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5. Reading instruction should use natural meaningful language within the conceptual grasp of the learners. (This implies of course that the content should always be relevant as well.)
6. Where it is at all feasible the child should achieve initial literacy within his own language (in fact within his own home dialect)!

Reading a Second Language

From my study of the reading process here are some implications I see for learning to read a second language:

- (a) Learning to read a second language should be easier for someone already literate in another language, regardless of how similar or dissimilar it is.
- (b) Reading will be difficult as long as the student does not have some degree of control over the grammatical system.
- (c) Strong semantic input will help the acquisition of the reading competence where syntactic control is weak. This suggests that the subject of reading materials should be of high interest and relate to the background of the learners.
- (d) Reading materials in early language instruction should probably avoid special language uses such as literature and focus on mundane, situationally related language such as signs, directions, descriptions, transcribed conversations, etc. This would depend, of course, on the background of the learner. Scientists should do very well with materials dealing with their own interests.
- (e) It will always be easier for a student to learn to read a language he already speaks. For young learners this clearly suggests a sequence of early focus on oral language and later introduction of reading, even in situations where the second language will be the medium of later education. But the motivation and needs of older highly literate students may suggest that oral and written language receive equal attention even at early stages.
- (f) As in learning to read a first language, reading instruction should always involve natural, meaningful language and instruction should avoid the trivial and keep the focus on comprehension strategies.

This article is based on a speech by Dr. Kenneth S. Goodman at the Second International Congress of Applied Linguistics, Cambridge, England, September 1969.

The Genesis of the Russian *Grazhdanskii Shrift* or Civil Type—Part II

Ivan L. Kaldor

Part II of the Kaldor paper is based on the assumption that the first Russian modern type (i.e., Peter I's *grazhdanskii shrift*) was patterned after three basic models: (a) the late seventeenth- and early eighteenth-century Russian civil hands, (b) the outmoded *poluustav* type, and (c) the contemporaneous Western roman types. The impact of Western roman types appears to be the most significant. In his search for a particular work that might have served as a source, the author proposes the hypothesis that the roman type used in Matthias Dögen's *Architectura militaris moderna* and, to some extent, in Peter's favorite *Symbola et emblemata* were the models applied by the designer. A type-by-type analysis of the original three versions of *grazhdanskii shrift* is used to support the basic theory.

Part I of this paper (cf., *The Journal of Typographic Research*, III [October 1969], 315–344) offered a brief, documented history of the creation of *grazhdanskii shrift*, the first modern typeface used in Russia. It also surveyed the transitional types applied by Western typographers in Peter I's service and contemporaneous engraved texts with characters of potential prefigurations—all in search for a possible model used by Kühlenbach, a military engineer and designer of the new type. It was established that the final lines of *grazhdanskii shrift* had been determined by the Tsar himself. The Amsterdam and Moscow printers were given copies of the design and had but little freedom to interpret it creatively. The resulting types indicate that both groups strictly adhered to the pattern set by the designer (Figs. 1–3). Thus, it seems appropriate, that the continuing quest for the model should focus on the basic intellectual tools of the Tsar and his military engineer-designer; i.e., on the Russian hands of the era and on foreign, mainly Dutch, technical and military publications.

The ensuing type-by-type analysis of Figures 1–3 will show that the influence of both the late seventeenth- and early eighteenth-

I	II	III	I	II	III
А	а	а	К	к	к
Б	бб	б	Л	л	л
В	в	в	М	м	м
Г	г	г	Н	н	н
Д	д	д	О	о	о
Е	еé	е	П	пп	п
Ж	ж	ж	Р	рр	р
С	с	с	С	с	с
	з		Т	т	т
І	иИ	и		ѣ	

I	II	III	I	II	III
У	у	у	Ѣ	ѢѢ	Ѣ
	Ф		Ѥ	ѤѤ	Ѥ
Х	х	х	Э	э	е
Ц	цц	ц	Ю	ю	ю
Ч	ч	ч	Я	яА	я
Ш	ш	ш		Ѹ	
Щ	щщ	щ		ѹ	
Ѧ	ѦѦ	Ѧ	Ѧ	Ѧ	Ѧ
ѢІ	ѢІѢІ	ѢІ		Ѹ	

Figure 1 [a-b]. Comparative display of the large-size characters of *grazhdanskii* *shrift*: I—Capitals cut in Amsterdam (1707); II—Original lower-case (1707) and additional or modified Amsterdam types (1708–1709); III—Lower-case characters cut in Moscow by Mikhail Efremov (1707).

І	ІІ	ІІІ	І	ІІ	ІІІ	І	ІІ	ІІІ	І	ІІ	ІІІ
А	А		К	К		У		Ѡ	Б		Ь
Б		Б	Л	Л				Ѳ	Ѣ		Ѥ
В	В		М	М		Х	Х		Э		
Г	Г		Н	Н				Ѡѡ	Ю		
Д	Д		О	О		Ц	Ц	Ц	Я	Я	Ѧ
Е	Е	Є	П	П	П	Ч	Ч				ѢѣѤѥ
Ж	Ж		Р		Р	Ш	Ш		Ө	Ө	
З		З	С	С		Щ	Щ	Щ			Ѧ
І	І	И	Т	Т		Ъ		Ъ			Ѧ
						Ы		Ы			

а	а		к	к		у	у		ь	ь	ь
б	б	б	л	л		ф		ф	Ѣѣ	Ѥѥ	Ѧ
в	в		м	м		х	х		э	э	
г	г		н	н				Ѡѡ	ю	ю	
д	д		о	о		ц	ц	ц	я	я	Ѧ
е	е	є	п	п	п	ч	ч		ѣ	Ѥ	Ѧ
ж	ж		р	р	р	ш	ш		ѥ	Ѧ	
з	з	з	с	с		щ	щ	щ	ө	ө	
и	и	и	т	т		ъ		ъ	Ѧ	Ѧ	
						ы		ы			Ѧ

Figure 2. Comparative display of the medium-size characters of *grazhdanskii shrift*: I—Types cut in Amsterdam (1707–1709); II—Types cut in Moscow by Mikhail Efremov (1707); III—Types cut in Moscow by Aleksandrov and Petrov (1708). Capitals (above) and lower-case.

