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ANATOMY  
OF A  
TYPEFACE

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## OPTIMA AND THE HUMANIST SANS-SERIF TYPES

Type designers have made numerous attempts to create a sans-serif type that could be considered both beautiful and utilitarian. It was the latter requirement that had shaped the sans serifs that were originally produced early in the nineteenth century, but the prosaic typographic needs of the Industrial Revolution brought forth types containing features of little aesthetic interest.

For the better part of a century, sans-serif types tended to be unimaginative renditions of roman letter forms, although it was discovered that their monotone characteristics did allow for variations of weight and width that would have been more difficult to achieve with their roman counterparts. In Europe these sans serifs were termed 'grotesque' and in the United States 'gothic' quite soon after their introduction. This unfortunate nomenclature was probably due to their weight, which indeed was similar to that of the black letter—the truly gothic fifteenth-century forms—but the term also expressed the disdain of printers for the early serifless typefaces.

This attitude changed abruptly during the 1920s when the Bauhaus typographers selected the sans-serif structure as the most expressive icon of their functionalist ideals. But the types of geometric construction that emerged from the Bauhaus experiments were, of course, considerably removed from the so-called gothics and thus served, in fact, to further alienate typographic designers from the older style. Meanwhile, the traditional typographers, particularly those who espoused the post-Morris canons, severely criticized the geometric typefaces, censuring them as gross caricatures of roman letter forms and as both unreadable and illegible.

Unquestionably, the nineteenth-century gothics were plain letters. In most instances—the traditionalists notwithstanding—the new geometric styles were considered a great improvement over them, particularly by typographers who appreciated the asymmetric designs of

ABCDEFGHIJKL

MNOPQRSTU

VWXYZ

abcdefghijklmno

pqrstuvwxyz

1234567890

Optima (Stempel)

the Bauhaus. But the idea persisted in some circles that it might also be possible to combine the forms of roman and sans serif in an aesthetically acceptable type.

One of the first type designers to experiment along such lines was R. Hunter Middleton, then a young man producing types for the Ludlow Typograph Company in Chicago. In 1929, when interest in the sans serifs was at its peak, Middleton drew Stellar, which thus became the first new sans serif to be produced in the United States.

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# LEIPZIG SPRING FAIR 1936

ROOM XII

# PRINTING MACHINERY SHOW

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Offenbach design of Rudolf Koch for Klingspor foundry

In its lightface weight, Stellar has much to commend it as a reasoned attempt to blend the spirit of a graceful roman type with a serifless structure. But its appearance at the very moment when American typographers were captivated by such geometric types as Futura and Kabel militated against any success it might have enjoyed.

In Europe, the German Rudolf Koch, who had designed the Kabel series of geometric sans serifs, now turned to a sans serif of roman inspiration and drew Offenbach. This was a pen-drawn roman, and though it was widely admired, its lack of a lowercase alphabet restricted its use.

A decade after the introduction of the geometric types of the 1920s, there occurred a slight reaction to their overuse. The American Type Founders Company accordingly accepted the design for a romanized sans serif brought to the firm by a young American named Warren Chappell, who had studied with Rudolf Koch in the early thirties. The resulting type, Lydian, was introduced in 1938 and was an immediate success. It was highly regarded as a display and advertising type for twenty years after its introduction. Chappell supplied a very legible oblique italic, which he followed with a chancery italic drawn for the bold weight only. The design has been transferred to the film composers and is still in wide use.

But during the 1950s a sans serif emerged that gripped the attention of typographers as the most satisfying blend to date of the best features of both the roman and the sans-serif structures. This was the Optima design of Hermann Zapf.

Zapf—now the most prolific of the world's type designers as well as the most widely known—first began to think of such a type in 1950. He has written, 'The type of today and tomorrow will hardly be a faithful recutting of a 16th century roman of the Renaissance, nor the original cutting of a classical face of Bodoni's time—but neither will it be a sans serif of the 19th century.' He was familiar with Italian inscriptional lettering and, along with other typographers who have admired the fifteenth-century sans-serif characters on the tombs in Florence's Santa Croce, he was entranced by their classic forms. Inlaid in green marble in the floor of that church, these circular inscriptions were cut about 1530; they are the product of sensitive artists attempting to vary the existing roman styles. Zapf had also made sketches of the inscriptions on the fourth-century Arch of Constantine in Rome.

Another source of serifless inscriptions is the Schiattesi tombstone

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VWXYZ abcdefghijklmnopqrs  
tuvwxyz 1234567890  
.,-:;!?\$&

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Lydian (ATF), designed by Warren Chappel for American Type Founders Co.

