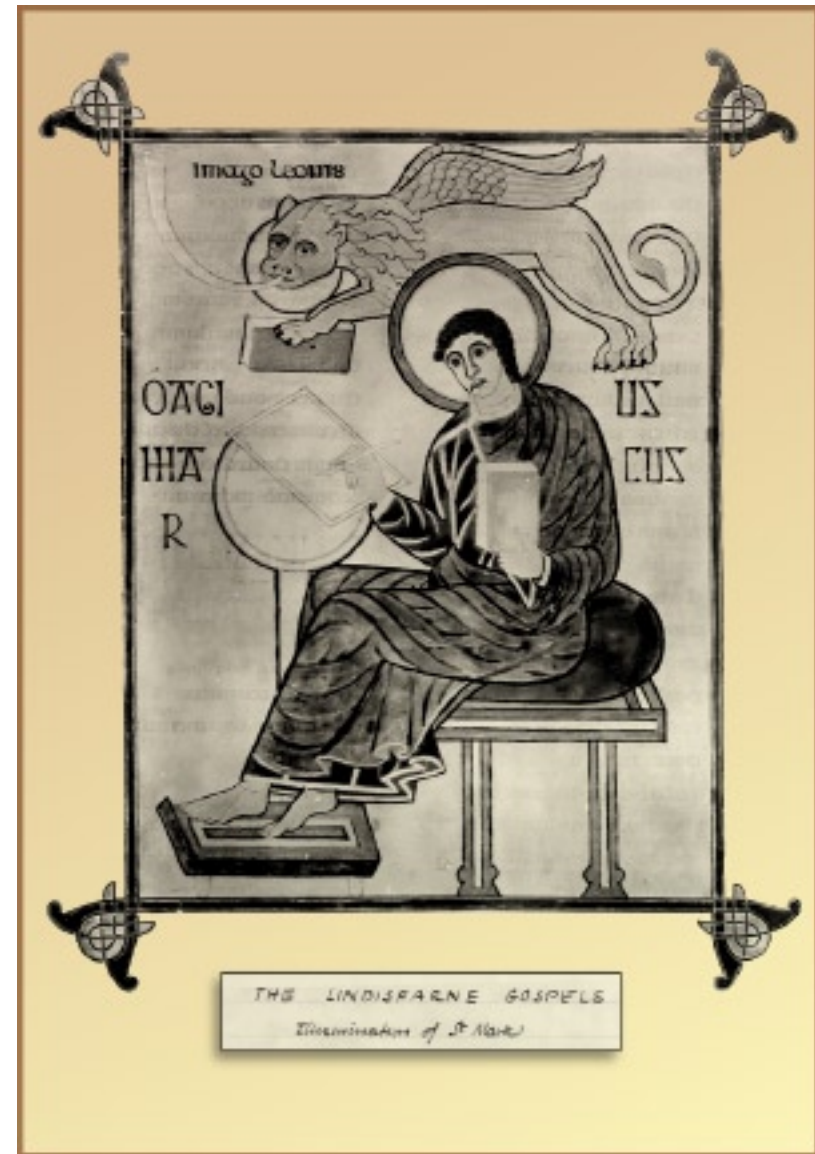


knowing where to start is about as difficult as trying to find my way around this amazing city. I have just spent nine hours walking about: through Soho, to the British Museum and the American Embassy, and first of course, to the American Express where I found a warm note. Thank God! I am little less confused after a day of observation than I was upon landing yesterday. The currency presents little problem, the subways are marked so clearly only an American could get lost, and by asking anyone you can find the right bus. However, once off these systems there is nothing but confusion; even the Londoners have trouble directing you any place. The city is as crowded as Boston or New York, everybody rushing and nobody caring who you are or where you come from, except an embarrassed American at the post office who could not count his change and, thinking I was an Englishman, apologized and ran off with his wife, who had just finished licking the stamps. Prices are quite reasonable: thirty-five shillings for a double bedroom with washbowl and breakfast, but I almost got my fingers slammed in a taxi door after tipping six pence on a two and six fare, which is enough in the States, but hardly enough to satisfy the English cab drivers who earn (as I later learned) only four to five pounds a week.

Soho is a fascinating district filled with shoppers and street hawkers. Coffee bars all about, but none seemed to advertise folk singing. Small painted metal signs about saying: "Please Help Spastics." Children and bums begging for money. The English beggar looks far more intelligent and better off than the American beggar; always wears a sign, and his excuse varies from *Almost Blind* to *Ex-Serviceman*, but rarely the usual American excuse. Sitting in a coffee bar called the Freight Train by virtue of a picture of same within, I observed the English teenager: no difference in taste of music, only in dress suit and French cuffs.