І	І	І	І		І	ІІ	І	ІІ	І	ІІ	І	ІІ
А	І	Т	Ы		а		и	иѣ	т		ы	ы
Б	К	У	Ъ		б	в	к		ѣ	ѣ	ь	ь
В	Л		Ѣ		в		л		у		Ѣѣ	Ѥ
Г	М	Х	Э		г		м		ф	ф	э	
Д	Н	Ц	Ю		д		н		х		ю	
Е	О	Ч	Я		е	є	є	о	ц	ц	я	Ѧ
Ж	П	Ш			ж		п	п	ч		ѣ	Ѥ
З	Р	Щ			з		р	р	ш		ѥ	Ѧ
І		Ь	Ө		и		с		щ	щ	Ѧ	Ѧ
									ь	ь		Ѧ

Figure 3. Comparative display of the small-size characters of *grazhdanskii shrift*: I—Types cut in Amsterdam; II—Types cut in Moscow. Capitals (left) and lower-case.

century Russian hands and the contemporaneous roman types is clearly detectable. There is, however, a significant difference in the *degree* to which the impact of each of these models has found its expression in the final design of *grazhdanskii shrift*.

Late Seventeenth- and Early Eighteenth-century Russian Hands

As a possible result of the intensification of diplomatic and commercial intercourse between Russia and certain European countries, the late seventeenth-century Russian cursive and the early eighteenth-century book hands show some indications of the influence of contemporaneous Latin hands.¹

In the late seventeenth-century Russian cursive, the letter O becomes oval and approaches the shape of a diminutive circle. This is a rather sharp contrast when compared with the lozenge-shaped parallelogram of O of the earlier centuries.

The letters M and H also reflect the Western influence: they are more symmetrical with minims lying in a strict vertical position. Another salient feature of the change is the gradual establishment of a certain balance between curves and straight lines (Fig. 4[a]).

Петръ а Яковъ еднѣ о се дѣлнхъ
Има въ нѣблнхъ роитъ самдѣ
Жецъ укавѣ описѣ впомѣно
Прика рѣчнхъ дѣломъ

релютомъ хуке земли дѣятъ те
дѣлнхъ пороко Пятнацѣтъ сѣ
впо а вѣдѣ Потомъ, Ака вѣ
роченъ лѣтъ Пощеннотъ дѣятнхъ

юсы ипснне вѣдѣ аперннхъ ноннхъ велнно
ипалѣхъ Иванъ степннхъ тоѣ нрхпннхъ нс
нрхпннхъ полостн пѣсноѣ сѣ вѣрннхъ аплннхъ
Пойропѣ Прѣ сѣтнхъ бѣхъ дѣжнпелнхъ стѣ пннхъ
нл дѣннхъ вѣрннхъ аплннхъ шѣтѣ дѣсннхъ шѣстѣ дѣ

дѣннхъ стѣло бѣлѣ стѣло додѣломъ о бѣлѣ
полннхъ писмо тогѣ состояннхъ вѣннхъ
полннхъ пѣстѣдѣ прнсѣлѣ онѣ пѣтѣ
нѣторѣ прѣвѣтн послано прнсѣ пннхъ

Тригѣрѣ долгорннхъ нсполннхъ нѣгамннхъ бѣрѣсѣ
Послѣлѣ нтѣвѣтѣ дѣлѣ нрѣзѣ пѣтѣхъ радн нздѣтнхъ
пѣннхъ нандѣтѣ матѣдѣдѣ нѣторѣ прнсѣ

In the early eighteenth-century book hand the letter O approaches a perfect roundness. The perpendicular stems of capitals and also the minims tend to follow a strictly vertical stress. The crossbars take a clear horizontal position. Generally, most characters of the early eighteenth-century Russian book hand tend to be built in a strict symmetrical form (Figs. 4[b-e]).

The new vogue resulting from the influence of Latin hands and, above all, a vivid interest in non-cyrillic characters seem to be reflected in Karion Istomin's choice of alphabets for his illustrated spelling book² published in 1694. This album of engraved plates offers a parallel presentation of Slavic, Greek, Latin, and Polish (basically Latin) characters (Fig. 5). It might be of interest to note that Istomin himself was a proofreader and editor at Peter I's Moscow Printing Court.³

The changes in Russian hands gradually led to the development of certain characters which, in their turn, became extremely suitable models for a cleaner, more straightforward type.

The assumption that letters of late seventeenth- and early eighteenth-century Russian hands have influenced the Tsar and the designer is supported by references in Peter I's correspondence to the shape and lines of characters in contemporaneous cyrillic hands. For instance, in a communication dealing with his decision on the final versions of printed Д and Т, the Tsar distinguishes between specimens modelled after their counterparts in Russian hands and those based on the antiquated *poluustav* types.⁴

Furthermore, there are several characters in Kühlenbach's original design for *grazhdanskii shrift* which clearly indicate that their source is the early eighteenth-century Russian hand. Figure 6 shows six such letters and six types taken from early eighteenth-century manuscripts and from texts printed with the 1708 *grazhdanskii shrift* respectively.

Figure 4. Facsimile fragments of [top to bottom] (a) late seventeenth-century (1698) and (b) early eighteenth-century (1703) Russian cursive hands; and (c-e) early eighteenth-century Russian civil hands (1703).



Figure 5. A page of Karion Istomin's spelling book (1694) with Slavic, Greek, Latin, and Polish (basically a variant of Latin) versions of the letter "D."

г р у б в и ѣ
 у г р у б ѣ

Figure 6. Characters of Peter I's *grazhdanskii shrift* (top line) and letters of the eighteenth-century Moscow civil hand. Source: *Bol'shaia sovetskaia entsiklopediia*, 2d ed., Vol. XII.

Similar though not as clear-cut and impressive likenesses can be found when the cursive versions of the letters Гг, Д, Лл, Нн, Пп, Р, and the corresponding types of *grazhdanskii shrift* are compared.

The question of borrowing from contemporaneous hands becomes much more involved in the case of characters which are basically identical in both Latin and cyrillic writings and fonts. Later, within the type-by-type analysis of *grazhdanskii shrift*, frequent references will be made to certain aspects of this problem.