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ABCDEFGHIJKLMN OPQRSTU  
VWXYZ&  
abcdefghijklmnopqrstuvwxy  
z  
1234567890

ABCDEFGHIJKLMN OPQRST  
UVWXYZ&  
abcdefghijklmnopqrstuvwxy  
z  
1234567890

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Stellar (Ludlow), designed by R. Hunter Middleton for Ludlow Typograph Co.

in Rome, dated 1423. Here designers can readily observe a possible inspiration for the twentieth-century letters drawn by the English Edward Johnston and the later adaptations in England by Eric Gill.

In several other Italian inscriptions, dated 1423 and 1430, the letters are unserifed but have strong thick-and-thin contrast. It is this style, sharing equally the best features of the roman letters and the sans serifs, that inspired Hermann Zapf to begin experiments that resulted in one of his most successful types. He began his Optima designs in 1952 and spent some six years in their development.

In 1954, while working on this project, Zapf took the suggestion of Monroe Wheeler, of the Museum of Modern Art in New York, and began to consider adapting his developing letter as a book type. He thereupon changed the proportions of the lowercase, and by means of photography (working with Ed Rondthaler at Photolettering, Inc., in New York), he tested the suitability of the design for continuous-reading application. The capitals of Optima, as Zapf has stated, follow the proportions of the Trajan Column inscriptions, which date from A.D. 113 and serve as the best model of Roman majuscules.

Zapf also said that Optima is the first German type not based on the standard baseline alignment established in 1905. Zapf writes: "This base line is too deep for a roman, as it was designed for the high x-height of the Fraktur and Textura letters. Thus, too many German types have ascenders which are too long and descenders which are too short. The proportions of Optima Roman are now in the Golden Section: lowercase x-height equalling the minor and ascenders—descenders the major. However, the curved lines of the stems of each letter result from technical considerations of type manufacturing rather than purely esthetic considerations."

All of these details under Zapf's sure hand have been successfully attended to, with the result that Optima is today widely used not only for display composition but also for continuous reading, for which its contrast of stroke makes it more adaptable than the monotone sans-serif types. The regular and the medium weights show to best advantage the classic principles called upon by the designer. In the variants of the face, the semi-bold and the black, the nineteenth-century gothic characteristics seem to dominate, although these weights are meant to be complementary to the regular one.

Optima was first manufactured in 1958 in a foundry version by Stempel of Frankfurt, and shortly thereafter in linecasting matrices by America's Mergenthaler. It made its debut that year at the Drupa

exhibition in Düsseldorf. Like all popular new types (particularly those of Zapf), Optima has been widely pirated for use with competing photographic typesetting systems. It is now sold under several names, and the results are frequently very unhappy.

In a discussion with the writer, Zapf admitted a preference for Optima over his other types, but he has also observed in print that a father should not have to select a favorite among his daughters! If left to his own devices, Zapf would have called the type, in a straightforward manner, New Roman, but the marketing staff at the foundry insisted on naming it Optima. By any name, it is a splendid addition to the resources of twentieth-century typographers.

In 1929, when the geometric sans-serif types revolutionized commercial printing, the emphasis in their development was quite different from that of roman types. For traditionalists the new styles, no matter how functional, were still without any aesthetic merits. The astute Stanley Morison said of this period that 'typography was in a *cul-de-sac* and life could only be wrung from the letterforms by torture.' Daniel Berkeley Updike had not given consideration even to the nineteenth-century gothics in his monumental *Printing Types* of 1922. Indeed, in the chapter 'The Choice of Types' he asked, 'And what are the types we ought not to want—which have no place in any artistically respectable composing-room?' He then proceeded to name the outlaws, lumping sans serifs with fat-faced romans, hairline types, and almost all ornamental types. In the second edition of this text, published in 1937, the typographic pundit was confronted with the sans-serif explosion. But of it he merely said that he had nothing to add or take away from his original remarks, 'save that if sans serif fonts must be had, the medium Futura of Paul Renner or the Gill Sans may be used.'

In 1929 William A. Dwiggins became involved with a sans-serif typeface. Following a conversation on the subject with Dwiggins's cousin Laurance B. Siegfried (a distinguished figure in American printing until his death in 1978), Mergenthaler's Harry Gage visited Dwiggins at his home in Hingham, Massachusetts. There ensued some correspondence, with the result that Dwiggins was engaged to draw a sans-serif type for Mergenthaler.

