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Editorial

If this Journal had planned to dramatize its *raison d'etre,* we could not have staged a more appropriate incident than one that took place at the Association Typographique Internationale's Tenth Congress at UNESCO in Paris. We refer to the end of the session discussing the creation of alphabets for developing countries, when—both to speakers and to the assembled Congress—it became suddenly apparent that the only logical way out of the growing complexities involved in getting these new alphabets down on paper was through the cooperation of our best educational, linguistic, and typographic resources. The linguists and other UNESCO representatives, quite obviously, had been totally unaware of the typographic resources that might be available to them, and the audience seemed equally surprised when confronted with the immediacy of the "typographic" problems facing UNESCO.

There are two points involved here that require comment. First, if typography is to contribute to eventual solution of problems on the scale suggested by this challenge from UNESCO, then we must begin by facing up to the task of getting our own house in order. Specifically, this calls for the integration of typographic research on an international level. If anyone doubts the chaotic image we now project to the research world, he need only attempt his own organizational chart of the international typographic research establishment. Through what means, for example, could UNESCO linguists and educators possibly have become aware of—let alone acquainted with—other pertinent typographic research? There are other unfortunate consequences of our lack of integrated information. All too often we discover parallel research projects going on simultaneously in a number of countries (e.g., special materials for the visually handicapped), each one ignorant of the others' work, and each one, as it were, rediscovering the wheel. And how many isolated pockets of typographic research are there tucked away in our universities, research laboratories, and large corporations?

The second point that the confrontation at UNESCO brings to mind is the growing sense of confusion as to just what typographic research involves. Fernand Baudin points out on page 373 of this number that "typography" soon may be the concern of historians exclusively; in a note Herbert Roan

puts the problem more succinctly: "Lead is dead!" The old boundaries—the old definitions—seem to be slowly dissolving. We're having to make room at our meetings and in our periodicals for visual communicators and electronic engineers and descriptive bibliographers; although the legibility syndrome remains very much alive! If more specific evidence is required, we refer you to the index for volume I beginning on page 457.

In the biological sciences when a species is to be described, it is classified in two ways: first, according to the next larger group to which it belongs; second, how it relates to, and is differentiated from, other species within this larger group. Our initial step toward any possible integration of typographic information and the redefinition of typographic research must involve a similar classification.

The first question, therefore: under what larger umbrella does typographic research belong? If we were to attempt to work out a chart showing the relationship of all academic disciplines—all areas of learning and artistic expression—where would we in typography feel at home?

Typography deals with information, certainly; but such a classification is much too broad to be useful. Typography deals with communication of information—but this is still too broad. Typography deals with language to communicate information—still too broad. Typography deals with *visible* language to communicate information. Aren't we primarily concerned with getting our language (the vocal, spoken language) down in logical, understandable—visible form?

The important point, of course, is finding our place in the research scheme, not worrying about the appropriate name for our category. Our time will be much better spent in looking around to see who else is under the same umbrella—in getting better acquainted with our compatriots. Who else *is* interested in the visual form of our language? Once we seriously organize the search, we'll find an amazing assortment—from paleographers to painters and sculptors, from city planners to computer engineers.

Typography has been as parochial in its thinking as any of the various other areas of letterform interest. Yet leadership in any movement to organize and to activate an inter-relationship between these areas must develop out of what we traditionally call typography. Typography alone has the necessary heritage on which to build. Typography alone has the resources. And typography alone has the ecumenical spirit to seek out the other commonly-oriented groups of scholars, practitioners, and scientists—first to call attention to, and eventually to structure, an entirely new field of research.

Merald E. Wrolstad, editor

Three Fonts of Computer-drawn Letters

M. V. Mathews, Carol Lochbaum, and Judith A. Moss

Detailed descriptions are given for three fonts of letters. Letter shapes are entirely described by numbers. The basic vectors are in a general form so the fonts may be easily drawn on a variety of computers and cathode ray tubes. The fonts include both upper- and lower-case Roman letters, mathematical signs, and upper- and lower-case Greek letters. Digital type design is described. However, the principal contribution is the fonts themselves.

A digital computer can control a cathode ray tube so as to draw almost any black and white picture, including type fonts. Drawing type fonts has proven to be an exceedingly useful output for editing and text manipulating programs.[1] In this paper three fonts of letters are described which are useful as a computer output medium for many applications. The fonts include both lower- and upper-case Roman letters in three sizes, lower- and upper-case Greek letters in two sizes, digits in three sizes, and an assortment of mathematical symbols in three sizes.

The letters are formed by a number of vectors (short straight lines) drawn on a computer-controlled cathode ray tube. The characters are photographed from the tube. An average of twenty-five vectors-per-character is used; hence quite detailed control of character shape is achieved.

The shape is specified by a numerical vector table stored in the computer memory; thus great flexibility in changing or adding characters is inherent. The numerical table of vectors may be obtained in machine-readable form for use in other computers.

The fonts were originally designed to be produced on a Strom-

1. M. V. Mathews and Joan E. Miller, "Computer Editing, Typesetting and Image Generation," *American Federation of Information Processing Societies Conference Proceedings,* 1965 Fall Joint Computer Conference, Vol. 27, Part 1 (Washington, D.C.: Spartan Books), pp. 389-398.

berg-Carlson 4020 microfilm printer. This device has a 1024 raster of computer-addressable points. A vector can be drawn between any two points. The resolution is limited by the width of the vector, which is about 2.3 raster points. The normal output is on 35 mm. microfilm which can be enlarged onto hard copy. The final sizes of the fonts depend on the degree of enlargement. Normally the middle-sized font would be used for standard text, the small size for footnotes and subscripts, and the large size for titles. There is, of course, no limitation to these uses. The relative sizes of the three fonts are in the ratio of 1 to 1½ to 2.

The quality of the Stromberg-Carlson 4020 is just acceptable for 8½ by 11-inch pages. The fonts should be useful on any other cathode ray device having this good or better a raster and resolution. In particular, current announced devices which have 4096 x 4096 rasters and correspondingly improved resolutions should produce excellent 8½ by 11-inch quality.

The main contribution of this paper is the fonts. However, their creation led to a new skill—digital type design. Some of the art of this design is discussed. In particular, it is possible to greatly increase the quality of the images by properly placing the vectors and characters with respect to the raster of the cathode ray tube. The advantage thus gained has not been quantitatively measured, but we estimate it to be equivalent to doubling the resolution.

Digital Type Design

Digital type design consists in determining the coordinates of the vectors which form the image of a letter. Selection of vectors to best fit a raster requires judgment and practice. The process is best illustrated by a few example characters from our digital approximation to a font in the Baskerville style of type. This style was selected after trying several others (including a sans-serif variety) because it produced the most readable characters with the limited resolution available.

Figure 1 shows a completed design for the Q and i of Font Three, the largest of the fonts. An enlargement of a letter is placed on a suitably-scaled raster, and the appropriate vectors chosen visually. The outline vectors closely match the contours of the letter

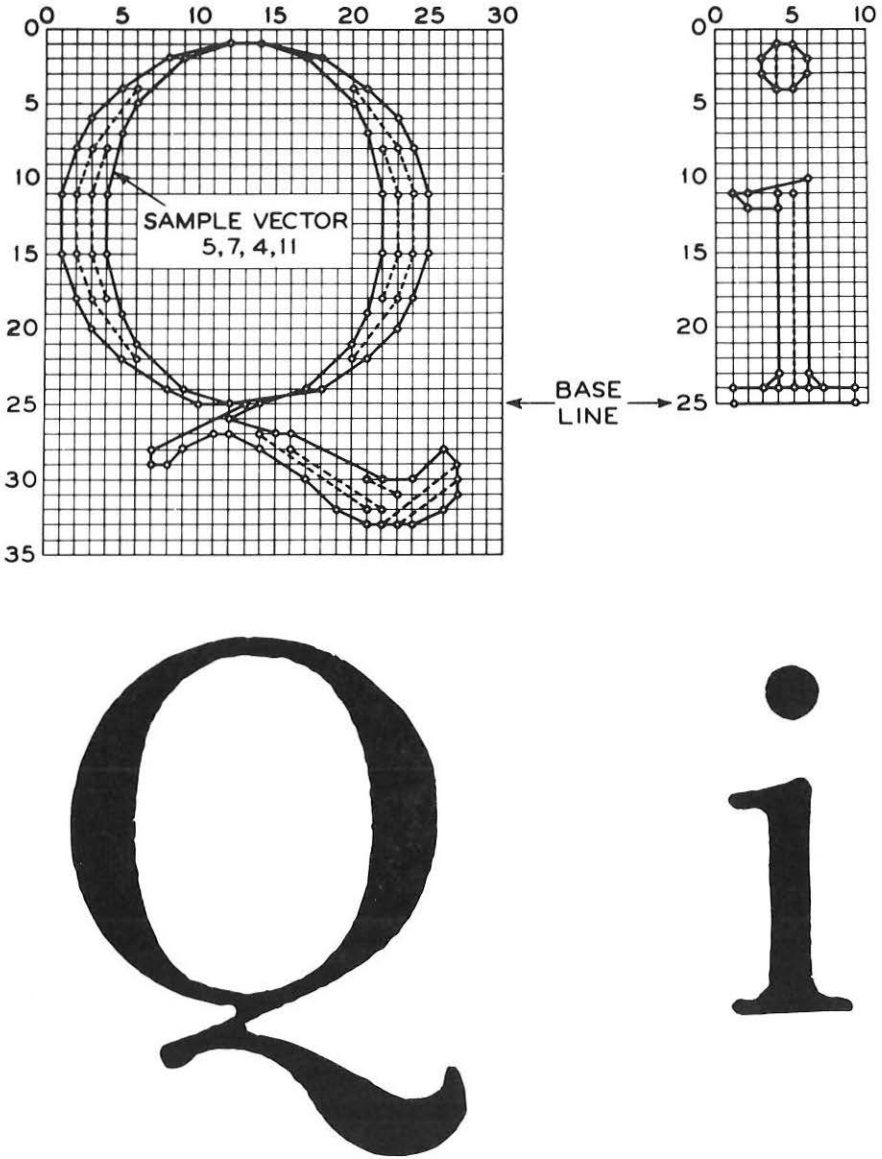

Figure 1. Upper case Q and lower i of Font Three. Above are the actual vectors used to design the characters. Open dots are the coordinates of the vectors. Dotted lines are "fillers" which shade in the characters. Below are the photographic enlargements of the Baskerville characters.

Figure 2. Font One

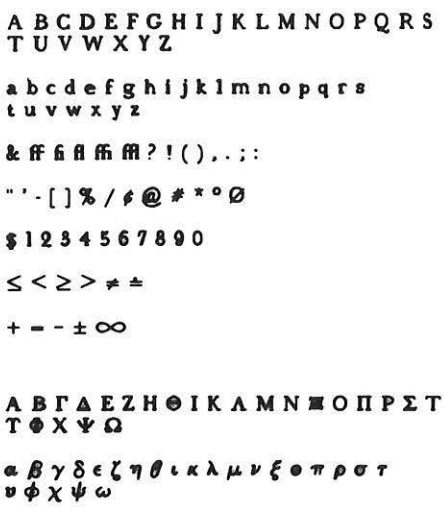

Figure 3. Font Two

Figure 4. Font Three

A B C D E F G H I J K L M N O P
Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s
t u v w x y z

ff fi fl ffi ffl

1 2 3 4 5 6 7 8 9 0

TABLE I. *Format of computer cards specifying characters*

Column

2	3	6	8	16	24	32	40	48	56	64	72
3		72	29	12 114	114 118	218 221	421 423	623 624	824 825	11251125	15251524
3		72	29	24182320	23202122	21221824	18241225	12251025	1025 824	824 522	522 320
3		72	29	320 218	218 115	115 111	111 2 8	2 8 3 6	3 6 5 4	5 4 8 2	8 212 1
3		72	29	12 1 9 2	9 2 6 5	6 5 5 7	5 7 411	411 415	415 519	519 621	621 924
3		72	29	9241225	6 4 3 8	3 8 211	211 215	215 318	318 622	418 315	315 311
3		72	29	311 4 8	14 117	217 220	520 521	721 72211	22112215	22152119	21192021
3		72	29	20211724	17241425	20 423	823 82411	24112415	24152318	23182022	22 82311
3		72	29	23112315	23152218	1325 728	728 729	729 829	829 928	92811271	11271227
3		72	29	12271428	14281730	17301932	19322133	21332433	24332632	26322731	27312729
3		72	29	27292628	26282430	24302230	22301627	16271527	15271226	12261425	14272132
3		72	29	16282232	21302331	22332729	23332730				

The eleven computer cards above give all the information necessary to draw the Q illustrated in Figure 1. The quantities in all fields are right adjusted. Each card has the following format:

Field	*Column(s)*	*Description*
1	1-2	The font number: 1, 2, or 3.
2	3	Blank or E (See description of field 3 below.)
3	4-6	Numerical character code number. See Table II for the correspondence between the contents of columns 3-6 and the identification of the character.
4	7-8	Width of the character.
5-36	9-72	The remainder of the card is divided into thirty-two fields of two columns each. Each of eight successive groups of four fields describes one vector. In the example above, the first vector is drawn between coordinate points (12,1) and (14,1); the second between (14,1) and (18,2); etc.

outline except that both ends of each vector must lie on a raster point. The outline vectors are shown as solid lines with small circles indicating beginnings and ends. Other vectors shown as dashed lines fill the interior of the letter. These also must end on raster points.

Each character was designed on a grid with the origin of the vector coordinates (point [0, 0]) at the upper left-hand corner of the grid. All vectors for a given character are relative to this origin. Thus, the sample vector in Figure 1 is described by the four numbers 5, 7, 4, 11 giving, respectively, the horizontal and vertical components of one end point of the vector and then the other. In the course of typesetting, any character can be translated to any origin on microfilm by means of simple additions. The base line for Font Three is at vertical coordinate 25. The base line is the imaginary line upon which most alphabetic characters sit, except those such as p, which have descenders. These characters sit on the descender line, which is at vertical coordinate 33 for Font Three. All measurements are in units of raster spaces. The width of the character is defined such that it is actually larger than the minimum number of raster spaces occupied by the character. The additional empty space assures that the next character in a horizontal line of type will be correctly placed relative to the current character when the width of the current character is added to its origin on the microfilm.

The card decks for the complete fonts are too long to list here. Requests for this material may be directed to the authors.

The vectors as drawn by the cathode ray tube have a substantial width which must be considered in designing the letters. Figure 5 gives some idea of width on the Stromberg-Carlson 4020. The single vector shown in Figure 5A will be drawn as a line about two raster spaces thick surrounding the vector as indicated in Figure 5B. A double vector will produce two shades of grey as shown in Figures 5C and 5D. Although these line widths are specific to the Stromberg-Carlson 4020, other equivalent widths would apply to other cathode ray tubes.

A useful method of producing intermediate line widths is illustrated in Figure 6. In some cases the double vectors in Figure 6A produce too-thick letters and the single vectors in Figure 6B pro-

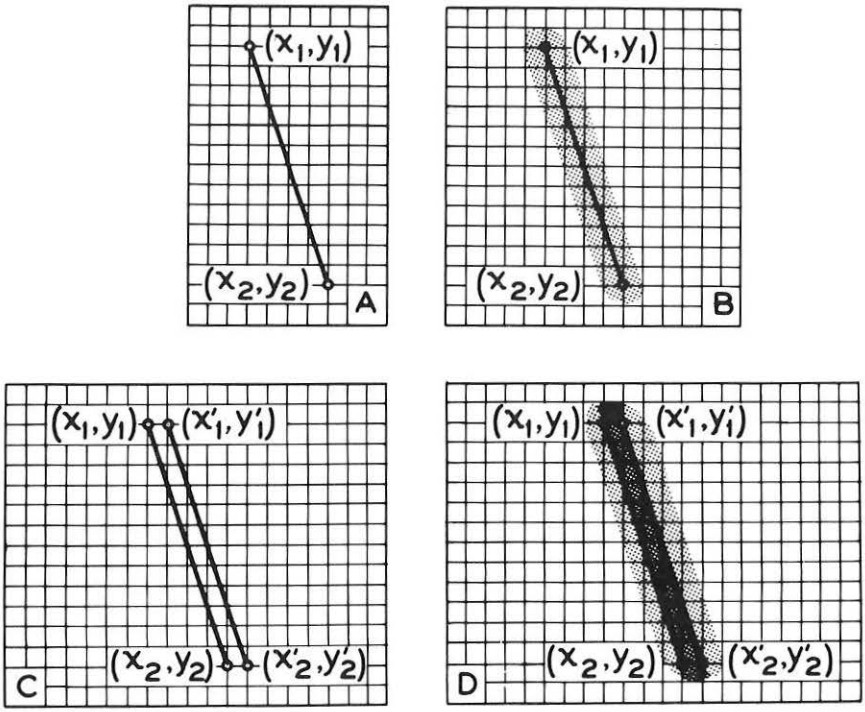

Figure 5. In 5A the single vector drawn between (x_1, y_1) and (x_2, y_2) is presented on the cathode ray tube as in 5B, a line the thickness of two raster spaces with rounded ends. The double vector of 5C is presented as a line the thickness of three raster spaces with some overlap in the center, as in 5D.

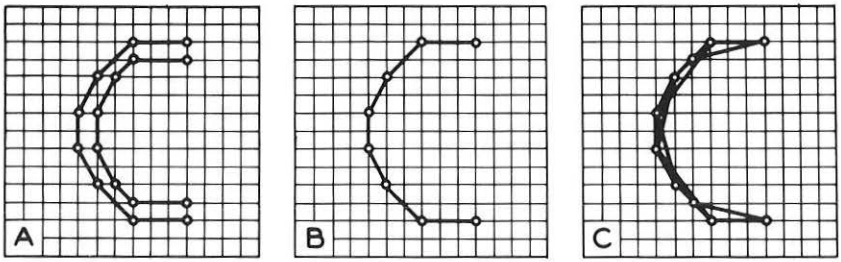

Figure 6. The double row of vectors of 6A produces a shape which is too thick, while the single row of 6B gives a shape which is too thin. The disarrangement of vectors in 6C gives an intermediate thickness.

duce too-thin letters. The interlaced vectors in Figure 6C may yield a more desirable thickness.

Cathode Ray Tube

A brief description of the Stromberg-Carlson 4020 will assist in using the vector letters with other machines.

The SC 4020 has two modes of operation. First, it can draw vectors, which can start at any raster point on its 1024 x 1024 grid and extend up to sixty-four grid spaces in either or both x and y directions. Secondly, it can produce a total of sixty-four different characters by shaping the electron beam with an appropriate mask in the cathode ray tube. One character is a dot. This mode allows one to construct shapes using closely spaced dots, or any other available character, as building blocks. In the type fonts described here, only the vector mode of operation was used. Measurement of the width of the vector indicates that it is equal to 2.3 grid spaces. This means that a character which is twenty-three grid spaces high has a resolution of only ten vector widths.

Conclusions

Digital fonts have many advantages over other methods of forming characters. Drawing on a cathode ray tube is inherently a fast process, and speeds from 1,000 to 10,000 characters per second are practical with equipment which is especially designed for this purpose. The fonts are inherently extendable. A new font consists merely of a collection of numbers put in the computer memory. Even more important is the ease with which special characters may be added to an existing font. The digital description of these characters may be inserted at any point in the stream of input text to the character-drawing computer. Furthermore, since the image is described in complete generality digitally, such things as line drawings, mathematical equations, and musical scores can be drawn by the same, completely standard, means.

Digital type design raises a unique problem of combining computer technology with the type designer's art and artistry. The existing designs have been prepared by mathematicians and engineers aided by a small amount of consultation with a type de-

signer. Eventually, to achieve high-quality fonts, type designers will have to assume this job and will have to learn enough computer technology to express their designs in this new digital language. Merely copying existing fonts has severe limitations. As type designers come to understand the digital technology, they will be able to design fonts which are not only pleasing to see but well adapted to the computer in terms of being fast to draw and compact in their digital description.

It is clear from the number of vectors in letters that manual design of a font is a tedious process. Both semi-automatic design and completely automatic design are possible. For semi-automatic design the designer would use a graphic computer[2] and draw the vectors on the face of a cathode ray tube with a light pen. Once the vectors were drawn, their digital description would be known by the graphic computer. A completely automatic method is conceivable if one is willing to simplify the vectors by requiring that they all be parallel (vertical or horizontal). In this case, a simple scanner could be designed to determine the digital coordinates of the vectors by automatically scanning an enlarged image of the letter.

The three fonts of letters presented here are the beginning of a great variety of possible fonts and characters which will be numerically described and computer drawn. The generality of the representation is clear from the ease with which the vectors can be adapted to other computers and other cathode ray tubes. We believe the fonts will have great utility.

2. W. H. Ninke, "GRAPHIC 1—A Remote Graphical Display Console System," *IFIPS Conference Proceedings,* 1965 Fall Joint Computer Conference, Vol. 27, Part 1 (Washington, D.C.: Spartan Books), p. 839.

TABLE II. *Specifications of the fonts*

	Font 1	*Font 2*	*Font 3*
Minimum line spacing	18	27	36
Base line	12	18	25
Descender line	16	24	33

Character	Code Number	Font Widths Font 1	Font 2	Font 3	Character	Code Number	Font Widths Font 1	Font 2	Font 3
a	25	9	12	16	A	89	14	22	27
b	32	9	16	18	B	96	12	18	23
c	41	8	13	16	C	105	11	19	25
d	43	9	16	19	D	107	13	22	27
e	42	9	13	16	E	106	11	17	22
f	13	8	11	14	F	77	10	17	20
g	15	10	13	19	G	79	13	20	27
h	34	10	17	20	H	98	12	21	29
i	24	5	9	11	I	88	7	11	14
j	14	6	9	13	J	78	9	15	18
k	40	9	15	20	K	104	12	19	25
l	35	6	10	12	L	99	11	18	24
m	31	15	25	30	M	95	15	26	32
n	44	10	17	21	N	108	14	22	28
o	19	9	14	18	O	83	12	19	27
p	10	9	16	21	P	74	11	20	22
q	8	9	14	22	Q	72	13	20	29
r	27	8	12	16	R	91	13	20	26
s	18	7	9	12	S	82	8	13	17
t	46	7	10	13	T	110	13	20	28
u	45	10	17	22	U	109	13	22	28
v	29	10	14	20	V	93	13	20	26
w	16	13	19	27	W	80	18	27	36
x	47	9	15	21	X	111	13	21	28
y	2	9	15	19	Y	66	11	20	25
z	62	7	12	15	Z	126	10	16	21
					ff	53	13	17	21
					fi	54	9	16	18
					fl	55	10	16	19
					ffi	118	15	22	28
					ffl	119	15	23	28
					1 one	63	8	13	17
					2 two	60	8	13	17
					3 three	61	8	13	17
					4 four	51	8	13	17
					5 five	58	8	13	17
					6 six	56	8	13	17
					7 seven	59	8	13	17
					8 eight	57	8	13	17
					9 nine	48	8	13	17
					0 zero	50	8	13	17

Character	Code Number	Font Widths Font 1	Font 2	Font 3
& ampersand	123	11	17	
' apostrophe	26	4	6	7
* asterisk	121	8	10	
@ at, each	124	16	25	
[bracket, square left	30	5	8	10
¢ cents	120	8	13	
: colon	75	5	6	8
, comma	9	4	7	7
— dash	0	5	8	10
$ dollars	115	8	15	
= equals	12	12	15	
# number	125	12	21	
(parenthesis, left	112	5	7	8
) parenthesis, right	114	5	8	9
% percent	122	13	21	
. period	28	5	8	8
+ plus	76	12	16	
± plus or minus	127	12	16	
? question mark	67	7	12	15
" quotation mark	90	5	8	8
; semicolon	11	4	6	7
/ slash	3	9	14	17
space	4	7	11	15
_ underline	64	10	15	
| absolute value of	E 84		4	

Character	Code Number	Font Widths Font 1	Font 2	Font 3
∢ angle	E 74		17	
≒ approximately equals	E 54	12	15	
] bracket, square right	E 58	5	8	10
c/o care of	E 85		20	
† dagger	E 80		14	
° degree	E 56	7	8	
÷ divided by	E 75		16	
! exclamation point	E 57	6	8	7
≡ identically equals	E 65		15	
↔ iff notation	E 66		15	
→ implication notation	E 67		15	
△ increment	E 73		16	
∞ infinity	E 59	24	32	
∫ integral	E 83		13	
< less than	E 52	13	15	
≤ less than or equals	E 51	13	15	
− minus	E 60	9	14	
> more than	E 55	13	15	
≥ more than or equals	E 53	13	15	
× multiplied by	E 82		13	
≠ not equal to	E 50	12	15	
∥ parallel	E 81		8	
(parenthesis, small left	E 77		5	
) parenthesis, small right	E 76		5	
∂ partial differentiation	E 79		15	
⊥ perpendicular	E 78		16	
" quotation, double left	E 63		12	14
" quotation, double right	E 64		12	14
' quotation, single left	E 61		6	7
' quotation, single right	E 62		6	7
√ root	E 72		11	
ϕ slashed O	E 49	13	21	
⊆ ⊇ subset-improper	E 69, E 71		15, 16	
⊂ ⊃ subset-proper	E 68, E 70		16, 17	

Note: A blank space indicates that character is not available in that font.

Character	Code Number	Font Widths Font 1	Font 2	Font 3
α alpha	E 01	11	15	
β beta	E 02	13	19	
γ gamma	E 03	11	17	
δ delta	E 04	9	15	
ϵ epsilon	E 05	7	10	
ζ zeta	E 06	8	11	
η eta	E 07	10	16	
θ theta	E 08	10	14	
ι iota	E 09	6	8	
κ kappa	E 10	9	12	
λ lambda	E 11	10	14	
μ mu	E 12	12	17	
ν nu	E 13	9	13	
ξ xi	E 14	10	14	
O omicron	E 15	9	13	
π pi	E 16	12	17	
ρ rho	E 17	10	16	
σ sigma	E 18	12	18	
τ tau	E 19	9	13	
υ upsilon	E 20	9	14	
φ phi	E 21	12	18	
χ chi	E 22	12	17	
Ψ psi	E 23	13	18	
ω omega	E 24	12	18	

Character	Code Number	Font Widths Font 1	Font 2	Font 3
A Alpha	E 25	14	22	
B Beta	E 26	12	18	
Γ Gamma	E 27	11	18	
Δ Delta	E 28	12	19	
E Epsilon	E 29	11	17	
Z Zeta	E 30	10	16	
H Eta	E 31	12	21	
Θ Theta	E 32	12	19	
I Iota	E 33	7	11	
K Kappa	E 34	12	19	
Λ Lambda	E 35	14	19	
M Mu	E 36	15	26	
N Nu	E 37	14	22	
Ξ Xi	E 38	13	18	
O Omicron	E 39	12	19	
Π Pi	E 40	14	21	
P Rho	E 41	11	20	
Σ Sigma	E 42	12	19	
T Tau	E 43	13	20	
Υ Upsilon	E 44	13	20	
Φ Phi	E 45	11	20	
X Chi	E 46	13	21	
Ψ Psi	E 47	15	22	
Ω Omega	E 48	15	19	

Note: A blank space indicates that character is not available in that font.

The Development of CBS News 36

Rudi Bass

Production of legible typography on the television screen is affected by technological variables unknown to the printed media. Specific problems of type distortion and decay in television transmission are described. To counteract these problems the Graphic Arts Department of CBS News experimented with various typefaces and developed CBS News 36; research results are illustrated and discussed.

How readily words may be read and the attendant problems of acuity, perception, and apperception are governed by many well-known factors. The design of the typeface, its form and weight, the size of the letters relative to the reading distance, letterspacing and leading, brightness and contrast between the type and its background all add to or detract from the discernibility of the alphanumerical symbols.

The printed page—whether set in metal or by photocomposition, whether reproduced in letterpress, offset, or gravure—does not offer great obstacles to the control of these factors. Not only the design and size of the letterforms are determinable, but the viscosity of the ink, the humidity-controlled absorption of the paper, and the reflectivity of its surface can be regulated as well. There exists a close cause-and-effect relationship between the technology of the printed page and its ocular-psychological effect upon the reader.

No such exacting control is possible over the reproduction of type on the viewer's television screen. The cathode ray tube (CRT) face introduces new problems into the aesthetic-technological relations that determine legibility. Even the best efforts of the technical director—attempting to strike a balance between the type and the varying and moving colors or gray-scale values of the background—can only govern the image on the studio monitor. Final quality control rests in the hands of the viewer. Widely varying reception conditions, and more often than not, an aging and badly-tuned home screen

affect the quality of reproduction. To overcome what seems to be bad reception, many viewers exaggerate brightness and contrast which only adds to the deterioration of the letterforms (Fig. 1).

Color broadcasting adds some reproduction difficulties of its own. The registration problems are somewhat similar to those that might develop were we to attempt to reproduce in print display type of varying sizes with process plates, not only by surprint or drop-out, but by halftone registration as well—and on a moving background at that. Consider also that the signal transmitted varies depending on whether the output is film, videotape, or live pickup, often within the body of the same broadcast. The controls of the color receiver are, if anything, more complicated than those of the black and white set. The average viewer attempting to arrive at a personally pleasing color image (and the standards of what is correct reception vary widely among viewers) by setting horizontal and vertical controls, contrast and brightness, chroma and color saturation can hardly be expected to pay close attention to the needs of typography.

