

INTRODUCTION TO GRAPHIC COMMUNICATIONS Section No. 217

THE BEGINNING OF LETTERS

The Beginning ...

Writing, in the widest sense, is everything pictured, drawn, or arranged that can be turned into a spoken account: everything, then, that can again be expressed or even thought in simple sounds or words. The fundamental purpose of writing is to convey ideas; but man was a designer long before he wrote and it follows that in his pictures, drawings, and arrangements the design factor took a prominent place from the beginning.

It is clear that writing was

not invented at any set time or place, but grew out of independent origins at different places and in various times in history. Every primitive people had a language and something resembling writing, as an early stage of actual writing or a substitute. All sorts of articles and arrangements were used to communicate beyond the limitations of time and place. Stone mementos were erected to recall the events of history; courier staffs, which had been carefully designed with carvings, were sent

through the country ahead of a war party; sticks or pieces of wood served as account sheets, the reckoning being given by the number of cut in notches and their pattern; the Incas of Peru conveyed information by means of the quippu, a varicolored complex of knotted strings; the American Indians used the wampum belt to commemorate their treaties and bargains. Such substitutes for writing have maintained themselves in various parts of the world until our own times. Actually, many of the signs and sym-

EXAMPLE OF PICTOGRAPH IN WHICH THE AESTHETIC EXPRESSION SEEMS THE DOMINANT URGE.



A SWEDISH ROCK TRACING OF REINDEER, ETC., POSSIBLY REPRESENTING A JOURNEY TO THE FAR NORTH BY THE MAN WEARING THE SNOW SHOES.

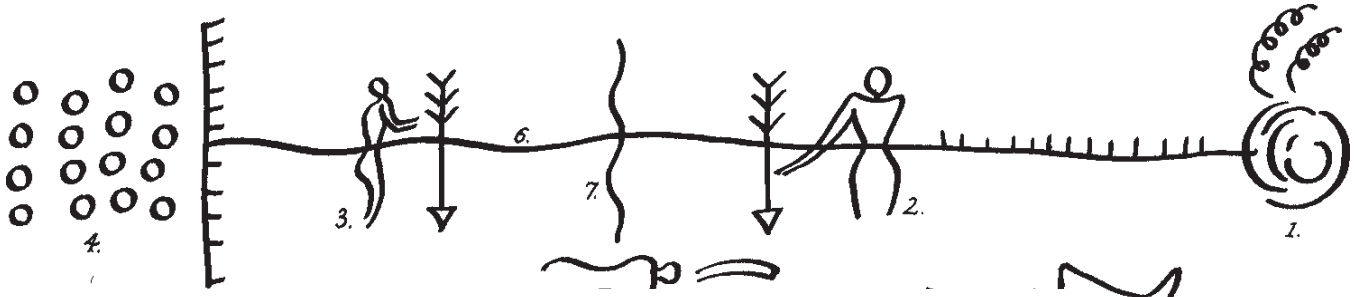
bols of daily life—the barber's pole, the three balls above the pawnshop—are related to the early stages of the development of writing.

Picture Writing

Writing grew out of pictures. Again, there was no isolated discovery. Picture writing was born out of the natural urge to imitate. A good many of these early pictures

represent not writing but aesthetic expression. It is impossible to separate clearly the need for expression from the desire to communicate news or knowledge. This dual nature of writing continues through the history of letters. There is always the possibility of aesthetic satisfaction beyond the mere setting forth of information. In its simplest state this picture

language is universal—it can be understood by everyone. What is represented is a chain of thought that is subject to varying interpretations by different readers. This is idea writing; an example may be called a "pictograph." The Norse rock tracing and the American Indian pictograph are typical of all such writing, whatever the period.



AMERICAN INDIAN WRITING OF A STORY OF A RAID BY THE OJIBWAYS ON THE SIOUX. (1) OJIBWAY CAMP; (2) OJIBWAY CHIEF; (3) SIOUX CHIEF; (4) SIOUX WIGWAMS; (5) PRAIRIE WITH A FEW TREES; (6) LINE OF MARCH; (7) RIVER AT SCENE OF RAID; (8) SLAIN WARRIORS; (9) ARM BROUGHT HOME AS TROPHY.

