

МОНГОЛ УЛСЫН ИХ СУРГУУЛЬ
ШИНЖЛЭХ УХААНЫ СУРГУУЛЬ
“МОНГОЛ СУДЛАЛ”
Эрдэм шинжилгээний сэтгүүл

Боть L (626)

<https://doi.org/10.22353/ms20255022>

**ON THE 120TH ANNIVERSARY OF D. NATSAGDORJ'S BIRTH:
WHAT WAS HIS CONTRIBUTION TO A GERMAN-MONGOLIAN INDEX IN THE 1920S?**

Our article is dedicated to our esteemed advisory board member
Prof. Klaus Sagaster, who passed away in November 2025¹

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Introduction

Dashdorjiin Natsagdorj² is considered the most famous pioneer of modern Mongolian literature and literary translation. Between 1926 and 1929, he spent a few years in Germany, mostly in Leipzig, where he also studied and worked under the guidance of Friedrich Weller and Erich Haenisch. At the latter's instigation, he wrote most of the entries in the vertical Mongolian script (*mongyol bičig*) for this two-volume German-Mongolian Index in 1927.

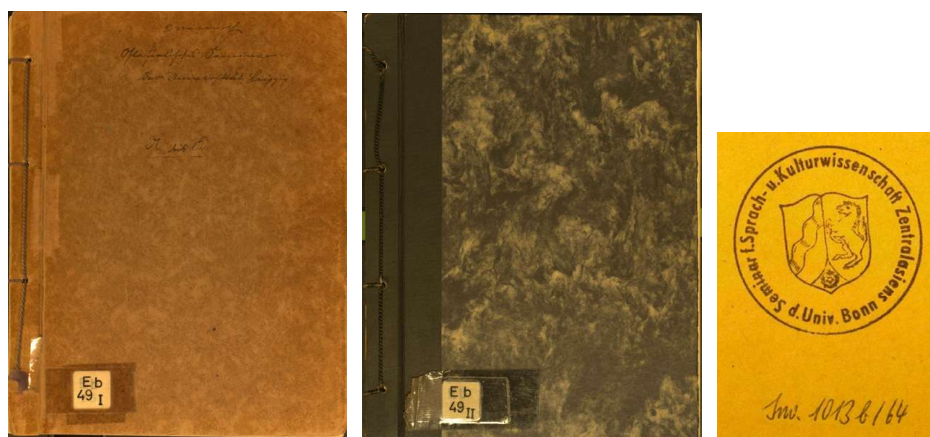


Figure 1. Vol. I and II and stamp with handwritten inventory number

¹ An obituary can be found on the website of his former department at the University of Bonn: <https://www.ioa.uni-bonn.de/mongtib/de/colloquien/bilder-und-pdfs/wir-trauern-um-prof-dr-klaus-sagaster.pdf>. Furthermore, the latest issue of the journal *Mongolische Notizen* contains obituaries featuring personal recollections.

² Throughout this article, we use the most common Latin transcription of Mongolian personal names and modern Mongolian words. For the vertical Mongolian script (*mongyol bičig*), we use the internationally recognized transcription.

These two volumes have been held in the specialized library in Bonn since the *Seminar für Sprach- und Kulturwissenschaft Zentralasiens* was established by Walther Heissig in 1964.³



Figure 2. Former library of the *Department of Mongolian and Tibetan Studies*, University of Bonn (The photo dates from 2015, I. Stolpe)

The two volumes were catalogued in the same year (1964) by Klaus Sagaster, then working as Heissig's assistant, and have been accessible to all library users ever since (see Fig. 3).

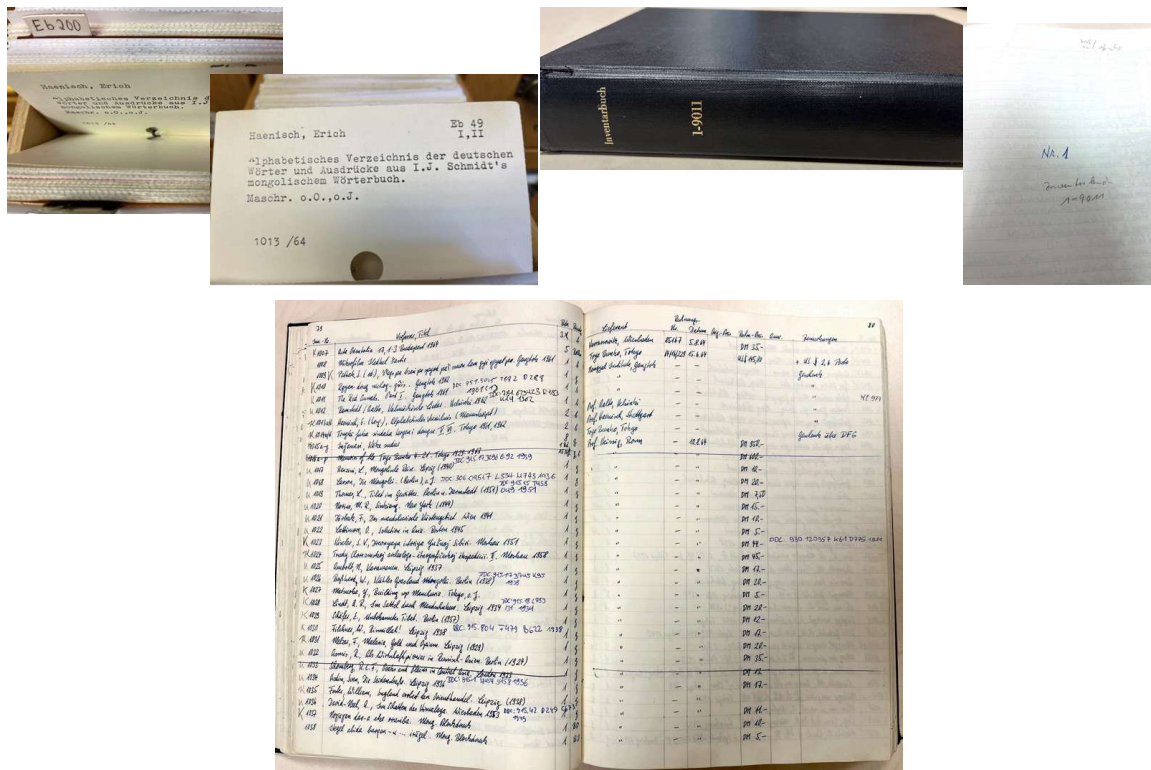


Figure 3. The old library's card catalog of the former *Seminar für Sprach- und Kulturwissenschaft Zentralasiens* at the University of Bonn and the inventory book with the entry⁴ (photos: I. Stolpe)

³ On the history of the *Seminar für Sprach- und Kulturwissenschaft Zentralasiens*, see Sagaster (2014).

⁴ These are Klaus Sagaster's handwritten notes. He started compiling the library inventory of the *Seminar für Sprach- und Kulturwissenschaft Zentralasiens* at the time. Source: Comparative analysis of several handwriting samples and confirmation during personal communication with Prof. Sagaster in Königswinter, Germany.

Nevertheless, the contents and provenance of these two volumes have remained largely unexplored until now. Thus, the goal of our project is not only to make their content accessible to a wider audience in digital form but also to conduct a systematic and holistic textological analysis. We are working on a critical, annotated and illustrated edition in order to contribute to the understanding of the intellectual history of Mongolian-German relations.

The two-volume alphabetical register of German words and expressions is based predominantly on Isaak Jakob Schmidt's Mongolian-German-Russian Dictionary of 1835.