The Impact of Roman Type

Although some of the more complex letters of the cyrillic alphabet do not lend themselves to romanization, the general appearance of *grazhdanskii shrift* unmistakably indicates an adherence to the basic rules of the design of roman type: a sophisticated application of straight and curved lines, and circles and squares for the development of the dignified and restrained geometrical forms of characters. Indeed, even a superficial glance at any type page of *grazhdanskii shrift* would convince the reader that the designer of the new Russian type must have been influenced by roman type.

A survey of books and other printed matter which Peter I and his associates used or had access to reveals that most of those works had been printed in late seventeenth- and early eighteenth-century Holland, Germany, and France, with roman types then popular in Western Europe.

In an attempt to isolate works that would have the potential—typographically and circumstantially—to serve as models, title pages and texts of a number of contemporaneous Dutch, German, and French publications were analyzed. Since the designer of the new

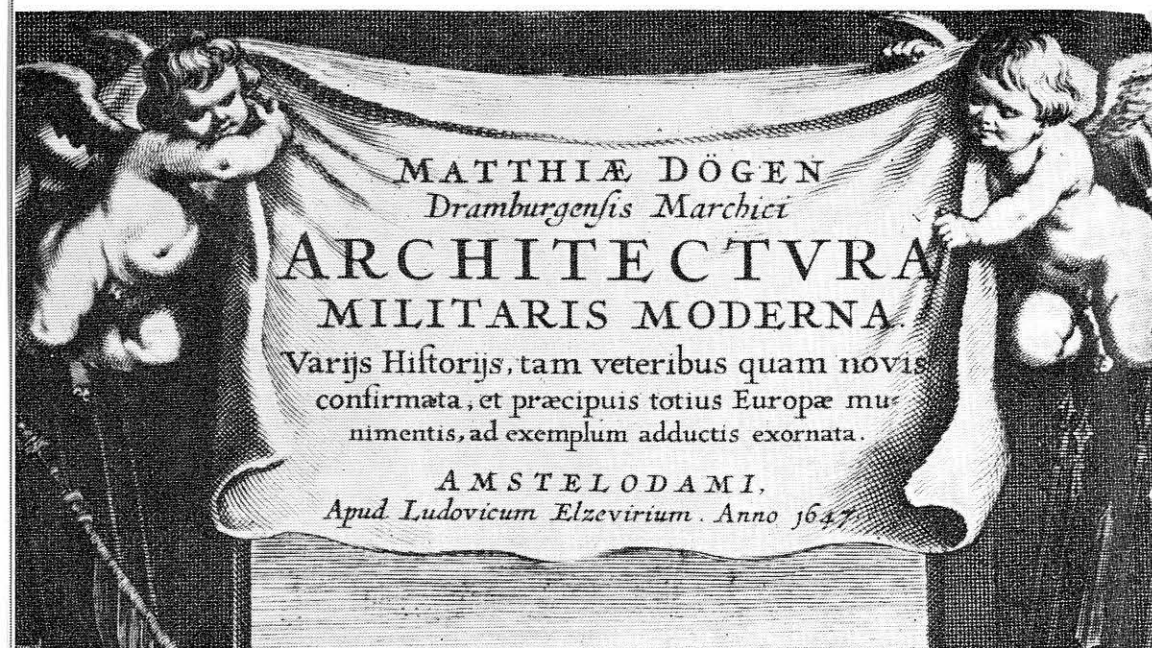


Figure 7. Illustrative fragments of Matthias Dogen's *Architectura militaris moderna* (Amsterdam: 1647); above—(a) text of engraved title page; opposite—(b) part of index and (c) sample text.

type was a specialist in the planning of fortifications, particular attention was paid to works on that subject. Repeated references in the Tsar's correspondence to works on the art of fortification make this approach even more plausible. Finally, the circumstances and the locale within which Kühlenbach, the military engineer-designer, actually had to produce the draft designs for Peter's type (i.e., during the war with Sweden, at Menshikov's headquarters in Zholkva) are further justification for such an approach.

There is one particular work with a title page and text designed and produced with characters and types that show definite resemblance to many types of Peter's *grazhdanskii shrift*.

The book in question is Matthias Dogen's *Architectura militaris moderna*.⁵ It was published in 1647 in Amsterdam by Elsevier. This very successful work was reprinted several times and is considered as

*Bibliopegus observet inferendas tam Figuras,
notatas sub calcem literis*

A. p. 12	G. p. 136	N. p. 232	T. p. 400	Aa. p. 448
B. 24	H. 168	O. 244	V. 420	Bb. 452
C. 32	I. 172	P. 280	X. 432	Cc. 456
D. 48	K. 176	Q. 304	Y. 440	Dd. 458
E. 68	L. 200	R. 308	Z. 444	Ee. 460
F. 72	M. 212	S. 312		Ff. 496

Quàm Urbes in hoc opere conspicuas.

Hermansteyn. paginâ 2	Swol. paginâ 234
Kustrin. 6	Retrenchement de Ma-
Straelsundt. ibidem	stenbroeck. ibidem
Amsterdam. 20	Goes. 240
Coevorden. 26	Manheim. ibidem
Palma nova. p. 28 inserta	Orange. 242
Breda. 80	Havre de Grace. 246
Maestricht. 84	S ^t . Malo. ibidem

bitari, num plus loci in Hollandia Terra occupet; an vero Aqua. Et insuper abundat illa regio tanto navium omnis generis, tamque grandi numero, ut adhuc magis possit in dubium vocari: num major hîc sit numerus natatiliū habitaculorum in aqua, quam ædium fixarum in terrâ.

Quantum verò firmitudinis accedat Hollandis ab his aquis, non semel eventū, haut cæco, probarunt; cum per sua emissaria & catarractas, immiffis aquis, hostem, jam in mediis patriæ visceribus grassantem, vel suffocârunt;

one of the basic tools of military engineers of the era. Thus, it is most probable that Kühlenbach was in possession of Dögen's work.

