PROBLEMS ARISING FROM HANDWRITING ANALYSIS OF MANUSCRIPTS AND SIGNATURES WRITTEN IN SPECIFIC LETTERS OF THE CYRILLIC-BASED LAK ALPHABET

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ABSTRACT
The article briefly describes how the Lak alphabet, based on the Cyrillic alphabet was created. Besides, presented are the approximate pronunciation of the letters of the Lak alphabet and the handwritten variants of their combinations, the graphical lettering of the specific handwritten letter "I" and its division into typical elements and strokes in the sequence of their draughting in accordance with the constructive components of capital and lower-case letters of the Russian alphabet. Described is the current Lak alphabet taking into account the spelling and approximate pronunciation of the letters and their combinations in Russian.

Keywords: the Lak language, the Lak alphabet, the Cyrillic alphabet, dialects, letter combinations, spelling, strokes, handwriting examination.

Introduction
We intend to make a short excursus to the history of the Lak language and the creation of the Lak alphabet and writing. The Lak language (Laku Maz), formerly known as kazikumukh or kazikumuk (Haidakov, 2001), belongs to the Nakh-Dagestani (a.k.a. Eastern Caucasian) group of Caucasian languages and belongs to the Lak-Dargin subgroup of Dagestanian languages, although in some classifications it stands out comprising an independent Lak subgroup (11).

The Lak people began to form their literary language, based on the Kumukh dialect, as early as in the Middle Ages - much earlier than the other peoples of Dagestan did. The formation of the literary Lak language is reflected in the written texts ("The Desire of the Khan", translated from the Arabic language, 1734), the annals ("Derbendname", apparently translated from the Arabic version at the end of the 17th century, and others), historical songs of the 18th and 19th centuries and folk ballads (9). The grammatical aspect of the Lak language has been studied quite well, if compared to the other languages of Dagestan. It was described in a number of pre-revolutionary works of such well-known ethnographers and linguists as I.A. Güldenstädt ("The Geographical and Statistical Description of Georgia and the Caucasus Based on the Journey of Mr. Academician I.A. Güldenstädt through Russia and the Caucasus Mountains in 1770, 1771, 1772 and 1773". – published in 1809), P.K. Uslar (The

Several years after the Soviet power had been established in Dagestan, the writing systems were created for the largest Dagestani ethnic groups, including the Laks, who used three scripts differing in graphical forms. Due to the borrowings from the Arabic language in the Lak language dating back to the 15th century, the first script, called "Ajami", was created after 1917 on the basis of Arabic graphics (1) with the addition of some signs for the transmission of phonemes characteristic of the Lak language. This script existed until 1929, but since it was very far from being perfect in technical terms and difficult to master, it gave way to the Latin alphabet with some additional signs in 1928. But this writing system also existed for a relatively short time in Dagestan, and in 1938, the existing alphabet was adopted on the basis of the Cyrillic alphabet (the Russian script). Then, in 1948, 1955, 1964, 1979, 1989 and 1993, the alphabet and spelling were improved and changed. At present, the Lak Cyrillic alphabet is used, which includes fifty five letters and an auxiliary "I" sign (Digiev, 2004), (Kozakova, Tabachenko, 2008), (Khaydakov, 1962).