The most widely used method of introducing type into a broadcast is superimposition. The source of the superimposed material might be a telop chain or a slide chain (i.e., an opaque or slide carrier incorporating a special video camera and its own link to the control room) or a camera card on an easel in front of a studio camera. The output of either the chain or the studio camera is then superimposed over the output of another studio camera, a film chain, a video tape sequence, or a remote pick-up.

Other ways of incorporating type into a broadcast might be its use as a part of a chain without superimposition. Type might be part of a set or a scene and appear directly as part of the picture. This would correspond in print to halftone reproduction of type matter rather than line reproduction. Finally, the type image might be the product of computer-driven character generation, the result of direct electronic signals without optical reproduction.

All production methods used affect the reproduction of type. But it is superimposition that represents perhaps both the widest use of type on television and some of the greatest problems of distortion. Since superimposed type is widely used in negative form and since we are dealing with light emission rather than reflection, the letter-

form itself becomes the light source. This results in halation, a blooming or bleeding of light at all inside corners, from acute angles to right angles and beyond (Fig. 2).

This light emission obliterates the precision of counters at the intersection of letterstrokes. It is perhaps the most significant phenomenon affecting the acuity of type reproduction on the CRT face. A parallel element of deterioration is the light flux between letters. Both phenomena are affected by the weight of the letters, i.e. the stroke-to-counter ratio. The blooming becomes exaggerated when too-heavy or too-condensed a letter is used, or the letter-spacing is very close. The contemporary trend towards tighter composition of bolder letterforms causes added light flux between letters and an added loss of definition, particularly if lateral ghosting occurs. Another characteristic distortion of type on the television screen, at times, is the light emphasis on horizontal strokes (Fig. 3).

Poor focus at times causes a variation in brightness from blooming to excessive fall-off. The decaying type itself emphasises the light buildup at the interstices (Fig. 2). A concomitant phenomenon of blooming type is the decay and rounding of outside corners, which further reduces recognition values.

The Graphic Arts Department of CBS News began an investigation into some typefaces to determine the quality of CTR reproduction. The typeface widely used on most networks has been News Gothic Bold. There appeared to be three reasons for this practice. The weight of the type was bold enough to give producers the ocular "presence" they wanted over varying and interfering backgrounds without suffering too much the effects of excessive weight. The length of the alphabet compared favorably with that of more condensed faces, an important consideration for most broadcast information, particularly with the trend toward smaller portable receivers. More condensed typefaces, although often used, demonstrated a tendency to fuse counters and letters. Finally, the wide distribution of the font made it readily available for hot-pressing, the traditional method used first in the film industry and then in the new medium to produce title cards.

We also considered the comparative merits of serif and sans-serif faces. Early experience with CBS Didot, the corporate print design, showed that some letterstrokes tended to disappear alto-

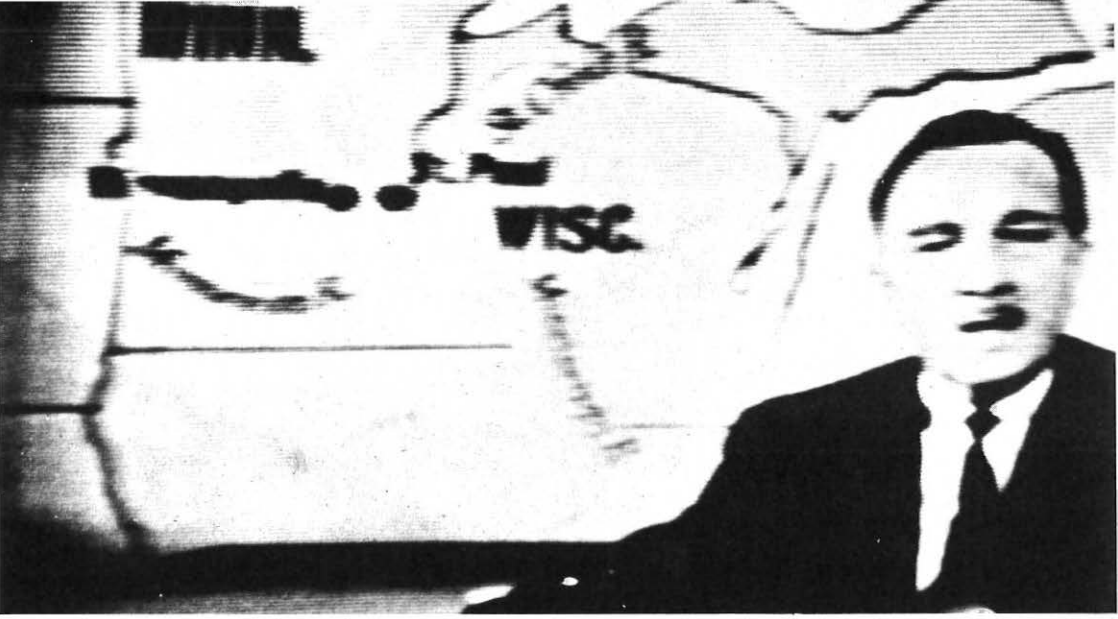

Figure 1. The heavy, condensed Grotesk capitals show filled counters and flux between letters. The lower-case gothic is completely fused. The light italics are badly interrupted by scanning lines. While certainly an example of particularly poor home reception, it is far from uncommon. It also represents some of the elements of destruction of legibility that all television production methods are subject to in varying degrees. Front projection of a color slide, photographed off a black and white receiver.

Figure 2. Folio Medium capitals show light flux at inside corners, deteriorating outside corners affecting the length of terminal strokes, scalloped edges due to poor alignment, and considerable variation in brightness from left to right due to uneven focus. The decaying letterforms at the right emphasize the light buildup at the nodes.

Figure 3. Despite the squat distortion of the News Gothic Bold capitals which should decrease the weight of the horizontal strokes, they are emphasized both in weight and in brightness along the scanning lines. Perhaps not frequent, it is nevertheless a characteristic phenomenon, due to faulty vertical linearity. Photographed on a black and white receiver.

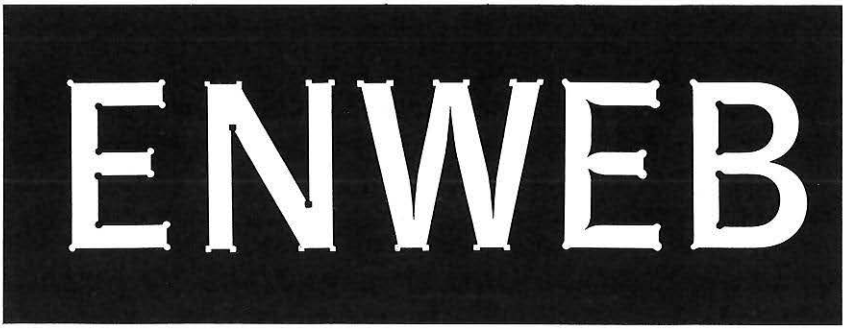

Figure 4. Experimental letters with a variety of differently-shaped lacunae at counter corners and protuberances at outside corner to counteract blooming and decay of televised letterforms.

OPPOSITE:

Figure 5. All typefaces tested showed various amounts of beam spread and light flux, as well as considerable decay of outside corners (reading from the top):

STANDARD MEDIUM shows flowing counters (E, F) and fused letters (N, O). Large scalloped edges are probably due to microphonics in the camera but are not characteristic to the test.

gether. A considerable strengthening of the light strokes was enough to safeguard reproduction in the larger sizes but was still insufficient to withstand deterioration in the smaller sizes. Much of the character of serif faces lies in the pronounced contrast of weights. An insufficient compromise fails to avoid decay. Additional compromise tends to destroy the original design characteristics.

We began some design experiments that we hoped would counteract the blooming at inside corners and the decay at outside corners (Fig. 4). We experimented with round, square, or wedge-shaped lacunae at counter corners, and with similarly shaped protuberances at the outside corners to prevent roundness. These serif-like excrescences did not work well because uneven line scanning often tended to suppress the terminal nodules on one side of the letter while exaggerating them on the other side of the stroke.

Our main purpose had been to prevent roundness and not to favor serif over sans-serif type. Research seems to leave unresolved the long debate between serif and sans-serif adherents; with serif-taught adults reading "traditional" typefaces better, while sans-serif educated young people did as well in sans-serif reading (e.g., Cyril Burt, *A Psychological Study of Typography*, Cambridge University Press, 1959).

Even these conclusions cannot be considered definitive for broadcasting purposes if we remember that we deal with what essentially are video captions, while most reading tests devote themselves to book pages of running text.

We did not look upon the fragmentary nodules shown in Figure 4 as serifs. Unlike true serifs that are a function of the original letter-forming instrument, their purpose was one of "preventive decay." Apart from the solutions discussed in these pages, we are continuing work on a related typeface having vestigial "serifs" combining weight emphasis with "built-in" deterioration.

The faces selected for our tests were News Gothic Bold and a group of the contemporary gothics related in character: Standard Medium, Folio Medium, Helvetica Medium and Univers 65. CBS Sans was measured and considered as part of the test along with Folio, to which it corresponds closely in character, weight,


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Figure 7. News Gothic Bold. Poor alignment or variance in beam modulation. Even if we disregard added "white shirt" problem (R in STUART), DEM shows flowing counters and spread. Black and white photograph of black and white monitor.

Figure 8. CBS News 36. Less spread, cleaner counters. Scalloped edges are probably due to microphonics and are not characteristic. Black and white photograph of black and white monitor.

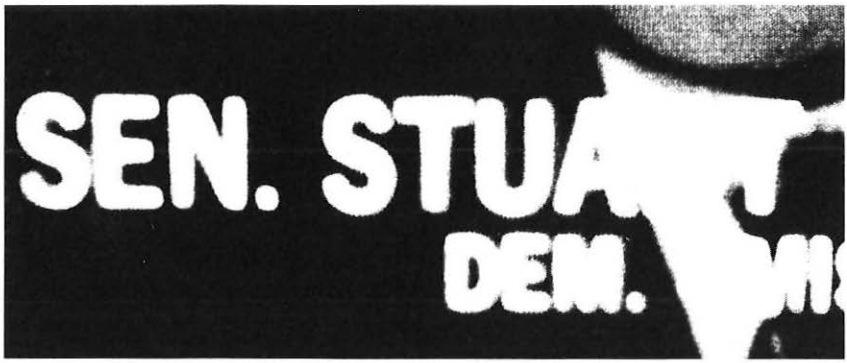


Figure 9. News Gothic Bold. Light flux and spread (DEM), almost filled counter (A). Black and white photograph, enlarged detail.

Figure 10. CBS News 36, same detail. Less distortion (DEM), counters more open (S, A).

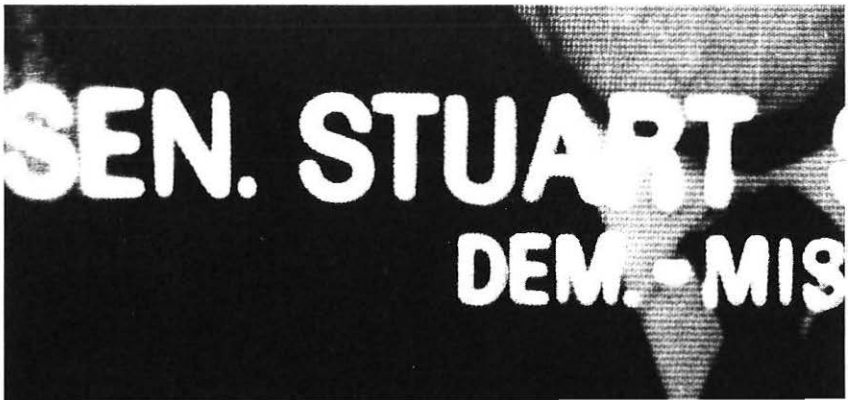


Figure 11. News Gothic Bold, further enlargement. Note rounded inside corners (R, K).

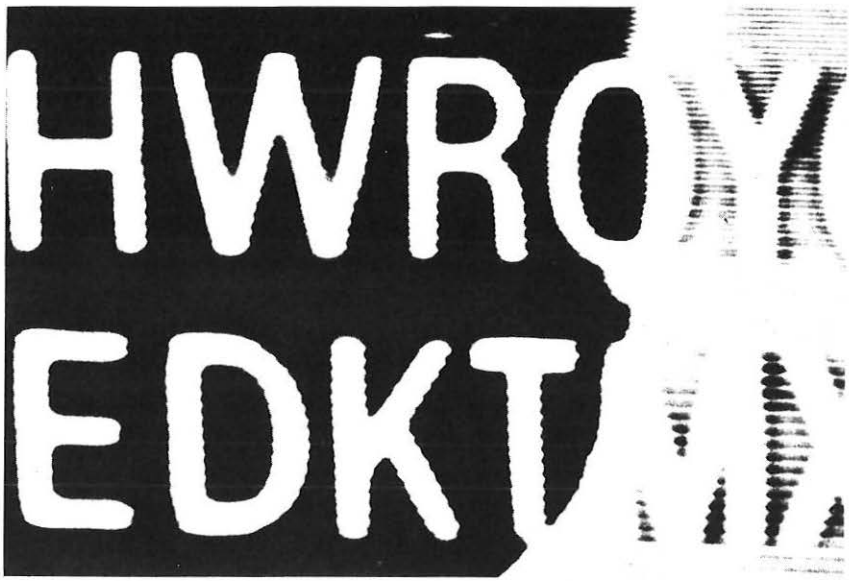


Figure 12. CBS News 36, same enlargement. Less rounding at same inside corners (R, K).

Figure 13. News Gothic Bold, large detail. Contrast level on the black and white monitor was exaggerated in this test to simulate brightness added on the home receiver. Vertical distortion lengthens capitals and adds to the weight of the horizontal strokes. Note round inside corners (F) and filled counter (A).

Figure 14. CBS News 36, similar detail. Despite exaggerated contrast level, inside corners tend to remain sharp (F) and counters are not completely filled (A). Note the notch retained at the bottom of G.

and proportion. We prepared slides and telops of all-capital alphabets and superimposed them over photographic slides simulating a broadcast. There was no appreciable difference between type "supers" from a telop chain or slide chain. Although the optics of the slide chain are superior, distortions recorded were similar in both instances. Photographs were taken off a studio monitor and photographic enlargements made. These were copied and further enlarged to show large-screen reproduction and to simulate, as far as it was possible, the further loss in definition from the studio to the home screen. The enlargements were made on hard paper to simulate, on paper, the higher contrast ratio evident on the CRT face. Figure 5 shows some of the results of this test and some of our evaluations.

Based on these comparisons and the amount of beam spread and halation of the various faces, we designed a typeface for the television screen. We named it CBS News 36, not to designate point size (obviously without meaning in relation to screen size) but in reference to the thirty-six scanning lines characteristic of the size of low-frame supers. This was based on several characteristics (Fig. 6).

1. Since both the greater psychological and ocular presence of the negative superimposed letterform must be taken into account, CBS News 36 leans toward the slightly lighter weight of Folio and CBS Sans, combining it with the shorter alphabet length and greater character count of News Gothic Bold. If we assign News Gothic Bold a factor of 100 for the length of the entire capital alphabet, the other alphabets (given the same height) measure: 109 for Standard Medium, 116 for Helvetica Medium, 119 for Folio Medium and CBS Sans, and 129 for Univers 65. Some of these differences might not appear significant in print typography but become critical in a medium where not only the quality of reproduction, but the size and even the actual margins of the "page" cannot be controlled.

2. CBS News 36 reduces the width of some of the open capital letters such as O, Q, U, L, or T; while it opens up the tight letters such as M, N, and W; and, to some degree, B, R, and S. This more even all-over color is important because the visual intensity of the light source exaggerates the uneven color of tight and open letters.

FOLIO MEDIUM has less counter flow or beam spread due to its lighter weight, but equal decay at outside corners.

HELVETICA MEDIUM, the heaviest of the faces tested, has greatest spread (E, F) and greatest letter fusion throughout. (Note the completely filled A in the second line.)

UNIVERS 65 has equally flowing inside corners (E, F) but avoids letter fusion because of its generous letter spacing, achieved, however, at the expense of the greatest alphabet length (129) and consequently the poorest character count across the CTR face.

NEWS GOTHIC BOLD, the shortest of the alphabets tested (100), has the desired character count, but its weight in relation to the proportion of its letters accounts for flowing counters (E, F), fusion (O, P), and completely filled counters (A).

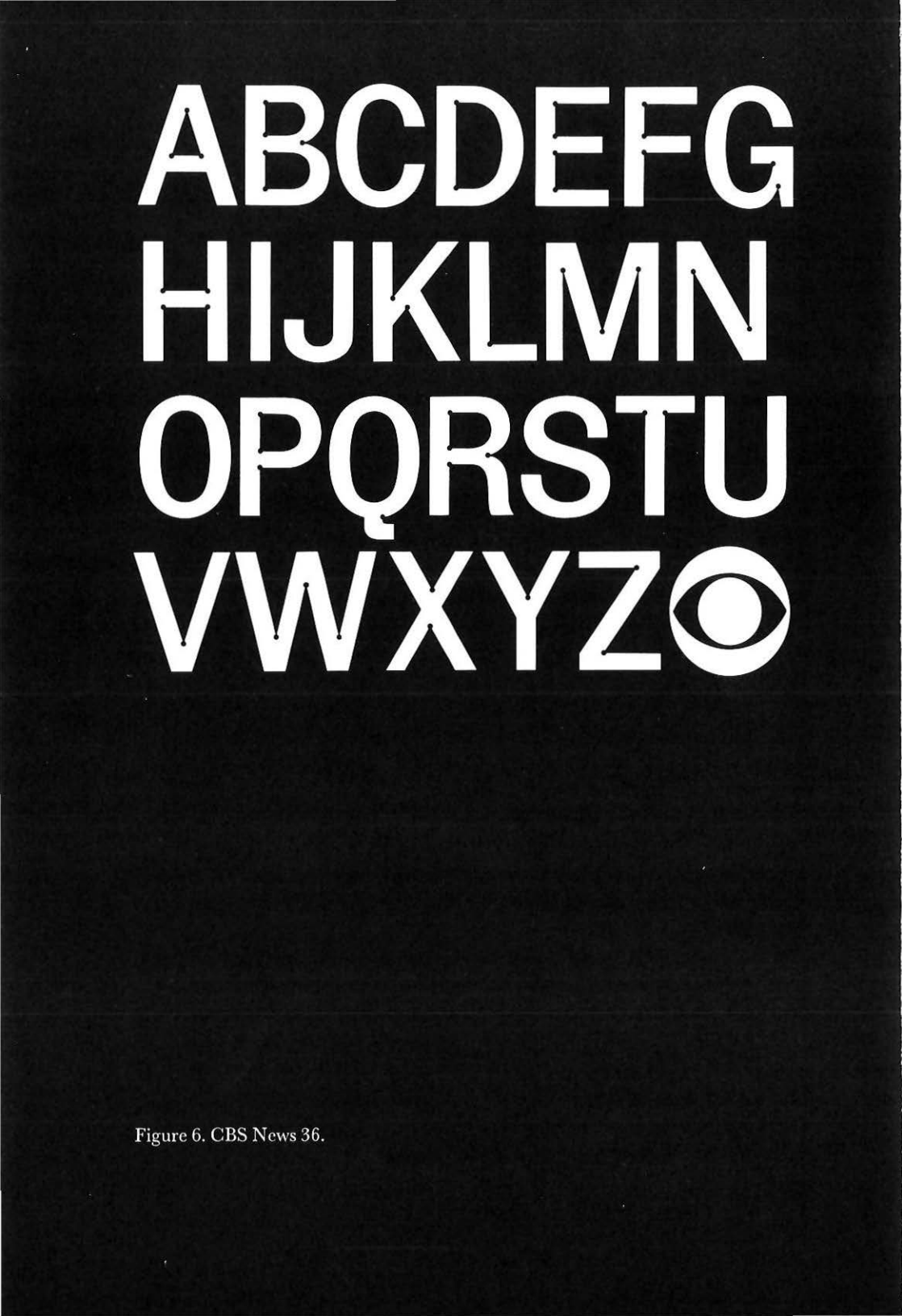


Figure 6. CBS News 36.

3. Since one of the undesirable effects of poor vertical linearity or focus is a buildup of light along the scanning lines (see Fig. 3) CBS News 36 deemphasizes the weight of the horizontal strokes.

4. Most importantly, CBS News 36 employs a system of corner dots at all inside corners. These lacunae act as light traps, counteracting the effects of halation and flux by absorbing the excess of light building up at the intersection of letter strokes. This "swiss cheese" effect disappears to the eye as the type approaches the 36-line size. The result is a greater sharpness and definition at all inside corners.

Figures 7 through 14 show comparisons of News Gothic Bold with CBS News 36. The progression of enlargements demonstrates the reduction of corner flow at the nodes and less beam-spread under poor reception conditions.

A word about type design as a function of both technology and esthetics. Choices visually pleasing to the designer, not only those governing recognition values, must at some time determine design decisions. Like Helvetica and CBS Sans, we chose the straight capital R over the angled one. Folio avoids the dilemma by offering both letters. CBS News 36 recalls elements of some of the gothics of the turn of the century. A type catalog of the period carries almost equal instances of the alternate styles. More important perhaps was the choice between the open-descender, lower-case g and the closed-descender, lower-case g. Of the gothics tested, all designs of European origin (Standard, Folio, Helvetica, and Univers) carry the open-descender g. Our decision to choose the more detailed letter was as much a nod toward American tradition, if it can be called that, as a recognition that of forty-odd current text faces only five type families carry the open-descender g.

A further development in our program is the design of a heavier version of CBS News 36 (Figs. 15 and 16). It will be used mainly in positive form and is not meant to represent a bold version of the typeface. The slightly heavier strokes, in positive form, balance the negative flare and visual presence of the regular font. We are continuing efforts directed toward overcoming the decay at all outside corners; tolerable if reception is at its best, but considerable under average viewing conditions.

Figure 15. A slightly heavier version of CBS News 36, designed for positive rather than mainly negative use, retains the general proportions of the original font, but drops the corner light traps.

Figure 16. A comparison between a CBS News 36 negative and a positive of the heavier alphabet shows the balance in weight achieved through the blooming of the white letters on the CRT face, as well as their greater apparent ocular presence, visible even on the printed page.

Figure 17. An opposite of the Figure 16 comparisons underscores the actual difference in weight between the two fonts, not apparent in Figure 16.

Typography: Evolution + Revolution

Fernand Baudin

Typography is considered as a technological phase in the evolution of handwriting. The latter is an intellectual and rational operation and not only a skill that is purely manual or mechanical. That is why ideas about the legibility and intelligibility of text should be extended to include the entire format which supports the written matter, book, or document. The technological revolution in progress in the reproduction and multiplication of printed matter provokes a social revolution in the actual production of writing, and calls for a parallel renewal of teaching — at a higher level — of handwriting. Illustrations and commentary.

The specific techniques of typography: the cutting of punches, the striking of matrices, the composing and printing of type may soon be the concern of historians exclusively. *Typography* is now commonly used in connection with signs, posters, packaging, pictographs, and so on. In short, it tends to cover the whole field of visual communication. This may be quite natural, but it can hardly be said to help clear thinking and precise talk.

Typography has its visual aspects, obviously. Yet its main object is to reproduce and multiply written language, not pictorial representations. More and more people seem to imply that the main issue in this context should be: when is rational discourse going to be altogether superseded by irrational pictorial "language"? When driving on a highway, the instant legibility of any road sign or any other relevant piece of information, is a matter of life and death. When I read a piece of printed or written matter, intelligibility is a question of understanding or senselessly fumbling around the would-be message. It is hardly a question of survival; it is a question of culture and civilization, how to build them and how to preserve them. When watching a TV program or seeing a film, what I see and hear is largely enter-

tainment and propaganda—and altogether expendable. On the other hand, the current use or abuse of the word typography has already had some rather nasty consequences. I shall cite three examples.

Many art schools all over the world teach typography as a visual art. Only a few people show real talent in the practice of typography in this sense, a very conspicuous but also restricted field. But typography—or as I shall say later on, writing—as a rational discipline for the proper design of intellectual tools is largely ignored in practice, and almost totally neglected as an object for special study and research.

A second example. For more than thirty years eminent practitioners as well as theoreticians have been advocating a universal letter type. Others urge the aesthetic treatment of every new sign or symbol in scientific and general communication. There was no universal acceptance either way. It is an error to mistake linguistic for graphic issues. A language is first created and exists as a linguistic system. Only afterwards can it be written, designed, multiplicated. The other way round is to put the cart before the horse. In a useful linguistic system, the abstract relatedness of abstract functions is fundamental; not so the visual, aesthetic appeal. Useful graphic symbols have been invented before as well as after the introduction of the alphabet. There is nothing revolutionary about that, nor is it surprising. Not only scientists, but also dancers, musicians, sailors, and customs officers will continue to ignore the assistance of designers for their symbols, choreographies, musical notations, Morse, semaphore, road signs, etc.

A third example. It would seem that psychologists have run into something of a blind alley in their legibility research. Assuming that the main issue was the design of the individual typeface, they have been researching legibility for three quarters of a century. Their own conclusions may be summarized as follows: there is no significant difference in the relative legibility of any set of printing types designed to fulfill an identical function and compared under the same conditions of light, distance, etc. This will not surprise anyone familiar with palaeography. In fact, any consistent system of standardized alphabetic signs, can be made legible, readable, and beautiful as well. Given the necessary in-

structions that will ensure congeniality and readability, legibility is something any scribe or composer can master in a limited time.

It is not my purpose here to disparage psychologists or to suggest that psychological research is useless. One significant practical result of psychological research is in the use of perforated tape for computer setting; i.e., analysis of the operator's mental processes while reading copy and composing on the machine. Nor am I suggesting that legibility at the composer's level is all there is to readability and intelligibility, and that as a consequence we could dispense with others involved in the adequate treatment of any given copy. A psychologist, it seems—as well as a designer—can be a victim of an aesthetic fallacy; viz., to think of the individual letter or alphabet as the main issue in typography.

What, then, can be said about "typography, evolution and revolution"?

There is no revolution in typography in the strict sense. Typography, as such, is a technology that we are growing out of, leaving behind. New technologies are emerging to take its place. The purpose of typography was to increase the production of the scribe. Now, new technologies are stepping up this production in a way that may well be called a technological revolution.

In an effort to narrow my subject down to some measure of specificity, I want to discuss what seems to me to be the essence of "typography" apart from any technological consideration. The scribes of old as well as the typographic composer or operator of today (or, for that matter, the computer) have one and the same purpose: the multiplication of writing, as distinct from visual communication which has been the province of the illuminator, or, as we would put it, the graphic artist.

Writing is now considered a very common, every-day practice —a manual task, hardly an achievement—except for the rather "amusing" expertise of a calligrapher. Thus the fundamental significance of writing is lost; which is, in fact, as a social link as well as an intellectual discipline, not as a personal accomplishment. When talking about typography, we are all too prone to think only of books, posters, ads, and to forget the legal, commercial, religious, and scientific documents that contribute to the rational structure

of our society (even though they escape the notice of most artists and researchers). With unfailing instinct, the first thing that the over-all subversive Dada movement assailed was language and typography, precisely as the two fundamental aspects and links of a rational society.

Writing is so familiar, so matter of fact, that we fail altogether to realise that it is a very complex product, the crowning achievement of human culture and of generations of learned and highly specialized people; not of a technology, nor of mere scribes either. Scribes, operators, composers are concerned with individual letter symbols—a matter of legibility. There is much more to writing.

The very intention to put thought—not only pen—to paper affects the thinking process. It invites rational thought, controlled communication. Consciously or unconsciously, it aims at creating and preserving social links; however tiny, they eventually, by sheer accumulation, make up for a whole social structure. The format, the proportions, and the planning not only of a page but also of the whole "written" document affects the very intelligibility which comprises the psychological impact as well as the direct meaning of the text.

Only such a complex subject accounts for the fact that, beginning with the thirteenth century and until late into the sixteenth, writing was taught at universities all over Europe. Writing masters were not mere calligraphers; they were men of learning—mathematicians, philologists. Small wonder that so many manuscripts and printed books were not only useful tools but, as often as not, splendid works of art as well.

Typography took over a scriptorial tradition in full vigour. What happened in the course of the typographical evolution of writing? To put it very briefly, writing masters disappeared from the universities (perhaps there was some connection between their withdrawal and the discarding of Latin for teaching purposes?). From the point of view of status, the liberal arts were superseded by science. The care for typography as writing — as a mental, intellectual discipline—rested more and more with printers who, on the whole, were less and less learned people (more mechanized scribes, so to speak). Finally writing as a part of learning was altogether neglected.