The characters and types on the engraved title page (Fig. 7[a]) and in the index and type pages (Fig. 7[b]) that show much similarity with their counterparts in *grazhdanskii shrift* are A, T, C, D, R, I, N, O, a, r, x, and to some extent also the type M. Further details concerning possible borrowings from this model are offered below.

Another possible model is Peter's favorite *Symbola et emblemata*, printed for him in Amsterdam by H. Wetstein, in 1705, just a year before the Tsar ordered Kühlenbach to design a new type. Certain capitals used in the well designed, but rather crudely executed title page (Fig. 9), carry some potential characteristics of models that might have been considered by the designer. Again, references to such characteristics are given *infra*, in the type-by-type analysis of *grazhdanskii shrift*.

If one adds to this the results of Thesing's attempts to produce a modified cyrillic type (Fig. 8) and the multitude of engraved characters in maps, "feierverk" plates,⁶ engraved title pages and charts, it becomes clear that the impact of roman type must have been unique and overwhelming.

Until recently in the literature *grazhdanskii shrift* was referred to as "Russian antiqua" or "Amsterdam antiqua," reflecting the consensus of scholars of Russian printing that Peter I's type was built on the graphic and aesthetic foundations and structural principles of roman type. Some recent Soviet studies tend to emphasize the role of Russian hands as models for the new type.⁷

The Influence of Poluustav Type

Finally, mention should be made of the influence of the antiquated *poluustav* type. When dealing with characters completely alien to the Latin hands and roman types, the designer of *grazhdanskii shrift* had to reach for inspiration offered by the old-fashioned *poluustav* types—the only cyrillic printing type available prior to the introduction of *grazhdanskii shrift*.

The ensuing analysis of the individual types of *grazhdanskii shrift* supplies ample evidence to demonstrate this fact which is a reality frequently underplayed by certain authors.

An Analysis of Grazhdanskii Shrift

[Readers should refer to Figure 1 on pages 112 and 113 for a comparative display of the large-size characters of *grazhdanskii shrift* which are discussed individually in the following paragraphs.]

Capital A (*Az*) was occasionally used in early eighteenth-century civil book hand as a lower-case letter (Fig. 4[c]) and as an alternative to the "a" fashioned after the Greek "α" (Fig. 4 [d-e]). Since the *poluustav* capital A clearly follows the design of its Byzantine counterpart, the model for the civil type A must have been the identical roman type. It was one of the four capitals the designs for which were completed by Kühlenbach and were sent to the printers in 1707. Capital A in civil type has a pointed apex and a fine, horizontal center bar. Its hairline terminates in a flat serif. The stem has a peculiar flat right-hand half-serif which is one of the salient features of the 1708 civil type. It is interesting to note here that the intentions of the designer concerning the half-serif of the stem were fully understood and implemented by the Amsterdam type-cutters. Mikhail Efremov's specimen sheet indicates that in his capital A (Fig. 9, line 4, in Part I of the present paper) this aspect of the design was completely ignored.

In the late seventeenth- and early eighteenth-century Russian cursive hands the lower-case a followed the form of the Greek "α." The structure of a in *grazhdanskii shrift*, however, resembles the roman letter. The letter a in the original civil type has a main stem curving to a pointed end. The well-curved arc of the stem does not extend all the way to the left and it too has a pointed end. The fairly wide oval loop sits far down on the stem. Here again the large-size lower-case a of the Moscow Printing Court represents a variation: its open, round loop and clumsy foot final have nothing to do with the original design (Fig. 9, line 1, in Part I of the present paper). Strangely enough, the form of Efremov's medium-size lower-case a clearly indicates the designer's concept as it was perfectly reflected in the types cut in Amsterdam (Figs. 1-3).

The capital and lower-case б (*Buki*) both are based on the design of the lower-case version of this letter in the early eighteenth-century civil hand. The original (1707) designs of Peter's type did not include the capital version of this letter. The Tsar simply ordered the capital type made with the design of the lower-case б. This accounts for the aesthetically unacceptable oversize type. In 1708, when Peter I decided to have some additional and modified types cut, he included in his order a new version of this letter based on the *poluustav* Б—a character of Greek derivation (Fig. 14, the first letter in line 1, in Part I of the present paper). In the final version of civil type (Fig. 15 [1] in Part I of the present paper), however, the Tsar cancelled the modified Б and approved the original design of the identical capital and lower-case types. The oval bowl shows some tendency to a vertical stress. The top flag conveys a certain swash effect. The type б in the Amsterdam font is basically identical with Efremov's character. However, as was mentioned earlier, Efremov did not cut a capital б for his medium-size type.

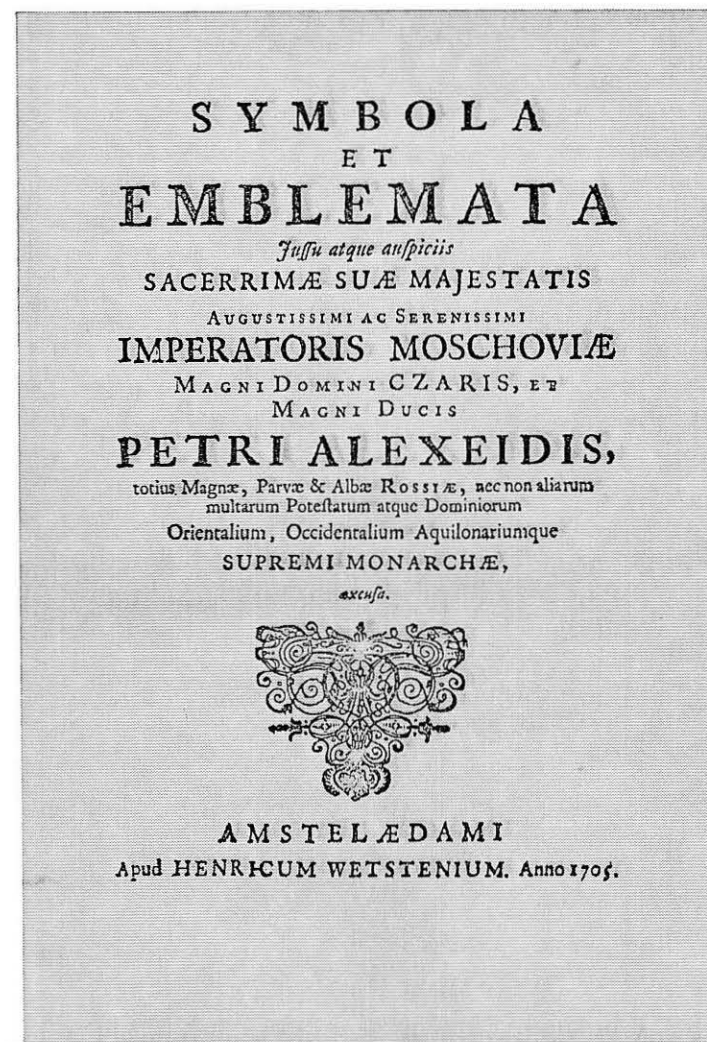
The design of the type В (*Vedi*) in both capital and lower-case versions is a clear borrowing from roman type. In *poluustav* type this character had some strange angular features and in the civil hand its form was reminiscent of the letter "O." It should be noted here that Jan Thesing had a somewhat cruder version (1699–1707) of В among his capitals (Fig. 8, line 1). The design of В in the Latin title-page of *Symbola et emblemata* printed for Peter I in Amsterdam (1705) bears a strong resemblance to the same character in the civil type (Fig. 9). В has vertically stressed modified circular bowls. The upper loop is small. There are flat hairline serifs at the head and foot of the stem. In Efremov's type the fine serifs of the design deteriorate into hardly visible bracketed serifs.