At the word writing or "ideo-graphic" stage, there is an advance to the point where every word-definite object or abstract conception is represented by a picture. The Sumerians, Chinese, Aztecs, Mayas, but notably the Egyptians in their hieroglyphs, all worked out word writing systems. Word pictures, as used by the Sumerians, Chinese, and Egyptians, are shown.

The remaining steps before the appearance of the phonetic alphabet may be followed best in the Egyptian writing, although the process was similar for all writing that went through a normal development. A word sound writing, in which the word symbols were compounded to make words in a rebus-like manner, was the next step: the symbols for man and drake, to take an example in English, would be put together to make the word mandrake. A simplification was also achieved by using the same symbol for words of the same sound, for homonyms. Finally, a system of syllable writing evolved; the symbol now represented the syllable and was consequently used in more elaborate combination. When it represents a sound or syllable, the symbol may be called a "phonograph." From this syllable writing

SUMARIAN—ABOUT 5000 BC



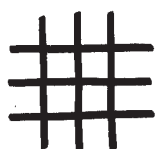
WATER



MOUNTAINS



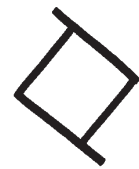
STAR, HEAVENS



NET, TEXTURE



EARS



SUN, DAY, LIGHT

EARLY CHINESE—ABOUT 2000 BC



CHILD



TREE



HEART



RAIN



DOG



FIELD

EGYPTIAN—ABOUT 3500 BC



WEEPING



SUN



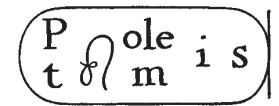
SWALLOW



FINDING



200 BC



CARTOUCHE OF PTOLEMY WITH EXPLANATION DIAGRAM

it was just a single step to the employment of the symbols alphabetically, something the Egyptians never quite achieved.

highly cultured, ancient peoples has survived mostly as relief carving in wood, stone, or some other durable material. Through these examples, which have

The picture writing of the

these examples, which have

escaped the ravages of time, we are able to follow the evolution of writing. The Rosetta stone, which was cut at a late date in Egyptian history—a bout 200 B.C.—is a remarkable example. By enabling scholars to compare the same text in Greek, demotic script, and hieroglyphs, it became one of the keys to the understanding of Egyptian writing. The cartouche of Ptolemy was copied from a reproduction of it; on the stone the cartouche is reversed, reading in the normal manner for Egyptian writing, from right to left.

Look at this picture writing of the early cultures, especially the Egyptian hieroglyphs, from the standpoint of design. Not only is a story being told, but one may enjoy the most fascinating display of flat design. It is noteworthy that these hieroglyphic symbols were arranged around doorways or in other positions to be read left to right or down in columns very much for the sake of design. Most Egyptian monumental inscriptions made use of hieroglyphs; the bulk of literature, letters, accounts, etc., however, was set down on papyrus or other materials, in hieratic or demotic writing.

Abstract Alphabet:

The greatest step, probably, in the history of writing, was the invention of phonetic writing. It is not possible to establish the first actual use of a phonetic alphabet. The last few stages of picture writing show the concern with phonetics, or the representation of sound; to portray the exact sound of the spoken language more accurately had been a constant objective. Not all

peoples had to make their own way through the difficult process of writing development. The Egyptians are remarkable in that it evolved almost entirely during the latter part of their cultural history, a period of some four thousand years. Three stages of writing ideographs, phonographs, and alphabetic symbols were used simultaneously in the later writing; the Egyptians never altogether discontinued any one method, but carried the old along with the new. With the other peoples of the eastern Mediterranean the situation was different. Alphabets were passed from one people to another, so that the receiving people could build upon the foundations of those who gave; writing systems influenced each other or were combined. The Phoenician writing, for example, shows possible influences from Babylonian, Egyptian, and Cretan designs. The inventors of many writing innovations remain unknown. In estimating the cultural achievements of any people it is not very important that they invented their own writing system. The main consideration is: what the people in question accomplished in their own or the borrowed writing.