This is obviously an oversimplification. To be a little more precise: after Gutenberg, the transmission of the scriptorial tradition took effect through the agencies of writing masters, printers, and typefounders. Authors cared less and less. Printers gradually became immersed in industrial and managerial problems. The typefounders alone could not be expected to keep the tradition alive. They can only ensure that their types are properly designed; they cannot enforce the intelligent arrangement of text matter. This applies also to the typefounders' new competitors: the computerised composing machines. And we cannot ignore the fact that there is every indication that the care for the multiplying of new and traditional categories of text matter is in the process of being shifted from the composer's shoulders to the shoulders of typists. I do not wish to appear suspicious about these new technologies. This would be an altogether unrealistic, unpractical attitude. There is no obvious reason why new technologies should spell disaster for writing. Even if they altogether neglected the typographic tradition in the design of type—which is not the case—they could not be blamed for overlooking even a large amount of the typographic niceties and refinements. Fine printing was never the primary purpose of typography either.

During any period there has been only a variable degree of coincidence between the economic and the cultural consciousness, between the drive towards new processes and the sense of scriptorial tradition and culture. Tradition is not an undue respect for the past as such. Only a proper sense of tradition can help the most fanatic modernist put into effect the most revolutionary process. Whether it is baked in some primitive oven or in an electronic contraption, the proof of the cake is in the eating. The proof of writing is not in the computer, it is in the reading. In the case of writing, only a sense of tradition can help us toward an intelligent and contemporary structure for printed text matter.

Since some things—especially those we call cultural—do not, by definition, take care of themselves, I suggest that some consideration be given to the training of many more people in the tradition and practice of designing written language, of writing as an intellectual discipline. Of necessity, more typists are being trained in the compositor's ability to follow instructions. But what about

training needed to give proper, adequate instructions? Writing, whether typographically or electronically, is not an inborn talent, but a way of thinking, a rational attitude and a mental discipline. Only when thought is constructed orderly and rationally, can a corresponding orderly, rational structure be given to its transcription—to its layout and design. Some consideration must be given to the training, *at the university level*, of competent people for the proper writing and editing of text matter—not as pieces of art, but as instruments for intellectual information. There are cogent reasons for that.

The indifference of students as regards plain, clear, adequate language is already giving cause for alarm in our universities. It would have practical as well as cultural results to give them some sense of the scriptorial tradition, in its manuscript as well as in its typographic aspects. They would be prepared to meet the new scriptorial needs throughout commercial and industrial managements, scientific laboratories, etc. And, hopefully, they would be equipped with a thoroughly rational and intellectual training in the proper—written as well as spoken—expression of their and other's thinking. The measure of the success of a culture is exactly the measure of the degree of rationality it achieved in its expression. Therefore, there cannot be a fundamental clash between two or more cultures, but only an emotional clash between two or more exponents of diverse aspects of culture.

I am well aware that the programs of American universities are as overcrowded as they are in Europe. All we can hope to achieve now, obviously, is to start thinking about writing in a new light, to look at writing in the perspective that the present and the near future of printing and publishing demands.

Needless to say, typography in the traditional sense, is still open for research. Typography as writing, however, as an intellectual discipline for the proper design of intellectual tools or as the foundation of various types of societies has hardly been touched upon. I know only of one exception: Istvan Haynal, *l'Enseignement de l'ecriture aux universites medievales* (Budapest, 1959)—to whom I am deeply indebted.

Consider, for instance, these examples: the historic relationship of writing and printing in our countries may help explain the way

they developed or did not develop in other countries; the arrangement, the scaling up or down of the various parts of a whole piece of writing, printed or manuscript, may be more important and socially significant than the design of any individual hand or letter design; research may detect unexpected social connections, psychological associations, conscious or unconscious mental attitudes, in the choice and combination of various letter styles. And it is a mistake to suppose that technology is the sole revolutionary element. Somewhere in the beginning of the Christian era, the scroll was superseded by the codex. There is too little factual information on the why and how of this revolution. It made for more transportable books, easier to consult for study and reference, for the introduction of critical apparatus, for editorial refinements, and for propaganda (it is known that the early Christians were not the last to avail themselves of the advantages of this new book form). In modern times, as a result of social, industrial, as well as technological evolutions and revolutions, the daily newspaper introduced the one new "writing" format since Gutenberg.

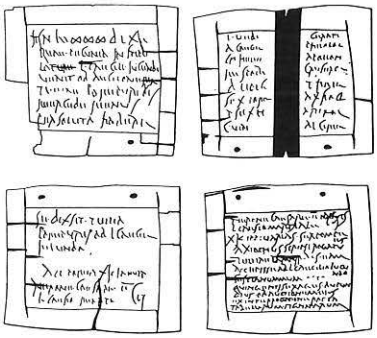
The study of such a complex subject as writing cannot be confined to any special branch of learning. It calls for the close cooperation of specialists in many branches: linguists, communication, psychology, history, technology. And, if such an interdisciplinary cooperation ever comes about, it would not be a revolution at all, but a very natural evolution of "typography" research.

Fernand Baudin's article was originally presented as a lecture at Gallery 303 in New York City this fall.

These illustrations are intended to reinforce the two main points of the argument. First: writing is more than a technology, an artistic or manual accomplishment; it is a rational method for the proper design of intellectual instruments and social links. Second: total format of any piece of writing as an object (manuscript, imprinted, or otherwise) is at least as significant as any single aspect of the document.

Figure 1. *Prescriptio* or quittance for 3480 sesterces. 57 A.D. Roman style. Format: triptych, i.e., three tablets hinged together by a string of seals, stereotyped display of texts on "pages" 2, 3, 4, and 5 (page 4 is partly hollowed to make room for the string of seals). The writing is comparable to any mural graffito; yet, in a *prescriptio,* the spatial arrangement is part of the information.

Figure 2. *Prescriptio* for the sale of a slave. 166 A.D. Greek style. Format: folded papyrus, 7 seals, 7 strings, 7 hands in early roman cursive writing.



Figures 5 and 6 (opposite). Two chapter openings of the "Zurich Bible," ca. 800 A.D. The division in books, chapters, and further sections is as fixed as a ritual. The combination or fixed constellation of writing styles and their hierarchy is typical for Tours in the ninth century: roman square capitals and uncials for display. Yet the text is written in a miscellany of half uncials (Figure 5) and Caroline minuscules (Figure 6). What would we say or think today of anyone mixing Garamond with Bembo in one and the same text matter?

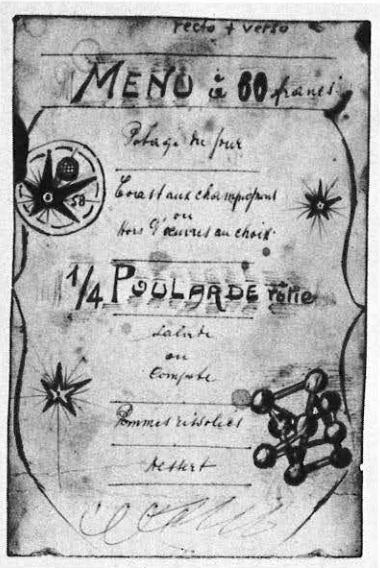


Figure 3. Imperial diploma. 1053 A.D. The format, the stereotyped order, and wording of the formulas for every single part of the document are clearly as significant as any of the various scripts involved. Formulas comprise: *invocatio, intitulatio, inscriptio, salutatio, arenga, promulgatio, narratio, dispositio, corroboratio, subscriptio, date appecratio,* etc. Visual aids: *chrismon, Gitterschrift,* minuscule with flourish, protocol, monogram, *signum speciale, signum recognitionis,* seal etc.

Figure 4. Menu à 60 francs. Manuscript. Brussels, *Expo. 1958.* A sense for decoration and formality may be instinctive and inborn; scriptorial competence and rationality are not. They need cultivation and tradition combined with observation and an awareness of economics as well as of technological development.

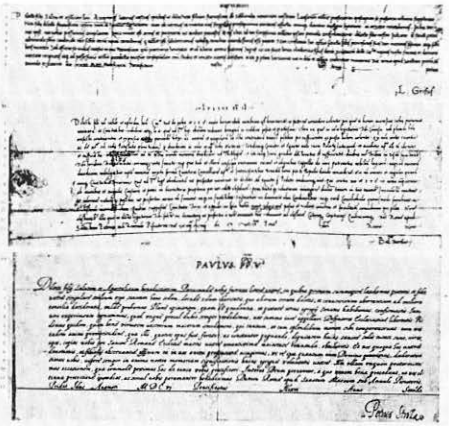
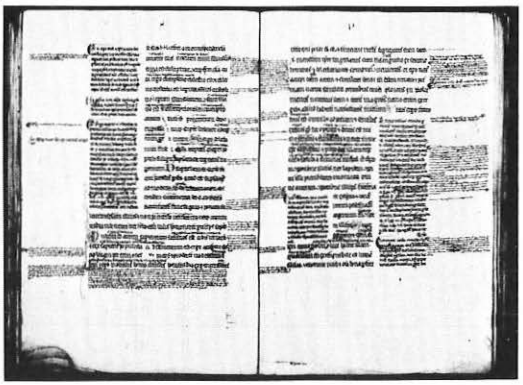


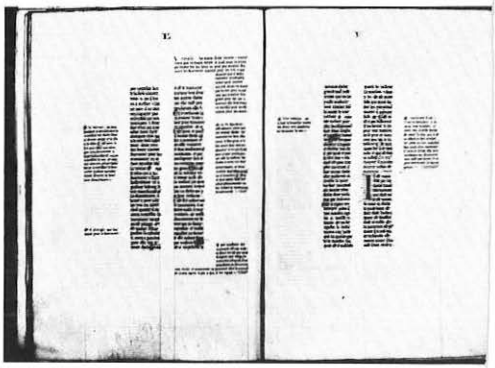
Figure 7. Papal Briefs, 1472, 1512, 1606. The oblong format was used in imperial and papal chanceries through the centuries. It was also very common for various other documents. It is scarcely used as a book form, where it would be deemed inconvenient.

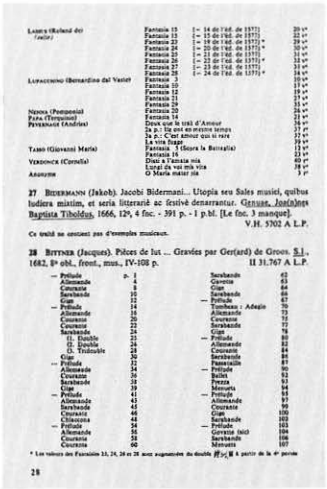
Figure 8. Two diplomas, both issued in the year 1577 at the University of Paris. Identical format. The first, for a *magister artium,* dated March 21, in French gothic cursive. The second, for a *baccalaureus* in theology, dated August 1, in humanistic cursive.

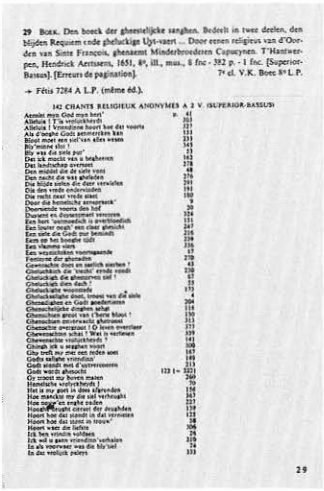
Figure 9 (below). An Epistle and its gloss, thirteenth century.

Figure 10. Aristotle's, *Ethics* and *Politics,* fourteenth century. No longer a linear but a spatial arrangement. The planning of the prickings and the rulings becomes eventually the rational, adequate ordering of an intellectual instrument, as well as a determining factor for cost and delay.





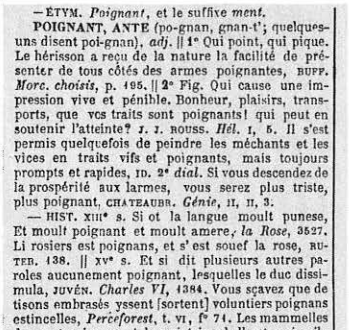




Figures 11 and 12. First proofs of a catalogue of books on music, as they came from a printing shop. One simply reproduced the typed copy. As a matter of fact, no printing school, or art school can really prepare anyone to tackle this kind of design problem.

Figure 13 (below). Cinema programme, Brussels.

Figure 14. Publisher's ad in a joint Italian catalogue. Further proof that rational planning is not an inborn talent, nor even a mere consequence of a printer's training.



— ÉTYM. *Poignant*, et le suffixe *ment*.

POIGNANT, ANTE (po-gnan, gnan-t'; quelques-uns disent poi-gnan), *adj.* || 1° Qui point, qui pique. Le hérisson a reçu de la nature la facilité de présenter de tous côtés des armes poignantes, BUFF. *Morc. choisis*, p. 195. || 2° Fig. Qui cause une impression vive et pénible. Bonheur, plaisirs, transports, que vos traits sont poignants! qui peut en soutenir l'atteinte? J. J. ROUSS. *Hél.* I, 5. Il s'est permis quelquefois de peindre les méchants et les vices en traits vifs et poignants, mais toujours prompts et rapides, ID. 2e *dial.* Si vous descendez de la prospérité aux larmes, vous serez plus triste, plus poignant, CHATEAUBR. *Génie*, II, II, 3.

— HIST. XIIIe s. Si ot la langue moult punese, Et moult poignant et moult amere, *la Rose*, 3527. Li rosiers est poignans, et s'est souef la rose, RUTEB. 138. || XVe s. Et si dit plusieurs autres paroles aucunement poignant, lesquelles le duc dissimula, JUVÉN. *Charles VI*, 1384. Vous sçavez que de tisons embrasés yssent [sortent] voluntiers poignans estincelles, *Perceforest*, t. VI, f° 71. Les mammelles dures et poignans et la poictrine belle et unie, *ib.* t. V, f° 44. || XVIe s. Ce bruit aigre et poignant que font les limes, MONT. II, 367. Le chauld aspre d'un soleil poignant, ID. IV, 104.

— ÉTYM. *Poindre*.

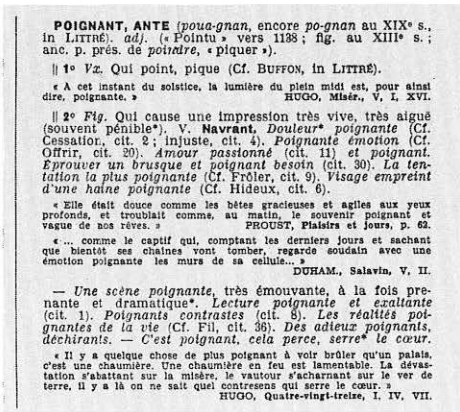
POIGNARD (po-gnar; quelques-uns disent poi-

maniere aux commissaires du roi de France », **Froiss.** II, 171. — **E.** *Poignant*, et le suffixe *ment*.

poignant, ante (po-gnan, gnan-t'; quelques-uns disent p gnan), *adj.* ♦ **1°** Qui point, qui pique. « Le hérisson a r de la nature la facilité de présenter de tous côtés des arr poignantes », **Buff.** *Morc. choisi*, p. 195. ♦ **2°** Fig. Qui ca une impression vive et pénible. « Bonheur, plaisirs, transpo que vos traits sont poignants ! qui peut en soutenir l'atteint **J.-J. Rouss.** *Hél.* I, 5. « Il s'est permis quelquefois de pein les méchants et les vices en traits vifs et poignants, m toujours prompts et rapides », **id.** 2e *dial.* « Si vous descen de la prospérité aux larmes, vous serez plus triste, plus p gnant », **Chateaub.** *Génie*, II, II, 3. — **H.** XIIIe s. « Si ot langue moult punese, Et moult poignant et moult amer *la Rose*, 3527. « Li rosiers est poignans, et s'est souef la ros **Ruteb.** 138. ♦ XVe s. « Et si dit plusieurs autres paroles au nement poignant, lesquelles le duc dissimula », **Juv** *Charles VI*, 1384. « Vous sçavez que de tisons embra yssent [sortent] voluntiers poignans estincelles », *Percefor* t. VI, f° 71. « Les mammelles dures et poignans et la poictr belle et unie », *ib.* t. V, f° 44. ♦ XVIe s. « Ce bruit aigre et p gnant que font les limes », **Mont.** II, 367. « Le chauld as d'un soleil poignant », **id.** IV, 104. — **E.** *Poindre*.

poignard (po-gnar ; quelques-uns disent poignar ; le *d* ne se p

Figures 15, 16, 17, and 18. Four examples of the same entry, the word *poignant*, in a variety of French dictionaries. A sense of format and a proper editorial (i.e., *scriptorial*) culture are also necessary for what is sometimes improperly called the "compositor's ability" instead of "finer points in the spacing arrangement of writing" (and eventually, of type). For there is no such thing, unless there is an editor's sense of responsibility toward author and copy—and precise instructions for the compositor. Figure 15: (Littré) orderly and sober (three columns a page are practical for reference work); Figure 16: (Littré-Pauvert) more elaborate (one column a page for casual reading); Figures 17 and 18: overemphasis on every single part of the text results in a jumble.



POIGNANT, ANTE (*poua-gnan*, encore *po-gnan* au XIXe s., in LITTRÉ). *adj.* (« Pointu » vers 1138 ; fig. au XIIIe s. ; anc. p. prés. de *poindre*, « piquer »).

|| **1°** *Vx.* Qui point, pique (Cf. BUFFON, in LITTRÉ).

« A cet instant du solstice, la lumière du plein midi est, pour ainsi dire, poignante. »
HUGO, *Misér.*, V, I, XVI.

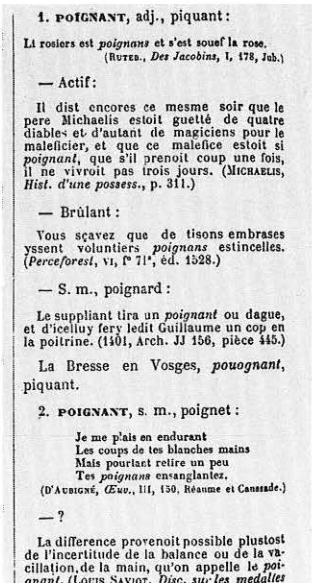
|| **2°** *Fig.* Qui cause une impression très vive, très aiguë (souvent pénible*). V. **Navrant**, *Douleur** *poignante* (Cf. Cessation, cit. 2 ; injuste, cit. 4). *Poignante émotion* (Cf. Offrir, cit. 20). *Amour passionné* (cit. 11) *et poignant. Éprouver un brusque et poignant besoin* (cit. 30). *La tentation la plus poignante* (Cf. Frôler, cit. 9). *Visage empreint d'une haine poignante* (Cf. Hideux, cit. 6).

« Elle était douce comme les bêtes gracieuses et agiles aux yeux profonds, et troublait comme, au matin, le souvenir poignant et vague de nos rêves. »
PROUST, *Plaisirs et jours*, p. 62.

« ... comme le captif qui, comptant les derniers jours et sachant que bientôt ses chaînes vont tomber, regarde soudain avec une émotion poignante les murs de sa cellule... »
DUHAM., *Salavin*, V, II.

— *Une scène poignante*, très émouvante, à la fois prenante et dramatique*. *Lecture poignante et exaltante* (cit. 1). *Poignants contrastes* (cit. 8). *Les réalités poignantes de la vie* (Cf. Fil, cit. 36). *Des adieux poignants, déchirants. — C'est poignant, cela perce, serre** *le cœur.*

« Il y a quelque chose de plus poignant à voir brûler qu'un palais, c'est une chaumière. Une chaumière en feu est lamentable. La dévastation s'abattant sur la misère, le vautour s'acharnant sur le ver de terre, il y a là on ne sait quel contresens qui serre le cœur. »
HUGO, *Quatre-vingt-treize*, I, IV, VII.



1. POIGNANT, adj., piquant :

Li rosiers est *poignans* et s'est souef la rose.
(RUTEB., *Des Jacobins*, I, 178, Jub.)

— Actif :

Il dist encores ce mesme soir que le pere Michaelis estoit guetté de quatre diables et d'autant de magiciens pour le maleficier, et que ce malefice estoit si *poignant*, que s'il prenoit coup une fois, il ne vivroit pas trois jours. (MICHAELIS, *Hist. d'une possess.*, p. 311.)

— Brûlant :

Vous sçavez que de tisons embrases yssent voluntiers *poignans* estincelles. (*Perceforest*, VI, f° 71*, éd. 1528.)

— S. m., poignard :

Le suppliant tira un *poignant* ou dague, et d'iceliuy fery ledit Guillaume un cop en la poitrine. (1401, Arch. JJ 156, pièce 445.)

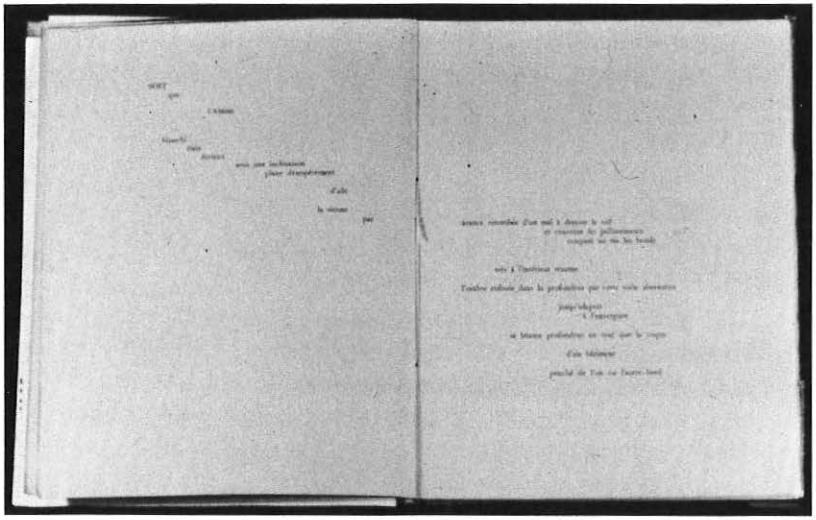
La Bresse en Vosges, *pouognant*, piquant.

2. POIGNANT, s. m., poignet :

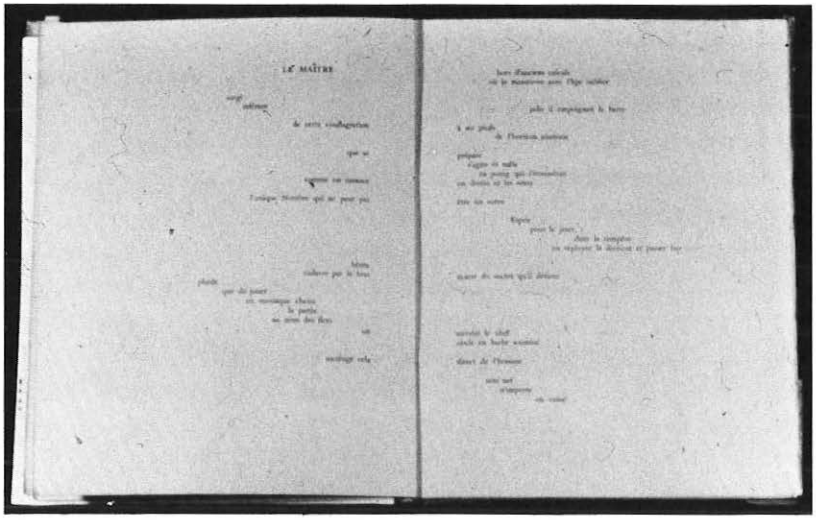
Je me plais en endurant
Les coups de tes blanches mains
Mais pourtant retire un peu
Tes *poignans* ensanglantez.
(D'AUBIGNÉ, *Œuv.*, III, 150, Réaume et Caussade.)

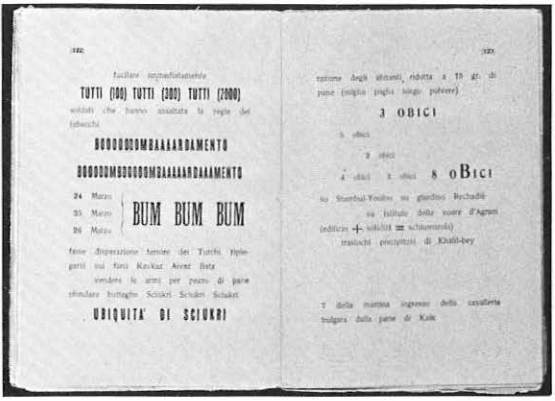
— ?

La difference provenoit possible plustost de l'incertitude de la balance ou de la vacillation, de la main, qu'on appelle le *poignant*. (LOUIS SAVIOT, *Disc. sur les medailles antiques*, p. 276, éd. 1627.)



Figures 19 and 20. Two double-spreads from Stéphane Mallarmé's: *Un coup de des jamais n aboliva le hasard,* 1897, which consists of a single sentence arranged in form of a musical score. The placing of the words and the body of the type should convey a sense of changing sonorities as well as the meaning of the text.





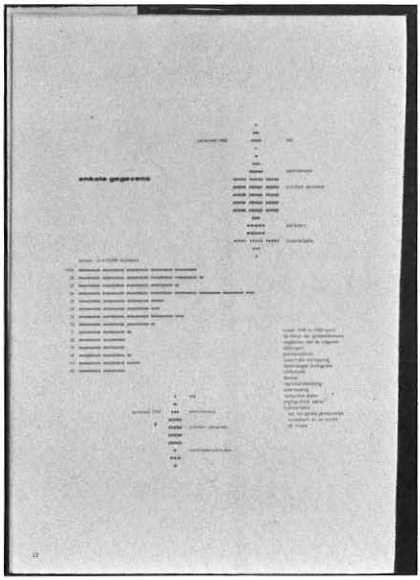
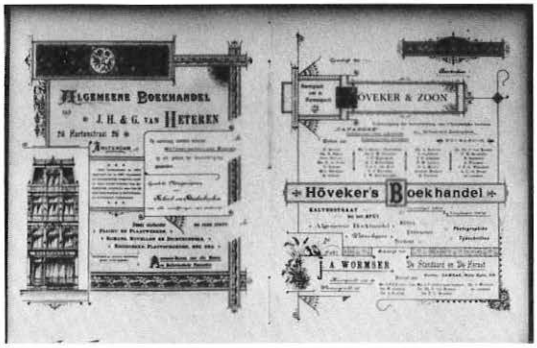


Figure 21. One page of *Zang Tumb Tumb*, Marinetti, 1912. Poets and futurists should (obviously) be free to indulge their wildest fancies. Their "findings" may provide useful visual, as well as rhetorical, devices that can eventually be rationalized for advertising . . .

Figure 22. . . . or for statistical tabulation, as with W. Sandberg, honorary director of the Stedelijk Museum, Amsterdam.

Figure 23 (below). The result of sheer manual dexterity. Amsterdam, 1892.



Vertical Group Exercises in Graphic Design

Edward Wright and Jean Collins

Graphic designers traditionally have limited experience with the direct relationship between meaning and form in the language they use. In this experimental project graphic design students were encouraged to gradually refine their own individual handwritten texts from random, personal jottings into a formal graphic mode. Several students' work is illustrated and commented on.

These exercises form the preparatory stage of a graphic language "laboratory" study in the Department of Graphics at Chelsea School of Art. The word laboratory sounds ambitious, but in this first project it is the experimental attitude which defines the nature of the work rather than the equipment which is used. We began with a wish to provoke students into writing their own texts with the intention of using these to set typographic tasks based upon a handwritten groundwork. Typographers normally design using other people's words and eventually accept a situation in which they are limited to making only slight modifications in a given text even when a syntactic rephrasing could make the message more understandable. However, we found that recognizing a theme and choosing words was more valuable to our graphics course, so we decided to keep to a handwritten script.

In the West most of us suffer from an inability to see handwriting as anything but a very informal or incomplete version of a typewritten or printed message. Lettering and calligraphy which are taught in many graphic design courses frequently show such symptoms of overcompensation as a meaningless formalism, akin to ballroom dancing. A graphics course should examine and discuss the suitability of every graphic means without ignoring the function of peripheral implements and pieces of equipment. What, for example, do we have to say about the use of the ball-point pen?

We may use it for marking-up and correcting proofs, and then may find that it has other graphic uses.

This project makes use of handwriting, but the aim is not to produce "literature" only, nor a "free calligraphy" only, but to give the experience which allows a mass of words to be examined and processed according to a program. We are not interested in end-products, but in dissolving inhibitions and breaking down the idea of compartmentalized skills. As communication, speech comes first; words come in with writing. Why should graphic designers, like many specialists, be afraid of words outside their own technical type of discourse?

"Journeys demonstrate (among other things) that words are strangers to the things they name" (Amereida). In the first exercise we asked students to attempt to reverse this situation. The project was introduced verbally to a group selected from graphics students in all three years of the Diploma in Art & Design course. Each was issued a copy of the program synopsis and notes reproduced on following pages. We asked them, in their own time, when alone or late at night before going to bed, to give names to, and make up phrases about things in their vicinity. Early in the morning they were to add to or amend what they had written. The process was to continue until the student had exhausted his response to the stimulus-object.

The random notes were to cover the area of work on the paper as completely as possible and could be illegible to anyone except the student himself. This was to allow a sense of freedom until the student had accumulated a rich verbal soil as a basis for the following stages of the exercise. It was stressed at the outset that participation in the project was totally voluntary; students were free to drop out at any stage, which many did. To maintain the laboratory point of view, all work in the series was done on sheets of layout paper 15 inches wide by 20 inches deep, coded with stenciled numbers in the bottom right-hand corner to correspond to the exercise in the program synopsis. The area of work was chosen by the student, but this area—drawn in pencil on the sheet—was to be kept the same, in size and position, throughout the series. The decimal system of numbering the exercises set a limit of nine sheets for each stage in the series; when this limit was reached a move had to be made to the next stage.