The design of Г (*Glagol*) may be based on civil hand (Fig. 4 [e]), or, with slight modification, on printed *poluustav*. Shitsgal⁸ noted that printed versions of characters originating from the Greek such as Г occur in certain seventeenth-century books printed in Vilno, Kiev, and L'vov. The stem has a flat, hairline serif at the foot. The



Figure 8. Jan Thesing's (Amsterdam, 1699–1707) capitals in his cyrillic font used in publications printed for Russian readers and exported to Russia.

Figure 9. Latin title page of *Symbola et emblemata* printed for Peter I in Amsterdam by H. Wetstein (1705).



bracketed serif of the horizontal bar is spurred and is sloped in outwards.

Capital Д (*Dobro*) is the second of the four characters the capital versions of which were designed by Kühlenbach in 1707. The vertical position of its stem is indicative of the influence of contemporaneous Russian civil hand (Fig. 4 [c] and [e]). This feature was ignored by Efremov whose medium-size capital Д with its sloping stem bears a strong resemblance to the early printed *poluustav* versions of that character (Fig. 9, in Part I of the present paper). Capital Д has a thick, flat serif at the head of its stem. There are tail-type bracketed beaks at each end of the arm. Thesing's capital Д was based on the old *poluustav* version of this character.

The lower-case д is a classical example of borrowing from the decorative minuscule used in early eighteenth-century engraved plates (Fig. 10). Its occurrence in civil hand is not as frequent as one might presume from the comments on this type by some Soviet authors and the *Large Soviet Encyclopaedia*.⁹ The large, kidney-shaped lower loop which sits well to the left of the axis is in strong contrast with the upper bowl. The latter is of a modified circular form.

Both the capital and lower-case E (*Est'*) bear the clear characteristics of roman type. The capital E of Peter's type is reminiscent of the "E" in the Latin title page of *Symbola et emblemata* (Fig. 9). It was designed by Kühlenbach in 1706–07. Since the late seventeenth- and

Figure 10. Text fragments from copper-engraved plates entitled "Ship Signals." The undated plates are to be found in the Russian Museum (Russkii muzei) under the numbers: 32309 and 38420. Source: A. Shitsgal.

early eighteenth-century civil hands fully imitated the extremely narrow, slightly rounded shape of the *poluustav* E (Figs. 4 [c]—[e]) they could not have supplied a model for Peter I's version of the letter E. The additional Amsterdam and Moscow types ordered by the Tsar in the summer of 1708 included another form of "Est'" which was based on contemporaneous civil hands (Figs. 14, in Part I of the present paper, and 4 [e]). Efremov in his large-size lower-case type substituted a replica of the capital E for this character. He, however, cut an e, with an open lower loop, for his medium-size type. The capital E of *grazhdanskii shrift* has hairline serifs at the head and foot of the stem. There is also a hairline serif on the short central arm. The upper and lower arms have lightly bracketed angular beaks. The upper arm is noticeably shorter than the lower arm. The lower case e of the civil type is unusually heavy in line. It has a very small counter and a light, high cross-bar. The lower curve protrudes decidedly to the right.

Capital and lower-case Ж (*Zhivete*) indicate the influence of early seventeenth-century printed *poluustav*. There is a slight variation between the Amsterdam type and the character cut by the printers of the Moscow Printing Court (e.g., the ball and sheared terminals of the arms; in Figs. 1–2). In addition, Efremov's large-size lower-case version of this type is much lighter than its Amsterdam counterpart.

S (*Zelo*) in its design clearly follows the line of roman type. As far as the other early versions of this type are concerned, neither Thesing's heavy type, which lacks the graceful balance of the Amsterdam and Moscow civil characters, nor the rather compressed S in Polikarpov's *Primer* (Fig. 11) (nor the *poluustav* versions of this letter) could have had substantial influence on its design in *grazhdanskii shrift*. Both the capital and lower-case versions of S slightly lean to the left. The graceful line of the spine, the fairly open curves and the vertical spurred beaks give a light appearance to this type.

The design of the letter З (*Zemlia*) stems from the printed *poluustav* type. It is one of the additional characters ordered by Peter I in 1708 and was cut in Amsterdam in the lower-case version of the large- and small-size types (Figs. 1–2). Aleksandrov and Petrov at the Moscow Printing Court prepared the capital and lower-case editions of the medium-size type. There is a noticeable difference in the style between the Moscow and the Amsterdam versions of З, the latter being more archaic and complicated in its form (Fig. 14, in Part I of the present paper).

The letter I (*I desiaterichnoe*) is a clear replica of the roman “I”: the printed *poluustav* version of this letter hardly ever had the characteristic serifs. In the original set of types cut in Amsterdam and Moscow in 1707 I did not have two dots above it. The change was ordered by Peter I on 8 May 1708. In his *ukaz* this type was referred to by the Tsar as “Izhe.” The straight vertical stem of this type has hairline serifs at its head and foot.