The change that took place in the appearance of the symbols is of importance; our major interest is based on them as designs; in fact, the heading, "Abstract Alphabet," was deliberately chosen to convey the idea of abstract designs. The final alphabet, far removed from realistic pictures, is usually called the phonetic alphabet. In Egyptian writing, the symbols, which at first had been realistically pic-

torial, were gradually stylized. This, however, had little to do with phonetics, but was a simplification employed by the scribes for their own convenience. Finally, the symbols became abstract. This process may be followed in the illustrations of the Egyptian hieratic and demotic scripts. It is well to remember that each of our letters is also an abstract design—it can be traced back through various stylizations to a picture.

The Greek Alphabet:

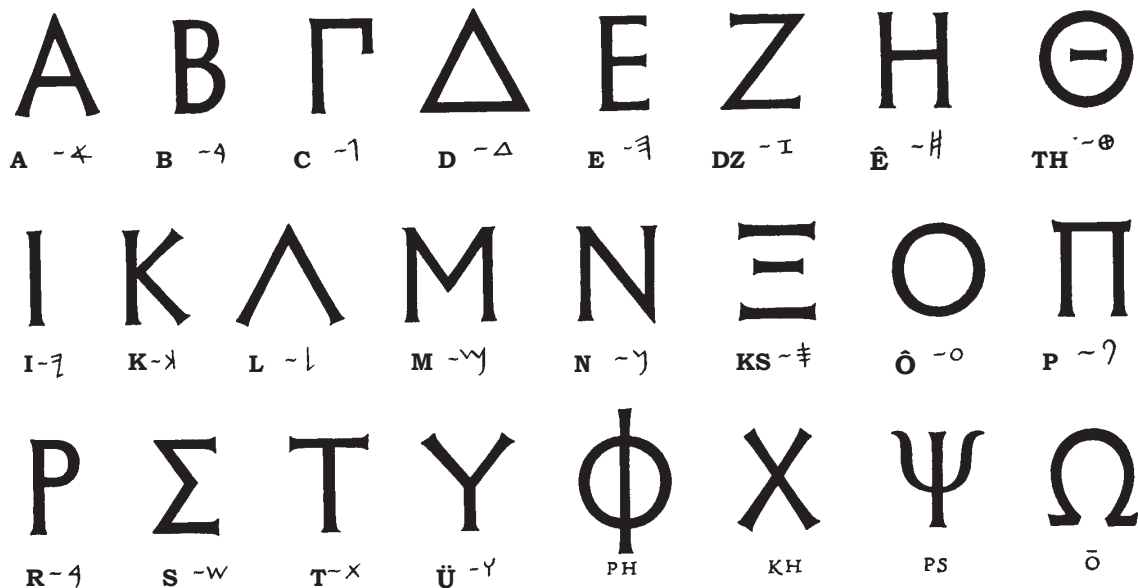
Our alphabet really begins with the Greeks. It is generally conceded that they borrowed it. From whom and by what process remains the basis of endless disputes among paleographers. The first Greek inscriptions using this alphabet date from about 800 B.C.; but it must have been adopted and used at an earlier date. On the whole, the theory that the Phoenician style of the North Semitic writing system afforded the source for this borrowing seems the best, though there are others. A comparison of the Phoenician and classic Greek alphabets is shown in the illustration; naturally there is a considerable difference, for the Greeks made gradual changes. One of these was the change from right to left writing, to the method we use now; the Phoenician letters—as they may now be called—are facing in the direction handiest for right to left use. As often happened in the history of letters, there was an intermediate stage: in this, alternate lines of an inscription read first one way and



PHOENICIAN READS RIGHT TO LEFT—SMALL KEY LETTERS GIVE ONLY APPROXIMATE VALUE.



CLASSIC GREEK ALPHABET AFTER 400 BC—NOTE RELATION TO OUR OWN AND PHOENICIAN ALPHABET.



THESE FOUR LETTERS AND THE VOWELS WERE GREEK ADDITIONS



GREEK CURRENT WRITING COPIES FROM A DOCUMENT OF 101 BC. THE JOINED LETTERS AND THEIR RELATION TO THE ROMAN CURRENT WRITING IS NOTEWORTHY.

then the other. This writing was called "boustrophedonic," that is, turning like the ox at the plowing.