The title Vertical Group was originally chosen because the students were drawn from each year, worked without hierarchy, and attended weekly group tutorials to discuss their work progress and problems in the project. Later the system was replaced by individual tutorials as the working pace of students varied and fluctuated according to the demands on student's time made by other projects in the graphics course. It is hoped that some of the first- and second-year students who participated last year will continue with the project during the remainder of their course. The work illustrated shows a part of the work carried out from October 1966 to June 1967. An unexpected result of the exercise has been the stimulus given to students to follow some experiments of their own invention outside the program but organized within the same methodical pattern. The examples on pages 407-8 are a part of a set of experiments made by a first-year student during the summer vacation.

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Project Synopsis

1.00 handwritten
- .10 repeated random observation
- .20 selective observation
- .30 continuous prose
- .40 given number of words
- .50 analysis/listing
- .60 naming/titling
- .70 ambiguities
- .80 word substitution
- .90 commentary

2.00 description of given object
- .10 seen
- .20 measured, counted
- .30 touch or taste
- .40 smelled or heard
- .50 structure, weight
- .60 uses of
- .70 for or against
- .80 comparative aspects
- .90 prose

JC

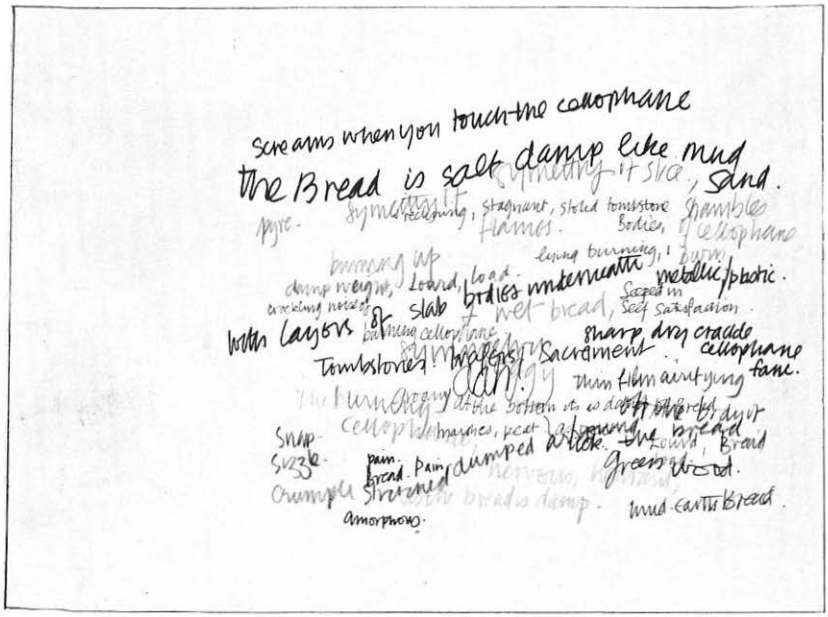
3.00 description of group of objects maintaining a representation of their spatial relationship by tabulation

- .10 seen
- .20 measured, counted
- .30 touch or taste
- .40 smelled or heard
- .50 structure, weight
- .60 uses of
- .70 for or against
- .80 comparative aspects
- .90 prose

4.00 observer as object
- .10 describe all other objects in selected group
- .20 repeat from viewpoint of each object in turn
- .30
- .40
- .50
- .60
- .70
- .80
- .90

Notes

1.10 observations to be written/overwritten to saturation point on sheets of same format (20"x15") within uniform chosen area
- .20 approaching results of 1.10 objectively and extracting, verbatim, evidence of any apparent themes; e.g., subject content, phonetic, etc.
- .30 making a prose piece out of the selected words and/or phrases which, by its composition, should illustrate the reason for the selection
- .40 progressive editing, maintaining prose form
- .50 breakdown of prose into simplified grammatical analysis
- .60 arbitrary analysis; e.g., relating to sizes, functions, alliteration, etc.
- .70 rearrangement of selected words to find new way of communicating their meaning; by repetition, grouping, etc.



1.11

Figure 1. Sarah Norton, Third Year. Subject: a cellophane-wrapped, sliced loaf of bread. 1.11—random observation.

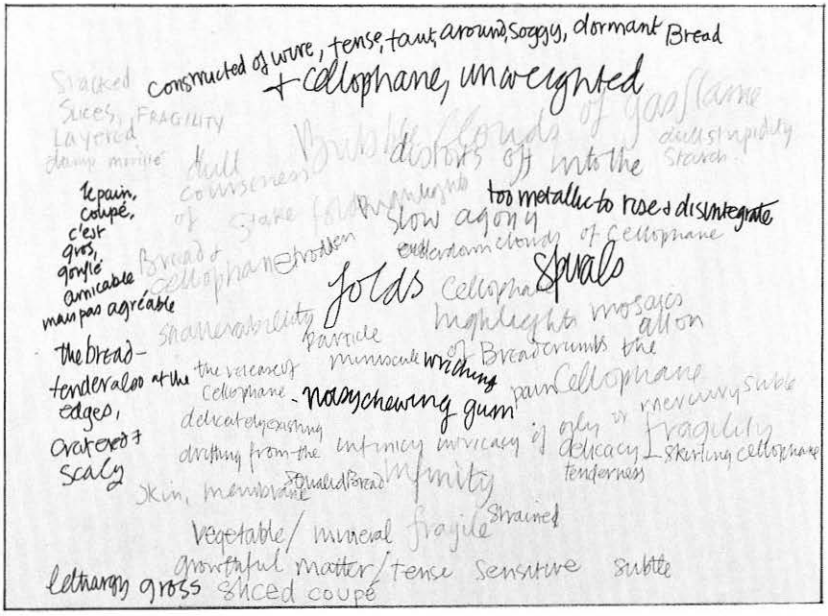
.80 experimenting with synonyms, etc.
.90 personal into universal language: comparison of intended and apparent meaning

2.10-2.70 random observations, as in 1.10, made exclusively through one sense at a time
.80 recurrent theme/words selected from each group
.90 presentation of combined selections from each group

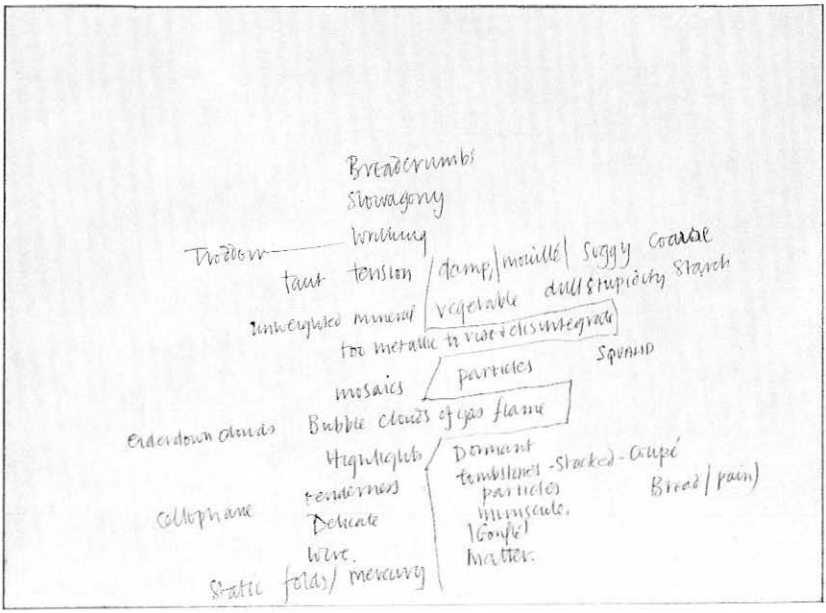
3.00 a multiple form of 2.00, exploring the possibilities of spatial relationships as emphasis or modification of meaning: graphic presentation of literal content

4.00 descriptions of each object in the selected group are presented simultaneously from every viewpoint in turn; the area of interest is where the viewpoints "overlap"—the common essentials

JC



1.12



1.20

Figure 2. Sarah Norton. Subject: a cellophane-wrapped, sliced loaf of bread. 1.12—random observation. 1.20—selective observation. 1.30—continuous prose.

Description of given object. Subject: a two-shilling piece. 2.13—seen.

Morning drifts in
subtle warming glows
to metallic to rise
& disintegrate
this also
WIRE
hidden

Stacked and
dull

Layered
Layered
Layered
it is
Dormant

1.30

hard scratching surround
of the low suggested
image.

DEPTH

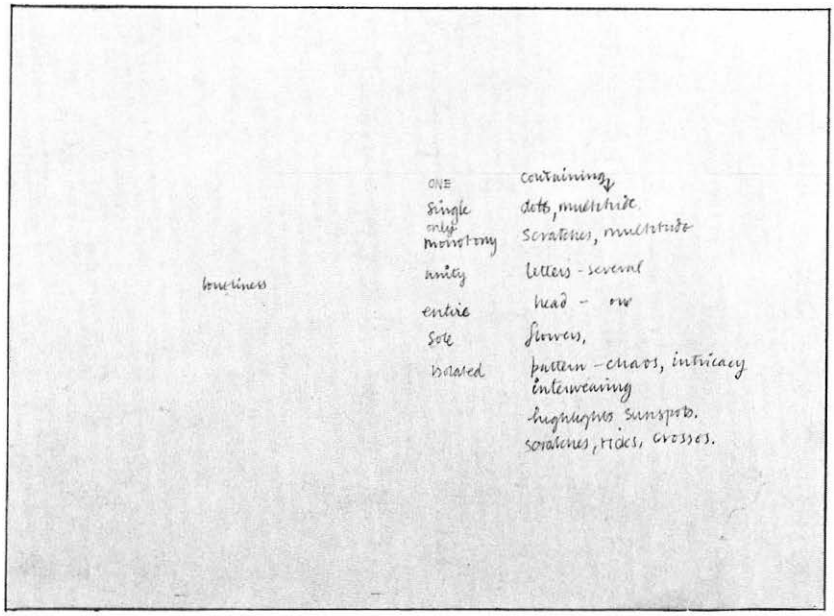
to infinity
AD FINITUM. ∝

round
circular
sphere?
globe?

Sun.
earth
perfection.
≠ static through lack of progression
a revolution
as a wheel-
a ring
a band. steel, ticked, serrated.
tractor tyres.

a circular container for a molten
block, slab of mellow, beautiful,
subtle translucent
crystal, moonstone
tightly embodied, encircled,
glimmering radiating
subtley all-knowing, all seeing,

2.13



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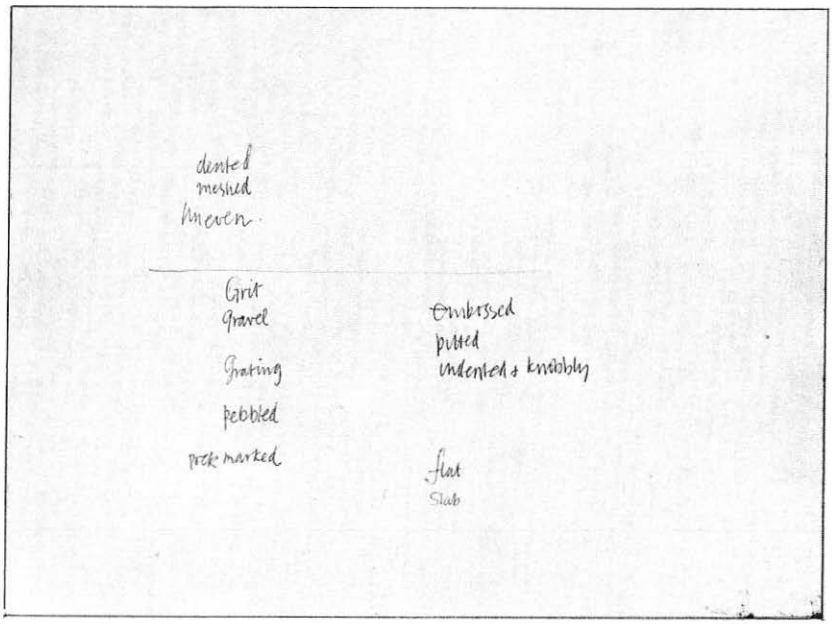
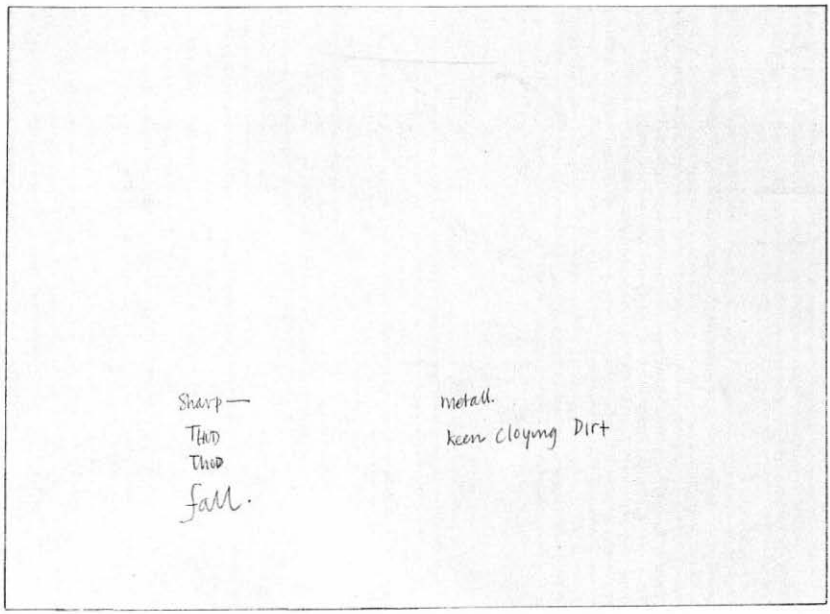
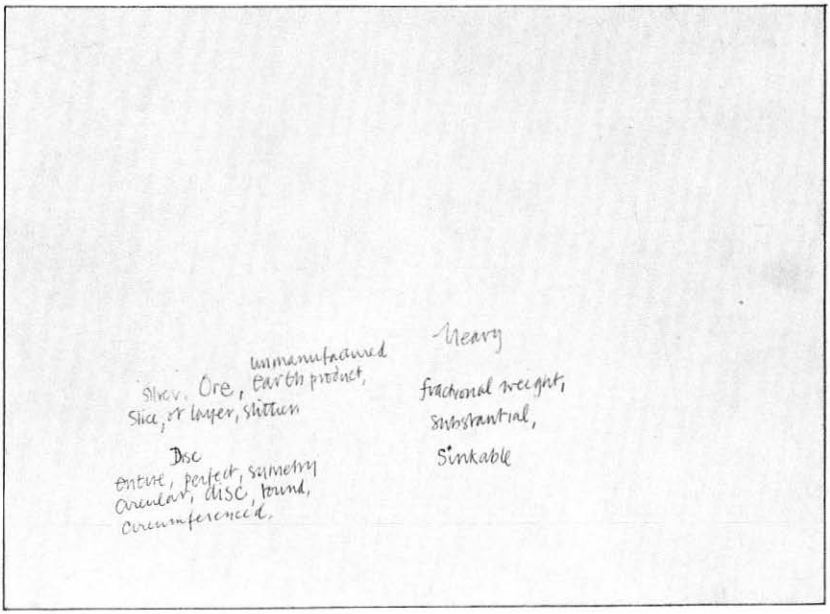


2.30

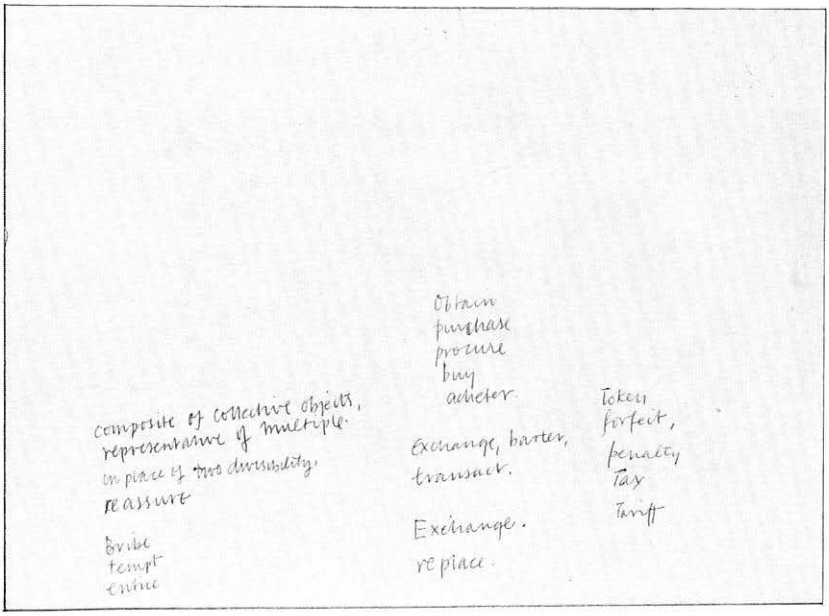
Figure 3. Sarah Norton. Description of a given object. Subject: a two-shilling piece. 2.20—measured, counted. 2.30—touch or taste. 2.40—smelled or heard. 2.50—structure, weight.


Sharp —
Thud
Thud
fall.
metall.
keen cloying Dirt

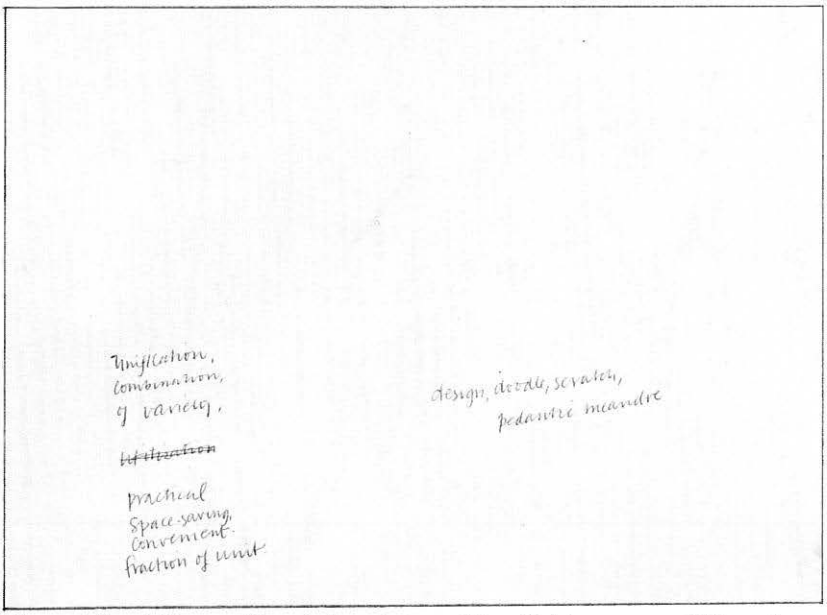
2.40


unmanufactured
Silver, Ore, earth product,
Slice, or layer, slitten
Disc
entire, perfect, symetry
circular, disc, round,
circumferenced.
Heavy
fractional weight,
substantial,
Sinkable

2.50

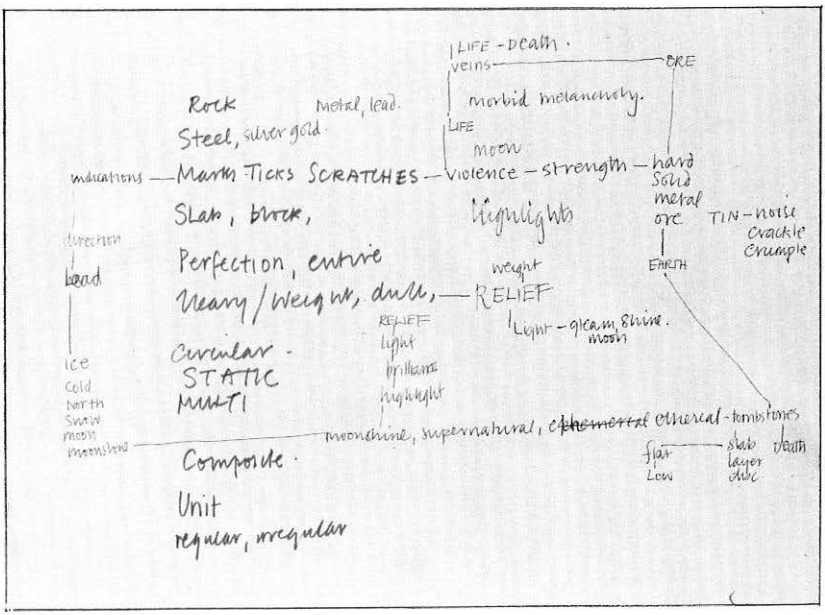


2.60



2.70

Figure 4. Sarah Norton. Description of given object. Subject: a two-shilling piece. 2.60—uses of. 2.70—for or against. 2.80—comparative aspects. 2.90—prose.



2.80

What is high suddenly becomes morbid + dark, an interchange of gas + slate. distortions lead to ellipses + ovals.

hard metal, earth metal, mined; the earth. A tomb in the earth. An equation of life + death, violence, strength + eternal impassivity. Violence is also life, + heat, + hardness is cold, + death. Silver + moonlight are priceless. Money is commonplace + life.
Relief is lighthearted, + light is brilliant, gleaming.
What is white is dull slate, brilliance in light, sunshine, or moonstone, which is the supernatural

2.90

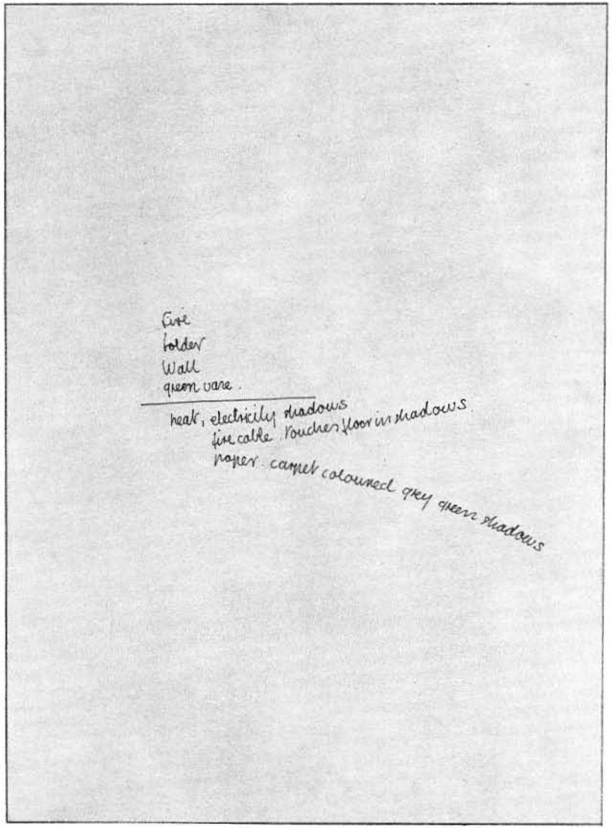
1.10

1.11

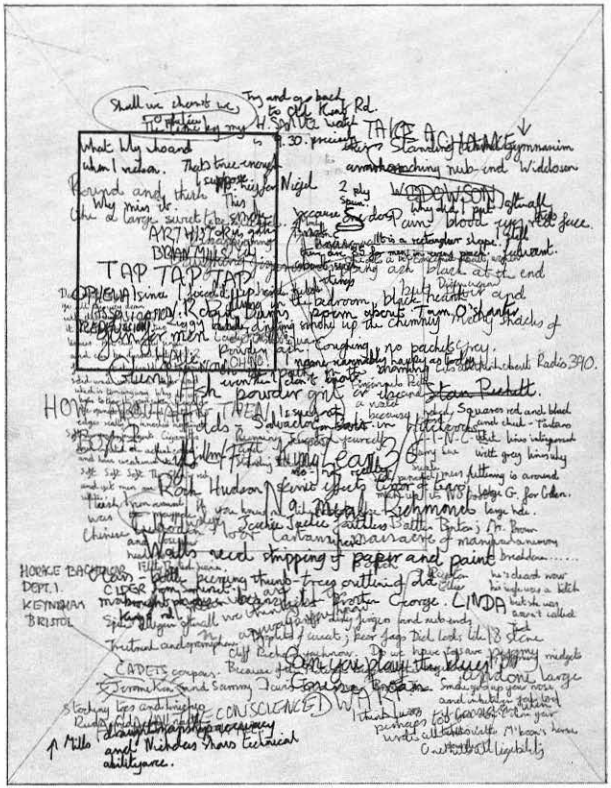
Figure 5. Peter Niczewski, First Year. Subject: an electric fire. 1.10—random observation. 1.11—random observation. 1.12—random observation. 1.21—selective observation.


Red light
pink light
NOT TOO DIRTY
VASE IS CLEAN
COOL SWITCH
ON FOR HEAT
smooth vase
FIRE GRILL
DARK DUSTY
HOT DRY
STUFEY
fire metal convector heater
carpet wooden wall
wooden planks
grainy wood
vertical and horizontal
lines on heater
SHIELD
MORPHY RICHARDS
Green vase is half
full of water
not much colour
COAT OF ARMS
TRADE MARK
SCRATCHE WALL
dirt
BROWN
green vase
wet inside
dry outside
metal
plastic paper (package)
hot heat
winter
PAINTED METAL
SCRATCHED METAL
cable
Spots
Shadows
electricity (produces heat)
DARK . GREY
a brown fire
The water have been standing for
two days.
there are blue green and
red and many
other colours
Full folder colour of carpet.
carpet texture
shadows
hard
grooves
Shadows around fire legs
square standing next to a many coloured wall
on a many coloured carpet
GREY, BROWN, YELLOW, BLACK
WHITE.
Brown
HOOKS
brown wall
Green Vase
TALL GREEN VASE
SCREWS IN THE WALL
grey carpet
CABLE FROM FIRE DISAPPEARS BEHIND FOLDER

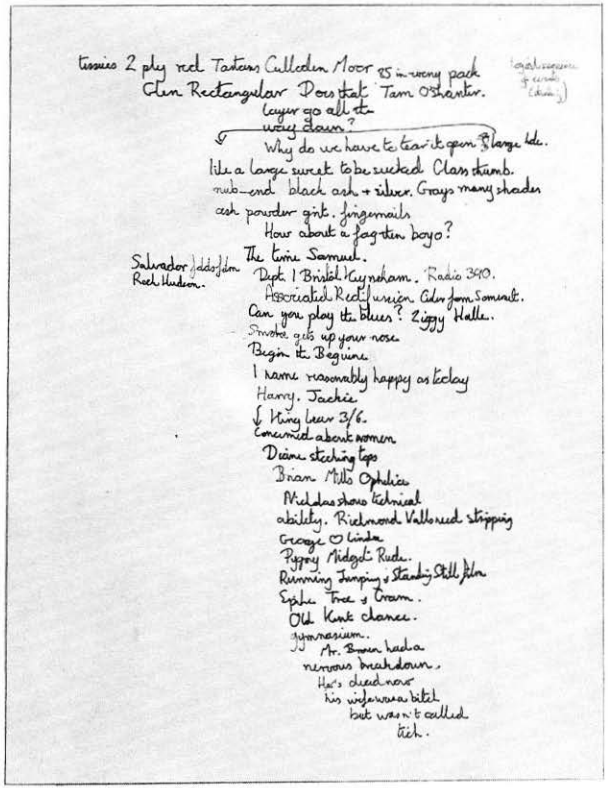
1.12


fire
folder
Wall
green vase.
heat, electricity shadows
fire cable touches floor in shadows
paper carpet coloured grey green shadows

1.21



1.11



1.22

Figure 6. Nick Cudworth, First Year. Subject: his immediate environment. 1.11—random observation. 1.22—selective observation. 1.30—continuous prose. 1.41—given number of words.