И (*Izhe*) is a character which was not included in the original set of the Amsterdam types. It was ordered by the Tsar as an addition to the basic font in 1708. It was cut in Amsterdam, in the lower-case version of all three sizes, and in Moscow in the capital and lower-case versions of the medium-size, and in the lower-case edition of the small size. The design of this type can be considered rather as a variation of the elements of roman “N” than as a perfected form of the *poluustav* И. It might be of interest to note that Thesing’s capitals included an “Izhe” modelled after the old *poluustav* or *ustav* (Fig. 8). The medium-size, lower-case Amsterdam and small-size, lower-case Moscow types have a wide, square appearance. There are slab serifs at the head and foot of the stems. The diagonal stroke joins the stems under and above the serifs. The types in both fonts are rather poorly executed.



Figure 11. Early eighteenth-century *poluustav* types in Fedor Polikarpov's *Primer* (1701).

The type *K* (*Kako*) was designed following the basic form of roman type but its elements were influenced, to a certain extent, by the characters of Russian and Dutch engravers (Fig. 3, in Part I of the present paper). Efremov's large-size, lower-case type in its appearance is more in the spirit of the general design of Peter I's type than the rather narrow version of this character made in Amsterdam (Fig. 1). The reverse is the truth for the medium-size, lower-case type. The stem of *K* has slightly bracketed serifs at its head and foot. The hairline arm has a spurred beak and the gracefully curved lower leg which protrudes to the right ends in a curved, pointed terminal. As opposed to the lower-case Latin "k," the lower-case version of this type is an exact replica of the capital and does not have any ascenders.

The design of *И* (*Liudi*) does not follow the typographical pattern of an upright stem set by the civil hand and adopted by Thesing (1699–1707) in his independently developed modified *poluustav* capital type (Fig. 8). The design of the final version of Peter's *И* is modelled after the *poluustav* type with the addition of a conspicuous right-hand flat half-serif which was seen in the case of the capital *X*. This type has a slightly bracketed serif projecting at the top of its stem. There is a flat serif at the foot of the stem, deteriorating into a hardly visible bracketed serif in the lower-case version of the large-size type and reappearing again—in a somewhat cruder form—in Efremov's medium-size capital *И*. The Russian type-cutter, in the lower-case version of his large type, changed the direction of this half-serif by turning it to the left. There is a light curve in the lower end of the hairline which then ends in a ball terminal. In Efremov's large-size, lower-case type this could be described as a bulbous tail.

The type *M* (*Myslete*) in its design shows a peculiar similarity to Thesing's type (Fig. 8) and, to certain types of the Italian Renaissance. In Polikarpov's *Primer* (Fig. 11), just as in the majority of the roman fonts and in *poluustav* type, the vertex of the *M* tends to reach the base line. The *M* in *grazhdanskii shrift* is a square character. Its vertex is half way above the base line. There are half-serifs at the

apexes and full, flat serifs at the feet of the stems. Efremov's large-size, lower-case *M* is asymmetric because of a shift to the left in the position of its vertex.

The type *H* (*Nash*) in its design relies on civil hand (Figs. 4 [b–d]) with some refinements borrowed from roman type. It is a rather broad character; with Efremov's lower-case, large-size type approaching a square. It has flat serifs and a hairline center cross bar. The medium- and small-size types were rather poorly executed by both the Amsterdam and the Moscow type-cutters.

The type *O* (*On*) reflects the changes in the early eighteenth-century Russian civil hands but is mainly modelled after its roman counterpart. This character has a slightly oval-shaped bowl with a vertical axis. Efremov's lower-case, large-size type has the shape of a perfect circle which makes it fit well into the group of types designed with a rounded body so characteristic of Peter I's type.

The character *И* (*Pokoi*) was designed under the influence of contemporaneous civil hands (Fig. 4 [c]). The peculiar curved extension of the head of the stem with its slightly bracketed serif gave to the early version of this type a conspicuously clumsy look. This effect was less accented in Efremov's character and in the medium- and small-size Amsterdam types. If preserved this type would have become one of the most characteristic letters of *grazhdanskii shrift*. Peter I, however, in his order for additional types in Amsterdam and Moscow (1708), included another design which in its form stood closer to the printed *poluustav И* (cf., Polikarpov's *Primer*, Fig. 11, lines 2 and 6) and was a wider and lighter version of the former. In the final edition of *grazhdanskii shrift* (Fig. 15 [2], in Part I of the present paper) approved by him on 29 January 1710, the Tsar deleted the early versions of this character and kept the design which had been borrowed from the printed *poluustav*. Thus, *И* in the civil type (1710) has rather heavy stems with short slab serifs at the foot. The horizontal stroke connecting the heads of the stems in certain

types projects to both left and right. There were no large- or small-size capitals of this type cut in Moscow or in Amsterdam.

The design of the first version of the letter P (*Rtzy*) reflects the influence of the civil hand (Fig. 4 [c]). The stem of this type had the same conspicuous extension as was seen in the case of the letter II. Here again the Tsar decided to revise this heavy character and, in his order for additional types (1708), he included a simpler version with certain elements of the roman "p." This additional character then was approved by Peter I in 1710, in the final version of his civil type (Figs. 14, line 1, and 15 [2], Part I of the present paper). P has a long descender and a modified, slightly open circular bowl. There is no head-serif or nick on the stem which displays a smooth transition into the curve of the loop.

Although the design of C (*Slovo*) shows the impact of both contemporaneous civil hand and of roman type, its final edition bears a stronger resemblance to the roman model, possibly the one used in the text of the title page of *Symbola et emblemata* (Fig. 9), than to any civil-hand versions. This well-designed type has a fairly large counter with an entrance narrowed by a spurred beak on the upper arm. The lower arm has a gradually tapering terminal which slopes upward. The lower arm slightly but noticeably protrudes to the right resulting in a backward stress. The large-size, capital version of the Amsterdam type has a spurred beak on the upper arm which is slightly sloped inwards. The lower-case medium and small-size characters do not have any spurs and tend to have something of the nature of a ball terminal on the upper arm.