With their alphabet of twenty-four letters the Greeks established the course of western culture; they provided an alphabet suitable for all the Indo-European languages. This was done

simply by providing definite symbols for the vowels, which, in these languages, are important.

The Egyptian and Semitic alphabets had been made up of consonants with inherent vowels, a system unsuitable for the accurate recording of the sounds of speech. At first there were

various Greek alphabets, but in 403 B.C. the Ionian version was made the standard; in the age of Hellenism it was widely disseminated by the Macedonian invasions. Alpha and Beta, the first two Greek letters, show the source of the word *alphabet*.

In studying the designs of

the Greek letters, the influence of geometry and Greek design in general should be considered. The severe, classic letter, a style suited to "incised," or cut in letters, was employed for inscriptions and some manuscripts. These manuscripts were written on the papyrus of the Egyptians or, at a later date, on parchment. Our word paper comes, in one way or another, from papyrus; parchment is derived from Pergamon, the name of the city in Asia Minor where this writing material is said to have been first used. As early as the third century B.C., an Uncial letter seems to have found a place in manuscripts. This style, as will be seen later, was of importance in the later history of letters. A much freer, flowing hand was employed in everyday writing. These everyday hands will be called "current"; they are important in the evolution of small letters at a much later period of history.

The Roman Contribution

Capitals:

The most publicized inscription is undoubtedly the one on the base of the Trajan column in Rome, cut into the stone about the year 114 BC. What the inscription says is, oddly enough, of little interest to most of the people who have written about it; their minute examinations and fervent admiration are devoted the design of the letters. Of course these letters are remarkable; but, they are typical of all the inscriptions made at this time

within the aches of the Roman imperium. These letters were not "built in a day" anymore than was Rome; they represent at least seven centuries of development, from Etruscan times to this era of the power and glory of the Empire. They are perfect in function, as a good design should be, conveying that sense of power and glory perfectly.

The Romans borrowed from the Greeks through the intermediacy of the Etruscans.

While the Etruscans always wrote from right to left, the Romans changed: first to the boustrophedonic system; later, to the procedure from left to right, following the Greeks. Roman letters evolved along with their architecture, as a part of the general feeling for design. One should realize that the history of letters is always a part of the general history of style. In the case of the Romans, the connection between these rounded letters, and the arches, vaults, and cupolas of their architecture is



THE CLASSIC ROMAN CAPITALS—
FROM THE TRAJAN COLUMN
INSCRIPTION IN ROME, ABOUT 114
AD.

obvious.

The A, B, C names for our letters seem to have been given to them by the Romans—possibly by the Etruscans before them. These names were the final result of the “acrophonic principle”: at an advanced stage in the development of letters the word-symbol was used to illustrate the first letter of a word, the symbol retaining, however, the word as its name, as in the Semitic alphabets. An example in English would be to illustrate the sound of M by the symbol for Man, because Man begins with M. The letter M, however, would still be called Man. The Greeks, when they adopted the Phoenician alphabet, followed the Semitic names for the letters quite closely: ‘Alph became Alpha; Bet, Beta; etc. At some point between the period of the Etruscan borrowing and the development of the Roman alphabet, the Greek names were dropped in favor of the easier A, B, C designations.

The Trajan capitals shown here were copied from carefully selected studies of the inscription. Letters cut into stone are called incised; black letters on white paper do not give the same effect; but the effect that is achieved—magic symbols skillfully or knowingly arranged on a clean ground—is the one that has fascinated mankind since the dawn of time. It is this effect, in the most inclusive sense, with which this discussion is alone concerned.

The letters H, J, K, U, W, Y, and Z are not to be found in the Trajan inscription; they have

been added to the alphabet to suit the style of the other letters. The J, U, and W were not contained even in the classic Roman alphabet; the design of the consonant J was differentiated from that of the vowel I about the fifteenth century; the vowel U, from the consonant V beginning about the tenth century; the W, which is really a ligature, VV, derives its name from the use of V as U in twelfth century England therefore, VV is “double U.”