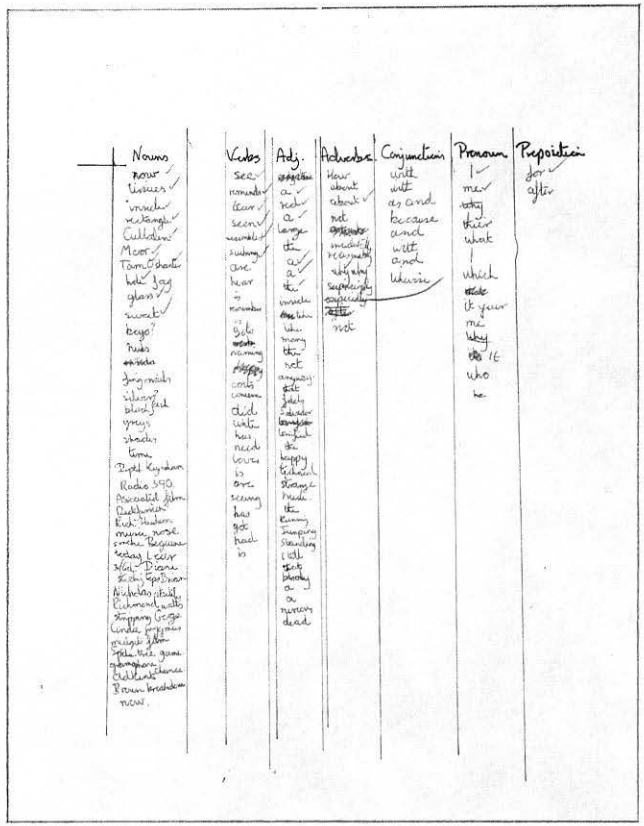
They are 2 ply and in a red tartan rectangle, they are tissues
one thinks of Culloden Moor and Tam O'Shanter? Why do we
have to tear open such a large hole anyway? The glass thing;
is like a large sweet to be sucked, [How about a fag then, Boyo?]
(the nub-ends like fingernails with black and silver ash; reminds me
of grays many shades). [What's the time!] Dept. 1 Keyneham is not in Radio 340.
Associated Rediffusion. Makes one think of that film with Salvador.
All those folds and Rock Hudson so frightened of them! The music;
"Smoke gets up your nose", and "Begin the Beguine" I name
reasonably happy as today. King Lear costs 3/6
[Remember I am concerned about Diane's stocking tops.]
Brian said that. Nicholas shows technical ability and,
incidentally, the walls need stripping in Richmond. (George loves
Linda as well). I remember that a pygmy and a midget
are very rude, especially in the Running, Jumping and
Standing with Spike's tree and Cram. Why, after all does
Old Kent have no CHANCE! I remember Mr. Brown had a
nervous breakdown. He's dead now.

175 words

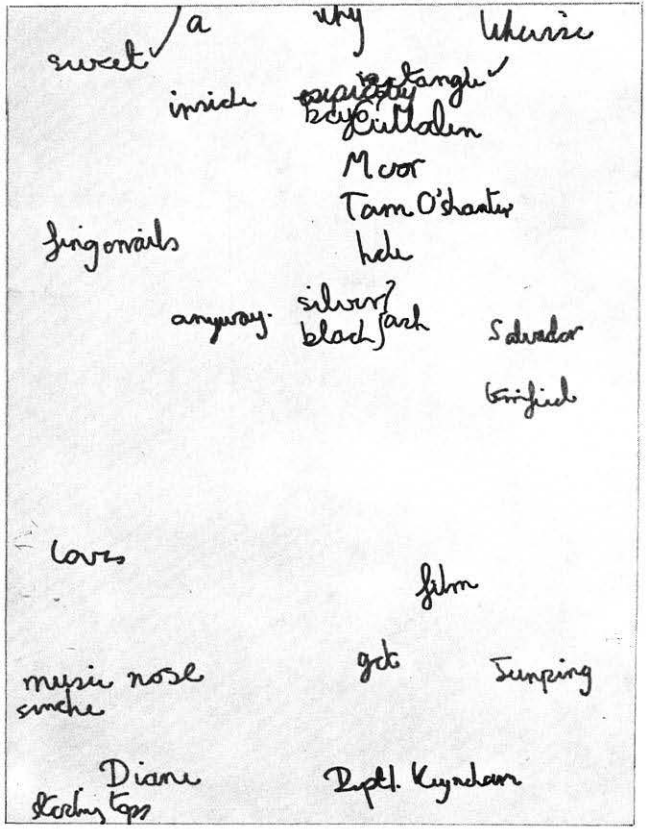
1.30

I see, now: tissues inside a red rectangle; reminds me, Culloden Moor, Tam O'Shanter.
Why tear a hole? The glass even resembles a sweet for sucking.
"How about a fag, Boyo?"
The nubs inside are like fingernails with their silver black ash; like grays: shades.
"What's the time?"
I hear about Dept. 1 Keyneham, not Radio 390 which isn't Associated Rediffusion
anyway (remember that Dali's film (Salvador) with Rock Hudson terrified!) It's music
"Smoke gets up your nose" "Begin the Beguine". Incidentally I naming reasonably happy
as today. Lear costs 3/6d! Diane's stocking tops concern me and why did Brian write
"Nicholas has technical ability".
"Richmond walls need stripping.
George loves Linda surprisingly, it's strange because pygmies and midgets are rude,
especially after seeing the Running Jumping Standing Still film with Spike's tree gramophone
That bloody game, "Old Kent hasn't got a chance" Warren Brown who had a nervous breakdown
He's dead now.

1.41

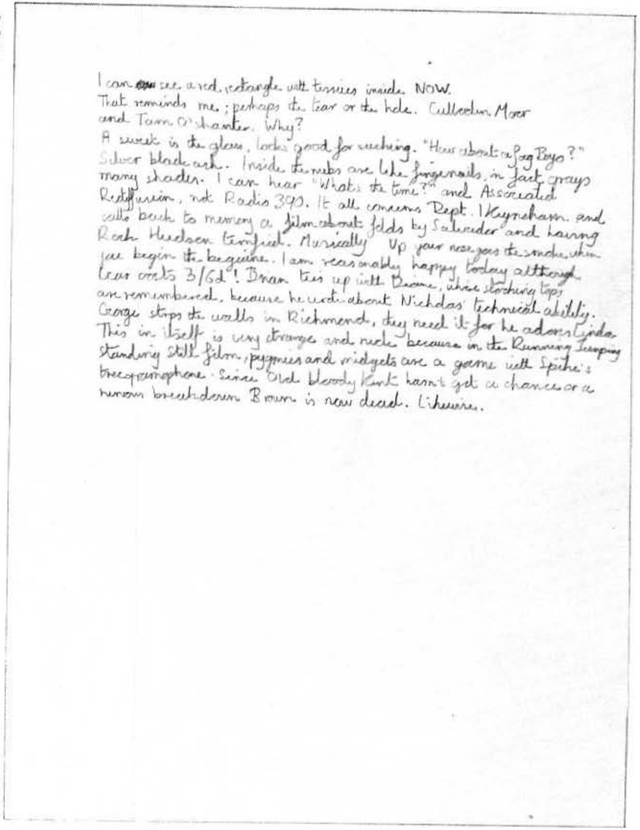


1.50



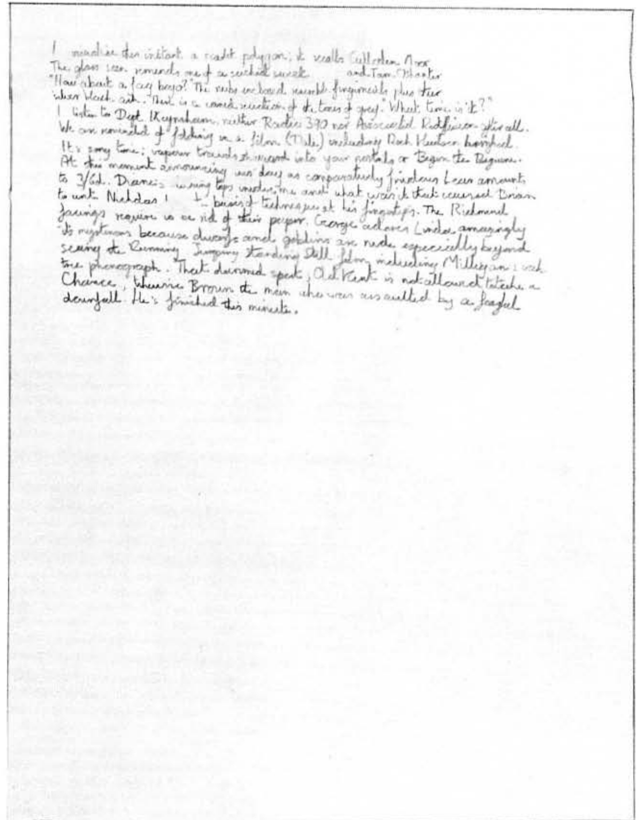
1.61

Figure 7. Nick Cudworth. Subject: his immediate environment. 1.50—analysis/listing. 1.61—naming/titling. 1.71—ambiguities. 1.80—word substitution.



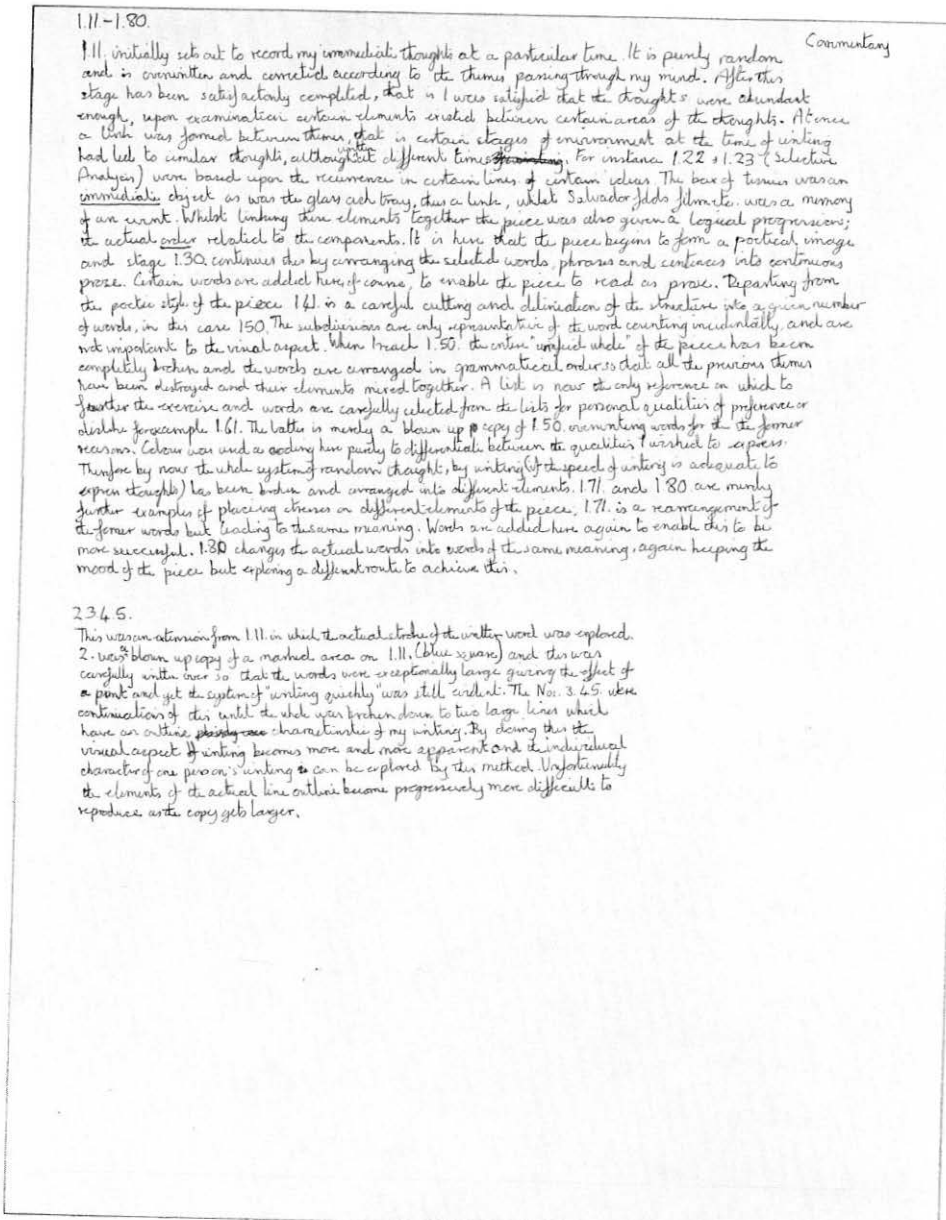
I can ~~see~~ see a red rectangle with tissues inside. NOW.
That reminds me; perhaps the tear or the hole. Culloden Moor
and Tam O'Shanter. Why?
A sweet is the glass, looks good for sucking. "How about a Fog Boyo?"
Silver black ash. Inside the rubs are like fingernails, in fact grays
many shades. I can hear "What's the time?" and Associated
Rediffusion, not Radio 390. It all concerns Dept. Keyneham and
calls back to memory a film about folds by Salvador and having
Rock Hudson terrified. Musically Up your nose goes the snake when
you begin the beguine. I am reasonably happy today although
tear costs 3/6d! Brian ties up with Brume, whose stocking tops
are remembered, because he wrote about Nicholas' technical ability.
George strips the walls in Richmond, they need it for he adores Linda.
This in itself is very strange and rude because in the Running Jumping
Standing Still film, pygmies and midgets are a game with Spike's
tree gramophone. Since Old bloody Kirk hasn't got a chance or a
nervous breakdown Brown is now dead. Likewise.

1.71



I realise the instant a scarlet polygon; it recalls Culloden Moor
The glass seen reminds me of a scratched sweet and Tam O'Shanter
"How about a fog boyo?" The rubs are hard, resemble fingernails plus their
silver black ash. "That is a conservation of the tones of grey." What time is it?"
I listen to Dept. Keyneham, neither Radio 390 nor Associated Rediffusion after all.
We are reminded of folding in a film (Dali) including Rock Hudson horrified.
It's song time; vapour travels skyward into your nostrils or Begin the Beguine.
At this moment announcing our day as comparatively friendless tears amount
to 3/6d. Diane's stocking tops wonder me and what was it that caused Brian
to write Nicholas! the basic techniques at his fingertips. The Richmond
Jennings require us a rid of their paper. George adores Linda, amazingly
it's mysterious because dwarfs and goblins are rude especially beyond
seeing the Running Jumping Standing Still film, including Milligan's cool
tree phonograph. That damned spot, Old Kirk is not allowed to take a
Chance, likewise Brown the man who was assaulted by a fragile
downfall. He's finished this minute.

1.80



1.11 - 1.80.

Commentary

1.11. initially sets out to record my immediate thoughts at a particular time. It is purely random and is committed and corrected according to the themes passing through my mind. After this stage has been satisfactorily completed, that is I was satisfied that the thoughts were abundant enough, upon examination certain elements existed between certain areas of the thoughts. At once a link was formed between themes that is certain stages of environment at the time of writing had led to similar thoughts, although at different times ~~throughout~~. For instance 1.22 & 1.23 (selective Analysis) were based upon the recurrence in certain lines of certain ideas. The box of tissues was an immediate object as was the glass ash tray, thus a link, whilst Salvador Dalis filmstrip was a memory of an event. Whilst linking these elements together the piece was also given a logical progression; the actual order related to the components. It is here that the piece begins to form a poetical image and stage 1.30 continues this by arranging the selected words, phrases and sentences into continuous prose. Certain words are added here, of course, to enable the piece to read as prose. Departing from the poetic style of the piece 1.40 is a careful cutting and elimination of the structure into a given number of words, in this case 150. The subdivisions are only representative of the word counting incidentally, and are not important to the visual aspect. When I reach 1.50. the entire "unfinished whole" of the piece has become completely broken and the words are arranged in grammatical order so that all the previous themes have been destroyed and their elements mixed together. A list is now the only reference on which to further the exercise and words are carefully selected from the lists for personal qualities of preference or dislike for example 1.61. The latter is merely a blown up ⊕ copy of 1.50. eliminating words for the former reasons. Colour was used as a coding here purely to differentiate between the qualities I wished to express. Therefore by now the whole system of random thoughts, by writing (if the speed of writing is adequate to capture thoughts) has been broken and arranged into different elements. 1.71. and 1.80 are merely further examples of placing themes or different elements of the piece. 1.71. is a rearrangement of the former words but leading to the same meaning. Words are added here again to enable this to be more successful. 1.80 changes the actual words into words of the same meaning, again keeping the mood of the piece but exploring a different route to achieve this.

2 3 4 5.

This was an extension from 1.11. in which the actual texture of the written word was explored. 2. was a blown up copy of a marked area on 1.11. (blue square) and this was carefully written over so that the words were exceptionally large giving the effect of a print and yet the system of "writing quickly" was still evident. The Nos. 3. 4. 5. were continuations of this until the whole piece was broken down to two large lines which have an intrinsic ~~shiny~~ characteristic of my writing. By doing this the visual aspect of writing becomes more and more apparent and the individual character of one person's writing is can be captured by this method. Unfortunately the elements of the actual line on this become progressively more difficult to reproduce as the copy gets larger.

Figure 8. Nick Cudworth. 1.90—commentary; a report by the student on the evolution of his piece of writing within the framework of the exercise. 1.91—commentary; supplements 1.90 and is an analysis of the derivation of recurrent themes in the random work.

1.90

Explanatory

Re-tracing themes; based from Selective sixteen.
(in selective order)

Tissues 2ply Culloden Moor. Tam O'shanter: At this stage I was examining certain objects including a box of Scotch Glen tissues for men. The first theme has various linkstones all of which however were caused by the presence of this object.

Glass thumb, rub. end like a large sweet to be sucked. ash powder grit fingernails.

The second of the objects; a large glass ash tray shaped like a Murray-mint. The various relations derive from the contents; the fingernails relate to my sudden awareness, at this time, of my badly-bitten fingernails.

Hav about a fag, boyo.
What's the time
Richmond walls need stripping

These were actual questions asked by my Welsh flatmate. The last was a statement I made concerned with travelling down to Surrey to help my friend rebuild his house.

Radio 390 Dept. 1 Bristol
Haymarket. Associated
Rediffusion. Samuel.
Cider from Somerset

These were all written unconsciously as I was guided by the sound of Radio Luxembourg on the radio.

Salvador. Felds film
Rock Hudson.

An extract from an Alfred Hitchcock film directed by Salvador Dali in which Rock Hudson played a man terrified of felds, in any form. Derived from the shape of my bedspread which was exactly the same as the one used in the film. Cannot remember the name of the film.

Can you play the blues.
Harry. Jackie. King Lear 3/c.
I name reasonably happy as today
Smoke gets up your nose,
Begin the Beguine Brian Mills
Concerned about women Ophelia
Diane's stocking tops
Nicholas shows technical ability. George's Linda

Events and memories during the day before I wrote down the ideas. Names relate to students at the College.

Memories of last year at College. Song titles dictated and remembered. Brian Mill's former lecturer, remarks he wrote on my report. George, my brother and his fiancée. Diane my former mistress. Ophelia name of one of his paintings.

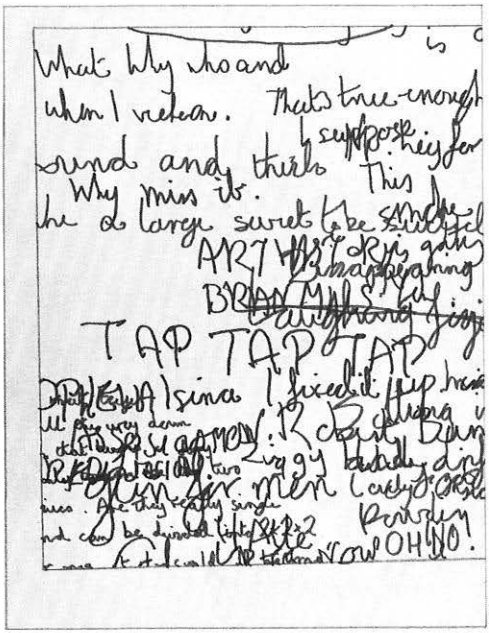
Pygmy midget rode Solstice
R. J. Standing still film and gram.
Old Kent Chance.

Memories further back, seeing original Coon's film.

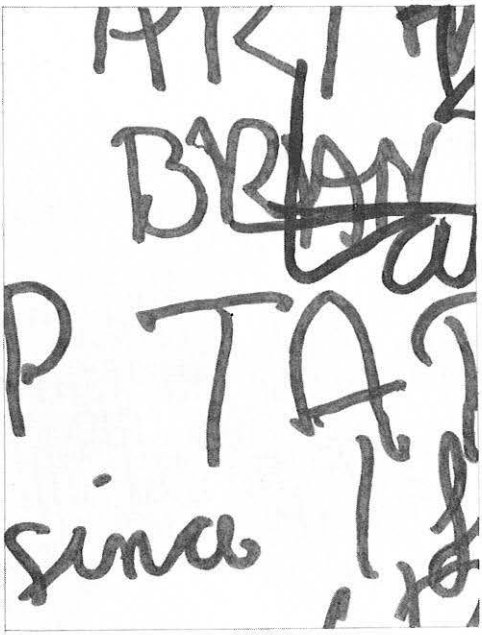
Remembering playing monopoly with Dave Williams during Summer Holidays.

gymnasium
Mr. Brownhead nervous breakdown last he's dead now, his wife was a bitch. but was it's called tich

Memory of infant school, I was once badly injured in the gym. Headmaster was called Brown and we made up a rhyme about it. I have never forgotten it.



1



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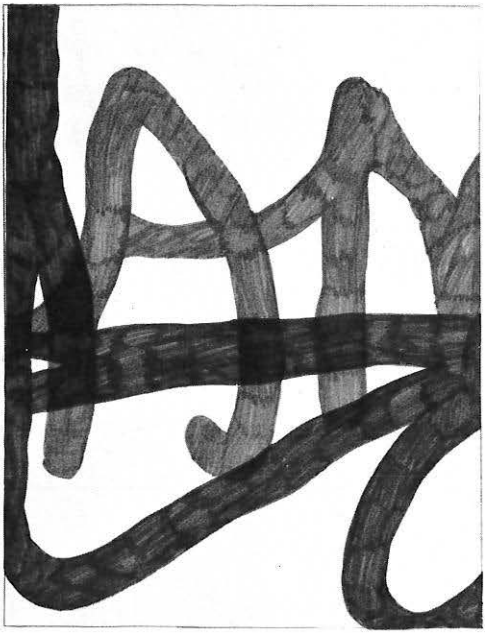
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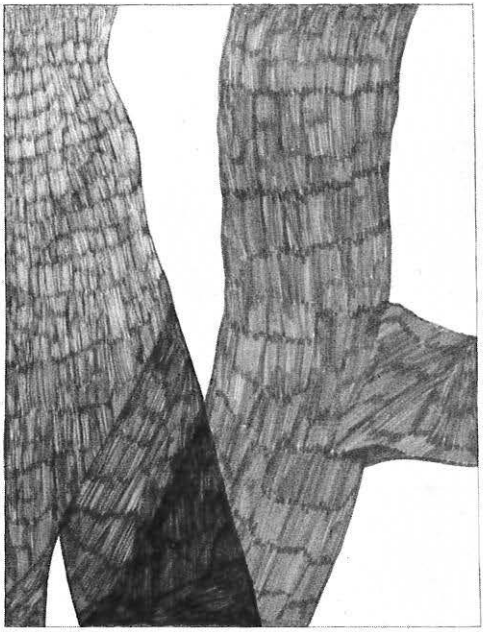
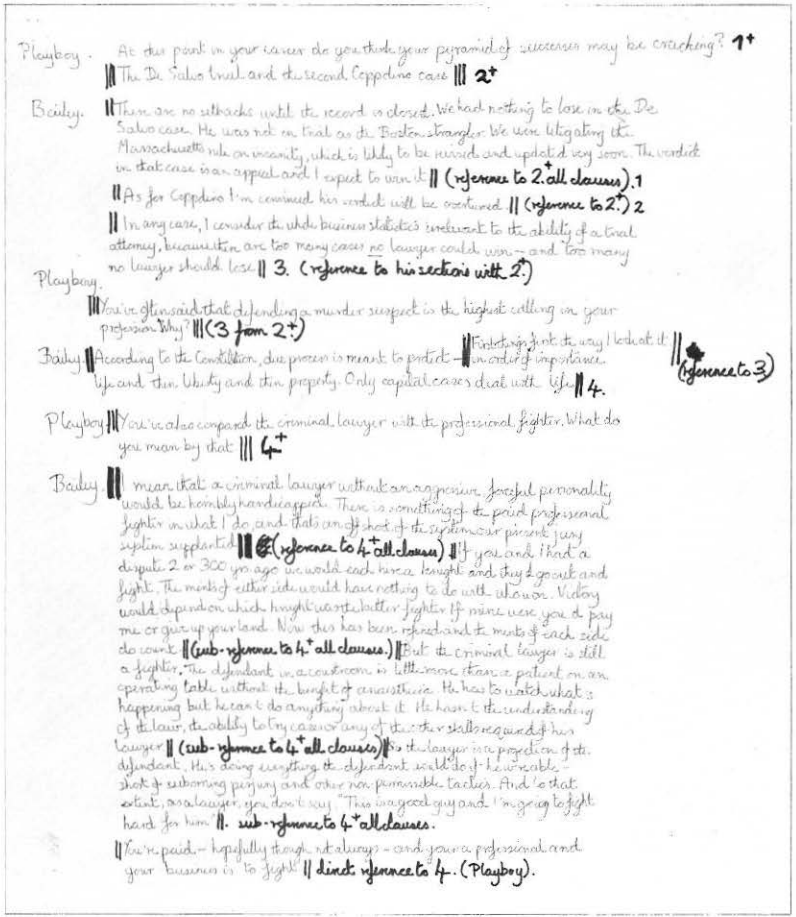
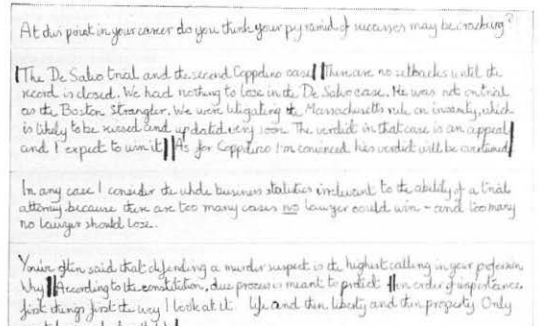

4

Figure 9. Nick Cudworth. Caligraphic experiment relating to random handwriting in 1.11 (p. 400). 1—part of 1.11 enlarged. 2—part of 1 enlarged. 3—part of 2 enlarged. 4—part of 3 enlarged.

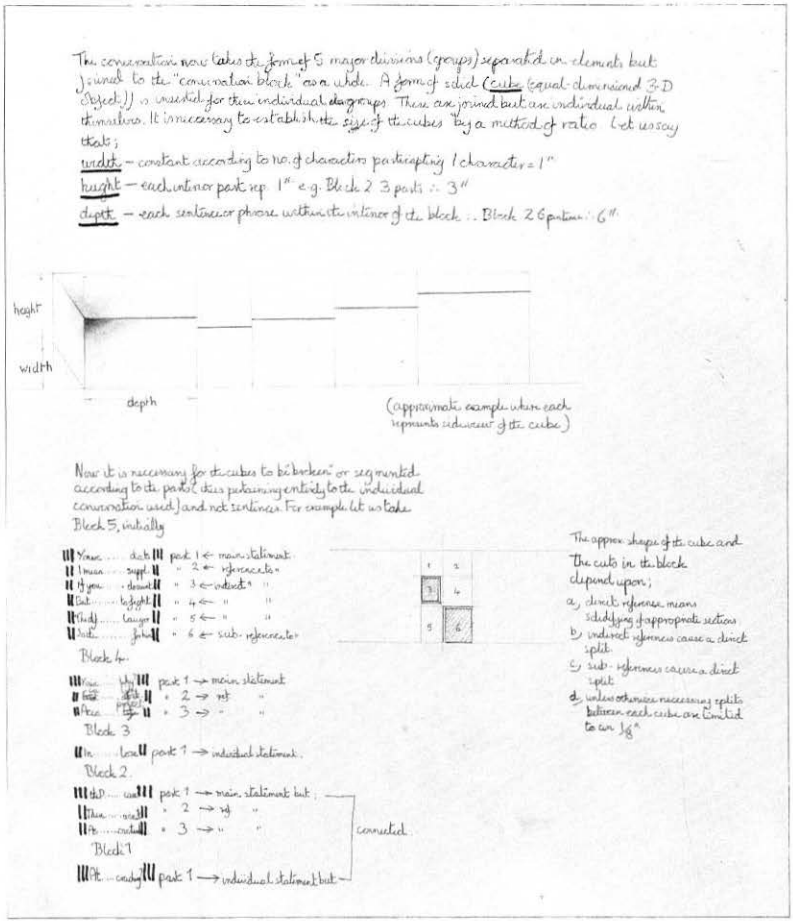


I



II

Figure 10. Nick Cudworth. Dialogue into structure. I—The dialogue, taken from a magazine, is divided into groups indicated by lines that relate to points of reference. II—Arrangement of dialogue in the groups, mantaining conversational order and still including lines to indicate parts which were derived from different points in the original framework.



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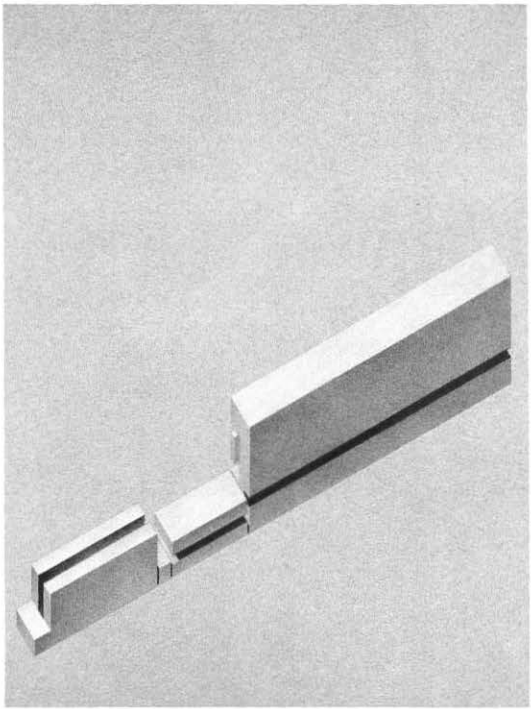

IV

III—Transposition of the dialogue into three-dimensional volume, and the ratios on which this is based. IV—Scale drawing of three-dimensional structure representing evolution of the dialogue as analysed.