The Lak language is one of the written languages of the Republic of Dagestan and, in accordance with the Constitution of the Republic, is recognized as one of the state languages. In the republic, there are ten groups of the main dialects of the Lak language (Haidakov, 2001).
- the Kumukh dialect is the basis of the literary language; it is spread in the village of Kumukh and in the villages of the Laksky, Kulinsky and Novolaksky districts;
- the Vitskhi dialect is spread in the northern part of the Laksky district; it is divided into the northern Vitskhi dialect (villages Kuba, Chuknv, Kurkli, Vitskhi, Kuma, Kunda and Kara (Chara)) and the southern Vitskhi dialect (villages Bagikla, Shahuva, Guymi, Kamash, Unchukat and Karash);
- the Arakul dialect is the most archaic one (2); many archaic forms that are not characteristic of the other dialects have been preserved; it is spread in the village of Arakul in the Rutulsky district;
- the Balkhar (Bartkhin) dialect is spread in the Akushinsky district in the villages of Balkhar, Kuli, Tsulikana and Ulluchara;
- the Shadni dialect is spread in the village of Shadni of the Dakhadayevsky district and is strongly influenced by the Dargin language;
- the Shalib dialect is spread in the village of Shalib (Shali) of the Charodinsky district;
- the Uri dialect is spread in the villages of Uri and Mukar and is strongly influenced by the Avar language;
- the Vikhli dialect is spread in the villages of Vikhli, Sukiyakh and Tsiyshi of the Kulinsky district;
- the Vachi-Kuli dialect is spread in the greater part of the Kuli district in the villages of Vachi and Kuli, while in the villages of Tsovkra-1 and Sumbat the Pervotsovkrinsky dialect is common;
- the Kaya dialect is spread in the Kuli district in the villages of Khoymi, Kaya and Tsovkra-2. Apart from the Republic of Dagestan, the Lak language is widespread in the republics of Kabardino-Balkaria, Chechnya and Ingushetia, in the Stavropol Region and in the Yamalo-Nenets Autonomous District, and is also spoken on the territory of the CIS and Baltic states (11).

According to the results of the 2010 All-Russia Population Census, the number of Laks living in Russia is 178,630, while 145,895 people speak the Lak language (6).

**Results**

The analysis of judicial, investigative and expert practice in the Republic of Dagestan shows that when investigating crimes against a person, in the sphere of economy, against public safety and public order, against state authorities, etc., handwriting experts face the task of analyzing documents in which handwritten texts and signatures are also in the Lak language. Although the analysis of these objects in order to establish their performers does not fundamentally differ from the analysis of the same objects presented in Russian, the absolute majority of the letters of the Lak alphabet being identical graphically to the Russian letters, so in this case the current method of conducting handwriting examinations of manuscripts and signatures, performed in Russian, is applied; but on the other hand, the analysis of handwritten texts and signatures in the Lak language allows the identification of additional traits of the written speech and handwriting due to the peculiarities of the Lak language and the presence of letter combinations, composed of two or more characters. In this case it is worth to completely agree with E.S. Dubovik "... there are complexities of both diagnostic and identification research of manuscripts of this type." (Dubovik, 2013), therefore it is impossible to conduct a
The alphabet of the Lak language is bigger than that of the Russian language and, as was noted above, consists of 55 letters and letter combinations. Due to the peculiarities of the sound composition in the Lak language, a specific letter was added to its alphabet - an additional sign "I" (in the printed version it is identical to the Roman numeral "1") and additional letter combinations:

- 1 four-letter combination: «Хьхь хьхь».

These letter combinations, with the exception of the additional "I", are the usual letters of the Russian alphabet, which, as the main letters, are used in the Lak alphabet; but when combined with the secondary characters («ъ», «ь», «I»), the main letters define the specific Lak sounds (13). In this connection, we should dwell upon the issue of pronunciation and spelling of single letters and their combinations in the Lak alphabet. For this purpose, we present the images of specific printed and handwritten letters of the alphabet and their approximate pronunciation in Russian in the following table (Table 1):

Table 1. Spelling and approximate Russian pronunciation of the Lak alphabet’s letters and their combinations

<table>
<thead>
<tr>
<th>No.</th>
<th>Block letters and letter combinations</th>
<th>Cursive letters and letter combinations</th>
<th>Pronunciation</th>
<th>No.</th>
<th>Block letters and letter combinations</th>
<th>Cursive letters and letter combinations</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Аь аь</td>
<td>Aб</td>
<td>(а ь)</td>
<td>4</td>
<td>ТI тI</td>
<td>ТI</td>
<td>(TI)</td>
</tr>
<tr>
<td>2</td>
<td>Гь гь</td>
<td>Гб</td>
<td>(гь)</td>
<td>13</td>
<td>ТI тI</td>
<td>ТI</td>
<td>(TI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>Хх хх</td>
<td>Хх</td>
<td>(XX)</td>
</tr>
</tbody>
</table>
3. Гь гь
   (гь) – corresponds to the English «h» or Ukrainian «г»