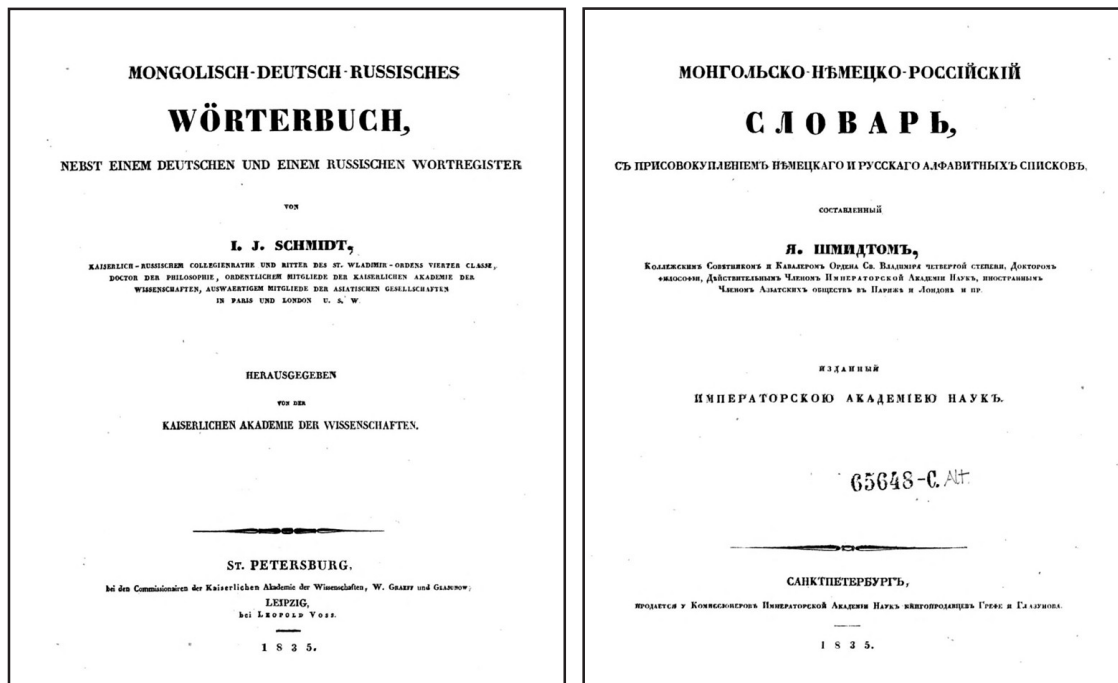


Figure 4. The two title pages of Schmidt's Dictionary in German and Russian⁵

⁵ Accessible online: https://archive.org/details/bub_gb_RgtAAAAcAAJ_2/page/n17/mode/2up.

As an original, this partly handwritten index is a valuable historical document, reflecting and bearing witness to its time, and it should also be made accessible to future generations. We consider this artefact to be a key document in the history of our discipline (Fachgeschichte); it is not only a significant source for the study of Mongolian-German relations, but also an outstanding part of Mongolia's cultural heritage. Therefore, our long-term goal is to make it digitally available through the National Library of Mongolia (*Mongol Ulsyn Ündesnii Nomyn San*) as well. At the top of the first page of Volume I, the following inscription appears, written in black ink, in Kurrent (Sütterlin) script and right-aligned:

*geschrieben von Natsok Dorji unter Aufsicht von E. Haenisch, Ostas. Seminar
d. Univ. Leipzig 1927*

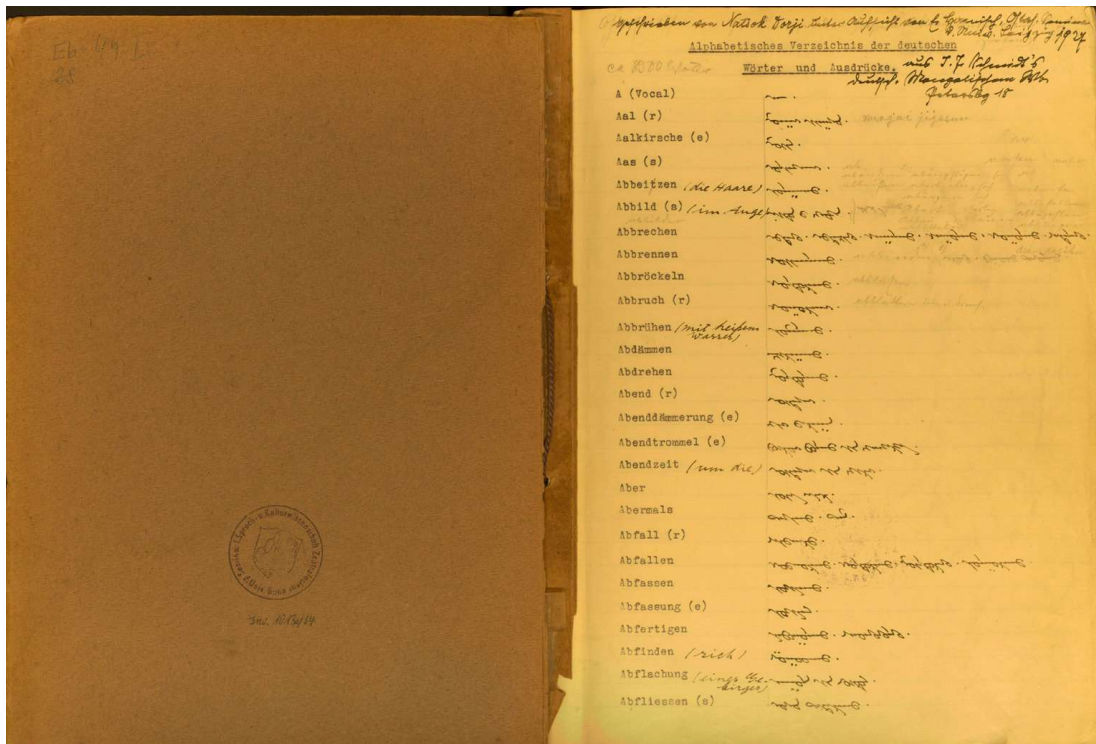


Figure 5. Excerpt from the original source

However, as the title of our joint article suggests, the exact scope of his contribution is not entirely certain. Our preliminary results indicate that other individuals were involved in the creation of the index, despite the fact that their names are not mentioned. We will substantiate this hypothesis below.

Our project takes a cross-disciplinary approach: Members of the project team are systematically analyzing the two volumes, contributing expertise from different disciplines in addition to their respective specializations in Mongolian Studies. The Mongolian-German-Czech project team expects the edition to shed light on the history and shifting lexical emphasis, as well as on questions of scholarly interest and representation at the time.

To commemorate the 120th anniversary of D. Natsagdorj's birth, we present some of our preliminary findings in this contribution, which is the first of a series to be published, starting during the anniversary year. The following article examines the materiality and questions of sources and provenance before turning to the contributors and concluding with initial findings on lexical analysis.

On the Materiality of the two Volumes of the Primary Source

Both volumes were typewritten on loose DIN A4 sheets of largely acid-free and wood-free, non-brittle writing paper and subsequently bound by hand. The binding style is reminiscent of Chinese thread binding. The pages were lined, but the vertical dividing line in the middle of each was added using a pencil and ruler. Overall, the formatting is resembles that of a vocabulary notebook.

The pagination across both volumes (Vol. I starting with page 2 and ending with page 150, Vol. II starting with page 151 and ending with page 320) was added using a typewriter, and each number ends with a period. All blank pages are unpaginated and were likely inserted before binding, presumably to provide space for later additions and/or for blotting paper. Both volumes bear the violet ink stamp of the *Seminar für Sprach- und Kulturwissenschaften Zentralasiens* at the University of Bonn in several places.