Japanese Calligraphy

Horie Tomohiko

More than any other area of the world, Japan and China have refined the practical act of writing into a highly-expressive art form. With their roots in earlier Chinese symbols, Japanese calligraphers have—through a 1300-year history—developed a variety of unique styles of their own. Two main classifications are discussed: "classical" in which form and emotion are closely integrated, and "subjective" in which feeling takes precedence over form.

Insofar as writing was invented as a series of signs to represent the spoken word, the primary emphasis is on its practical aspect. In this respect, all countries are probably the same. However, man also has an instinct to represent things as aesthetically as possible. It would be no wonder, then, if in the course of using his scripts he should come increasingly to see their forms as a vehicle for his own aesthetic outlook. To put it differently, writing is perfectly capable of acquiring an artistic character in addition to its practical nature as a set of signs. Even so, it is probably no exaggeration to say that of all the countries of the world only Japan and China have made of writing something more than a useful set of signs and refined it into a highly artistic "calligraphy," capable of giving aesthetic pleasure while retaining to the full its practical usefulness.

The history of Chinese calligraphy dates back incomparably farther than that of Japan, but even the latter, starting as it did around the seventh century, can boast a history of more than 1,300 years. That Japanese calligraphy throughout these centuries grew and developed under a succession of influences from the styles of Chinese calligraphy is undeniable; but it is equally true

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that Japan has also developed all kinds of unique styles of its own. It is not my purpose to go into detail concerning the various differences between the two nations in this respect. Nevertheless, I feel it is necessary to give at least a general account of the special characteristics of calligraphy that have won it such a respected place among the formal arts of both China and Japan, and of the common features, transcending stylistic differences, which the calligraphy of both countries shares.

Calligraphy as a Formal Art

What fundamental differences distinguish calligraphy—considered as a formal art—from, say, painting or sculpture? Writing, which calligraphy uses as its medium, is no more than a set of signs designed to replace the spoken word. To take Chinese characters as an example, some of them first came into being as primitive pictorial representations without even fixed forms, and even after developing into true hieroglyphs which had been simplified into fixed arrangements of lines and dots still—as in the character for "horse"  —retained strong visual suggestions of the actual object in nature which they were intended to represent. However, such complex forms were too unpractical to survive for very long, and the lines and dots in each character were progressively pared down or reorganized until the result was a completely abstract arrangement with no apparent relationship to the original object, and signifying that object only by general agreement. Other characters were unconnected with naturally occurring phenomena from the outset, being geometrical arrangements of formal elements—such as horizontal and vertical lines or squares and triangles—which were endowed with an arbitrary meaning. Other characters, again, were formed by means of a combination of these two types.

Whatever the origins of the characters, however, it should be noted that the results are in every case purely abstract forms. The hieroglyph, insofar as one can still detect signs of the actual object it was intended to represent, has affinities of a kind with painting and sculpture, but the purely abstract character is an entirely different matter. When one considers that most of the characters one is likely to see in calligraphy nowadays consist of

just such abstract forms, the abstract quality of calligraphy begins to emerge as one of its chief features as a formal art, one that clearly distinguishes it from the representational qualities of most painting and sculpture.

What, then, are the chief aesthetic factors in this art so different from painting and sculpture? They can be summed up, perhaps, as the pleasure given by the arrangement of the dots and lines which make up each character, and the appeal of those dots and lines in themselves. That it is not a question of the meaning will be obvious from the fact that, for example, a number of different calligraphic works all based on the character for "cloud" will all convey precisely the same meaning irrespective of the artistic value of the calligraphy. What do I mean, now, in speaking of the "pleasure" given by, or the "appeal" of a character? Both, in short, lie in the character as an outward expression of the spiritual rhythms of the calligrapher at the moment when he put brush to paper. Even though calligraphy cannot, of course, ignore the structural conventions of that medium, there is no obligation, as in painting, to represent actually existing objects. Thus the calligrapher is comparatively free in the act of artistic creation which precedes expression, and the lines and dots through which an arrangement is achieved have a correspondingly close relationship with the personality of the calligrapher. Nor should one forget here the extremely important role played by the special tool employed for calligraphy—the hair writing-brush. By varying the speed with which the brush is plied, or the pressure brought to bear on it (the tip is, of course, far more pliant than, say, a pen or quill), it is possible to provide a graphic picture of the mental rhythms of the calligrapher at any particular moment. The interest and appeal of this process make themselves felt in the viewer's mind as a type of beauty—which makes it plain, I would suggest, that a strong "spiritual" quality can also be listed among the special attributes of calligraphy.

I have just referred to the "spiritual" nature of calligraphy. I could equally well have spoken of its "artistic" quality, insofar as the feelings of the calligrapher use the characters for artistic purposes—that is, as a medium through which to evoke a specific emotional reaction within the viewer's mind. It scarcely needs

pointing out that the quality of the "art" involved varies in direct relation to the quality of the calligrapher's mind.

Of course, although I have spoken here, for simplicity's sake, of "using writing as a medium," in practice all kinds of factors must be present before it can be effective as a means of artistic expression. The most basic of all these is that, since the medium is a series of characters, each made up of lines and dots, there must be a sure grasp of the structural form of each character, and a sense of rhythmical flow where a number of characters follow each other, as well as a sensuous appeal, deriving from the brushwork as such, in the lines and dots themselves. More specifically, if the calligrapher wishes through his work to create an atmosphere of, say, solemnity, he must obviously consider what quality of line is best suited to this particular aim. Or if, again, he wishes to express a romantic feeling, he must obviously work out what permutations and combinations of the factors mentioned above would be most effective for his purpose.

In both China and Japan, changing conditions from period to period have given rise to many different modes of calligraphic expression. It is the accumulation of the thought and ingenuity expended in this direction by the best of the calligraphers who have appeared over the course of this long history that constitutes what is known as *shoho*.

The work of every celebrated calligrapher of both Japan and China, from ancient times up to the present day, has invariably been founded on one or another of the traditional styles which go to make up *shoho*. For practical purposes, however, one can distinguish two main types of calligraphy.

The first type of work is that in which form and emotion are closely integrated; this is the calligraphy which has come to be known as "classic." Representative calligraphers in this class include Ono no Michikazu (also known as Ono no Tofu; 894-966) and Fujiwara no Yukinari (972-1027) (Fig. 1) in Japan, and Yu Shih-nan (588-628) (Fig. 2), Ou-yang Hsun (557-641), and Ch'u Sui-hang (596-659) in China.

In the second type—which adopts what one might call a "subjective" approach—feeling takes precedence over form. Calligraphers who can be classed in this category include Fujiwara no

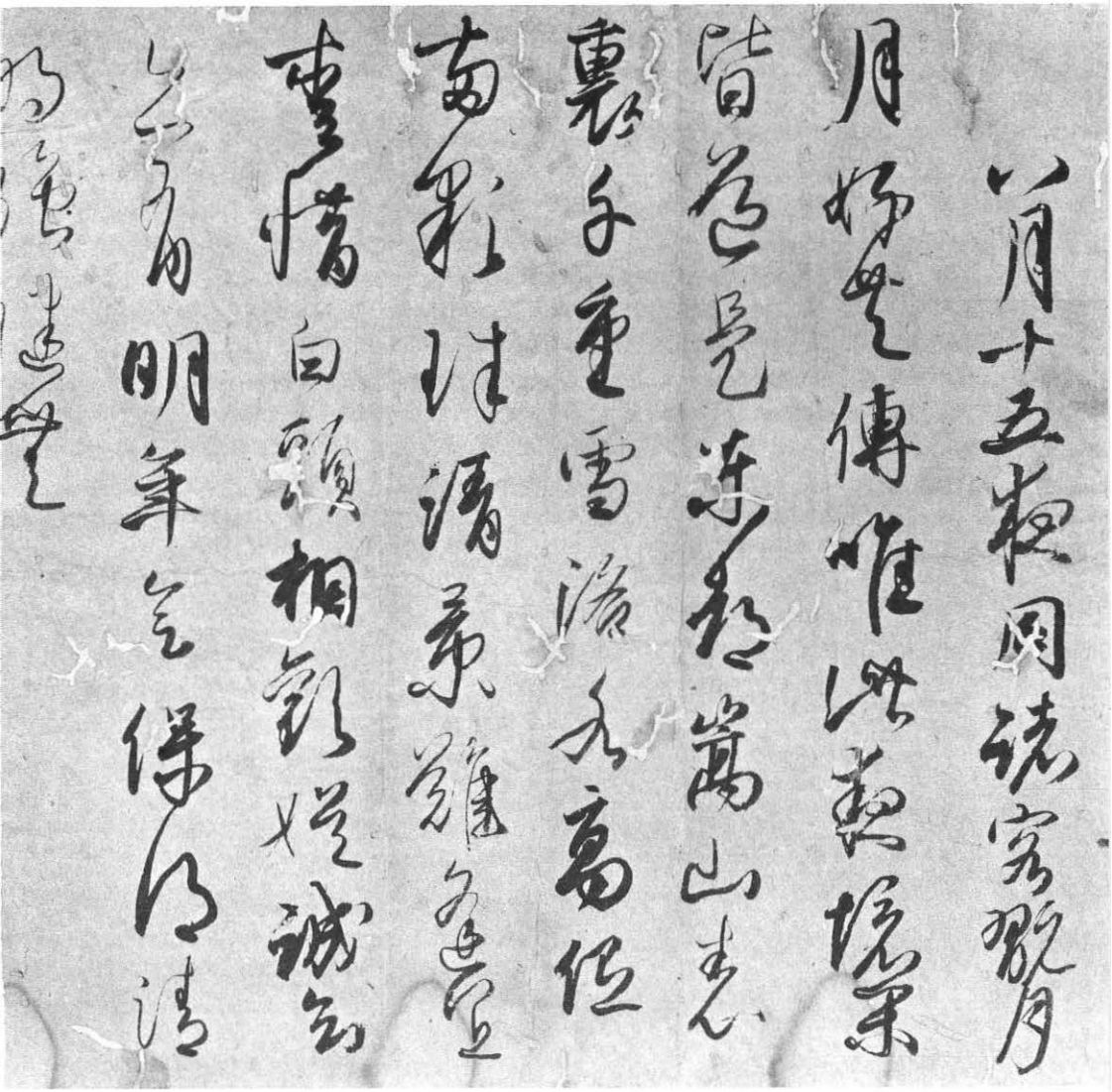


Figure 1. Calligraphy by Fujiwara no Yukinari (972-1027).

Figure 2.
Calligraphy by Yu Shih-nan (588-638).

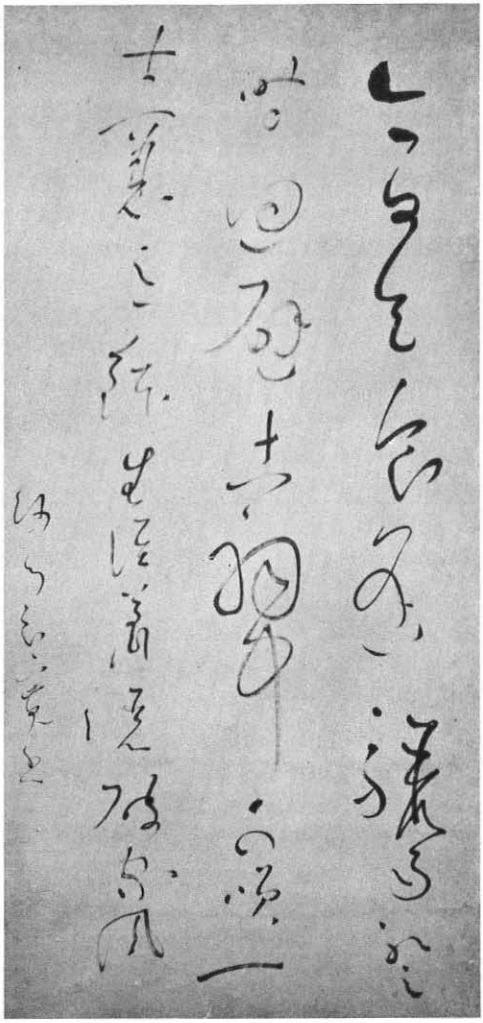


Figure 3.
Calligraphy by Ryokan (1757-1831).

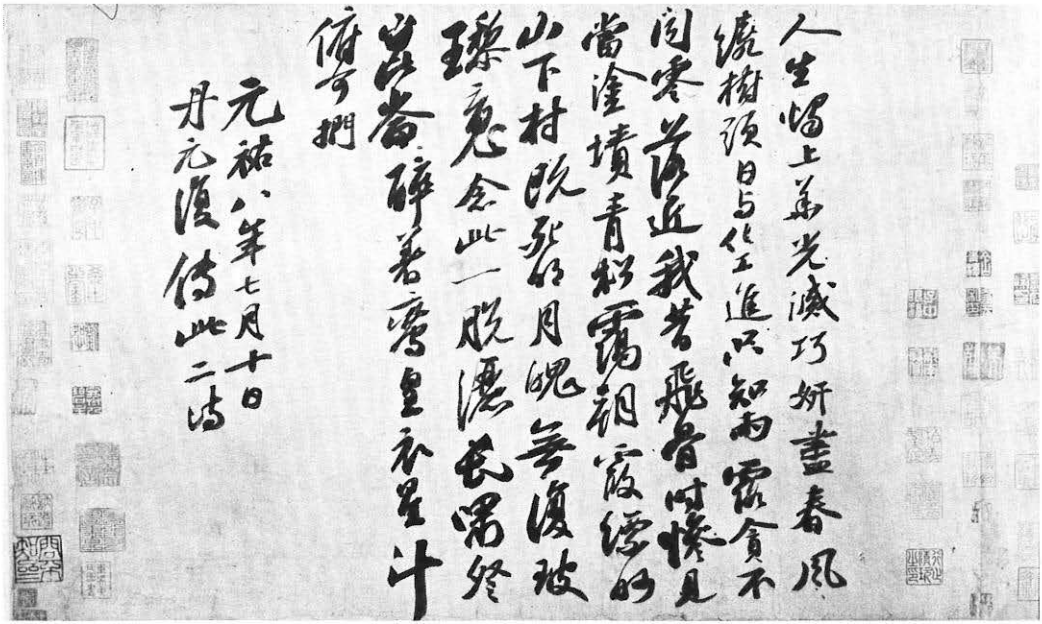


Figure 4. Calligraphy by Su Shih (1036-1101).

Sadanobu (b. 1088) and the Buddhist priest Ryokan (1757-1831) (Fig.3) in Japan, and Su-shih (1036-1101) (Fig. 4) in China.

Calligraphy in the classical style tends to impress one, first and foremost, by its well-ordered, regular beauty. Thus when it is used as a model for practice the results are liable to be too craftsman-like, an enormous technical proficiency being lavished on an often threadbare spiritual content. With the more subjective style, on the other hand, it is the feeling which strikes one first, so that calligraphy in this style tends to be confused with the work of the dilettante who ignores technique and tries to carry the day with mere bravura. Moreover, both the craftsmanlike work and the showy work of the dilettante—perhaps because of their ready comprehensibility—are often mistaken for the real thing. Thus anyone who is really interested in calligraphy should first train his eye to distinguish between the true and the false in each case, and should be prepared to distinguish all the styles of the best calligraphers of the past in China and Japan.

Both the two types of beauty which I have postulated above unquestionably represent genuine, orthodox approaches to calligraphy. However, one has only to look about to realize that besides these "orthodox" types of calligraphy there are others which can give us aesthetic pleasure of a different kind. Such kinds of calligraphy should be viewed as products of a state achieved without completing the process of training based on the orthodox calligraphy. One frequently comes across examples which fall in this category among work done by artists, with their especially delicate susceptibilities and rich powers of expression, or among scholars of especially profound learning, or among particularly cultivated persons in all kinds of other fields. They are all stamped with the humanity, at once profound and elevated, of the men who wrote them, and are deeply moving in their own way, which is distinct from that of the conventional schools of calligraphy. This means, in other words, that one must recognize here the existence of an artistic quality distinct from that of calligraphy learnt via the traditional schools.

An example which can be cited here is the calligraphic works of celebrated Zen priests of the past. In their day, the study of how to write well using a writing-brush was an important aspect

of education from a very early age, and since they were doubtless educated in the same tradition, they had, in this sense at least, "studied" conventional calligraphy. However, most of them differed from the ordinary run of well-known calligraphers—who chose a certain existing style and stuck to it throughout in perfecting their own work—in that once they reached a certain age they ceased to trouble themselves with particular schools and wrote as they pleased. In this respect they resembled the average man of today; where they differed from him was that those whose work is prized today were all noted religious leaders who, as a result of rigorous religious training, had acquired a fervent desire for ultimate truth and a lofty nobility of spirit. It is no wonder that although they did not rigidly observe any particular style of calligraphy, their work exudes a powerful character of its own which impresses in a totally different way. It is this, without doubt, that gives the work of the famous Zen priests its worth as calligraphy. Some people tend to attach so much importance to traditional styles that they under-estimate work of this kind—work, that is, which represents a powerful statement of its author's personality.

I doubt whether in any other of the formal arts, such as painting or sculpture, the practice exists of mastering technique through the repeated copying of the works of the masters—even though a correct appreciation of those works may play an important role. In calligraphy, however, it is a normal method to choose a classic work, then make its style one's own through repeated copying. Moreover, it is common practice for a teacher himself to write specimens of calligraphy for his pupils which they copy repeatedly, in the same way as the classics. In fact, whether one's model is the classics or a model provided by one's teacher, it is far from an easy task to reach the state where one has mastered the original style and proceeded just that little bit further—where one has succeeded, in other words, in expressing one's own individuality. Obviously an enormous effort is required here, but still more does one need a rich share of the artistic temperament. For this reason, most people who learn calligraphy seem more or less content, in practice, to reach the level of perfect copies. However, calligraphy which still smacks of imitation is obviously not a work

of art; in fact, the work of the Zen priests, for all its disregard for the rules and its untrammeled self-expression, is far more effective than more orthodox work that stops at this level. Here, one suspects, lurks the greatest difficulty of calligraphy as an art. Mi Fu (1051-1107) complained: "Writing calligraphy is really hard work: one can write the same thing several times over and produce only one or two characters that are pleasing to oneself." This remark is illuminating, coming from one who is famed, even among the great calligraphers of the Sung Dynasty, for his technical skill.

The Meaning of Shodo

Chinese has the word *shoho*, but not *shodo*. Both may be translated into English as "calligraphy," but whereas the former refers to the art, or technique, of calligraphy, the latter signifies the "way" of calligraphy, i.e. calligraphy as a "way of life"—almost in the religious sense. The word, which is peculiar to Japan, is still current, but scarcely seems appropriate to the world of calligraphy today when one considers the sense in which it first came into being.

From the late Kamakura Period (around the middle of the fourteenth century) on through the Muromachi Period (first half of the sixteenth century), new ideas came to the fore in artistic and dramatic circles in Japan. The priest Kenko (1283-1350), who wrote the well-known collection of belles-lettres known as *Tsurezure-gusa*, has the following to say in this work: "A specialist in a particular field, even if he has not reached the stage of expertise, is invariably superior to the expert dilettante; it is the difference between the man who makes constant efforts to ensure that he does not break the rules and the man who behaves just as his fancy takes him." This can be construed as meaning that for the artist to give expression to his emotions just as they stand is a perversion of art, that true art can only exist where the lesser self has been suppressed and the emotions purified by being confined within a fixed form. To carry the argument further, one could say that training in suppressing the self, and in purifying the emotions by restricting them within form is, in a sense, both an artistic and a religious discipline; besides being an indispensable

stage toward technical mastery, it is also an important means to forming the character of the calligrapher himself as a man. In other words, both artistic and religious disciplines go to mold the man, and it is only when the man is well formed as a human being that artistic beauty can emerge.

This way of thinking clearly indicates a bond between the world of art and the world of religion and morality, and this is how the concept of *shodo*—of calligraphy as a way of life—first came into being. It was to dominate the world of calligraphy from then on; even nowadays, it seems, the idea that to learn calligraphy is a means of elevating the character still persists among some calligraphers. However, most of them have discarded it in favor of the view which treats calligraphy simply as a formative art. The kind of "genuine" calligraphy which is dependent, as I have suggested, on spiritual discipline within the confines of a fixed form is inevitably deficient in individuality and, as such, undoubtedly tends to leave modern man very much unmoved. I do not feel, however, that it can be dismissed lightly on this account, since, whatever theories may be bandied about concerning artistic values nowadays, the fact that such a characteristic concept should have been produced by artistic circles, and that a type of calligraphy worked out strictly on the basis of this concept should have enjoyed such a vogue in Japan at one period still represents an important episode in the cultural history of Japan.

Kana

The word *kana* signifies "letters used provisionally." In order to explain what "provisionally used" letters means, it is necessary to say something about how Japan first acquired its own script. By the time society had developed to a stage necessitating the invention of some method of writing, the ancient Japanese were already in possession of Chinese characters (*kanji*) brought over from the continent. It is impossible, of course, to say just when *kanji* were first imported into Japan. However, objects bearing an inscription in *kanji* showing them to have been made around the middle of the first century A.D. were excavated in Japan in 1784, and records fortunately survive in China which show that they were brought to Japan around the same time. This is an extremely important

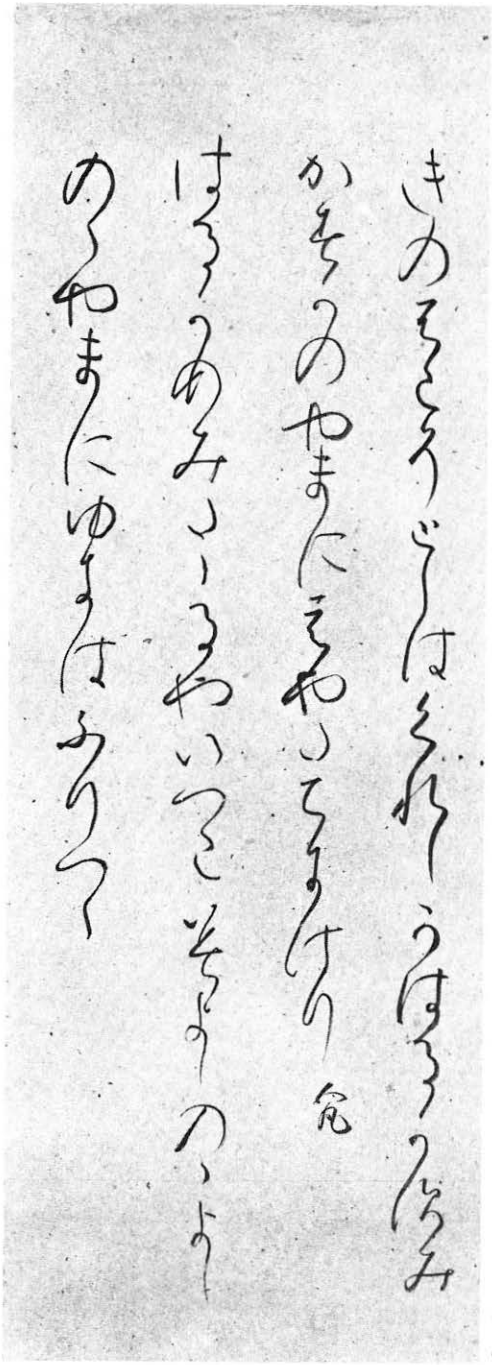


Figure 5.
Onnade kana
by an unknown calligrapher
of the mid-eleventh century.

Figure 6. Calligraphy by an unknown artist of the early twelfth century; from the *Iseshu,* an anthology of Japanese verse.

fact in any consideration of the import of Chinese characters into Japan. It means, at the very least, that the ancient Japanese already had a script on hand which they could use in writing their own language.

The question was, just how were they to make use of this script? *Kanji* of course, were designed in order to write the Chinese language, and are ideographs, each of which conveys a meaning by itself. Without doubt, it was the writing of Chinese that the ancient Japanese first learnt from the Chinese scribes who settled in Japan. They were obliged, as it were, to translate Japanese into Chinese before they could write it. The fact remained, though, that however proficient they might become in this method Japanese had nuances of its own which it was impossible always to convey adequately in translation. This was a formidable barrier which they brought up against from the very outset. To put it at its simplest, there was obviously no way of turning personal and place names into Chinese, and there was no alternative but to transcribe them phonetically, using one Chinese character for each sound. Inevitably, this was no more than a kind of emergency measure which involved using *kanji* for their sound only and ignoring the meaning which was such an important element in them. In this emergency measure, we see the first buddings of *kana*. Indeed, no way of using the Chinese characters could be more literally "provisional"—considered in the light of their original function—than one which mutilated them by discarding their sense and using only their sound. One of the oldest surviving examples of this phonetic use of *kanji* occurs on a sword excavated from an ancient burial mound at Funayama in Tamana City, Kumamoto Prefecture. Measuring 90.7 cm. in length, it bears on its back an inscription, inlaid in silver, which describes the circumstances of its manufacture. Though consisting for the most part of Chinese, the inscription gives personal names in *kana*. A study of other articles buried with the dead suggests that the mound was erected in the latter half of the fifth century, while the inscription has been interpreted as showing that the sword itself was made in the first half of the same century.

This, very roughly speaking, is how the method of writing known as *kana* first came into existence. In Japan during ancient

times—surviving sources suggest that this means from the Nara Period on through the Heian Period, i.e., from the eighth century through the twelfth century—it was the general custom for men of the intelligentsia, most of whom were aristocrats, to use Chinese for all written purposes—not only for official documents but for private documents such as letters and diaries as well. *Kana* during this period was used only by men of comparatively low education and by women. Examples of writing by men using *kana* only are to be found amongst letters dating from the mid-eighth century, and it is also certain that by the beginning of the latter half of the tenth century a kind of superstition was prevalent among ordinary women which held that for a woman to have anything to do with *kanji* was to invite misfortune.

I have spoken several times of using *kanji* as *kana*. In practice, however, three principal styles of writing *kanji*—known in Japanese as *kaisho*, *gyosho*, and *sosho*—are distinguished (Fig. 8), and it was the custom from an early date in China to use one or the other as the occasion demanded. In *kaisho* each character is written carefully in its full form without even minor contractions; it takes time to write, but the finished product has a characteristic dignity all its own. *Gyosho* abbreviates and softens the forms of *kaisho* somewhat, while in *sosho* the forms are subjected to extreme simplification and the movements of the brush speeded up to produce a flowing beauty not to be found in *gyosho*, much less *kaisho*. The distinctions in the use of these three styles customarily made in China were taken over as they stood by the Japanese and, as might be expected, were carried over into *kana* too. *Kana*, thus, also had its *kaisho*, *gyosho*, and *sosho*, which were used side by side, and the distinction between the three can be clearly detected in actual specimens of *kana* surviving from the Nara and Heian periods.

In the ninth century, moreover, a new style began to evolve which took some of the *sosho* forms and made even bolder simplifications, to the extent that all apparent connection with the original Chinese characters was lost and they became phonetic signs pure and simple. It is significant that this new form should have been evolved and made use of in female society, since this too was another outcome of the prohibition on the use of Chinese

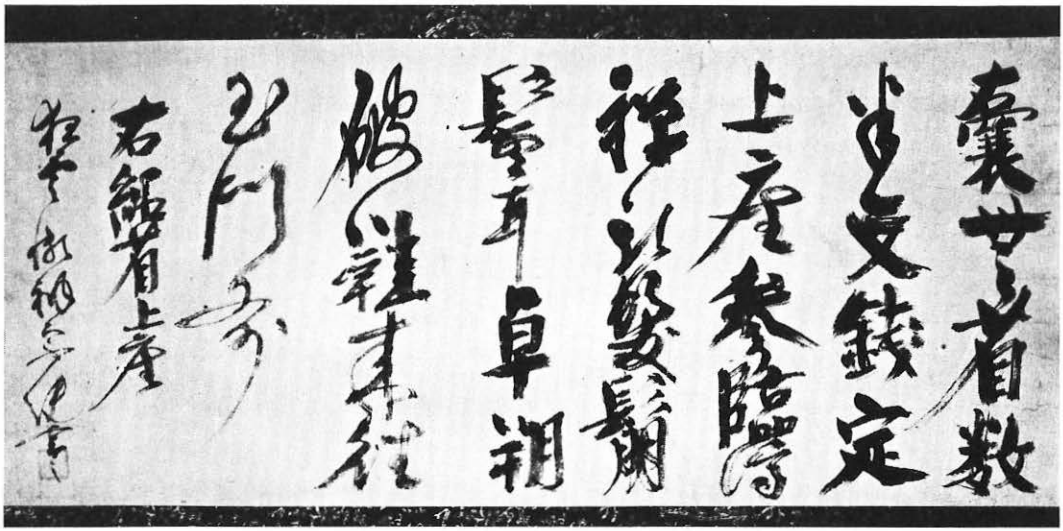


Figure 7. Calligraphy by Ikkyu (1394-1481), a high-ranking priest of the Zen sect.