I walked to the British Museum this afternoon to apply for a reader's card. Red tape greeted me, and since their director was absent, I had to go the American Embassy to get a recommendation—actually nothing but a form letter: "The American Consul extends his greetings to the director of...". And *that* is supposed to get me in? While there, however, I wandered through the King's Library and the Oriental collection. The King's Library a wonderful place with *Lindisfarne Gospels* on display, a forty-two-line Bible from the mid-fifteenth century etc., etc. So I shall return with pen and paper and my eyes open to more of their treasures.

I later shopped through some of the bookstores on Museum Street. There is a great deal of building going on, and the architecture is even more varied than that on the Dartmouth campus. When looking for the American Embassy, I stood on the opposite side of Grosvenor Square by the Canadian Embassy. I had a limited view of the other three sides of the square through the trees. Looking through, I saw an extremely modern building: bronze and white stone. I could see no flag, but there was no



doubt as to who had built it. So much happening and to say about this place. Maybe I will be able to say more if I can learn to look the wrong way before crossing these damned backward English Streets.

Well, it doesn't look as though I will waste valuable daytime hours due to night life. I have again spent a few hours wandering about Soho, looking for people and music of my own variety. London seems to have none of the latter, and the former seem to prefer to stick to themselves. The city is aglow with neon lighting. All the buildings and restaurants have them, and in the theatre district it's like a mescal vision. In Soho there are many people, and in every few doors is a decorative young girl with makeup and costume jewelry advertising the upstairs trade. And there are many strip joints decorated with photographs of large-busted women whom, for a few shillings, you can watch as they go through their nonstop routine. Wandering, I found an artist of some forty years with his ban-the-bomb button, playing a poor flamenco on a street corner and trying to supplement his obviously inadequate income with the few shillings lonely travelers might give him. He sighed with obvious sorrow when he told me about the state of affairs in London. "Oh, yes, there used to be folk singing and good entertainment all over the city five years ago, until people realized they couldn't make a go of it. There's no good will any more. All people are interested in is making a few extra pounds, and they aren't going to do it by singing." And so I made one last check at a coffee bar called the Macabre—skulls with lights and black walls painted with tombstones—recommended by an English girl back in the states who had not been in London for two years. Nothing but rock and roll on a jukebox and a cup of espresso for a shilling.

12 October 1962

And so back to the British Museum with my newly acquired American passport to research, and after wandering through the Egyptian mummies and seeing the Rosetta Stone (what a piece of luck for the archeologists) it was but a few minutes before I found myself with a card admitting me to the reading room, and another to the manuscript collection. Also an appointment to view a recent reproduction of the *Lindisfarne Gospels*—now on display in a Bible exhibit. I had thought: how nice to be an American, just a note from the embassy and I am permitted to enter those places which the British are entitled to, but then, why not be British?

An interesting observation: London's signs are far better than those of the Americans; that is, the lettering. Noticeable is the absence of the ubiquitous American sans-serif letter. Here, carefully done, even house numbers. When will we get to that? And in the afternoon a whirlwind tour of London's spots—Covent Garden, the Law Courts, Parliament, Big Ben, and Buckingham Palace (the guards now stand within the iron fence as a result of lost tempers due to inconsiderate hecklers trying to make these great stone-faced men smile). All this in a florist's van owned by the brother a young girl who works for us back in the states. And then accompanying him to Chiswick for tea at a friend's house resulting in an invitation to a birthday party, possible accommodations, and a heated argument with an old retired businessman.

13 October 1962

Off to find T.N. Lawrence and Son, sellers of engraving tools, boxwood and books. They are a small business on the second

floor. stashed in the back of Bleeding Heart Alley—formerly Hart. I spent fifteen pounds for books, tools, and boxwood, and rushed out on Greville Street to get to the Museum. I have noticed that the English are just as much in a hurry as we. I asked for the time as a man passed and he was ten yards ahead before he managed to get his pocket watch out and flash it back at me yelling, “One-thirty, sir!” And off!

Too late to do much at the museum so off to the Shenval Press. Searching up and down Frith Street in the heart of Soho with my small notebook in hand, I was accosted by a rather beaten old man who questioned:

“Looking for something, sir?”

“Yes. Do you know where the Shenval Press is?”

“How’s that?”

“Shenval Press—here on Frith Street—they make books.”