Volume I (Signature Eb 49 I)

The first volume has a light medium brown soft four-ring cardboard cover. Its binding, made of twisted thread, was originally violet but has since faded. The front shows clear signs of use; it is slightly damaged along the fold and was repaired with adhesive tape some time ago. The signature **Eb 49 I** in black block letters on a white background was attached with adhesive tape in the bottom-left corner, and the old shelf mark (**Eb 2 S**) is still faintly visible beneath it. At the top center of the cover, a personal name and the designation is written in black ink in Kurrent (Sütterlin) script,⁶ it reads in four lines:

*Haenisch
Ostasiatisches Seminar
der Universität Leipzig
A bis K*

At the top left of the inside front cover, the signature is written in pencil, and directly below it, the old shelf mark **2S** is crossed out. The violet-ink stamp of the *Seminar für Sprach- und Kulturwissenschaften Zentralasiens* is located at the bottom center and is supplemented by the handwritten inventory number **1013a/64**, written with a fine-tipped ballpoint pen by Klaus Sagaster, who had also compiled the library inventory.

⁶ This is Erich Haenisch's handwriting, as confirmed by our own comparative analysis.

At the top of the first page, right-aligned in black ink in Kurrent (Sütterlin) script, it says:

*geschrieben von Natsok Dorji unter Aufsicht von E. Haenisch, Ostas. Seminar
d. Univ. Leipzig 1927
aus I.J. Schmidt's
Mongolischem Wb.
Katalog 18*

The following left-aligned specification was written in pencil:
ca. 8900 Wörter

Volume I contains 588 pages in total, of which 208 bear writing and 380 are blank. Up to page number 58, two blank pages are consistently inserted after each written section (see Fig. 5a):

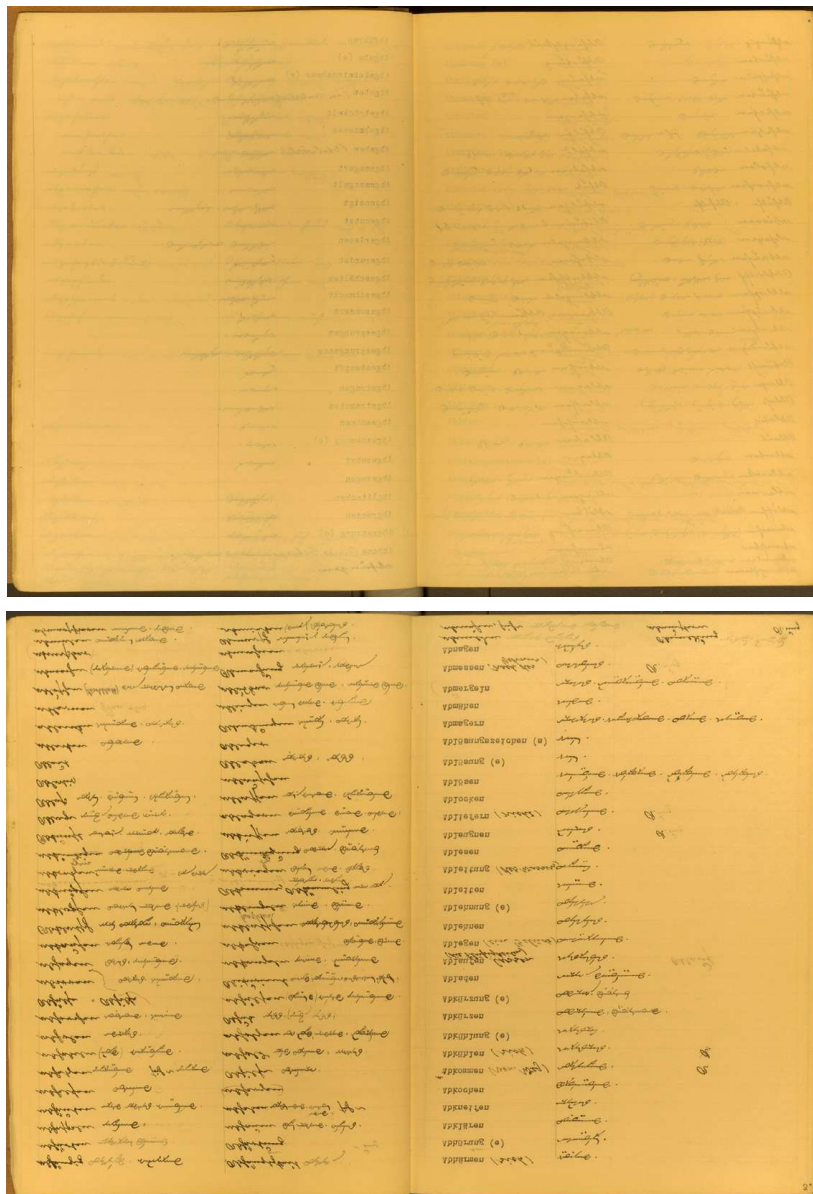


Figure 5a. (Vol. I)

But from page 59-150 (paper sheets nos. 232-586), three pages were left blank. A vertical line was drawn in pencil on the last (or third) page of the three blank pages from pages 59-90 (paper sheets nos. 236-358, see Fig. 5b). No vertical lines are drawn on pages 91-150 (paper sheets nos. 358-588).