Dwiggins, then forty-nine, had a solid reputation as a book designer, calligrapher, illustrator, and advertising typographer. As a young man he had studied lettering with Frederic W. Goudy in Chicago and later produced a number of designs for Updike's Merry-mount Press. His connection, as of 1926, with Alfred A. Knopf's

Stems — Somebody is sure to try this pretty soon, sans-serif — a mechanically finished c. s. body-letter of good design

Binder rate bp

These are experimental — not perfected — but there is an idea hidden in this somewhere.

tram and und

lc x 12 pt could be close-fitted and still legible

5 stems 0.013 S too heavy

0.0045  
0.007  
0.011

Districted DID

immoderate fgh

too close fitting bad JPP S not up to weight  
f. much condensed, 1. border in it  
Modelled sans-serif that might be interesting intended to be close-fitted — experimental showing WAD March 21 1929 10 x 14 pt

publishing firm resulted in the design of hundreds of books that established Dwiggins as the indisputable leader in American trade book design.

Mergenthaler's interest in the production of a sans-serif type was to satisfy the requests of its customers; to supply a type in the Futura mode to be made available in matrix form. The collaboration with Dwiggins was most successful: from it came the popular type family Metro, cut in 1929, which is still used in newspaper typography.

W. A. Dwiggins was happiest with traditional forms, but his lively imagination and whimsical approach to design freed his thinking from the conservatism expressed by so many contemporary type designers. Whereas his old teacher, Goudy, was a purist in letter design who never fully accepted the technical modifications of manufacturing, Dwiggins felt that he had a good deal to learn from the engineers responsible for the transfer of drawing to matrix; moreover, he thoroughly enjoyed working with them.

Although Dwiggins had satisfactorily met the demands of the Mergenthaler firm, he was also eager to generate a sans-serif type along somewhat different lines. This letter would be far removed from dependence on geometric principles or the concepts of the nineteenth-century gothics. In fact, what Dwiggins really wanted to design was a sans-serif type with a humanist structure.

Since the center of the sans-serif revival was in Europe, Dwiggins at first investigated the possibility of designing such a type for a European typefoundry. Working through Melbert B. Cary, Jr., president of the Continental Typefounders Association—an import house connected with a number of the European firms—he prepared a few drawings to demonstrate his tentative ideas. Shortly after this, however, Dwiggins decided that the Atlantic Ocean was too formidable a barrier for effective type design and so abandoned his hope of finding a European foundry.

The stats of the sketches Dwiggins made for Cary are contained in the Melbert B. Cary, Jr., Graphic Arts Collection at the Rochester Institute of Technology. Dated March 1929, the drawings show a sans-serif type with definite roman characteristics. Dwiggins had prepared these sketches in his own preferred manner, by cutting stencils for stem weights, curves, arches, and so on, and 'getting a focus' by combining related elements of letter anatomy. This is also the procedure he employed in constructing the elements of his inimitable ornaments, used with such success in his book design.

Several years later, when Dwiggins had become more involved in the design of types, particularly for book composition, he changed his method, drawing letters with a brush or pen to a size of ten times 12-point. In this he followed the style of his former teacher, Fred Goudy, who also drew freehand to a large size.

In the drawings prepared for Cary, Dwiggins noted, 'Somebody is sure to try this pretty soon, san-serif [*sic*]—a mechanically finished o.s. body-letter of good shape. These are experimental—not perfected—but there is an idea lurking in this somewhere.'

So when Mergenthaler Linotype approached Dwiggins for a sans serif, the designer immediately thought of his earlier ideas. Unhappily the firm was not prepared to break new ground. Though its customers were persistently demanding a 'new' sans serif, of course what they really wanted was a geometric style in the pattern of Futura. Dwiggins, always practical, bowed to the unavoidable requirements of the marketplace. His Metro design therefore followed the Futura idea in the capitals, though departing from it in the lowercase; Rudolf Koch, another traditional type designer, had done the same with the Kabel type. Dwiggins had earlier commented on the geometric sans serifs: 'They are fine in the caps and bum in the lowercase. I don't know if you can make a Gothic that is good in the lowercase, but we might try.'

Once the Metro design was launched, Dwiggins again turned to his dream of a sans serif with classic proportions and style. The earliest evidence of this continuing interest that the writer can discover appears in a letter dated January 4, 1930, addressed to C. H. Griffith, at that time assistant to the president of the Mergenthaler Linotype Company. Here Dwiggins states: 'I shall send you a few more characters of that experimental face of mine. [Harry] Gage took down to you some stencils of a modelled san [*sic*] serif that you were to try experimentally but it has been side-tracked. I have a hunch that it may be important (listening to the whispers among the younger set), and maybe it would be well to dig it out and look at it.'