“Ah yes, I’m the best for that!”

“Not that kind of bookmaking!”

“You American? he finally ventured.

“Yes.”

“I sell books to Americans. Like this.”

He opened his overcoat pocket.

“And I know all the girls.”

Finding me interested in a different kind of printed book at the moment, he walked off. Still searching I located the press, but it was closed, so that took care of the afternoon.

4:30AM: Warming, feeding and passing the time away at Paddington station. Sounds of restless sleep—men spread across three of four chairs while I stand at a corner and wait.. My thoughts far away—leaving with the trains, moving westward with the moon to a place thousands of miles from here but moments from my heart.

It was cold and clear out earlier with a full moon and shadows in Harlow Town—pretty. I had been sitting in the back of Jim MacGregor’s van with a young poet whose wife just ran off to live with a female poet whom Colin Wilson once called the biggest Christian bitch in London. “And the bloody worst part of it is that she’s a better poet than I.” MacGregor living with a blonde folk singer with a beautiful voice—just over from Pittsburgh. He is also married. One night: finding myself singing at a folk club, and well received, drinking beer and scotch with one of England’s best, and discussing the state of English folk music: backbiting—and watching this young American girl—ignored by her English folk-lover until they would be in bed.

The drunk stirs, groans, and swears. There is laughter, for all are tired and it comes easily. I curse the hotel keeper for not answering my ringing—one hour on the night bell—banging, disgusted, giving up and going.

15 October 1962

Wandering around Museum Street in the late afternoon and finding a small bookstore run by a lady who herself has made the grand tour of museums and presses, I was first told they had nothing that I wanted. And then slowly, as we got to know each other, book after book appeared from obscure places on the shelves:

Ullman's book on *The Origin and Development of Humanistic Script*, and more. Finally, good friends by now, she produced the Officina Bodoni's book by Feliciano, *Alphabetum Romanum*. She was sad to sell it, and I...ecstatic! That and the catalogue of the 1954 British Museum exhibition of the Officina Bodoni in one day. The latter given to me after much enquiry at the British Museum. Now I sit at a table in Richmond. A nice room and with breakfast for \$7.50 a week—and I thought thirty-five bob a night was reasonable. Well now I know.

16 October 1962

Called to the North Library to see examples of the work of the Kelmscott Press (William Morris). I first saw a very amusing letter to a London publisher, which I must reproduce here. (see accompanying insert) Next a short account of the press written by William Morris for one of De Vinne's books on printing: "The Kelmscott Press began work at Hammersmith in February 1891. The designers of the type, William Morris, took as his model Nicholas Jenson's Roman letter used in Venice in the fifteenth century and which unites in the fullest degree the necessary qualities of purity of line and legibility..." Also final proofs of the Golden type: a quick legible face with slab serifs, and final proofs of the press's first imprint: *The Glittering Plain*.

His Ivory type is very black, but still legible, and suitable for Chaucer etc., if one is trying to create an impression with type that would fit the text. I would not, however, like to read more than a page or two of it—at least not on the paper it is printed on here.

Reviewing some of the work by Will Carter at the Ram-

Letters to London Publishers.

DEAR WILLIAM MORRIS,

I presume that the Kelmscott Books are published for your own amusement, because I have inquired extensively and find they do not amuse any one else. They are very dull books, much more dull than Law books and Medical books, and there are only two on your list, the *Shakespeare Sonnets* and the *Keats*, which I should prefer to a Post Office Directory. You ignore the masters of printing, such as Bodoni, Foulis, Baskerville, and Whittingham. All these men printed books in readable type and of a convenient size at a moderate price.

What is a readable type?

Not the Gothic type, which is like this.

What is a convenient size for a book? Not one foot six inches by twelve, and of the weight of a good-sized dumb-bell.

What is a moderate price for a book? Not six guineas for a volume of 450 pp., as *Godefrey of Boloyne*.

If you were consistent, your Printing Press would exist for the sake of spreading knowledge. As it is, your publications appeal to capitalists and others of the wealthy lower classes, who buy their books in order to fill so many yards of shelf space. Your books are *bric-à-brac*, and they appeal only to a class which I am told you are continually condemning. I could forgive you much if the types were not so ill chosen.

This is my favourite type.

This would seem to be yours.