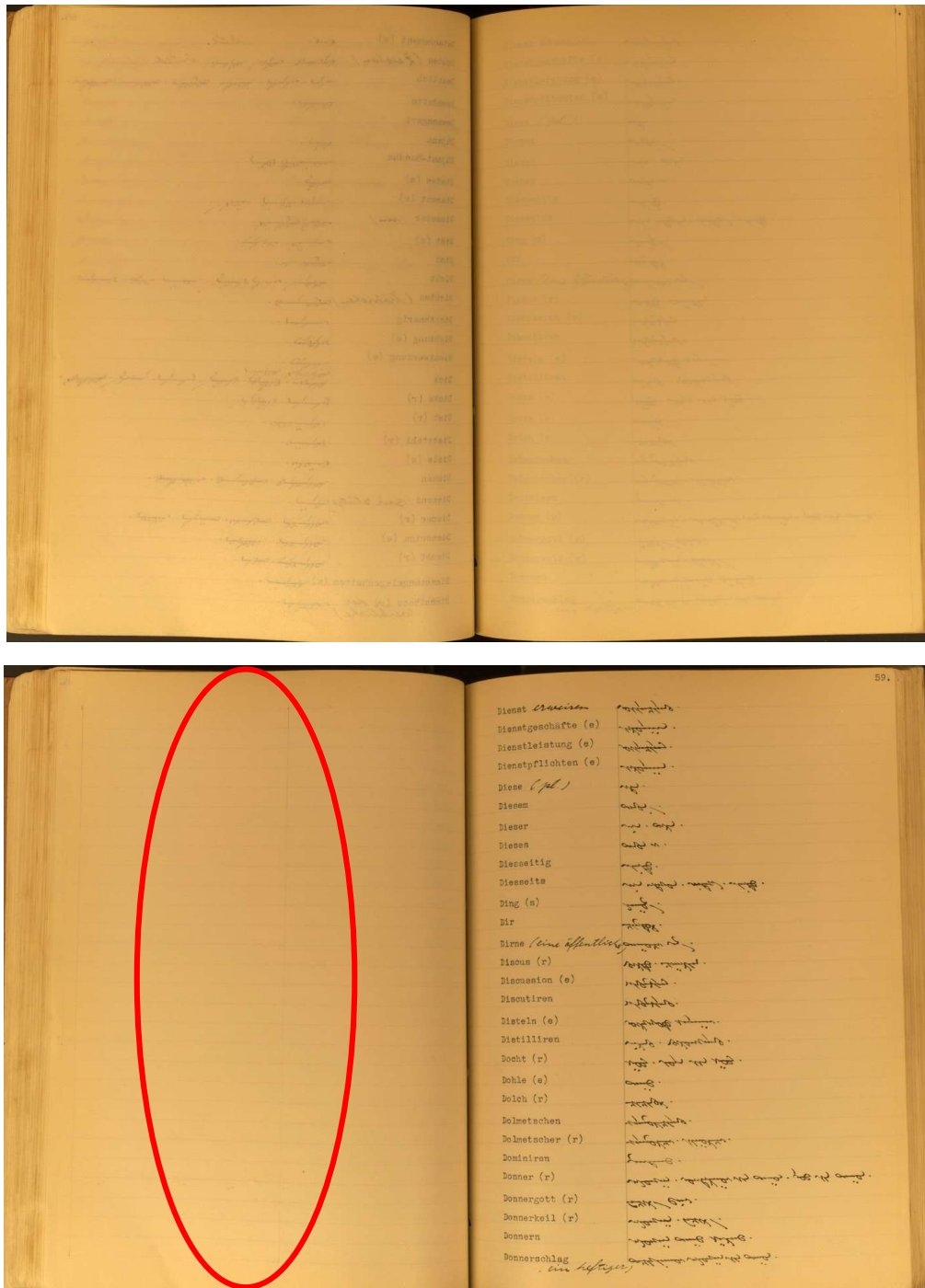


Figure 5b. (Vol. I)

On the left side of page 28, there is a handwritten note in pencil: *31/I/30*, which may indicate a date (see Fig. 5c).

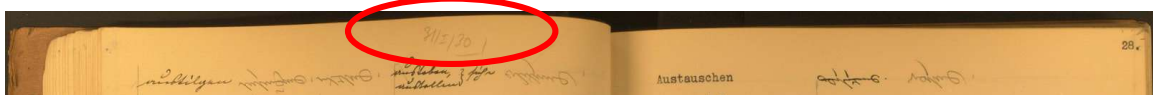


Figure 5c. (Vol. I)

Volume II (Signature Eb 49 II)

The second volume has a black-and-white marbled four-ring hardcover made of cardboard and black cloth, and its back cover shows signs of use. The paper is attached to the inside with glue. Its binding is made of twisted thread, which is black on the outside and colorless on the inside, and has a loose end at the top of its four rings. The signature **Eb 49 II** in black block letters on a white background was attached with adhesive tape in the bottom-left corner of the cover, and the old shelf mark (**Eb 2 S**) is still faintly visible beneath it.

At the top left of the inside front cover, the signature is written in pencil, and directly below it, the old shelf mark **2S** has been crossed out. The violet-ink stamp in of the *Seminar für Sprach- und Kulturwissenschaften Zentralasiens* is located at the bottom center and accompanied by the handwritten inventory number *1013b/64*, written in fine-tipped ballpoint pen by Klaus Sagaster, who had also labelled the first volume. The second volume contains a total of 602 pages, of which 151 bear writing and 451 are blank. In this volume, three blank pages are consistently inserted between sections, and they have no marks or writing.

Correspondence between Heissig and Haenisch

Walther Heissig (1913–2005) and Erich Haenisch (1880–1966) were acquainted for several decades, though the nature of their relationship evolved over time. While Heissig, the younger of the two, initially relied primarily on Haenisch’s advice, this dynamic gradually reversed (Walravens, 2018). In the 1950s, Heissig was dependent on Haenisch’s assistance to secure funding for his research; in the earliest known letters, Haenisch offered advice to this end. Later, however, Haenisch came to rely on support for his own publication projects. Heissig’s assistance in this regard is documented in the surviving correspondence (ibid. 126), with indications of this support found in several of their letters.

To date, only a portion of the presumably extensive correspondence between the two scholars is known. This correspondence, along with numerous other documents from Heissig’s estate, is held at the Staatsbibliothek zu Berlin (Berlin State Library). It includes letters exchanged between Haenisch and Heissig from 1950 to 1966, as well as a letter by Haenisch’s relative Kate Haenisch from 1967. These letters were published by Hartmut Walravens (2018). Further correspondence between the two scholars is likely still in the private possession of the Haenisch family.

Although two-volume German-Mongolian Index is not explicitly mentioned in the known letters, they provide subtle indications of how the object might have come into Heissig's possession. The material shows that Haenisch invited Heissig to visit him on several occasions. The earliest such invitation documented in the known sources appears in a letter dated December 12, 1962 (ibid., 136). Further invitations were extended in letters dated 2 August 1964 (ibid., 142) and 15 November 1966 (ibid., 143). The correspondence reveals that Heissig visited Haenisch in Stuttgart multiple times. His final visit took place in late autumn 1967 (ibid., 145). Heissig most likely acquired the register during one of these visits. Since the inventory records of the library of the *Seminar für Sprach- und Kulturwissenschaft Zentralasiens* at the University of Bonn confirm the presence of the two volumes 1964 onward, the handover must have taken place before that date. Unfortunately, the available sources do not allow to determine the exact date of the handover. Within the known correspondence, only one passage has been identified in which Haenisch mentions Natsagdorj directly. As quoted by Walravens:

„Ich habe noch die Erinnerungen an den mongolischen S. in Verchne Udinsk, einen Archäologen in Troizkosawsk, an Erdeni Batu Khan am Jampilong, an Žamcarano, an Rincen natürlich u. an Natsok Dordji, von dem ich noch aus dem Leipziger Ostasiatischen Seminar [Erinnerungen] besitze.“ (Walravens 2018, 141)

Comparison of the two Sources: Optical Character Recognition (OCR) Analysis

The **Mongolian Dictionary Parser and Analyzer** is a digital humanities tool developed to compare the so-called *Schmidt Dictionary* (Schmidt, 1835) with the German-Mongolian Index examined in this article. It provides a tailored solution for the digital processing and comparison of these two historical sources within the scope of the project. The primary objective is to transform unstructured, error-prone data derived from optical character recognition (OCR) into machine-readable, structured formats while preserving the scholarly integrity of the historical linguistic data. The system addresses key challenges in the digital humanities by extracting bilingual and trilingual text segments from OCR output, automatically assigning language tags based on writing systems, evaluating extraction quality, and conducting cross-dictionary lexicographical comparisons. The program code is available on GitHub.⁷ As the results presented here are preliminary, significant changes may still be made to the code.

The OCR text used in this study was generated via the OCR pipeline of the Bavarian State Library (Munich) and comprises 32,479 entries distributed across 572 pages in a complex trilingual format. The process begins with page extraction, skipping the first 50 pages, which contain the foreword and introductory text, in order to focus on the lexicographical entries.

The precise page cutoff was determined manually based on the structure of each volume. In a second step, common OCR errors are corrected: Entries split across page or line breaks are reconstructed by detecting end-of-line hyphens and merging the corresponding word segments. At the same time, intrusive line-numbering artifacts are removed using regular expressions.

⁷ Online: <https://github.com/AZiemer8/mongolian-dictionary-parser>.