4. Кк кк
   (кк) – similar to the Russian «к», but it is a tenser and harder double sound

5. Къ къ
   (къ) - voiced, hard, sharp, guttural “squeaky” sound

6. Кь кь
   (кь) – similar to the sound «къ», but is pronounced harder

7. КІ кІ
   (кІ) – similar to the Russian «к», a sharp and click sound

15. Хь хь
    (хь) – the merged pronunciation of «к» and «х» (кх), but it is pronounced vibrantly

16. Хь хь
    (хь) – similar to the Russian «х», but it’s pronunciation is not hard

17. Хьхь хьхь
    (хьхь) – similar to «хь» - a tenser and harder double sound

18. ХІ хІ
    (хІ) – pronounced as «гья» (English «h»), but it is softer

19. Цц цц
    (цц) – identical to the Russian «ц» - a tenser and harder double sound
8. Оь оь  
(оь) – similar to the Russian «ё», but it is pronounced softly without the initial sound «й»

20. ЦІ цI  
(цI) – similar to the Russian «ц», sharp and click sound

9. Пп пп  
(пп) – similar to the Russian «п», a tenser, harder double sound

21. Щщ щщ  
(щщ) – identical to the Russian «щ» – a tenser and harder double sound

10. Пп пI  
(пI) - similar to the Russian «п», sharp and click sound

22. ЩI щI  
(ЩI) – similar to the Russian «щ», sharp and click sound

11. Сс сс  
(сс) – identical to the Russian «с» - a tenser, harder double sound

23. І  
(I) it has no correspondence in Russian

12. Тт тт  
(тт) - identical to the Russian «тт» - a tenser, harder double sound

We will further consider the graphical image of the specific handwritten letter "I" in the Lak alphabet. The division into elements and strokes characterizing the given letter of the Lak alphabet is given below according to the sequence of their draughting in accordance with the constructive components of capital and lower-case letters of the Russian alphabet, depicted in the manual by P.M. Koshmanova.
and M.P. Koshmanova "Identification Characteristics of Alphabetic, Digital and Signature Handwriting" (Koshmanov, Koshmanov, 2006), in the manual by A.P. Moiseeva, O.S. Murashova and I.S. Yurkov "Tables of Handwriting Characteristics" (Moiseev, Murashova, Yurkov, 1984) and in accordance with the Lak language handwriting manual for first grade schoolchildren (Ragimov, Shurpaeva, 2013), which we have taken as the basis (Table 2):

Table 2. The division into elements and strokes characterizing the specific letter - the additional "I" sign of the Lak alphabet

| The specific handwritten letter «I» consists of the (1) direct vertical element and (2) the final arc stroke. |

When describing the identification characteristics of the letter "I" in Table 2 above, we have taken into account the signs resulting from the hand movements in writing.

Words of the Russian language lack several letters and letter combinations described in Table 1, which occur in the Lak alphabet based on the Cyrillic alphabet. When examining records and signatures in the Lak language, handwriting experts will automatically learn them; but in this case, handwriting analysis of data should be considered incomplete and inaccurate, as there is no method for conducting handwriting examinations of manuscripts and signatures, written with letters of the Lak alphabet based on the Cyrillic alphabet and there are no supplements or additions to the existing method of conducting handwriting examinations of manuscripts and signatures written in Russian, taking into account the above-described letters and their combinations (the identification significance of the signs caused by the writing of these letters was not studied and did not become part of the method).

Conclusion
From the above-mentioned, one can conclude that one of the ways out in this situation will be the creation of a method of conducting handwriting examinations of manuscripts and signatures written in the Lak language, whose writing is based on the Cyrillic alphabet, with special consideration given to the specific letter and combinations of single letters that do not have counterparts in the Russian writing standard, or it is necessary to develop supplements or additions to the existing method of conducting handwriting examinations of manuscripts and signatures in Russian taking into account the Lak language.

REFERENCES