T (*Tverdo*) was doubtless designed on the roman model. In the 1710 version of his type Peter I approved the design of the large-, medium-, and small-size capital T modelled on roman type and, for the lower-case version, he preserved a rather crudely designed character with three stems apparently based on the contemporaneous civil hand (Fig. 4 [c-e]). The capital T has its stem ending in a slightly bracketed

serif at the foot. The arm-serifs slope outwards. This type is one of the four capitals designed by Kühlenbach. The second, or lower-case version of T, is a crudely executed character with three stems and with an uneven horizontal stroke connecting their heads. To a certain extent it is reminiscent of the Latin cursive "m."

s (*Uk*) is a type which was not included in the original (1708) set of characters. It was ordered by the Tsar as an additional type, perhaps as a gesture towards the printers of liturgical literature. Its design carries all the signs of the influence of *poluustav* type (Fig. 11). The round body of s has two asymmetrical swash tail-type ascenders.

The type V was apparently modelled after the early eighteenth-century civil hand. Here again, Peter's order to design capitals, following the form of lower-case types produced by Kühlenbach, led to the creation of a type which is clearly over-size when compared to the rest of the set. The type V in its final form has a projection on its short arm and a flat, hairline serif on its long arm. Its long, oblique tail has a ball terminal. Efremov's large-size, lower-case character has a distinctive hook on its lower terminal ending in a ball.

The letter Φ (*Fert*) in its design basically follows the form established by the contemporaneous civil hands. It is a definite improvement on the ornate style of its printed *poluustav* version (Fig. 15 [3], columns 1, 3, and 5, in Part I of the present paper). Peter I's Φ shows also some resemblance to Skorina's type (1517-1519). The type Φ has an oval bowl which sits slightly high on the stem. The counter is cut in half by the vertical stem which has hairline serifs at its head and foot. Φ was not included in the original set of characters (1708) and was ordered by the Tsar at a later time.

X (*Kher*) in its designs shows a definite break with the printed *poluustav* where this type descends far under the base line. The civil type version of X is based on contemporaneous Russian hands with

some added refinements (e.g., serifs) borrowed from roman type. The diagonals meet half-way. The upward thin stroke has hairline serifs. Half serifs protrude from each end of the heavy diagonal. The diagonals in the medium- and small-size variants show some tendencies to curve.

There are certain cyrillic characters which, by virtue of their typographical presentation in civil type, can be treated as two groups of types with identical features and components. The first group includes:

The characters Ц (*Tsy*), Ш (*Sha*), and ШЦ (*Shcha*) all are patterned after their civil hand models. Peter I ordered the design of the rather angular swash-tail of Ц and ШЦ to be changed into a more curved one (1708) (see Figs. 14 and 15 [4–5], in Part I of the present paper). The new variants were then approved by him as parts of the final version of *grazhdanskii shrift*, on 29 January 1710. All these types have straight vertical stems with unbracketed serifs. The horizontal strokes project to the right and end in swash tails. The second group of types consists of:

The types Ё (*Er*), ЁІ (*Ery*), Ё' (*Er'*), and ЁІ' (*Iat'*) represent a salient feature in the design of civil type. The identical size of their bowls and the very similar treatment of the rest of their components suggest that, as far as typographical design is concerned, they should form a group. All four characters (1708) were later redesigned by Peter I's order. They were included in the group of additional and modified characters made in 1708–1709 (Fig. 14, line 1, in Part I of the present paper). The basic elements of types in this group include a stem with a serif at its head (except in the case of Ё' or "Er" where the head of the stem has a downward sloping curve projection to the left) and a modified bowl with a slightly flattened bottom curve which ends at the foot of the stem and which, as a rule, has a flat projection. The crossbar of ЁІ' has slightly bracketed serifs sloped outwards.

The type Ч (*Cherо*) apparently originates from eighteenth-century Russian civil hands. It has a straight vertical stem with unbracketed serifs at its head and foot. The short arm curves sharply upward ending in a left-hand projection at the main line—in the case of the lower-case type.

Of the remaining types there are only two which hold some interest from our point of view; others are ѿ, ѿ, ѿ, ѿ, ѿ, ѿ.

Ю (*Iu*) is a combination of capital I and O connected by a hairline horizontal stroke.

The second type which should be mentioned here is Я (*Ia*); in its design, it was clearly borrowed from roman type and is an apparent mirror-image of the roman "R." It has a straight vertical stem with a flat serif at its foot. Its left tail tapers to a point and its loop has a right-hand projection at the end of the stem.

Conclusions

Concluding this survey of the civil type there are some observations to offer concerning the artistic and typographical characteristics of the font, and also on the puzzle of the identity of the designer of *grazhdanskii shrift*.

A. The designer was faced with the difficult problem of trying to create a type duplicating the simplicity and cleanness of form represented in an admired model of another alphabet. In his adaptations, he either failed to understand or consciously rejected certain canons of consistency about stress, the use of serifs, and the use of ascenders and descenders held by western designers from the fifteenth century on. Nevertheless, in so far as his goal was simplicity of form, his adaptation of roman models was very successful in giving cleaner lines to the cyrillic letter.

B. All type designs, at least in the early stages of typography, have been influenced by the prevailing cursive or book hand. The designer of the *grazhdanskii shrift* was forced to rely on contemporary and

antique hands for many characters not in the Latin alphabet. In selecting models he seemed to prefer the contemporary civil hand, but on occasion he resorted to the old *poluustav*. Analysis shows that in choosing forms, he followed the ideal of simplicity. Nor was he oblivious of the needs for pleasing synthesis of form and keeping balanced proportions between capital and lower-case letters. In the final font, the dissimilarities in form between the native Russian letters and the adapted roman models are noticeable but not inconsistent with an artistic whole.

C. There may have been some discrepancy between design and execution. It appears, for instance, that serifs were intended to be thin and unbracketed. Some printed examples actually show hairlines. In many cases, however, where execution appears faulty, the serifs come out in print as slabs slightly bracketed. Whether this resulted from improperly cut punches, improper striking of the matrices, or poor presswork is impossible to judge from the evidence at hand of extant printed examples. Indeed, the whole supposition that execution lagged behind design may be based on too great an admiration for the creators of this type; however, the successful treatment of hairline serifs developed on a different handling of press, ink, and paper than commonly employed early in the eighteenth century.