Language detection is based on the analysis of Unicode character ranges. The traditional Mongolian script is identified using the ranges U+1800 to U+18AF and U+11EE0 to U+11EFF (Mongolian Supplement). Detection of Russian texts also encompasses historical characters from the pre-reform era, such as Yat, Fita, and Yzhitsa, which were in use until the 1918 spelling reform. A multi-step process is employed for German text detection, relying on typical articles (der, die, das, einer, eine, eines), noun suffixes (-ung, -heit, -keit, -schaft), and adjective endings (-lich, -bar). Additionally, quality indicators are assigned to each entry to flag potential misclassifications and entries containing fewer than three characters, which often represent OCR fragments rather than valid words.

Of the 32,479 entries processed, 100% contain a German component. German thus serves as a central anchor point for cross-dictionary comparison. The proportion of entries with a Russian component stands at 43.4% (14,086 entries), whereas the share containing a Mongolian component is significantly lower at 5.5% (1,777 entries). The low figure for Mongolian reflects the specific difficulties associated with OCR recognition of the traditional vertical Mongolian script. Only 1,265 entries (3.9%) contain all three language components in full. In contrast, 55% of the entries contain only the German component, indicating systematic challenges in extracting the Mongolian and Russian text segments.

The German-Mongolian Index serves as the second data source. It has a relatively well-structured format, originally produced in manuscript or typewritten form, and comprises 10,159 entries, enabling efficient automated processing. The entries can be categorized into three structural types. Simple entries, which account for 45% of the total, consist solely of a German headword without any additional information. Entries with grammatical details (47%) include grammatical categories in parentheses: masculine nouns are marked with (r), feminine nouns with (e), neuter nouns with (s), and reflexive verbs with (sich). Multi-line entries (8%) span several lines, with continuation lines identifiable by features such as a lowercase initial letter or an introductory preposition (e.g., *über*, *von*, or *zu*).

The parser employs a state-based algorithm to distinguish between main entries and their continuations and stores grammatical details in separate data fields. Among the grammatical categories, masculine nouns are the most frequent, with 1,673 entries. They are closely followed by feminine nouns, with 1,666 entries, and neuter nouns, with 806 entries. The average length of German headwords is 8.9 characters, ranging from 2 to 23 characters.

The core of the tool is the cross-dictionary comparison implemented in the **find_exact_word_matches()-function**. This function systematically maps entries from both dictionaries to each other based on their German semantic components. The comparison proceeds in three steps. First, stop words, frequently occurring function words such as articles, conjunctions, prepositions, and auxiliary verbs, are removed so that the comparison focuses on semantically relevant content words. In the second step, word stems are extracted using a rule-based suffix-stripping process that accounts for, among other things, verb infinitive and conjugation endings, noun-forming suffixes, and adjective endings. A specialized algorithm also handles consonant doubling—for instance, when normalizing “plätten” to “plät”. Finally, an exact comparison of the word sets is performed: the stems extracted for each entry are represented as a set, and an overlap coefficient is calculated, defined as the size of the intersection relative to the smaller of the two sets. An overlap of at least 70% serves as the threshold for a match.

The results are stored in three output files: the *Schmidt Dictionary* with match-status flags, the German-Mongolian Index with match-status flags, and the complete match mappings, including all calculated similarity metrics (degree of overlap, Jaccard similarity, and string similarity using **SequenceMatcher**).

Of the 32,479 *Schmidt Dictionary* entries, 26,553 (81.75%) have at least one corresponding entry in the Haenisch/Natsagdorj register. These 26,553 entries are covered by 8,737 German-Mongolian Index headwords (86.00% of the 10,159 entries). This asymmetry reflects the finer semantic granularity of the *Schmidt Dictionary*, which lists several related forms as separate entries, whereas the German-Mongolian Index contains only the base lemma. For example, the single German-Mongolian Index headword „Abbrechen“ corresponds to six different *Schmidt*-entries: „durchschneiden, abbrechen,“ „abreissen, einreissen, abbrechen,“ „zerbrechen lassen, abbrechen lassen,“ „aufreissen, zerreißen, abbrechen,“ and two index references. Similarly, the German-Mongolian Index headword „Abermals“ corresponds to eight *Schmidt*-entries covering various phrase combinations, such as „wieder oder abermals thun“ and „erneuert, wiederholt oder abermals angefangen werden.“ The remaining 5,926 *Schmidt*-entries (18.25%) and 1,422 German-Mongolian Index headwords (14.00%) without matches point to areas where lexical coverage differs, whether due to historical language changes, differing lemmatization strategies, or varying documentation priorities.

The quality of the identified matches is remarkably high. Of all the pairwise mappings performed, 98.20% exhibit a perfect overlap rate of 100%, indicating that all significant word stems match completely. A further 1.41% fall within the 75–80% overlap range, and 0.39% within the 80–85% range. The mean Jaccard similarity is 0.43 (median: 0.36), while the mean string similarity is 0.41 (median: 0.39). The lower Jaccard values, relative to the overlap rate, are attributable to the greater length of the *Schmidt*-entries (averaging 25.6 characters) compared to the German-Mongolian Index headwords (averaging 8.9 characters). All results presented here are preliminary; final figures will be provided once the revision of the OCR data is complete.

Who were the Contributors? A Comparative Analysis of Handwritings

To identify the contributors, it is first necessary to examine the structure and format of the two volumes: In **Volume I**, up to page number 59, one side of each double-page spread (A) contains handwritten German headwords with their Mongolian equivalents entered in pencil. The opposite page (B) features typewritten German headwords with their Mongolian equivalents in black ink. From page 59 onwards, only one side of each double-page spread is used (Fig. 6).