The arrangement on the page is in letter families. These relationships should be carefully studied and the angles and explanatory dotted lines noted. In the first line the kinship is established by the V, which in each letter has approximately the same angle at its vertex. The letters in the second line are all based on an almost full circle, with a certain flattening of the top and bottom rounds in the C, D, and G. Narrow letters occupy the third line; here the relationship is mainly one of width, although for practical purposes E may be considered the basic pattern for F and L to a limited extent B is the pattern for P and R; the S is based on two tangent circles, one above the other. K, X, and Y all have junctures at the midpoint; the angle and position of each juncture should be noted. The letters in the fifth line are all related to I; that is, they are based on the single upright stroke. N and Z are both letters that depart from the logic of thick and thin strokes; actually, they have the same design in different positions. In the Trajan letters the crossstrokes are slightly above

center, at the optical center, the A, F, P, and R being excepted for optical reasons.

The width of any letter and its relation in this respect to the other letters of the alphabet is a fundamental part of the design of the letter. This principle applies, for these letters, to the weight of the strokes also: about one tenth the height of the letter is the weight of the heavy stroke the light stroke is one half to three quarters of this again. This variation of light and heavy strokes comes about quite naturally through the use of a square cut pen or brush held at an unvarying angle to the work. Another result of the use of the pen or brush is the “serif,” the spurred or bracketed ending to the strokes. It is generally agreed that the Trajan capitals were painted on the stone with a square cut brush and then incised by the stonecutter.

The incised Roman capitals have had, and still have, the greatest influence on the design and use of capital letters. They have remained the classic standard of proportion and dignity for almost 2,000 years, and seem destined to continue in this function for some time to come. Many attempts have been made to tamper with these designs, to condense or expand them, to equalize their varying widths; but the results have been generally poor. This does not mean that these models must be copied slavishly, but the basic Trajan designs should be studied until they are familiar.

Many attempts have also been made to find a system for

making these letters; mathematicians, artists, and designers have tried to work out construction formulas for capital letters. The Roman capitals, however, evade all efforts for capture by exact rules.

Roman Manuscript and Everyday Writing

Quadrata Square Caps:

The Roman capital "capitalis," as the inscriptional letter was called, appeared in a pen

variety named the "quadrata," which was made with a square cut reed or quill. Square capitals were used for such splendid Roman manuscripts as the Virgils of the fourth century. Since this style demanded rather painstaking work on each letter, writing a manuscript was a slow process; it is only natural that a style that flowed more readily from the pen should have displaced it. The rustica, a style that is obviously easier to write, took the place of the square capitals in the fifth

century. They were never again employed as a text letter in manuscripts; their use continued, however, in special pages, headings, and as initials. Gradually, over the centuries, they assumed the function of the capital letter as it is found today in our writing, lettering, and printing. The square capitals in the illustration were copied from a facsimile page of a fourth century Virgil. They are approximately the size of the original letters. In the upright stroke of the L, which rises above the other letters, is indicated the beginning of the evolution of "minuscules," or small letters the capitals are often called "majuscules."

NONALITERQVAMIQVIA

SQUARE CAPITALS—4TH CENTURY. EXCEPT FOR THE INITIAL, THE LETTERS ARE FREELY WRITTEN WITH A REED PEN HELD AT AN ANGLE.

REMIGIISSVBIGITSIBRACC
AIQILLVMINPRAECEPSFHK

RUSTICA—5TH CENTURY.

FELICESOPERVM·QVINIAM·FV
EVMENIDESQVESAE·TVMPAR
COEVM·OVE·LAPETVMB

THE SAME REED PEN WAS USED FOR THE RUSTICA. LINES OF SQUARE CAPITALS WERE HELD APART A DISTANCE SLIGHTLY GREATER THAN THE HEIGHT OF THE LETTERS, BUT THE RUSTICA WAS WRITTEN OFTEN IN LINES MUCH CLOSER TOGETHER. THE DOTS INDICATE THE BEGINNING OF PUNCTUATION.



QUALISADINSTANTIS SIGNA
IVBAE·CLASSESQ·FRHHOP·SUVX

λ d c D d e f G h i k L M M N O P
q r s t u

"OLDER" ROMAN CURRENT WRITING, ABOUT 50 BC. LINES 3 & 4 ARE "CURRENT CURSIVE". THE LAST LINE IS "LATER" ROMAN CURRENT, ABOUT THE MIDDLE OF THE 4TH CENTURY.