During the next three years Dwiggins produced numerous drawings for a humanist sans serif, and Mergenthaler produced matrices for a sufficient number of characters to obtain a realistic idea of the final appearance of the design. But after several attempts to evolve a satisfactory style (all of which were, in Dwiggins's phrase, 'drowned' by the manufacturer), the company turned to other matters. Dwiggins, however, persisted. By 1931 he was back at the drawing board, and he wrote to Mergenthaler:

It seems that I can't keep away from the 'modelled san-serif,' [sic] partly because I think there is something valuable to be done along that line, and partly because the 'young ones' keep howling for a face, sanserif, [sic] that can reasonably be used for body-matter in a book.

I enclose the latest effort, which I send with no suggestion that it be cut, but that you lay it in the portfolio and take a look at it now and then.

One of the secrets of success in such a face would be great finesse in fitting. With no serifs [sic] the exact relation between black mark and white paper becomes even more important than with usual characters. For every two black bands of a given weight, there is just right white to go with them, e.g., in rules scheme. I think these san-serifs [sic] could be fused into a correct color by finding out just that right white interval. If it were formed between straight stems the round letters could be brought into position to meet it, couldn't they? I should suppose that there is a formula that controls that: if the m, n, interval is so much, the m, o, interval will be so much?

The straight-stem interval in Met Black and Met Medium struck me as very well calculated.

Mergenthaler finally got around to cutting a few characters of this type, labeling them '12-point Experimental No. 63.' On May 24, 1932, Griffith wrote Dwiggins as follows:

Dear Bill:

Experimental No. 63 Modelled Sans Serif. Further to your comments on the above and in answer to your query I am frankly of the opinion that Experimental No. 63 can be nothing else than a 'stunt' face. At the moment I cannot bring myself to the point of feeling that it has any immediate sales value; or perhaps I should say that I do not regard it of sufficient importance to interfere with the development of Electra or the development of your ideas with regard to a face on the Scotch base.

On the other hand I cannot get away from the feeling that there is an important place somewhere for a Modelled Sans Serif and I do not think that we should let it get away from us altogether. Two or three young designers who have recently returned from a sojourn in Germany have told me that our German contemporaries are searching for a model of this kind and that it is a live topic of discussion. They all seem to feel that the key to the solution of the problem is just around the corner; but they are unable to find it. I recall that you used the identical expression a year or so ago. I heard it again today from a young man who had just returned from a year's study in Germany with Dr. [Rudolf] Koch. So let's not drop it altogether.

Dwiggins replied to what was beginning to appear to be Lino-type's final rejection of the whole concept of the modeled sans serif:

Your comments are entirely correct. For myself I am not awfully thrilled. In spite of the clamor of the 'young' typographers, I doubt if a san-serif [sic] body letter will work. This one looks flea-bitten - like a hand-lettering plate that had been over-etched. Metroblack and Metromedium carry the eye on

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Aa Bb Cc Aa Bb Cc

Albertus Light 534

Albertus 481

A B C

ABCDEFGHIJKLMN OPQRSTU  
VWXYZ & £1234567890

Albertus Titling 324

ABCDEFGHIJKLM

Albertus Bold Titling 538

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Albertus, designed for English Monotype by Berthold Wolpe, 1932

the line because of the thickness of the stems. It seems that anything with lighter stems than Mblack and Mmed. requires the serif [sic] stroke to carry the line. Metrolight, e.g., doesn't work as a body face at all well.

I will follow your lead as to further experiments with No. 63. If you think it worthwhile, there are things that are plain to be done. My query would be: can it be anything else than a 'stunt' face? If a stunt face looks like sales to you, good enough, let's go. But don't let's go on my account. 'Within me is more.'

Attached to this letter in the files of the Griffith-Dwiggins correspondence, at the University of Kentucky, is a handwritten note from WAD, dated May 27, 1932, which might very well be the final comment on a humanist sans-serif type by one of the greatest of American type designers and graphic artists: 'On the strength of your comments I will not let the idea die. Using that last experiment as a point of departure, I'll try some more twists. But as you say, do Electra stuff, etc., first. If it is possible to make a sans serif body-letter that the American public can read without noticing the fact that it is reading, we are the ones who can do it. Yes?'

The idea did not perish but what did come to an end was the opportunity for William A. Dwiggins to accomplish something that was very close to his heart—a sans-serif type based on humanist roman forms.

The ‘modelled sans serif’ that Dwiggins so hoped to produce was finally and superlatively drawn as Optima by the thirty-four-year-old Hermann Zapf in 1952. In 1969, the writer showed Zapf the Dwiggins drawings in the Cary Collection, and they were a revelation to him. Zapf could only shake his head at the coincidence of inspiration between himself and Dwiggins, thirty years and four thousand miles apart. Zapf fully agrees that the success of a printing type depends on numerous factors other than the skill of a designer, and proper timing is one of the most essential. The Dwiggins experimental sans serif, like Middleton’s Stellar type, is a case in point.



William A. Dwiggins