Yours seriously, ARTHUR PENDRY.

pant Lions Press, I find that my favor lies strongly with his calligraphic and stone and wood carving efforts, but that the typographic efforts, although quite good on the whole, do not stand up to the other techniques—at least from a design point of view. The actual presswork is, almost without exception, very good. Noticeable in his design work is the use of a kind of oak leaf. I wonder, did he design it? And a frequent use of display italic—often printed gray (I remember this inclination was put forth by him at Dartmouth last year). So I look forward to a visit to Cambridge—soon forthcoming if I can pull myself away from London and the British Museum.

17 October 1962

Another sunny day—hard to believe after the talk I had heard about London weather before leaving. So tearing myself away from the museum for a day, I journeyed out to Plaistow, hoping that I would find Herbert Simon in an anxious to show me around the Curwen Press.

Plaistow, like most of the other London suburbs, is crowded and very much industrial—piles of coal and factories all the way out. But there is a word that describes the attitude of these damned Englishmen. Is it sang-froid? Sitting at a restaurant table, writing and waiting for dinner, when a young girl and her date sit down across from me—a custom here when a restaurant is crowded. And as I eat, have tea, and a cigarette, they continue their conversation; not a glance or a word at me in half an hour. I find the strong desire to kick one of them under the table, or to spill my tea so they will be distracted and at least look at me—what else can one do?

To continue: there was a wonderful pub on the corner of Richmond Street where the press is located—the first pub that looked as I had pictured an English pub to be: dark, mirrors reflecting bottles and faces of all varieties, and a barmaid named Minnie who called everyone “dearie.” And then to the press—a huge, rambling (not ramshackle) establishment with a carved slate inscription by Will Carter over a truck entry. Herbert Simon was not there, but his son Robert Simon showed me around. There was a large composing room with an old man in one corner—B.E. Smith, whose specialty is designing Monotype borders. Some beautiful work, of which I collected a number of samples, mostly on menus. The pressroom was awesome—one side containing at least a dozen Miehles (cylinder presses) of every possible size; all operating noisily. And the other side of the room containing various size Heidelbergs. One was printing a calendar sheet with a wood engraving by Joan Hassall. Another large room contained their offset presses; Rolands, I believe, but the same kind of press that Sharp Offset had and called a Miehle in the States. There they were printing decorative book papers and a cover for an oil company quarterly. The latter being one of the most wonderful jobs of color I have yet seen. Of the former, I was given a specimen book and a number of whole sheets. Between the two rooms was the bindery—large and sprawling. Set above it on one side like a cupboard was the reading room. I did not notice the large green paper cutter that J. Nash had mentioned, but I did see the Albion tucked away in a corner by Mr. Smith’s composing stand, and he told me how he had pulled four and five-color proofs on that press when he first went to work for Curwen some thirty-nine years ago. My last visit was to the library where I found volumes of beautifully printed books done by the Curwen Press including the *Fleurion* and *Signature*. One other interesting place was the

art studio. Housed in a separate building, it contained three or four large stone lithographic presses where they print editions of lithographs by ten artists whom the press commissions yearly, and they then offer the printed editions for sale in London. This outfit consists of two men headed by Timothy Simon, and the enterprise is a fairly recent innovation—quite successful, judging by the prints. It takes them a full year to print these ten editions which vary from about fifty to one hundred in number—many having as many as six colors. The artists generally draw directly on a zinc or aluminum plate, although sometimes a stone is used.

This was a very enlightening visit, and I left feeling quite warm with the generosity of Mr. Simon, who showed me about and also endowed me with many examples of the press's work, including large sheets showing their Monotype and foundry types. Returning to London, I stopped at Foyle's Bookstore where I purchased the book on Monotype Borders, and Oliver Simon's *An Introduction to Typography*. I should mention here that of the dozen volumes of typography they had, the most prominently displayed, in a case and open to the title page, was Ray Nash's *Printing as Art*.

18 October 1962

Morning at the Museum to finish up *Printer and Playground*. A wonderful book on the life of Oliver Simon. At Robert Simon's suggestion I went over to the Monotype Center at 43 Fetter Lane, EC4. After standing around in the hall while a man arranged an appointment for me to see the actual plant, I was pointed toward the publicity department. There a woman in her forties—hair cut straight around—showed me the many type specimen sheets and publications of the Corporation, and before leaving I

found myself in possession of many broadsheets and publications, including three prewar specimen books and a large quarto book of *Warde Ornaments*. All of this for eighteen shillings (the price of some recent Recorders, for which there was a small charge) and also a small plastic case containing a few dozen sorts of Monotype borders selected by Beatrice Warde. Quite a worthwhile trip!