X Y S T I C O R U M E T T H O M N I B U S

Rustica:

The derivation of the name "rustics" for this freely written, rather elegant letter has never been clearly explained. The style is anything but rustic. Most of this fourth and fifth century writing seems to have been influenced by Greek artistry and craftsmanship. Brush lettered verses, mottos, and the like produced in this style, were found on the walls of buildings in Pompeii; but the letter as used in manuscripts was written with a square cut pen, generally held between the index and second fingers, as illustrated. This manner of holding the pen accounts for the thin upright and thick cross strokes, as well as the lateral compression of the rounds and the left to right drag in the curved strokes. The letters in the illustration were freely copied from fifth century examples; it is apparent that more letters began

to venture above their neighbors, notably the F and B. The rustica in turn was displaced as a manuscript letter by the uncial; but rustics were used in manuscripts until the eleventh century serving as initials or for emphasis in the line, as italics or small capitals are now used by the printer.

Everyday Writing:

The “current,” or everyday, writing has had, throughout the entire history of letters, the greatest effect in the working out of new and simpler styles. It is really from these current styles that the minuscule letters finally evolved. The Romans used this everyday writing for their correspondence, accounts, and informal manuscripts, examples having been found on lead and wax tablets and on papyrus. These letters were written with a stylus or a stub pen, held, usually, as for rustica; there was, due to the tool, little variation in the width of the strokes. Through rapid writing the letter designs degenerated; and in order to help the legibility certain letters were carried above or below the general level of the others. This tendency, as has been indicated, had an effect on the formal manuscript letters. It must be understood that the development of letters very often went the way of least resistance—the way of carelessness and bad habit. This is the explanation of phases in the evolution of letters that are peculiar or illogical.

The “older” Roman current letters shown are of about the same period, 50 B.C.; in the

differences between the upright current and the “current cursive” may be seen the degeneration of design and the tendency of the letters to acquire “ascenders” and “descenders.” (The ascender may be defined as the stem that rises above the body of the letter; the descender as the stem or tail that drops below the body, the body being typified by letters, like a or c, that do not have ascenders or descenders.) There has been a certain confusion of nomenclature attached to Roman everyday writing. Often it has been called “cursive,” a name that strictly speaking, can be applied only to letters written at a slant. Not all everyday writing, Roman or other, is written at a slant. To avoid difficulty it is best to call all everyday writing “current”; if it also slants it is “current cursive.” This makes the necessary distinction between everyday writing or lettering that is upright and the kind that slants or leans. It also makes possible the use of the term cursive for carefully drawn letters, or types, that slant. The older Roman current was a rapidly written majuscule letter; minuscule tendencies and “ligatures,” or joined letters, developed in the third and fourth centuries with the later current style. All cursive writing, of course, is the result of the natural tendency of the hand to move in the direction of the writing, especially when writing rapidly.

Uncials:

The uncial letter was used by the Greeks as early as the third century B.C.; during the

Alexandrian phase of Greek culture, which lasted until about 500, this style was much favored. The Romans undoubtedly borrowed the style from this source and gave it the name “uncial,” which is explained by the simple fact that these letters, in some of the early manuscripts containing them, were an “uncia,” or a Roman inch in height. Later uncials were far from uniform in height, but the name persisted, as is so often the case with names.

The uncial, as it was first employed by the Romans, was a rounded, freely written majuscule letter, much more suited to the rapid penning of manuscripts than were the square capitals or the rustica. Test letters of the style are A, D, E, G, H, M, Q, and V, which begins to look like U; these are new designs—it was largely the influence of current writing, both Greek and Roman, that produced them. The examples of early uncials were copied from facsimiles of a fourth century manuscript; letters not appearing in the original have been added. Signs of the evolution toward minuscules are to be found in the new designs already mentioned and in the rudimentary ascenders and descenders of the letters D, F, G, H, L, P, and Q. Early uncials were written with a slanted pen; but in the sixth century the straight pen style of the Greek uncials was adopted; the appearance of this later uncial is shown in the illustration. The effect of pen position on the design of letters may be studied by referring to the small pen diagrams; the work is assumed al-

a d e c h m g u
 o f c h l p q

PEN POSITION

4TH CENTURY UNCIALS DRAWN WITH REED PEN.