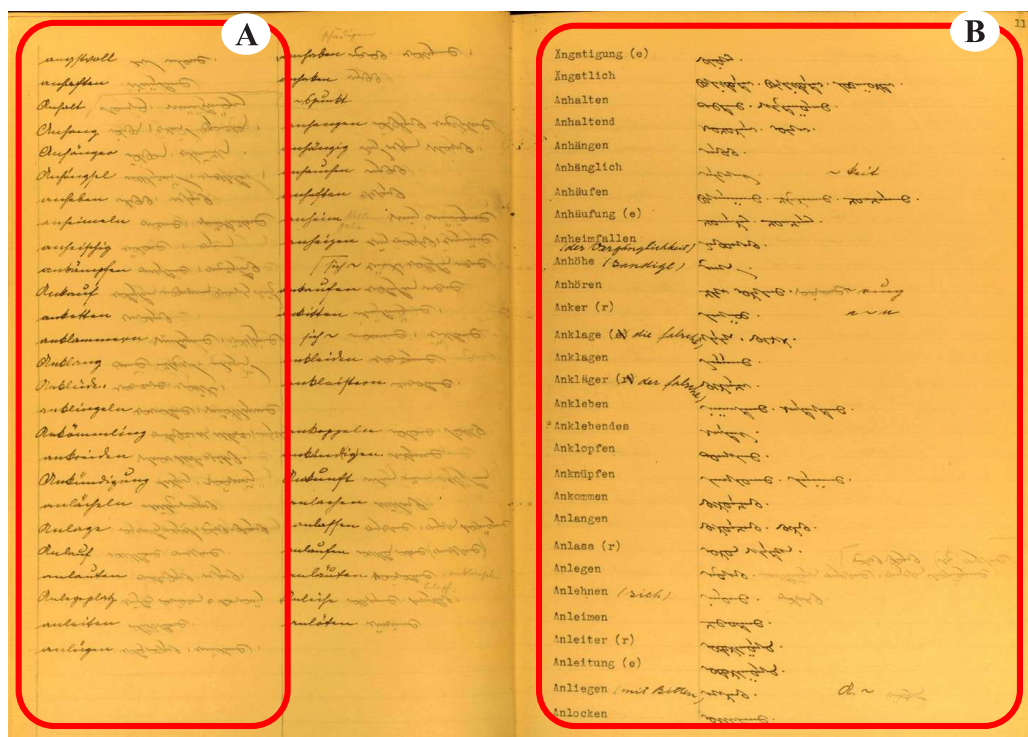


Figure 6 a. Excerpt from Volume I

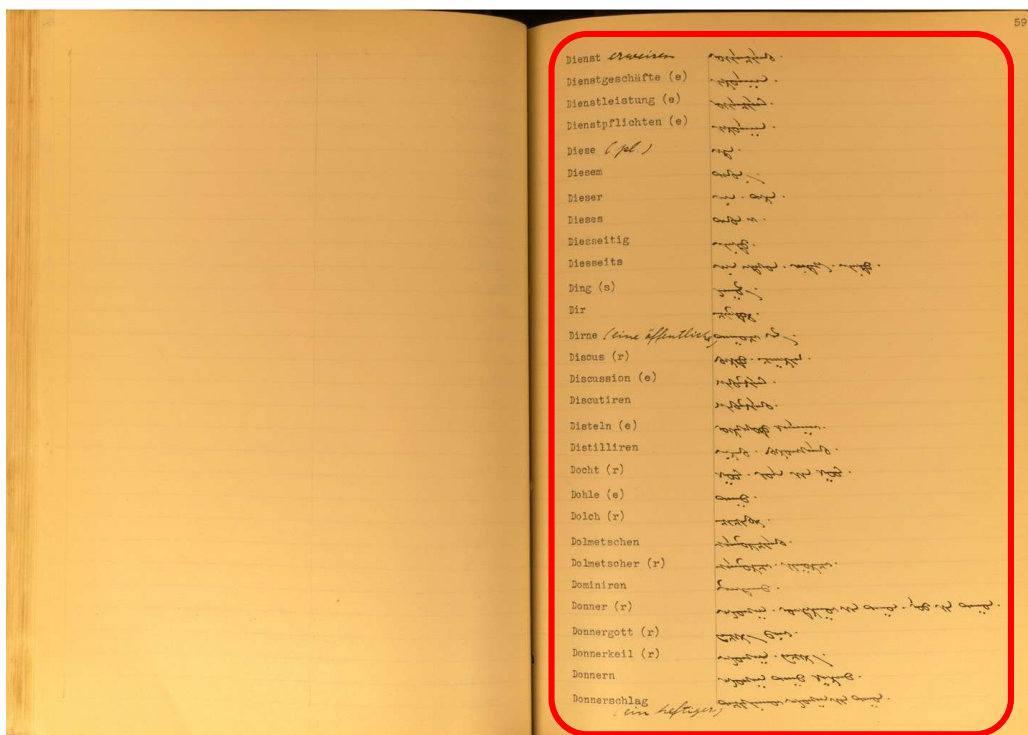


Figure 6 b. Excerpt from Volume I

In contrast, **Volume II** contains typewritten German headwords throughout, with the Mongolian equivalents entered in the traditional Mongolian script in black ink. This difference indicates that the index was compiled in several stages. The following analyses examine the manuscript's indexing system, lexical selections, and differences in handwriting to clarify structural questions and identify the individuals who contributed to its compilation.

The relationship between the German-Mongolian Index and I.J. Schmidt's Dictionary

There is no doubt that Isaak Jakob Schmidt's *Mongolisch-Deutsch-Russisches Wörterbuch, nebst einem deutschen und einem russischen Wortregister* (1835) served as the primary source for the German headwords included in the two-volume index. This connection is clearly evident not only from the Optical Character Analysis (OCA) presented above, but also from comparisons of the headwords and their semantic explanations below. The handwritten German headwords were likely added by Erich Haenisch himself, while the typewritten entries may have been compiled by others under his supervision. The task of providing the Mongolian equivalents appears to have been entrusted to Mongolian contributors who were in Leipzig at the time. Their levels of education and literary knowledge varied; however, since Dashdorjiin Natsagdorj possessed the most extensive literary background, it seemed natural that he was responsible for entering the Mongolian equivalents.

The German-Mongolian Index is hereinafter abbreviated as **GMI**, and Schmidt's Dictionary as **SD**.

Lexical Selection, Indexing, and Editorial Features

The additional explanatory notes added in ink after the German headwords were taken from Schmidt's dictionary. For example:

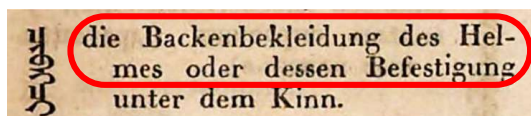


Figure 7. Excerpt from SD

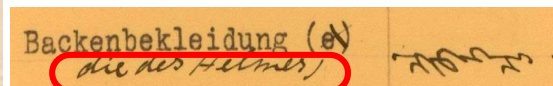
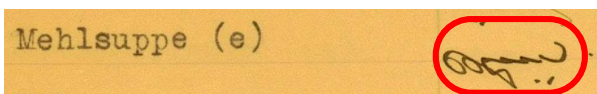
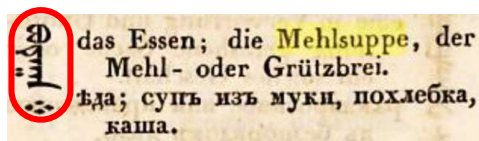


Figure 8. Excerpt from GMI

When copying the Mongolian equivalents from Schmidt's dictionary, D. Natsagdorj reproduced with remarkable accuracy not only the lexical meanings but also the orthographic conventions of the Mongolian script prevalent at the time. For example, when writing the ending *-γ-a* of a word, he did not use the form known as *orkiča* / *čaculy-a* (ᠵ), instead he consistently followed the ending form known as *segül* (ᠰᠡᠭᠦᠯ), exactly as it appears in Schmidt's dictionary.⁸ This demonstrates his close adherence to the orthography of the source. For example:



⁸ The elements referred to here are designated according to the traditional terminology (i.e. *titem*, *gedes*, etc.) used in Mongolian language instruction.

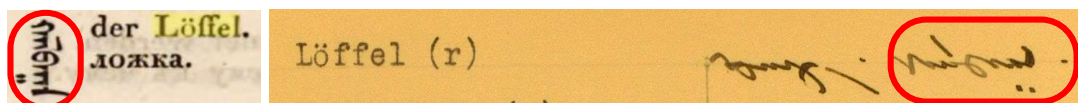


Figure 9. Writing of the ending *-γ-a* of a word (excerpts from **SD** and **GMI**)

However, in his handwritten poem *Minu nutuγ* (My Homeland), D. Natsagdorj used the form known as *orkiča* / *čačuly-a* (ᠷ) for the word *siry-a* as shown below:

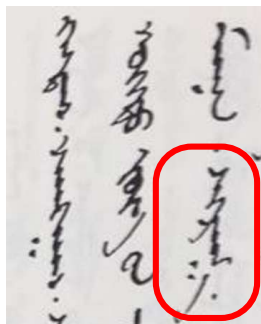
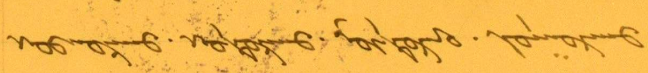


Figure 10. Excerpt from *Minu nutuγ* by D. Natsagdorj

Furthermore, in assigning Mongolian equivalents to the German headwords in Schmidt's dictionary, synonymous and near-synonymous Mongolian lexical items were grouped together. This indicates that the German-Mongolian Index was compiled according to the principle of grouping semantically related lexical units. For example:

SD: Abfallen 164, *b* / 169, *a* / 222, *b* / 310, *a*

GMI: Abfallen 

SD: Bähnen 119, *c* / 190, *b* / 301, *b*

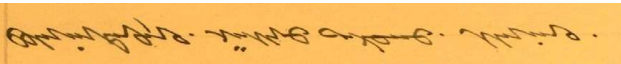
GMI: Bähnen 

Figure 11. Example of the semantic grouping of Mongolian synonyms. The numbers above indicate the position of the German entries in the **SD**.