And then over to Soho to see Ruari McLean. A very pleasant man with whom I chatted for about half an hour on various printing subjects. We did not discuss his publication, *Motif* (pronounced "motive") which was fortunate, as I was not too well acquainted with this periodical. A word of warning to those who may try and visit him in the future: his secretary is diligent, and if she thinks you are a poor starving artist trying to sell your work, she can be quite sharp. She thought me to be an artist over the phone, and nearly scared me off before she realized it was only a social call, and then became very apologetic and asked me up immediately. Mr. McLean was the first person I have met who was acquainted with PaGA (Printing and Graphic Arts) and the Stinehour Press and mentioned that he had visited there. He also wondered "What has become of PaGA?" and I tried to explain, telling him that it would reappear shortly. This, I hope, is true and I hope that it does not suffer the fate of the *Fleur* or *Signature*.

I include here a portion of a letter I have just written—nothing to do with bronzes, or printing or the like—just to do with one's self and one's state of mind alone in a strange city:

My days have been busy and fruitful; getting more done than I would have suspected, but the nights—knowing no one—I wander about, at first content to watch people and life, but then wandering with my eyes shut—

seeing nothing (but a distant memory)—ending up at a movie or cursing myself for not having enough guts to pick up some chick, and there are many; attractive enough, but I just stand and watch them go by and feel sorry for myself. Self-pity is such a drag! And then I laugh at what a fool I am being and wander—all the time wishing...

21 October 1962

Another week passes. Jeans and a sweater—I head for London to kill some time before going to sing at Harlow New Town. Walking up from Picadilly Circus and hearing my name called. Seven Dartmouth students in London for the weekend—a break from their studies at Cannes. I spent the better part of the afternoon showing them around; I have come to know central London fairly well now. And then leaving them and hunting for books.

London is a booklover's paradise. There are more bookshops than one can imagine—advertising various specialties from text to sex. But all fascinating. For those who might journey to London: most are located around Charing Cross Road, although a few (and some very good ones) are in other areas. Wandering into a bookstore (E. Joseph, I think) and asking for odd volumes of *Signature* and *Fleuron*, I was given the once over, and then asked: "Do you know how much they cost?" I replied "yes" and they told me they didn't have any. For some reason, however, the owner looked at me again and decided that (despite my appearance) I was really interested. I think the lemon tea he was drinking suddenly took effect, and he asked me to wait a moment. Five minutes later a small boy came out and led me back through the shelves, through a narrow passageway, and down a dusty flight of stairs. Finally out of the darkness I stepped into a well-lighted, somewhat plush office—smelling strongly of old books. And there

was the owner at his large desk, paper and odd volumes covering it. Dismissing the boy, he stared at me for awhile, and just as I was about to ask what in hell was going on, he handed me a slip of paper with a name and address on it, telling me that this man had just bought a complete set of *Signature*, and that I might have it for about £70. Then, warning me not to mention any names, he turned back to his papers.

22 October 1962

The Victoria and Albert is by far the most exciting museum I have seen. Long, darkened corridors containing stained glass, dimly lit rooms with old carved oak furniture, a passageway containing illuminated stage sets. The arrangements of the displays are so well executed they could be displaying garbage and still attract the visitor's eye. And then, of course, the exhibit of the Art of the Book, and next to it a room containing visual commentaries on the various graphic arts processes. The latter could teach the uninformed more in one hour than almost any book that one might care to read on the subject. Tools are displayed, blocks and proofs, plates in all stages, and specially arranged magnifying glasses to allow the viewer to closely examine sections of unfinished plates or proofs. A catalogue called *Printed Books* describes the earlier printed books quite adequately. Strangely, there is not a single catalogue of their famed oriental collection, although almost a dozen exist on such subjects as tapestry and embroidery. The biggest disappointment follows the Art of the Book exhibit. Looking for the Victoria and Albert's famous bronzes, I discover that they are all packed away in crates until March—while the museum rebuilds the rooms that they were exhibited in. I did manage to see Mr. Watson of the British Museum last week. We had a brief discussion while he was rushing about preparing an exhibit

of woodcuts. Since I had not yet read his book on Chinese bronzes, which appeared this summer, I did not dare to discuss any theory with him, but I did manage to get some names of places to visit.

A contemporary postscript: I remember seeing a gray haired man in a corduroy suit walking up the stairs to the museum. I was overcome with the thought that I was seeing myself as an old man.