D. Obviously, the *grazhdanskii shrift* was the product of the labor of many men—the precursors on copper plates, Russian draftsmen, Dutch engravers, Russian designers and craftsmen. The mixture of foreign participants led no doubt to some successes and also to one conspicuous failure. The casting of the soft and hard signs in sizes equal to the actual letters could have been the work only of designers not fully acquainted with the functions of these signs in the cyrillic alphabet.

E. The importance of the role played by Tsar Peter I in the creation of the *grazhdanskii shrift* is clear. The great reformer gave the orders which originated the project and commissioned workers to carry it out. He kept a careful eye on the development amidst all his other great responsibilities. He corrected specimen sheets in his own hand and approved the final outcome. Thus, it is not inappropriate to call *grazhdanskii shrift* Tsar Peter I's type.

F. The significance of Tsar Peter I's innovation is beyond doubt. It not only made printing simpler and easier and made Russian

books more attractive but, in the words of V. Ia. Adariukov, "the change in the lines [of type] bore an important meaning as the outward symbol of the liberation of the Russian tongue. . . ." ¹⁰ And indeed, it was one of the many factors working towards the elimination of the heavy influence of Church-Slavonic language and the creation of a living Russian literary tongue.

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1. A. Shitsgal, *Russkii grazhdanskii shrift 1708–1958* (Moskva: Gosudarstvennoe izd-vo "Iskusstvo," 1959), p. 72, and also

A. Shitsgal, *Graficheskaia osnova russkogo grazhdanskogo shrifta* (Moskva: Gosudarstvennoe Nauchno-Tekhnicheskoe Izdatel'stvo Tekstil'noi, Legkoi i Poligraficheskoi Promyshlennosti, 1947), p. 27.

2. The 43 engraved plates of the *Bukvar'* are the work of Leontii Bunin. Each page deals with one character of the alphabet. The various characters are represented by postures of a human figure. Each character is written in its capital and lower-case, in printed and cursive forms as used in the Russian, Greek, Latin, and Polish. Pictures of a number of objects the name of which begins with the particular letter are presented. The lower part of each page carries ten lines of rhymes about the letter illustrated.

Facsimile reproductions of set of this copper-engraved plates are included in folder IV of D. Rovinskii's "Russkii narodnyia kartinki." cf., *infra*.

Also cf., I. Tarabrin, "Litsevoi bukvar' Kariona Istomina," *Drevnosti*, XXV (1916), 249 and plates XVI–LII; and

D. Rovinskii, *Russkie gravery i ikh proizvedeniia s 1564 goda do osnovaniia Akademii khudozhestv* (Moskva: Izdanie Grafa Uvarova, 1870), p. 163, items 31–72; and also

D. Rovinskii, "Russkii narodnyia kartinki," Tom 2. *Imperatorskaia akademiia nauk. Otdelenie russkogo ia zyka i slovesnosti. Sbornik*, XXIV [483]–502; and

E. Gollerbakh, *Istoriia graviury i litografii v Rossii* (Moskva: Gosudarstvennoe izd-vo, 1923), pp. 25–26.

3. A. Sidorov, *Istoriia oformleniia russkoi knigi* (Moskva: Gizlegprom, 1946), p. 116; and

D. Rovinskii, "Russkii narodnyia. . ." Tom 4, *Imperatorskaia akademiia nauk. Otdelenie russkogo ia zyka i slovesnosti. Sbornik*, XXVI, 517 (Primechaniia i pr ilozheniia)

4. *Pis'ma i bumagi imperatora Petra Velikogo*, VIII/1, 289. Peter I's order says among others: "Tol'ko "dobro," "tverdo" napechatat', kotorye skhodny k pečhati, a ne k skoropisi. . ."

5. Cf., S. L. Hartz, *The Elseviers and Their Contemporaries* (Amsterdam: Elsevier, 1955), p. 76; also

M. Dögen, *Architectura militaris moderna* (Amstelodami: Apud Ludovicum Elzevirium, 1647).

6. Commemorative plates depicting firework displays organized on various occasions such as Peter I's military victories. Cf., Gollerbakh, *op. cit.*, p. 6.

7. A. Shitsgal, *Graficheskaja*. . .

8. *Ibid.*, 87.

9. *Bol'shaia sovetskaia entsiklopediia*, 2d ed., Vol. XII.

10. V. Ia. Adariukov, *Kniga v Rossii*, Vol. 1: *Russkaia kniga ot nachala pis'mennosti do 1800 goda* (Moskva: Gosudarstvennoe izd-vo, 1924), p. 139.

Directional Consistency in Form Identification

Jeremy J. Foster

An experiment is reported, the results of which are taken to support Kolars' theory of directional consistency in letter identification. The connection between this effect and a number of studies on the identification of tachistoscopically presented patterns is commented upon. The connection between the effect and the results of experiments on visual search is also noted.

Kolars (1969) has suggested that the differences in the speed with which letters subjected to geometrical transformations can be identified when read from left-to-right or from right-to-left may be accounted for by a hypothesized "directional consistency." In his experiment, subjects read lines of letters which had been transformed as shown in Figure 1. The direction of reading was varied, all transformations being read both left-to-right and right-to-left. Kolars found that left-to-right reading was faster for conditions N and I, right-to-left was faster for condition R, and there was no difference for condition M.

In attempting to account for these findings, Kolars noted that when transformations N and I are read from left-to-right, direction

Figure 1. Examples of the geometrically transformed texts used by Kolars (1969).

N * b u n l e f o t a t o i e n o t p i u i s h o u s w e i c e s w
R † e s e l v e s o e t o e q n s s p s w e l e t s s t e t e d r *
I * λ π ο ω † π β ι † α π ς ς ο ς ι λ α α ι ε ς υ κ π λ † ο ε ς λ
M b γ ε υ ι ν ε π † w s e r i i t e i e n r r i e u e e h v m t r *