Figure 8. An example of the various styles used in writing a character (the example here is pronounced *na* in Japanese) and of the further simplification of the same character for use purely as *kana*. From left to right: *kaisho, gyosho, sosho,* and two examples of the pure *kana* forms known as *onnade*.

by women. An ignorance of Chinese and the Chinese characters automatically implies an ignorance of how to write those characters. This is why it was possible for female society to carry through drastic simplifications in the direction of a purely phonetic syllabary such as would have seemed rash and outrageous in the world of men, where the writing of *kanji* was such an important part of education. The birth of *kana* in this new style, which was referred to as *onnade*, "woman's hand" (Fig. 8), is not unrelated to the sudden flourishing of a new literature in the form of Japanese poetry and prose romances—which could not have been written except with *kana*. And since *kana* in the *kaisho* or *gyosho* style, which retained the forms of *kanji* intact, was both over-elaborate in appearance and bothersome to write, it is not to be wondered at that *kana* in the *sosho* style and *onnade* should have come into increasing prominence along with the new vogue for Japanese verse and prose romances.

A word should be said, finally, concerning the process whereby *kana*, originally evolved simply as a phonetic syllabary, came to take its place alongside *kanji* as a form of calligraphy with a beauty entirely its own. Although, as we have seen, it found its first popularity among, and was developed by women and the lesser-educated men, its enormous convenience as a means of writing the Japanese language naturally found it favor, once it was an accomplished fact, among men of the intelligentsia also. What is particularly significant is the fact that there is frequent mention in contemporary records of a man revered as a calligrapher being asked to write a set of *kana* as a model for practice. In this transfer of the responsibility for *kana* to men, who were already well versed in the writing of *kanji*, lay the prime reason for the perfection of *kana* as a form of calligraphy in its own right. However abbreviated it might be, *kana* was, basically, a form of *kanji*, and obviously a person with a thorough knowledge of *kanji* calligraphy was best qualified to bring out the full beauty of form of each letter. In painting, too, an artist must first be able to do a good drawing before he can produce any worthwhile work. Thus Japanese *kana* came to enjoy a kind of Golden Age from the tenth century on into the thirteenth century, and especially in the eleventh century. Since that time, different ages have

each brought their own variations of style, but it is no exaggeration to say that there is no *kana* style to be found among the calligraphers of today which is not based on the style first perfected in the eleventh century. The reason is that in the early nineteenth century this style enjoyed a sudden increase in popularity, and led to a kind of classical revival whose influence still persists strongly to this day.

The Identification of Type Faces in Bibliographical Description

G. Thomas Tanselle

Two suggestions may be helpful to descriptive bibliographers in working out a method for describing the typography of a book: bibliographers should base their measurement of type on its appearance on the printed page rather than to infer the size of the type body; and their system of classification of type designs should be graduated so that different degrees of detail can be presented under differing circumstances and for the several periods of book production.

In 1938 Beatrice Warde explained the "clumsiness and inadequacy" of many of the basic terms relating to printing in this way: the technicians would have been able to produce new terms, she said, but "the design of printed matter has very largely passed into the hands of people who have only theoretical knowledge of type and printing, and when the latter began, as it were, to eavesdrop on the jargon of the shop, they lacked the self-confidence to challenge terms which had become antiquated."[1] The descriptive bibliographer often finds himself in a similar position: he is called upon to give some account of the typography in the books with which he deals, but he feels rather uneasy manipulating the conventional terms and is not sure how to go about selecting the most meaningful information to present. Of course, some bibliographers will also be typographical experts, just as others will have made a special study of paper; but none can be equally proficient in all aspects of book production, and a standard system for the identification of type in descriptions of books would be a great help. Fredson Bowers, in his *Principles of Biblio-*

1. "Size of Print," *Penrose Annual,* XL (1938), 75.

Reprinted with kind permission from *Papers of the Bibliographical Society of America,* Volume Sixty, Second Quarter, 1966;

graphical Description (1949), sets forth the essentials of measuring the type page and indicating the vertical measure of twenty lines (pp. 300-06, 444-46), but his recommendations about referring to specimen books (p. 445) require some experience to carry out and suggest the need for a detailed guide. As Stanley Morison puts it in his comprehensive introduction to *Type Specimen Facsimiles* (ed. John Dreyfus, 1963), there should be a companion volume to Bowers entitled "Descriptive Principles of Typography" (p. xxviii).

My purpose in this article is far less ambitious, for I am subject to the same lack of confidence in technical matters about which Mrs. Warde spoke. I only wish to make two suggestions—which I hope may help point the way toward the kind of descriptive manual that must some day be produced. The assumption at the outset is that a precise description of the type used in a book is a proper part of the total bibliographical description of that book, a point not unanimously granted. Some bibliographers make no comment on type at all; and Desmond Flower, in his recent review of Frederick Woods's bibliography of Churchill (1963), remarks, "There may be a valid argument for recording what type a book is printed in, but I doubt if the length of the line in ems will ever be found of vital importance. . . . generally speaking modern book production is a rather pedestrian mechanical matter and complicated details should only be recorded if they help to resolve or clarify a problem."[2] The contrary view, however, is that descriptive bibliography, like any other descriptive discipline, must describe—concisely but exactly—all aspects of the object being examined, whether they are interesting or pedestrian. That a particular book should be described at all is enough to justify a description of its type. This information may not in every instance be significant for literary students, but a bibliographical description has a mixed audience. One cannot in any case know what is relevant to a given pursuit until a body of data has been accumulated, and Carter and Pollard's *Enquiry* should have made clear that early books are not the only ones in which it pays to look at typography.

If this point of view is granted, then it follows that descriptive

2. *Library*, 5th series, xx (1965), 161-62.

bibliographers should be expected to have at least a rudimentary knowledge of typographical matters, beyond that obtainable from a reading of McKerrow. They should be familiar with a few basic books,[3] such as A. F. Johnson's *Type Designs* (1934, 1959), Stanley Morison's *On Type Designs* (1926, 1962), Legros and Grant's *Typographical Printing Surfaces* (1916), and D. B. Updike's *Printing Types* (2 vols., 1922), and they should know what to expect from Rowe Mores and T. B. Reed, from Moxon and his descendants;[4] they should have something more than a passing acquaintance with the essays of Stanley Morison, Beatrice Warde, Oliver Simon, A. F. Johnson, W. Turner Berry, Ellic Howe, James Mosley, and Lawrence Wroth[5], and they should have pe-

3. An excellent survey of the basic literature is Ellic Howe's "Bibliotheca Typographica," *Signature,* n.s. x (1950), 49-64; he had earlier covered the ground more briefly and suggested tasks still to be done, in "Typographical Studies," *Library,* 5th series, I (1946-47), 250-53; and he surveyed the course of typographical research of the last forty years in the *British Printer,* LXXIII (Feb. 1960), 106-10. Another important summary of scholarship is Stanley Morison's "On the Classification of Typographical Variations," in *Type Specimen Facsimiles* (ed. John Dreyfus; London, 1963), esp. pp. xvii-xxviii. See also W. Turner Berry, "Books on Type and Type-founding," *Book Collector's Quarterly,* IV (Oct. 1931), 67-75; Horace Hart, "Bibliotheca Typographica: A List of Books About Books," *Dolphin,* I (1933), 161-94; Berry, "A New Literature of Printing," *Penrose Annual,* XXXVII (1935), 53-55; and George Parker Winship, "The Literature of Printing," *Dolphin,* III (1938), 471-91. For earlier works, the standard guide is E. C. Bigmore and C. W. H. Wyman, *A Bibliography of Printing* (3 vols.; London, 1880-86); for later references there are helpful annual surveys in various journals—such as those by Berry and Mosley in *Penrose Annual* (LII, 64-69; LIII, 61-63; LVI, 155-60) or those labeled "Books for Typographers" in *Typographica* (no. 10 ff.). There is a good selective check list in A. F. Johnson's *Type Designs* (2nd ed.; London, 1959), pp. 167-78.

4. The relationships among the books produced by Moxon's successors are traced by Lawrence C. Wroth in "Corpus Typographicum: A Review of English and American Printers' Manuals," *Dolphin,* II (1935), 157-70—reprinted in *Typographic Heritage* (New York, 1949), pp. 55-90—and by Herbert Davis in "The Art of Printing: Joseph Moxon and His Successors," *Printing and Graphic Arts,* V (1957), 17-32. Herbert Davis and Harry Carter's edition of Moxon (2nd ed.; London, 1962) is the outstanding work of scholarship in this area, but brief articles have appeared on some of the other manuals—such as A. F. Johnson, "Typographia, or the Printer's Instructor," *Penrose Annual,* XLIII (1949), 26-28.

5. John W. Carter has compiled *A Handlist of the Writings of Stanley Morison*

rused the contents of the *Fleuron* (1923-30), *Signature* (1935-54), the *Penrose Annual* (1895-), the *Gutenberg Jahrbuch* (1926-), the *Monotype Recorder* (1901-), and the new *Journal of the Printing Historical Society* (1965-);[6] they should know some standard anthology of printed pages, like Morison and Day's *The Typographic Book 1450-1935* (1963) or Morison's *Four Centuries of Fine Printing* (1924; 4th ed., 1960), and they should be aware of such collections as those at the St. Bride Institute in London, the American Typefounders Library at Columbia University, the Wing Foundation at the Newberry Library, or the Plantin-Moretus Museum in Antwerp.[7]

The bibliographer, thus convinced that a paragrpah on typography belongs in his descriptions of books and prepared to ap-

(Cambridge, 1950); a list of Johnson's work is included in Alan Rae Smith's "A. F. Johnson: Historian of Printed Books," *Signature,* n.s. XIII (1951), 47-56; a few of Beatrice Warde's essays are reprinted in *The Crystal Goblet* (London, 1955).

6. For an extensive catalogue of periodicals, see Carolyn F. Ulrich and Karl Kup, *Books and Printing: A Selected List of Periodicals, 1800-1942* (New York, 1943); and *Catalogue of the Periodicals Relating to Printing and Allied Subjects in the Technical Library of St. Bride Institute* (1950). Cf. H. S. Williamson, "They Marched with Banners: Some English Art and Typographic Periodicals, 1890-1930," *Signature,* VI (July 1937), 18-27.

7. See Ellic Howe, "Typographical Libraries and St. Bride," *Penrose Annual,* XLVIII (1954), 58-59, and "The Printer and the Museum," *Penrose Annual,* XL (1938), 80-83; and William Bentinck-Smith, "The Literature of American Typefounding," *Printing and Graphic Arts,* I (1953), 21-26 (which includes a discussion of American collections). The Plantin-Moretus Museum is often discussed: Charles T. Jacobi, "The Plantin-Moretus Museum," *Penrose Annual,* XXIII (1921), 17-22; Léon Voet, "The Plantin-Moretus Museum as Study Center," *Printing and Graphic Arts,* I (1953), 80-82; Harry Carter, "The Types of the Plantin-Moretus Museum," *Printing and Graphic Arts,* III (1955), 53-58; Ellic Howe, "Plantin at Antwerp: A Typographical Adventure," *British Printer,* LXXIII (1960), 84-87 (Jan.), 106-10 (Feb.), 100-03 (Mar.), 96-100 (April). Articles on other centers include Robert F. Lane, "The Bodoni Punches, Matrices and Molds at Parma," *Printing and Graphic Arts,* V (1957), 61-69, and "Parma Honors Bodoni with a New Museum," *British Printer,* LXXVII (March 1964), 61-63; Harry Carter, "The Typographical Museum at the Oxford University Press," *Gutenberg Jahrbuch,* 1958, pp. 376-79; A. Ruppel, "The World-Museum of Printing," *Penrose Annual,* XXXIII (1931), 23-28. The St. Bride Institute's *Catalogue of the Technical Reference Library* (London, 1919) is an important reference work; see also Charles T. Jacobi, "The Saint Bride Foundation Technical Library," *Penrose Annual,* XXIX (1927), 92-95.

proach the problem with some understanding, still must work out a method. It is toward this end that my two suggestions are directed, and they are concerned with the two essential ingredients in any identification of type—the indication of its size and the description of its style or design.

I

For the descriptive bibliographer, the determination of type sizes is a different kind of problem from the one faced by the printer when he specifies a particular point size: for the pirnter is working with the types themselves, whereas the bibliographer has only the type faces—the impressions made by the types—to look at. The question which the bibliographer must answer at the beginning is whether he is recording the measurement of the face type or of the type itself; for the size of the type face he has direct evidence in the impressions on the page in front of him, but to identify the size of the physical type (the type body) he can only make deductions based on the composite arrangement of the impressions on the page. It is therefore most sensible to begin the descriptive note on a book's typography with a measurement of an entire type page—a procedure further justified by the fact that the purpose of the description is not simply to determine the size of an individual piece of type or a type face, but also to record the typographic design of the book in terms of the way those individual types are placed together.

The measurement of the type page, begun by the incunabulists (for whom typographical evidence is particularly crucial) and described by Bowers for books of all periods (pp. 344-47, 300-06, 444-46), is now a standard procedure. One finds a characteristic page and then records the number of lines, the dimensions of the type page (length of text, then in parenthesis the length including headline and direction-line, then the width), and the vertical measurement of twenty lines: e.g., "23 *ll.* (p. 17), 128 (141) x 80 mm.; 113 mm. for 20 *ll.*"[8] For details of the system, one should

8. Measurement of a page is, of course, from the top of the ascenders in the first line to the bottom of the descenders in the last line; measurement of twenty lines is from the top of the ascenders (or any other point) in one line to the top of the ascenders (or the corresponding point) in the twenty-first line below.

consult Bowers; the only points which need be raised here are the adoption of a twenty-line standard and the choice of millimeters over inches. As to the first, the convention of a twenty-line measurement is so well established for early books that it is futile to consider changing it; ten lines, however, are much more convenient (as McKerrow realized) and should, I think, be preferred for more recent books. On the second matter, it has been argued that inches are more appropriate for recent books, since the point system is based on inches and since the standard sizes of paper in England and America have been set in terms of inches; but in view of the recent discussions of the possibility of adopting the metric system in England and America, to say nothing of its inherently greater logic, there are strong grounds for preferring it even for modern books.[9] It would be possible, of course, to give the type page dimensions in inches and the ten- or twenty-line measurement in millimeters, but the result might be less, rather than more, convenient to readers. A similar compromise has been suggested by John C. Tarr, who constructed a table by means of which twenty-line measurements in millimeters can be converted to the corresponding point size; he advocates including this point figure in parentheses following the twenty-line measurement.[10]

His table emphasizes the fact that the measurement of a given number of lines can serve as a guide to the body size of a type only if the lines are set solid—that is, with no leading between them. But modern type faces are sometimes cast on unusually large bodies to give the effect of leading; thus it is impossible for the bibliographer, limited by what he can deduce from the printed impressions, to tell whether a given type is, for example, a 12-point type with 2-point leading or a 12-point face cast on a 14-point body. Either of these descriptions would convey the appearance accurately enough, but one of them would be factually wrong. In the face of such difficulties, the only logical—and honest—procedure is to base typographical description on appearance. The bibliographer, instead of attempting to identify the size of the *type* used (which he cannot do anyway except

9. The new sizes of paper (with dimensions in the ratio of $\sqrt{2}:1$), set forth in British Standard 3176:1959, are based on the metric system.
10. "Measurement of Type," *Library*, 5th series, 1 (1946-47), 248-49.

through inference), must describe the size of the *type face* (the impression of which is available for direct observation). For earlier periods, the logical dichotomy between these two approaches does not result in important practical difficulties; but at least for nineteenth- and twentieth-century books the gap cannot be bridged satisfactorily, and the bibliographer has no sensible choice but to concentrate on the appearance of what he is describing rather than to hypothesize what lay behind it.

One solution would be simply to report a point measurement as before, but clearly labeled as "face" rather than "type." However, points are traditionally a measure of type bodies;[11] they can obviously serve to measure type faces as well, but to use the same unit for both does not effectively dramatize the important difference in approach and may even promote confusion between the two. Besides, the point (or $\frac{1}{72}$ of an inch) is too small a unit for a bibliographer to employ accurately without proper equipment for magnification. Millimeters would seem to be the best workable unit, for they are a conveniently manipulable size in themselves and are easily convertible to points. Since a point is .0138″ and a millimeter is .039381″, the margin of error is only about .002″ when three points are equated with one millimeter. The bibliographer can easily estimate thirds of millimeters when measuring a type face, but beyond this he cannot go with any assurance—nor is any greater accuracy required for his purposes. So if he records a face as 3.67 mm., anyone wishing to think in terms of points can immediately visualize an eleven-point face, but no one will be under any illusion that an eleven-point *type* has been posited. If external documentary evidence (such as the printer's record) is later adduced to show that the type used was actually twelve-point, the bibliographer's account is in no way invalidated, for he had not pretended to be describing the type; he had simply indicated its appearance, using a system of measurement

11. A brief history of the standardization of the point, along with a proposal for a new point of .0125″, is given by Walter Tracy in "The Point," *Penrose Annual,* LV (1961), 63-70. Essential background information—about the point size and other aspects of the physical type—is conveniently summarized in David T. Pottinger's "A Fount of Type and Its Case in England and America 1500-1900," *Gutenberg Jahrbuch,* 1940, pp. 269-80.

less accurate certainly than that of the printer but yet at the upper limit of accuracy possible (without producing meaningless discriminations, indecision, and diminishing returns), given the nature of his position, his equipment, and his audience.

Two other considerations are worth mentioning. First, the appearance of modern types is often greatly altered, even within the same design, by manipulating the lengths of the ascenders and descenders in relation to the total face. The middle part of the face, exclusive of the ascenders and descenders, is generally referred to as the "x-height" (the height of an *x* and similar letters); thus a face with a proportionately large x-height (short ascenders and descenders) will appear larger than one with a small x-height even if both faces have the same over-all height.[12] Terms like "12-point appearing" have been used in describing this phenomenon but are rather clumsy, and it would be better simply to record both the "face" and "x" measurements. The bibliographer who is describing the appearance of a type face should certainly include both figures, for, if he lists only the face measurement, he is still giving his reader no idea of the proportions of the design. The x-height in millimeters (perhaps labeled "x" for clarity) can be inserted in parentheses following the figure for the total face—e.g., "face 4(2.33x) mm." This notation concisely reports the essentials of the size of a type face and is analogous to the standard notation in measuring the type page, with two related figures together, one in parentheses. A further convention suggests itself: since the bibliographer will normally record the other type faces in a book, besides the one used for the text (running title, chapter heading, and the like), the reader may assume that, whenever an x-height is not provided, the type is from a titling font (or at least is used in the book under discussion only in upper-case).

12. This phenomenon is discussed in all basic books on typography; it is also a chief factor in such articles as John C. Tarr's "A Critical Discursus on Type Legibility," *Penrose Annual*, XLIII (1941), 29-31, and "The Use of Space in Typography," *Typographica*, I (1949), 19-25; and Beatrice Warde's "Size of Print," *Penrose Annual*, XL (1938), 75-79. The related matter of the standardization of the size of the beard, in proportion to the body and the length of the extruders, is taken up in most technical manuals; a clear explanation of these "Point Common," "Point Title," and "Point Script" lines, by A. Monkman, can be found in *Practical Printing and Binding*, ed. Harry Whetton (London, reprinted 1948), p. 17.

Second is the question of whether to include ten- (or twenty-) line measurements for modern books. Bowers suggests that notation of the point size of the type (ascertained perhaps by reference to specimen books) may replace the measurement of twenty lines. If the point size could be directly established, and with certainty, it is true that a twenty-line measurement would serve no purpose. But if, because of the impossibility of certainty in most cases, the bibliographer decides consistently to follow the approach of describing *appearances* outlined here, he will find that a ten-line measurement is meaningful, even though the lines may be leaded. The measurement of any given number of lines, less than a full page, since it is made between identical positions in two lines, provides information which the total measurement of the type page (made between the tip of an ascender in the top line and the tip of a descender in the bottom) cannot easily reveal. For example, if ten lines measure 50 mm. and the face is 4 mm., one is informed at a glance either that there is leading of 1 mm. or that the 4 mm. face has been cast on a 5 mm. (or 15-point) body (or else some intermediate combination of leading and oversize body totaling 1 mm. per line); however, to know that the full type page of 23 lines measures vertically 114 mm. is not to be aware of this same information without troublesome calculation. The convenience gained outweighs the small amount of space which the notation requires.

Under this system, then, the full description of the size of the text face for H. G. Wells's *The Discovery of the Future* (New York: Huebsch, 1913) would go as follows:

23 *ll.* (p. 17), 128 (141) x 80 mm.; 10 *ll.* = 56 mm.; face 4 (2x) mm.

If millimeters were clearly established as the unit of measurement, this could be further condensed: "23 *ll.* (p. 17), 128 (141) x 80; 10 *ll.* = 56; face 4 (2x)." The nature of the technological developments in printing in the nineteenth and twentieth centuries makes some such approach imperative for dealing with books of those periods. Even for the eighteenth century, as Philip Gaskell's important work in this area has shown, a method based on type *face* rather than *body* may be useful; in a very helpful

chart[13] he has indicated, for eighteenth-century types, the face height of text and titling capitals (with a twenty-line measurement) in millimeters and the body size in points—emphasizing once again the need to keep firm the distinction between types (bodies, points) and their impressions (faces, millimeters). And this, after all, is the crux of the matter. The system outlined here would inevitably require modification in practice, but my concern is not so much with details of notation as with the concept lying behind those details. The descriptive bibliographer who records only *type sizes*, however valuable and accurate his information, may appear to be working backward, for observation must precede analysis, and the naming of a type size from the examination of a printed page is an act of inference rather than observation. Certainly the bibliographer should be encouraged to take this second step, but with each new technological development in the printing process it becomes more difficult to take with assurance. This is not a counsel of despair but a recognition of the essential nature of the descriptive process.

II

The description of the style or design of a type face is a different sort of problem from the specification of its size. Once a unit of measure and a method for employing it are established, anyone can perform the actual measurement; but to recognize the characteristics of forms and shapes—and to express those characteristics verbally—requires some aesthetic perception and a specialized vocabulary, as does any other commentary on art. It may be assumed that the bibliographer, with the minimum knowledge of typography described above, is able to make certain basic distinctions—between "old face," "transitional," and "modern," for example—and is acquainted with several important faces (perhaps Caslon, Garamond, Baskerville, Bodoni) and a number of historic specimens of various periods. Even so, in order to produce

13. "Type Sizes in the Eighteenth Century," *Studies in Bibliography*, v (1952-53), 147-51. Allan Stevenson, in his important introductory volume to Part II of the *Catalogue of Botanical Books in the Collection of Rachel McMasters Miller Hunt* (Pittsburgh, 1961), provides a chart of eighteenth-century type sizes (p. ccxxviii) and comments on the need for a handbook of types for bibliographers (p. clxxxi).

efficient descriptions, he must have at his disposal a standard nomenclature and framework of classification. Besides being *standard* (in the sense that it is widely used and understood), such a system should also be *graduated*—that is, it should provide a series of levels of increasing complexity and detail, so that the bibliographer could choose the level on which he would operate according to the requirements of each situation. In some cases it may not be possible—or even desirable—to furnish an elaborate description of a type design, while in others precise identification may be essential; the bibliographer should be able to vary his description, under differing circumstances and for the several periods of book production, and yet remain within one coherent master scheme.[14]

As far as basic vocabulary is concerned, it should not be too difficult to achieve general agreement that the British Standard for *Typeface Nomenclature* (BS 2961: 1958) be adopted. This Standard does not furnish a classification of faces but does give definitions of essential terms; it also serves an important negative function in excluding certain terms from the list of definitions, thus delimiting as well as establishing a standard vocabulary. Such words as "font," "series," and "family," as well as the names for parts of a type or face, are of course defined; but for descriptive purposes, the adjectives relating to *weight* (blackness) and *width* are especially important and may be grouped as follows:

WEIGHT		WIDTH	
Light	*Bold*	*Condensed*	*Expanded*
semi-light	semi-bold	semi-condensed	semi-expanded
light	bold	condensed	expanded
extra-light	extra-bold	extra-condensed	extra-expanded
	ultra-bold	ultra-condensed	ultra-expanded

Obviously such terms are relative to the standard (or "medium") weight and width of a given family as issued by the manufacturer

14. This kind of system, with several levels of increasing accuracy, is similar to the one worked out by Kenneth L. Kelly for specifying colors; see "A Universal Color Language," *Color Engineering,* III (Mar.-April 1965), 2-7. Cf. its application in G. T. Tanselle, "A System of Color Identification for Bibliographical Description," *Studies in Bibliography,* XX (1967), 203-34.

and do not imply any absolute notions as to what constitutes variation from the norm. Nevertheless, the scheme provides a set of terms logical in its arrangement and promotes uniformity of terminology by eliminating such words as "heavy" and "Clarendon."[15]

The next step is to arrive at a system of classification of the type designs themselves, a framework into which these standard adjectives can be fitted as required. Not surprisingly, this is an area fraught with disagreement, and many alternative plans have been proposed.[16] The trouble with the traditional terminology and with a number of these other schemes is that the classification is not logically arranged (with unlike items—such as "roman," "sans serif," and "egyptian"—given parallel status) nor consistantly based—neither on form, nor chronology, nor use. "Old face" is a historically oriented term, while "sans serif" refers to formal characteristics; the "didones" of Maximilien Vox's system involves an allusion to the names of two designers of type, while his "lineales" is derived from the form of the face. Of the systems so far devised, the one by which descriptive bibliographers would be best served is probably the German standard, DIN 16 518, as outlined by James Mosley. Although it, like its predecessors, is not entirely consistent in the basis for its terminology, it

15. Geoffrey Dowding had earlier presented a similar proposal for standardizing the adjectives relating to weight and width, in his "Type Faces: A Plea for Rational Terminology," *Typographica,* IV (1951), 9-13. On general terminology, see Joseph Thorp, "Towards a Nomenclature for Letter Forms" and "Experimental Application of a Nomenclature for Letter Forms," in *Monotype Recorder,* no. 240 (April-May 1931) and no. 246 (July-Aug. 1932).

16. An extremely useful survey of these plans is James Mosley's "New Approaches to the Classification of Typefaces," *British Printer,* LXXIII (Mar. 1960), 90-96. The two most widely noticed recent systems are Maximilien Vox's *Pour une nouvelle classification des caractères* (Paris, 1954) and the Deutsche Industrie Normen-Ausschuss *Klassification der Druckschriften* (DIN 16 518; Berlin, 1959). Sir Cyril Burt, W. F. Cooper, and J. L. Martin, in "A Psychological Study of Typography," *British Journal of Statistical Psychology,* VIII (May 1955), 29-57, include a section entitled "Aesthetic Preferences and the Classification of Type Faces" (pp. 38-44), which furnishes "an independent classification of type faces similar to what may be called the historical classification, but differing suggestively in minor details." Alfred Bastien's *Encyclopaedia Typographica,* Vol. I (West Drayton, 1953), classifies type faces into twelve groups (pp. 328-29; cf. pp. 48-49, 129).

points the direction in which a satisfactory system for descriptive bibliography must be developed. The three large divisions of the DIN-Mosley classification are "Roman," "Fraktur," and "Exotics" (or, in the terms of the British Standard, "non-latin"); subdivisions are assigned decimal places for reference (allowing other such categories to be inserted later). The "Roman" section is of principal concern here:[17]

1. *Roman (or Italic)*[18]

1.1 Renaissance
- 1.11 Early
- 1.12 Late
- 1.13 Modern

1.2 Baroque
- 1.21 Dutch
- 1.22 English
- 1.23 French
- 1.24 Modern

1.3 Neo-Classic
- 1.31 Early
- 1.32 Late
- 1.33 Newspaper
- 1.34 Modern

1.4 Free Roman
- 1.41 "Jugendstil"
- 1.42 Serifless
- 1.43 Individual form

1.5 Linear
- 1.51 Early
- 1.52 Modern

1.6 Block Roman
- 1.61 Early
- 1.62 Late
- 1.63 Modern
- 1.64 Typewriter

1.7 Script
- 1.71 Broad-pen
- 1.72 Flexible, pointed pen
- 1.73 Strokes of equal thickness
- 1.74 Brush script

In this terminology, "Renaissance" of course is the equivalent of "old face," "Baroque" of "transitional," "Neo-Classic" of "modern," "Linear" of "sans serif," and "Block" of "egyptian." The system is essentially historical in approach, though the divisional heads 1.4, 1.5, 1.6, and 1.7 (and a few of the subdivisions as well) are based on form; the inclusion of script and linear forms under "Roman" (that is, "Latin") is logically correct, and the decimal numbering allows the names of individual type faces to be assigned numbers under the proper subheadings.

17. The form of this outline is derived from James Mosley's presentation in the *British Printer* article mentioned above.