Lexical Innovation and Translation Features

During the preparation of the typewritten section, a number of archaic words found in Schmidt's dictionary were replaced by terms reflecting the language usage of the 1920s. For example, Schmidt's dictionary contains the headwords *köbegüčilekü* and *keüked*, but it does not include the expression *keüked ergükü* (to adopt a child). In the German-Mongolian Index, however, this meaning has been added with the German noun (Adoption):

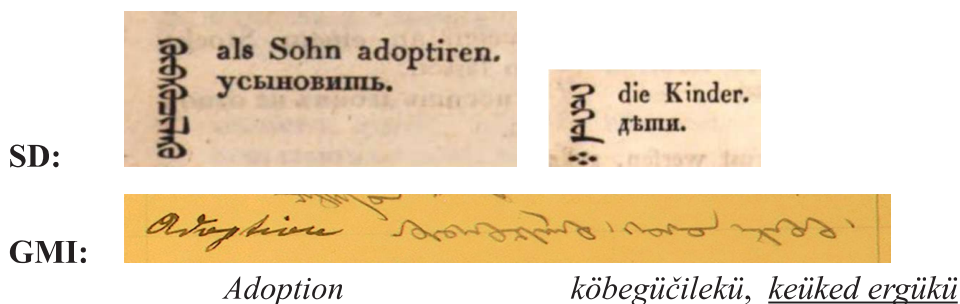


Figure 12. Example illustrating lexical innovations in the **GMI** in relation to **SD**

While Schmidt's dictionary shows the headword *arki* (alcohol), it does not contain the additional gloss *γaltu usu* (fire water), which appears in the German–Mongolian Index:



Figure 13. Example illustrating lexical innovations in the **GMI** in relation to **SD**

Similarly, Schmidt's dictionary lists the headwords *sine* (new), *sineken* (fresh) and *sib sine* (brand-new): but – unlike **GMI** – does not contain the superlative expression *qamuy-un sin-e* (newest):

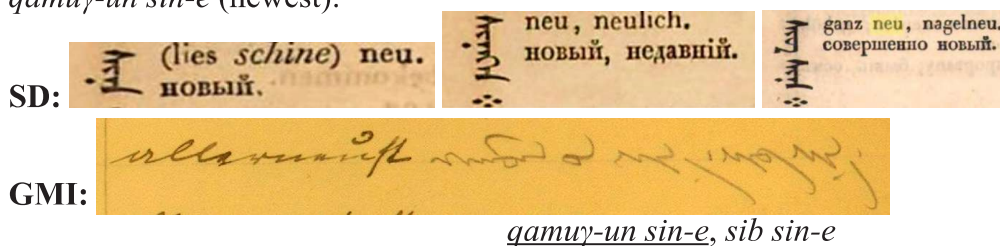


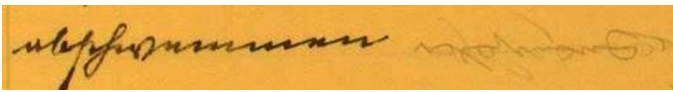
Figure 14. Examples illustrating lexical innovations in the **GMI** in relation to **SD**

These examples demonstrate that the German–Mongolian Index also contains lexical items reflecting the contemporary Mongolian language of that time.

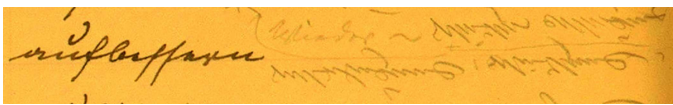
Handwritten Additions and Role of the Contributors

The handwritten German headwords were likely added to supplement the typewritten entries. This hypothesis is supported by the presence of several headwords not found in Schmidt's dictionary. It is therefore highly likely that Haenisch did not rely exclusively on Schmidt's dictionary but intended either to expand upon it or to compile an independent German–Mongolian dictionary.

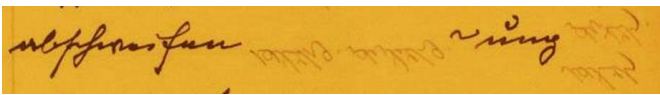
It is also possible that Haenisch himself was responsible for revising both the typewritten German headwords and Mongolian-script entries. This hypothesis is supported by the observation that some revisions to the Mongolian-script entries reflect the spoken pronunciation directly or deviate from the established orthographic conventions of the traditional Mongolian script. These features suggest that the person responsible for these revisions may not have been a native Mongolian speaker. For example:

GMI: 

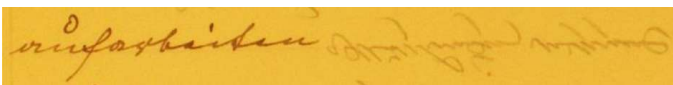
orosiluqu
Correct form: *orosiylqu*

GMI: 

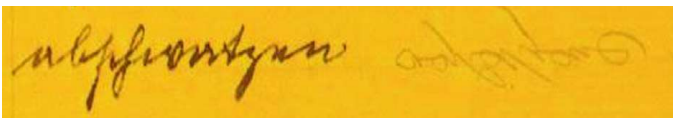
sayijaryulaqu, sinečilequ
Correct forms: *sayijarylqu, sinečilekü*

GMI: 

jörčikü, ögerečikü, jörčil, ögerčil
Correct forms: *jör*č*ikü, ögerečilekü, jör*č*il, ögerečile*

GMI: 

güičeldeyulan
Correct form: *güičeldügülün*

GMI: 

doldoyiluqu
Correct form: *doldoyilaqu*

GMI: 

gereltegülekü, duralayulaqu
Correct forms: *gereltegülkü, duralayulqu*

Figure 15. Examples of handwritten additions to German headwords and Mongolian-script entries in the GMI

Furthermore, the fact that this person revised the German headwords, for instance by adding or deleting meanings, suggests that he might have been a native speaker of German.

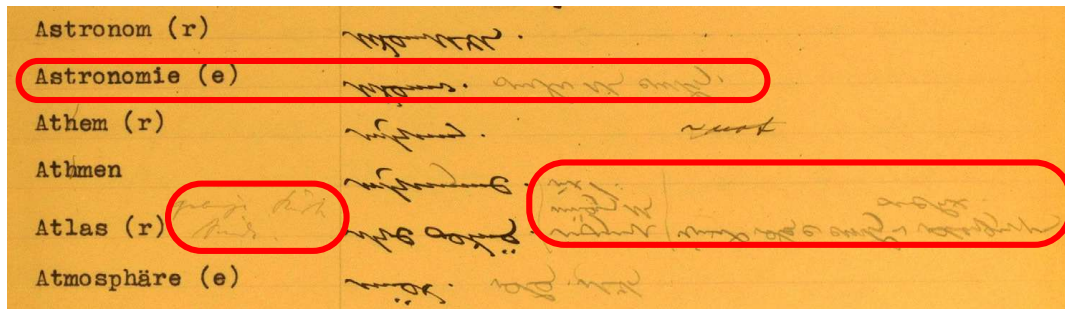


Figure 16. Examples of handwritten revisions to German headwords and Mongolian-script entries

Preliminary remarks on Lexical Analysis of the GMI

As a part of the overall examination of the GMI, a lexical analysis of the entries was conducted. At this stage, several distinctive semantic fields were identified as representative semantic domains for examining the lexical relationship between the German–Mongolian Index (GMI) and Schmidt’s dictionary (SD). Since they include a large number of specific nouns with relatively fixed meaning, they provide an appropriate basis for evaluating the extent to which the compilers relied on Schmidt’s dictionary and the editorial strategies they employed in preparing the GMI. Moreover, they shed light on the objectives of the authors with regard to its intended purpose. The initially selected semantic fields include botanical and zoological terminology, names of foods and beverages, clothing (both Mongolian and European), Buddhist terms and contemporary terminology of its time.