TRANSIERUNT JORDANE
 ET ABIERUNT TOTAM PRÆ ← LIGATURE
 IN CASTRAM ADIAM ET K X Z

S C J E N D U M T A M E N
 N E Q U I S T G N A R U M E X S J

POSSIBLE
 WRITING PEN
 POSITIONS 1 2
 SKEWED
 PEN TIP

↑ THE THICKNESS AT TOP OF ASCENDER IS MADE BY PUSHING THE PEN UP, THEN MAKING A DOWN-STROKE.

INSTAURATIO · NULLA TRANSLATI

WORD BREAK
 INDICATORS

SIGNATUR · NONAURUM · CETERA

POSTREMO · NIHIL QUOD PRAETERA

ADUENTICIAE b f h k x z

PEN POSITION

HALF-UNCIALS, 7-8TH CENTURY
 AS COPIED WITH A REED PEN.

17: þ þ R: * 1 1: þ þ þ 1 R: þ þ 1: þ þ R þ:
 þ 1 þ þ 4 1 þ þ 1: þ þ þ R: R þ þ 1 þ þ 1:
 þ R: þ þ þ R: * þ þ * þ R: 7 þ *: 1: þ þ þ:

THE "FUTHARK" ALPHABET—THERE IS A RELATION TO THE GREEK LETTER FORMS

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



IRISH HALF-UNCIALS, 9TH CENTURY. THE INITIAL LETTERS ARE CHARACTERISTIC OF CELTIC DESIGNS AND HAVE A RELATION TO THE RUNIC DESIGNS.

e autem prægnantibus &
 nutritibus in illis diebus ::
 ecce autem ut non fiat putra
 uestra hinc uel sabbato
 rit enim tuum tribulatio magna
 quælis non putat abire tuo mihi
 diuque modo neque fia ::



Quis breuiata fuissent dies

dx z z

LETTERS NOT IN TEXT.

THE IRISH HALF-UNCIALS WERE WRITTEN WITH A SLIGHTLY SLANTED REED PEN. THE INITIAL LETTERS ARE CAREFULLY DRAWN.

ways to have been placed horizontally in front of the writer. Some of the straight pen uncials in the more elaborate manuscripts were “built-up” designs that is, they were made of compound, instead of single strokes. This was a laborious method of writing a manuscript, but persisted until almost the ninth century. For special pages and for initials, the built-up technique was invariably used even after this date, both for uncials and square capitals.

Half-Uncials:

Semi or half-uncials have been found in the Roman area dating back to the third century; but there is a long period, between that time and the sixth century, which has afforded no examples of writing in this style. The half-uncial obviously shows considerable influence from the more evolved style of current writing then in use; and it is a step further in the trend toward minuscule letters. A comparison of the half-uncials illustrated with the later current and the uncials will amply confirm these observations.

All the earlier letters could be planned and confined between two guide lines; but the half-uncials, as is apparent, required four guide lines or at least sufficient allowance between lines for ascenders and descenders.

New designs appear among the half-uncials: the loop of the a is brought up to the top of the back stroke; r is a partly finished majuscule design, with the top loop swung to the right in a

broad sweep; s has been flattened and made an ascending letter this is the long s of early English books and of the German text; most of the other letters show their derivation from uncials, except that ascenders and descenders are now definitely a part of the design. The upper loop of the B has been omitted; d has acquired a perpendicular stem; the top of the e has now been closed; l is now simply an ascending stem; F has not as yet found its place; and T has still to develop its cross.

The history of uncials and half-uncials is part of the history of the Christian Church from the fourth century to the ninth; they were essentially “church letters.” The association has been so strong that it has limited the usefulness of both designs to work having to do with ceremonies or festivities of a religious nature. Christmas or Easter cards may be lettered in these styles; the calligrapher will certainly choose them for church manuscripts. There is no rule, however, which prevents their selection for other purposes; taste and discretion must decide.