18. This section should perhaps be headed "Latin," to use the terminology of the British Standard. Because "italic" is now generally taken to mean the slanting form which is a subsidiary accompaniment to a given font, each of the terms under section 1 may be either "roman" or "italic," and all are "Latin." (An *r* or *i* could be attached to the reference numbers to indicate this distinction.)

Assuming for the moment that the DIN-Mosley system is the most workable and logical one available, it is possible to set up a six-level plan for describing the forms of type faces:

Level 1: The lowest level of discrimination distinguishes only among the largest sections of the scale—between "Roman," "Italic," and "Fraktur," for example. Bibliographical description in most cases will be expected to operate on a higher level.

Level 2: Here the principal divisions are recognized. A Latin face will be classified as "Renaissance," "Baroque," "Neo-Classic," or one of the other divisional terms. These three labels, in particular, have more meaning than the traditional "old face," "transitional," and "modern"; and it is important to reserve the word "modern" for twentieth-century designs based on earlier models (as 1.13, "Modern Renaissance Roman" or "Modern Renaissance Italic"—not a "modern" face, in the old sense, at all). The bibliographer may be expected as a matter of course to understand the distinction between "Renaissance" and "Neo-Classic" faces ("old face" vs. "modern"),[19] and this is the minimum level which should be employed in a bibliographical description.

Level 3: The next level moves to the second decimal place on the DIN scale and discriminates among varieties of Renaissance, Baroque, and Neo-Classic faces. It should be emphasized that these distinctions do not involve reference to specimens for the names of individual designs but simply general recognition of the main traditions. Knowledge that the oblique cross bar of the *e* is a characteristic of Early Renaissance (or "Venetian"), for example, is the kind of information required on this level. Again, most bibliographers, having read Johnson, Morison, and Updike, will remember such features; but the point is that, even if they

19. Any basic book, like A. F. Johnson's *Type Designs,* explains this distinction. A classic essay on the subject is Beatrice Warde's "Type Faces, Old and New," *Library,* 4th series, XVI (1935-36), 121-43; see also her "What Does 'Modern' Mean in Typography?", *Penrose Annual,* XXXVIII (1936), 44-47. A helpful introductory discussion is Paul A. Bennett's "On Type Faces for Books," in *Books and Printing* (Cleveland, 1951), pp. 402-07. A. F. Johnson gives authoritative historical accounts of these matters in many articles—e.g., "The Evolution of the Modern-Face Roman," *Library,* 4th series, XI (1930-31), 353-77.

occasionally do not, they can simply consult the standard general histories to pick up the details needed for this level.

Level 4: In contrast to the first three levels, the upper three do involve reference to specimen books, illustrated historical surveys, or encyclopedias of designs. On the fourth level, one gives the specific family name of the type design. A face falling in the category "Late Renaissance" (1.12), for instance, would then be further classified as Caslon, Garamond, Granjon, Janson, or one of the others of this general style. A modern version can be labeled "Caslon-derived," "Garamond-derived," and so on—in other words, the essential task here is identifying the family characteristics, not the particular design or re-cutting. Most bibliographers will be able to recognize automatically a few such families, but they will doubtless need to turn to reference works from time to time. For this purpose founders' or printers' specimen books are not required, although a good one would serve the function. What will usually be consulted, however, if this is the highest level of identification required, is one of the anthologies of type faces intended for a general audience or any other work which contains a wide and representative sampling of type designs. A natural choice would be W. Turner Berry, A. F. Johnson, and W. P. Jaspert's *The Encyclopaedia of Type Faces* (3rd ed., 1962), with its 1,500 faces; but one could use Alfred Bastien's *Encyclopaedia Typographica* (1953, 1961), or the display of faces in Chapter 6 of Kenneth Day's *The Typography of Press Advertisement* (1956), or at the back of the University of Chicago Press *Manual of Style* (11th ed., 1949), or (though more limited in scope and usefulness) such books as R. S. Hutchings' *The Western Heritage of Type Design* (1963).[20] An inexpensive ($1.25) paper-covered book which bibliographers may find convenient for these identifica-

20. Other possible books are *Alphabet Thesaurus* (New York, 1960); Alfred Bastien and G. J. Freshwater's *Printing Types of the World* (London, 1931); William Longyear's *A Dictionary of Modern Type Faces and Lettering* (Pelham, 1935). More detailed information on individual families of type faces is sometimes available in series of articles in printing journals—such as "Learning to Identify Text Types," *British Printer,* Sept. 1954-Dec. 1955; or the "Let's Take a Look At ———" series, *British Printer,* Mar. 1956-Aug. 1958; or A. F. Johnson's "A Guide to Present-Day Types," *Paper and Print,* Mar. 1932-Spring 1934.

tions is *Specimens of Type Faces in the United States Government Printing Office;* and R. Randolph Karch's *How to Recognize Type Faces* (2nd ed., 1959), though it does not furnish specimens of complete fonts, employs an ingenious scheme for quickly identifying about 1,700 faces in terms of the family characteristics required on this level.

Level 5: Once the design family has been determined, it is possible to apply the standard adjectives (listed above) indicating weight and width. Since they are relative terms, they cannot meaningfully be applied at any earlier level, for one must have some idea of what is "normal" or "medium" in a particular family before one can label a specific face as "bold" or "expanded." In order to speak of Caslon bold condensed, or Caslon bold extra-condensed, for example, one must know what regular Caslon looks like. To be sure, these proportions may vary with the founder; but given the nature of the terms, the goal on this level is only to make an intelligent estimate (in standard language) of the weight and width of a face, based on some knowledge of what is normal for the family, so as to give an added dimension of detail to the description. The same kind of reference works employed in the preceding level are helpful here, too, but those which give more extended showings of various condensed, expanded, light, and bold series within a family are obviously most useful in gaining an idea of the practical meaning of the terms. A book like the *Graphic Arts Type Book* (first 2 vols., 1965, for machine serifed and linear faces), though it contains a limited number of families, displays those it does include in great detail; and specimen books, even when not used for precise identification, are of great value in illustrating these distinctions. With experience, the eye can be trained to make extremely accurate judgments, which the resulting use of the terms for weight and width will reflect.

Level 6: When the bibliographer has reached the point where he is able to distinguish weights and widths with some confidence, he is ready to locate the exact *series* in the proper specimen book. A *series*, according to the British Standard, is a type face "exemplified by one or more sizes, which can be identified by name and/or number as emanating from a specific manufacturer." To

trace the type face used in a given volume back to its manufacturer and to record it by citing a name and number from the manufacturer's specimen book of a particular year—these two activities constitute the highest level of accuracy and detail which the bibliographer will generally attain in the description of type. (For earlier books, the comparable activity may often be the location of the specific face in one of the standard scholarly histories—such as Gordon Duff's for incunabula, Frank Isaac's for the sixteenth century, or Horace Hart's for the Fell types.) But the process is cumulative and the recording of a precise reference to a specimen book does not make unnecessary the classification (at least the DIN figure) obtainable on a lesser level, for unfamiliar names of faces do not convey any immediate descriptive meaning without an indication of their place in a larger framework. Identifications on this level, therefore, should read "Kennerley Old Style, Lanston Monotype 268 (DIN 1.13)" or "Stephenson Blake Grotesque No. 9 (DIN 1.52)" or "Walbaum, Monotype 374 (DIN 1.34)"—if indeed the classification is not given in words. The use of specimen books (and particularly locating the proper one) may be a troublesome process: the early ones are very scarce and the later ones are often not conveniently accessible. Specimens fall broadly into two types—those issued by founders (for the use of their customers, the printers) and those issued by printing firms (for convenience of their customers, the publishers and others requiring printed work).[21] While printers' specimens can be useful (as can any large collection of type faces)

21. On specimens, see Geoffrey Dowding, "Printers' and Founders' Type Specimens," *Typographica,* VI (1952), 6-16 (which suggests a standardized plan); D. B. Updike, "The Planning of Printing," *Fleuron,* II (1924), 13-27 (with a section on the arrangement of specimen books); A. F. Johnson, "English Type Specimen Books," *Penrose Annual,* XXXV (1933), 19-22, and "Notes on Some XVIIth Century English Types and Type Specimens," *Typography,* VI (Summer 1938), 17-22; Ruari McLean, "Printers' Type-Specimen Books in England, 1920-40," *Signature,* n.s. V (1948), 33-49 (surveys 25 specimens); "Typefounders' Specimens Today," *British Printer,* LXXII (April 1959), 77-79; "Typefounders' Specimen Books," *British Printer,* LXXII (Dec. 1959), 90-94. A. F. Johnson includes a chapter on "Type Specimens" in *Type Designs* (2nd ed.; London, 1959), pp. 159-65; Graham Pollard's *Catalogue of Typefounders' Specimens* (Birrell & Garnett catalogue, London, 1928) is indispensable.

One further refinement is to identify the *individual* font—the *particular* collection of physical types owned by a given printer. John Cook Wyllie, for example, in his Rosenbach lectures of 1960, referred to a system he has devised for "fingerprinting" type by examining minute peculiarities of individual pieces of type, resulting from the casting process.[27] This kind of analysis is obviously of great value in assigning books to particular printers. But since it concentrates on unintentional peculiarities (not part of the letter design), identifiable through comparative reference to other books printed from the same and related types, it is not logically a seventh level in the sequence here outlined; rather it is an analytic technique which may be applied at any level, for it is essentially not dependent on knowledge of the classification or origin of the type design.

There is every reason to expect that standardized methods for measuring and classifying type faces will eventually be agreed upon. The present two suggestions, however, are not intended as prophecies of the millennium; if they have any merit at all, it does not lie in their details but only in their general pragmatic drift: an appearance system of measurement and a multiple-level plan for classification. A favorite analogy of the incunabulists at the turn of the century was that their method of observing and describing type faces was like the Linnaean system of biological classification; and one writer, looking back on less rigorous days, could refer to the "happy-go-lucky bibliographers of the old school."[28] It would perhaps be salutary to revive the scientific parallel today.

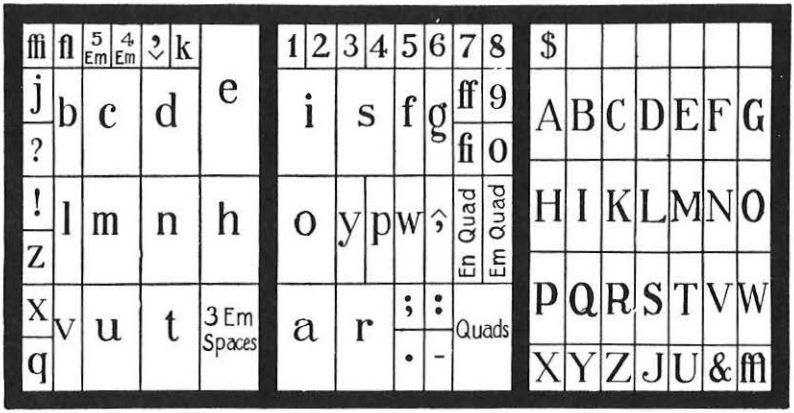
27. See the summary of his lectures in Jesse C. Mills, "Detective in the Book World," *Graphic Arts Review,* XXIII (May 1960), 7-8, 46-48.
28. Wilfred Voynich, "On the Study of Early Printed Books," *Library,* 2nd series, IV (1903), 189-99.

POSTSCRIPT

This essay is reprinted here exactly as it appeared in the Second Quarter 1966 number of the *Papers of the Bibliographical Society of America*, with the exception of a few phrases which have been slightly altered. Since its original publication, several important typographic studies have become available, and some of these are discussed in "Typographic Research and Bibliography" in the April 1967 number of this *Journal*. One other recent work which should be familiar to all bibliographers is Stanley Morison and Harry Carter's *John Fell: The University Press and the 'Fell' Types* (Oxford, 1967).

One statement in the second paragraph perhaps requires further comment: "That a particular book should be described at all is enough to justify a description of its type." In the context, this sentence was meant to suggest only that a paragraph on typography in a bibliographical description requires no defense, since type-impressions constitute one of the principal physical elements of any book. It was not intended as a denial of the much-discussed "degressive principle"—indeed, the idea of various levels of complexity, set forth later in the essay, springs from the assumption that different degrees of detail are appropriate under different circumstances. Conceivably certain bibliographies, or certain classes of entry within those bibliographies, could be set up with abbreviated descriptions in which any discussion of type would appear excessive —for the proportions of the entire description must always be kept in mind (a point I tried to elaborate upon in the *Times Literary Supplement*, September 22, 1966, p. 884). Nevertheless, the typography of a book is so important a part of its total makeup that any bibliographical description which seeks to present a well-rounded view of the book as a physical object cannot avoid some comment on its typography; whether this comment is on the most elementary, or the most detailed, level is a matter to be settled in terms of the general proportions of the complete description.

G.T.T.



Octavius A. Dearing and the "California Case"

"The next notable improvement offered the trade and rejected was the California case of 1867." This statement from an article by Chas. H. Cochrane, "The Lay of the Case" *(Printer and Bookmaker,* December 1899), is interesting in two respects. It gives the year 1867 as the date of the introduction of the California typecase and gratuitously says it has been rejected. The century of acceptance by the trade—almost seventy years since the foregoing statement was made—can hardly be considered rejection.

Since there apparently is no published material on the history of the California typecase, it seemed appropriate to make this brief study in the centennial year of its origin. The earliest published reference to the California case found is in *Type and Graver,* a four-page publication issued by Ellis Read's Printers' Furnishings Warehouse and Scotch Type Agency, San Francisco. It reads, in part: "This department is under the management of Mr. O. A. Dearing, whose long experience as a job printer, and as foreman of one of the largest job offices in the State, renders him particularly competent to advise and assist printers in the selection of their outfits and the arrangement of their offices . . . ." And among the printers' materials offered is "the Dearing Case—the only really practical two-thirds case ever made . . . invented by our Mr. Dearing, and manufactured by Simons & Co. The decidedly antiquated and fossil method of arrangement still pursued by manufacturers on this coast has been avoided. Over three-quarters of the case is devoted to the letters, while the general appearance of the case is unchanged from the usual style of upper-case—the fourteen useless boxes having been discarded and the remaining boxes enlarged. It is, in fact, the only two-thirds case made that will hold an ordinary font of job letters larger than pica, without overrunning the boxes. We have sold several hundreds of this style case, and the demand is still increasing. Price, $1.25 each."

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Research in Progress

The editors welcome shorter reports on research topics currently under investigation. These reports may seek comment and additional information from other researchers interested in similar problems; or they may summarize investigative studies which suggest implications for further research. Communications should be addressed to the Editor, c/o The Cleveland Museum of Art, Cleveland, Ohio 44106, USA.

Computer Graphics as a Tool in Typographic Research

There is much interest today in computer-controlled high-speed electronic character generation both for direct viewing and for photocomposition. All of the systems with which the author is aware take a face which has been completely stored optically or electronically in memory and convert it into a visual image. There does not seem to have been any interest in developing a flexible character-generation system which could be used to model fonts both for the investigation of known faces and for the design of new and different type styles. Such a system using pictorial, as opposed to numeric, computer output would seem to fall within the emerging field of computer graphics.

As one aspect of our research activity, the Digital Systems Group of Case Western Reserve University in cooperation with Harris Intertype and *The Journal of Typographic Research* has undertaken the development of a general purpose man-machine graphical computer system to be used in the study and design of the twenty-six Roman capital letters. The system will run on a Computer Control Co. DDP116 general purpose computer using a teletype as the primary man-machine communication device and with an on-line California Computer Products Co. plotter as the source of graphical out-put. The letters themselves will be nominally .2″ to .25″ in size, depending upon the desires of the operator. All letters will be generated inside the computer on a 200 x 200 rastor with a resolution of 800 lines-per-inch. The plotter has a resolution of 200 lines-per-inch so the plotted character size will be four times actual size. The generation system itself will consist of a monitor program, twenty-six sans-serif letter generating programs and various serif generating and plotting routines. All programs will run under the control of the monitor which may communicate with or receive data from the operator. The system will be interactive and run in real time. The operator specifies which letter he wishes to investigate. The monitor system then reports the data it already has available in memory that is applicable to the letter and specifies any

additional data it needs to enter the desired generation routine. Data in memory might have been previously entered by the operator or might have been derived by the monitor from the characteristics of previously-designed letters. If a generated letter is not suitable to the designer, it is only necessary that he recall the program and alter that part of the letter which is displeasing to him.

The question of how to set up the generating routines and what relationships and parameters are important in the construction of letters has been handled by deciding to look at five different type fonts and visually making judgment concerning the relationships that exist from letter to letter across these fonts. A preliminary study, undertaken in the spring and summer of 1967, on the letters A, H, and K for five fonts indicated that such relationships could be found and utilized to generate close approximations to known type faces or to produce new and different ones. The question of whether or not five fonts are adequate is still unanswered. However, the generating routines are being set up such that if the designer does not like the value suggested by the computer for some parameter based on previously entered data, the value may be changed by means of the teletype.

This system will not alleviate any need for the designer to make judgments based on good taste with regard to the characters he is generating, but it should shorten the time between a concept being formulated in the designer's mind and a set of drawings to look at and think about. It will also allow him to see immediately what the effects of altering one letter might be on the rest of the font.

Any reader comments, suggestions or criticism of these ideas would be most appreciated by the author.

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Book Reviews

Emil Ruder. *Typography: A Manual of Design*. New York: Hastings House, Publishers, Inc., 1967. $19.50.

On the dust jacket we read: "The author is concerned in this book with the problems of form which confront the typographer in the practice of his craft." Considering this aim, *Typography: A Manual of Design* is a very sophisticated book conceived in the best Swiss typographic tradition. But it is, again, a work which evaluates typography—its effects and significance—with concepts more appropriate to the era of Gutenberg than to the new conditions imposed upon us by the era of automation.

"The New Typography," magic words some thirty years ago, are not new any more. The revolution, however, produced its academies, and this book is an anthology of one of them. It is a recollection of the author's teaching methods of a craft which (as such) is about to expire. The printer was his own graphic designer for most of the last 400 years. The traditions and conventions of his craft are, by no means, without meaning today, but the craft which had the sole task of producing beautiful pieces of print cannot sustain the immense and complex demands of an era of mass communication.

The profound change has created for the professional an environment with new conditions—both practical and ideological. His task is not just arranging an appealing piece of typography; he must consider over-all design programs and graphic systems in which typography is only a part.

The beaux arts, source of reference for artist-typographers, is as ever a private expression. The graphic designer of today, in order to be able to communicate efficiently (and not his private message), has much more to absorb from information theory and sister disciplines. Good graphic or industrial design certainly gives aesthetic satisfaction, but, above all, it must work; it must communicate not on a personal, but a public, level.

This quite widely acknowledged fact doesn't seem to convince Mr. Ruder, who draws a line between graphic design and typography. On page 14, we read, "More than graphic design, typography is an expression of technology, precision, and good order." One wonders then how legibility can be defined in such untechnological terms: ". . . in which the effects of line and surface are nicely matched" (p. 68). Many such misunderstandings are undoubtedly due to the careless translation. I am sure that Mr. Ruder's "gebrauchsgraphik" is better expressed in terms of graphic art or applied art instead of "graphic design."

There is a vast and ornate literature about typography and the education of typographers. It is unfortunate that this book is another one of the collection. It fails to point out the real problems—which are not only those

of form—of today's typographic design and design education. It is only logical that the book's best information is formal; it is it's layout.

Tomás Gonda

Tomás Gonda is a graphic design consultant in Milan, Italy (Via Manzoni 14). Prior to this fall he taught graphic design at Hochschule für Gestaltung, Ulm, Germany, and with the Design Research Group, Ohio State University, Columbus.

Leonard Uhr, ed. *Pattern Recognition: Theory, Experiment, Computer Simulations, and Dynamic Models of Form Perception and Discovery.* New York: John Wiley & Sons, 1966. 393 pp. $8.95 (cloth). $5.95 (paper).

This book is a collection of papers from the fields of psychology, neurophysiology, and computer model building which relate to pattern recognition problems. It was intended to bring materials from different fields together in a coherent form. There are five parts: (1) conceptual framework, (2) empirical background, (3) theoretical developments, (4) experimental results from neurophysiology and psychology, and (5) computer simulations of complex models.

Readers who may not be familiar with these fields, will gain a much broader knowledge of the subject matter and how research people in other fields have been tackling the problems. However, it is felt that the sampling of papers is lacking in broadness; the lists of references cover only a few areas. More papers concerning the adaptive threshold network and its application to pattern-recognition problems should have been included. There is also too much of an emphasis on character recognition, a subproblem in pattern recognition which also covers speech recognition, medical diagnosis, electrocardiogram recognition, etc. Otherwise, the book is well organized and most selected papers are clearly presented.

W. E. Lin

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Résumé des Articles

Traduction: Fernand Baudin

Trois familles de caractères dessinés à l'ordinateur par M. V. Mathews, Carol Lochbaum, et Judith A. Moss

Les trois familles de caractères sont décrites en détail. Toutes les formes des lettres sont entièrement chiffrées. Les vecteurs fondamentaux sont inscrits dans une forme générale de telle sorte que les familles de caractères puissent être facilement dessinées au moyen de divers ordinateurs et tubes cathodiques. Les familles comprennent: bas-de-casse et capitales en romain, signes mathématiques, capitales et bas-de-casse du grec. La manière de dessiner des caractères au clavier est décrit. Toutefois, la nouveauté essentielle est dans la forme des lettres proprement dites.

La création du "CBS News 36" par Rudi Bass

La lisibilité des textes sur les écrans de télévision est affectée par des variables qu'ignorent les techniques d'impression. Description est fournie des déformations et corruptions que subissent les textes au cours d'une transmission télévisée. Pour y remédier le Département des Arts Graphiques de la CBS a fait des essais au moyen de différents caractères et dessiné le "CBS News 36." Les expériences et les résultats sont illustrés et discutés.

Typographie: évolution et révolution par Fernand Baudin

La typographie est considérée comme une phase technologique dans l'évolution de l'écriture. Celle-ci est une opération intellectuelle, rationnelle et non pas seulement une habileté purement manuelle ou mécanique. C'est pourquoi les notions de lisibilité et d'intelligibilité des textes doivent être étendues jusqu'à comprendre la mise en page totale du support de l'écrit, livre ou document. La révolution technologique en cours dans la reproduction et la multiplication des imprimés provoque une révolution sociale dans la production même des écrits et appelle une rénovation parallèle de l'enseignement, au niveau supérieur, de l'écriture. Illustrations et commentaires.

Une approche verticale dans les exercices graphiques de groupe par Edward Wright et Jean Collins

Dans l'enseignement traditionnel des arts graphique, les expériences sont limitées aux relations directes entre le sens des mots et les formes connues des lettres. Dans l'expérience envisagée les étudiants sont invités à partir de leur écriture personnelle spontanée et à l'élaborer en un style défini. Des travaux d'étudiants sont reproduits et commentés.

La calligraphie japonaise par Horie Tomohiko

Plus qu'en aucune autre partie du monde, la pratique de l'écriture a été élevée en Chine et au Japon à la hauteur d'une forme d'art particulièrement expressive. Les calligraphes japonais, dont l'art plonge ses racines dans les symboles chinois

primitifs, ont élaboré, au cours d'une évolution qui compte 1300 ans, une gamme de styles qui leur sont propres. Deux catégories principales sont envisagées: la *classique,* dans laquelle la forme et l'émotion sont intimement intégrées; et la *subjective* où la valeur de sentiment l'emporte sur la valeur formelle.

La description bibliographique des caractères typographiques par G. Thomas Tanselle

Deux suggestions sont proposées aux bibliographes pour les aider dans la description des caractères typographiques d'un livre: ils sont invités à s'en tenir à la mesure des lettres telles qu'elles apparaissent sur la page plutôt que de tenter de déduire leur "force de corps"; leur méthode de classification devrait être calculée de manière telle que les détails des caractères puissent être décrits en toutes circonstances et quelle que soit la date de la production typographique envisagée.

Kurzfassung der Beiträge

Übersetzung: Dirk Wendt

Drei Schnitte von Computer-gezeichneten Schriften von M. V. Mathews, Carol Lochbaum, und Judith A. Moss

Drei Schriftschnitte werden eingehend beschrieben, wobei die Formen der Buchstaben vollständig durch Zahlen gekennzeichnet werden. Die Grundvektoren sind in einer allgemeinen Form gegeben, so dass diese Schriftschnitte leicht für eine grosse Zahl von Rechenanlagen mit Kathodenstrahl-Bildschirmen verwendet werden können. Die Schriftschnitte enthalten lateinische und griechische Gross- und Kleinbuchstaben und mathematische Zeichen. Der Entwurf von Schriften mit Digitalrechnern wird besprochen. Hauptbeitrag sind die Schriftschnitte selbst.

Die Entwicklung der Schrift CBS News 36 von Rudi Bass

Die Herstellung einer lesbaren Typographie auf dem Fernsehschirm muss technischen Gegebenheiten Rechnung tragen, die in den gedruckten Medien unbekannt sind. Es werden spezifische Probleme der Verzerrung und des Kontrastzerfalls von Buchstaben beschrieben. Um diesen Problemen wirksam zu begegnen, experimentierte die Graphik-Abteilung des CBS-Nachrichtendienstes mit verschiedenen Schriften und entwickelte die CBS News 36. Die Ergebnisse der Untersuchungen werden illustriert und diskutiert. (Anmerkung des Übersetzers: CBS ist eines der grossen amerikanischen Fernseh-Netze, die von den örtlichen Sendern übernommen und ausgestrahlt werden; CBS News ist die Nachrichten-Abteilung dieses Netzes.)

Typographie: Evolution und Revolution von Fernand Baudin

Typographie wird als eine technologische Phase in der Entwicklung der (Hand-) Schrift betrachtet. Letztere ist eine intellektuelle und rationale Handlung und

nicht nur eine rein manuelle und mechanische Fertigkeit. Daher sollten Gedanken über die Lesbarkeit und Erkennbarkeit von Texten darauf ausgedehnt werden, auch den gesamten Träger des Geschriebenen mit einzubeziehen, das Buch oder Dokument. Die technologische Revolution im Vorgange der Reproduktion und Vervielfältigung von Drucksachen ruft eine soziale Revolution in der Herstellung des Geschriebenen selbst hervor und fordert eine Erneuerung des Schriebunterrichts auf höherem Niveau. Beispiele und Kommentare.

Vertikale Gruppenübungen in graphischen Entwürfen von Edward Wright und Jean Collins

Graphiker haben üblicherweise beschränkte Erfahrung mit der direkten Beziehung zwischen Bedeutung und Form der Sprache, die sie benutzen. In dieser experimentellen Studie wurden Graphik-Studenten dazu aufgefordert, ihre eigenen, handgeschriebenen Texte Schritt für Schritt von zufälligen, persönlichen Notizen in eine strenge graphische Form zu bringen. Verschiedene Studenten-Arbeiten werden gezeigt und kommentiert.

Japanische Kalligraphie von Horie Tomohiko

Japan und China haben mehr als andere Teile der Welt die zweckgerichtete Handlung des Schreibens zu einer ausdrucksstarken Kunstform verfeinert. Von frühen chinesischen Symbolen ausgehend haben japanische Kalligraphen während einer 1300-jährigen Geschichte eine Vielfalt von einzigartigen eigenen Stilen entwickelt. Zwei Hauptgruppen werden besprochen: die „klassischen," in denen Form und Gefühlsgehalt eng integriert sind, und die „subjektiven," in denen das Gefühl über die Form dominiert.

Die Kennzeichnung von Druckschriften in bibilographischen Beschreibungen von G. Thomas Tanselle

Zwei Vorschläge, die dem deskriptiven Bibliographen bei der Erstellung einer Methode zur Beschreibung der Typographie eines Buches von Nutzen sein können: die Bibliographen sollten ihre Messung der Schrift an ihrer Erscheinung auf der gedruckten Seite vornehmen, anstatt sie aus der Grundgrösse der verwendeten Schrift zu erschliessen; und: ihr System der Klassifizierung von Schriften sollte so abgestuft sein, dass unter verschiedenen Umständen und für Bücher aus verschiedenen Zeitperioden verschiedene Grade der Detailiertheit verwendet werden können.

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Miss Judith A. Moss was employed as a programmer in the Behavioral Research Laboratory in 1966. She received her B. A. in mathematics in 1967.

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Horie Tomohiko is chief of the research staff at the Tokyo National Museum (Ueno Park, Tokyo, Japan). He began to show interest in calligraphy at the age of fifteen, and consequently became fond of writing himself. He has "studied nothing but calligraphy." Mr. Horie has published many articles and four books, including *History of Calligraphy* and *Noted Calligraphers in Japan*.

G. Thomas Tanselle is associate professor of English at the University of Wisconsin (Madison, Wisconsin 53706). Dr. Tanselle's articles frequently appear in bibliographical journals, and he has recently been concerned with the identification of type and the use of type-damage evidence in descriptive bibliographies. He is bibliographical editor of the fifteen-volume *Writings of Herman Melville,* to be published by The Newberry Library and Northwestern University Press.

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All four numbers of the first volume of *The Journal of Typographic Research* have been printed on papers supplied by the Sorg Paper Company. This number uses Sorg's Nimbus text and Sun Dial cover; earlier numbers of the *Journal* used Sorg's Sun Dial text and cover.

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