23 October 1962

I have journeyed over to the Saint Bride's Printing Library. This is a small part of the Saint Bride's Institute, which offers swimming, ballroom dancing, etc., and for some reason has this wonderful library. The library is located on Saint Bride Lane—narrow, dirty and full of construction. The building itself is much like a community center I once saw in Roxbury, Massachusetts: old brick covered with soot and an interior filled with many small rooms connected by many confusing corridors and staircases. The library itself is in one large room with bare tables, straight-backed chairs, cases of books, and a large wooden hand press. The appearance and atmosphere is rather chilling—possibly it is the fog outside. But the volumes of books and periodicals form a most complete printing library.

24 October 1962

After arrangements with a Mr. Humby of the Monotype School here in London, I joined a group of keyboard and caster students on a trip to the Monotype works in Salfords, Surrey. After London and visiting other plants, this place is an unusual surprise. Instead of barren walls greeting you, there are acres of fine green grass, a soccer and cricket field, and a basketball court, and by the first building a pleasant, although somewhat oily, pond built

many years ago when the Americans owned the plant; it now provides water for the cooling systems. The Monotype works is a vast concern: 135 acres—nineteen of which are floor space—1800 employees, their own farm for food, self-supplied electricity, a foundry—everything! A sort of utopian society in an industrial sense. We were introduced to our guide—a man in his early fifties—with carefully brushed-back white hair, a round, ruddy face, and a white moustache. First to visit, and to me the most interesting part of the works, was the matrix factory. Here we were introduced to all facets of the making of a matrix from artists drawing to the finished case. The only one we were prohibited to see was the making of a film mat. This process is supposedly still a secret, and I was told that anyone who knew anything about photography could learn this secret by a somewhat more-than-casual viewing. The building was immense: room after room of machines, pantographs, millers, punches, storerooms, cameras, and projectors. And this short tour of about two hours was quite enlightening for me. The rest of the tour was impressive, but relatively unexciting. A visit to the foundry or carbonizing plant where they put carbon skins on various steel parts. Warehouses filled with many familiar-shaped objects—parts of casters and keyboards. A carpentry shop turning out beautifully finished tool cases. Machine shops making a multitude of parts for the various machines and their maintenance. All in a splash of oil and pounding of metal. Rooms with a dozen new casters pounding away during their breaking-in period—only to be dismantled again and checked over. Women incising various accents on keyboard punches. This went on for four hours, at the end of which I felt as if I had worked each man's job for an entire day. Tea and sandwiches revived me.

It is hard to describe the feeling that I have after visiting this place. Certainly its name alone hardly makes it seem necessary or inspiring place to visit, but one should not miss the opportunity—even if he has no interest in the field, for just the sight of this plant and its workings is a marvel.

Some notes on the making of a matrix:

The artist's drawing (freehand generally) is placed in an opaque projector and projected upon a piece of drawing paper so that the enlarged scale is twenty inches from the top of the ascender to the bottom of the descender. The letter at this stage is in normal viewing position. A sketch is then made of the letter by tracing the projected drawing. After this a second drawing is made mechanically correct by means of French curves and a T-square. Dimensions are numbered, labeled, and then the final drawing is placed on a horizontal, hand-operated pantograph. The letter is reduced now to a standard size (about three by three inches; larger than the type face) and on the reduction end is glass plate covered with a surface of hard beeswax which has been planed to a standard level. A stylus on the reducing end cuts through the wax to the glass and when finished, the wax that falls within the boundaries of the letter is removed. This sheet is then planed again to remove excess burrs, and a low wall of wax is built around it.

At this stage the wax mould is immersed for a number of hours in a copper sulfate bath. When it is removed, a shell of copper has formed around the entire wax surface, and this is removed, now showing the letter in reverse. Lead is poured into the back of this (it will hold it due to the edges built upon the wax mould) and then it is trimmed and final corrections are made. The hard copper letter now in relief and reversed, is ready for further reduction—to actual type size in the form of a punch. This is done by an electric, vertical pantograph. The copper plate is laid horizontally on the bed of the machine, and the blank punch is directly above. The letter is then traced around the circumference with a broad disk, and after each tracing the disk is reduced in size until a pin point is used. This method produces the gradual taper of the punch. Now the punch is machined to accuracy and then hardened, ready for



WAX MOULD READY FOR COPPER BATH

the strike. In the larger (one-inch) faces, the matrices are made one at a time, the blank matrix being placed in a punch press and the punch on top. Then the punch and the matrix go off to be planed and separated. With the smaller composition faces, the punch is inserted in a machine, which strikes matrix after matrix—all automatically. The matrices are then put through the final milling and examination routines.