Lexical continuity

Some of the selected semantic fields show a remarkably high degree of lexical correspondence between the two works. The majority of the terms consist of identical German headwords and Mongolian equivalents, as in the following examples:

- Aalkirsche → *moyil*
- Apfel → *alim-a*
- Apfelsine → *amtatu jürči*
- Granatapfel → *anar*
- Johannisbeere → *ulaljıyana*
- Kastanie → *taulai-yin böger-e*
- Adler → *bürgüd sibayun*
- Ameise → *siryuljin*
- Bobak → *tarbaya*
- Fisch → *jıyasun*
- Fuchs → *ünegen*
- Geier → *eliy-e*
- Ente → *nuyusun*

- Frosch → *melekei*
- Wein → *üjüm-ün umdayan*
- Dorf → *tosqu*
- Kittel → *terlig*
- Lampe → *ǰula*

However, the comparison demonstrates that the lexical material was selectively reorganized rather than copied in its entirety. Several botanical entries present in Schmidt's dictionary do not appear in the GMI. Likewise, numerous zoological entries, including terms for animals such as *Luchs*, *Hermelin*, *Fledermaus*, *Papagei*, *Pfau*, *Schwan*, and *Wallfisch*, were omitted. Conversely, the GMI occasionally introduces independent entries or lexical subdivisions absent from Schmidt's dictionary.

Lexical modernization and editorial refinement

On the other hand, many entries reflect targeted editorial revisions, including lexical modernization, the addition of synonymous expressions, and semantic clarification. For example:

- *Biene* (*baltu ǰögei*) was supplemented by *ǰögei*
- *Bienenkorb* received the additional explanation *ǰögei-yin ger*
- *Bär* was supplemented by the later annotation *bayabayai*, in addition to *ötege*
- *Stadt* was given as both, *balyasun* and *qotan*

These modifications indicate that the compilers sought to improve lexical clarity and contemporary relevance rather than merely reproducing Schmidt's translations. This can be supported by the fact that some entries (e.g. **Kaviar**) remained untranslated, as there might not have been a proper Mongolian equivalent at the time.

Adaptations towards modern terminology

In the course of the revising the entries, some adaptations were made towards the common Mongolian forms, which differed from the literal translation:

- Orthographic modernization of several Mongolian forms
- Replacement of older lexical variants with forms closer to the language of the 1920s
- Occasional addition of explanatory synonyms
- Introduction of modern terminology (e.g. Flugzeug *aγur-un ongγuča*, Automobil *aγur-un terge*)

It is also noteworthy that the specific terminology related to the political, social, educational, and technological changes in Mongolia, which was commonly used by Natsagdorj in his speeches and journalistic texts, is absent from the GMI.

Identification of Contributors through Handwriting Analysis

The analysis of the handwriting in the GMI suggests that at least three individuals were involved in its compilation.

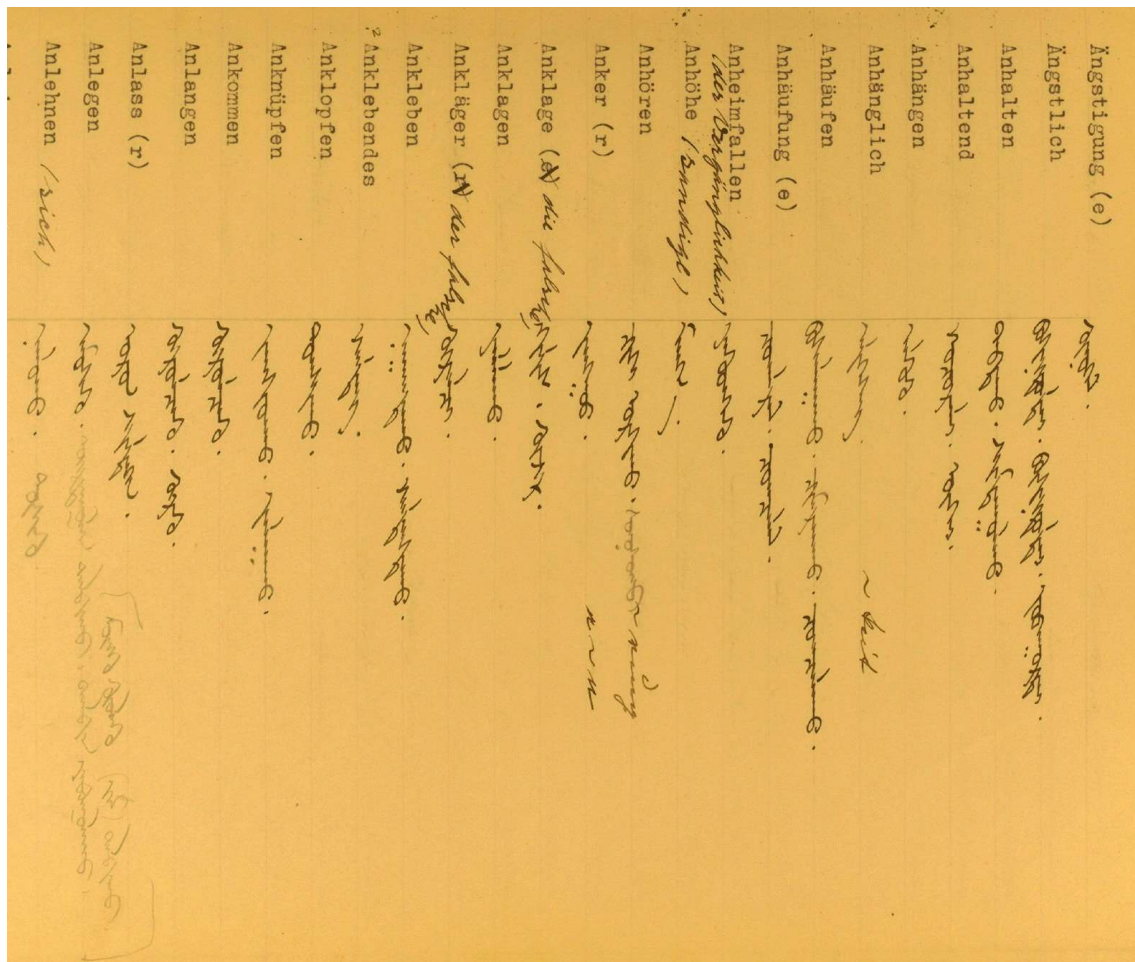


Figure 17. Handwriting of Scribe A

[illegible]

Figure 18. Handwriting of Scribe B

[illegible]

Figure 19. Handwriting of Scribe C (appearing only on page 3a)

The handwriting of Scribes A, B and C was analyzed and compared based on the letter forms *u/ü*, *d*, *s* as well as the syllable *bo/bu*. The comparison revealed clear differences in ductus and morphological features, including the initial and terminal strokes, the direction of pen movement, and the overall handwriting characteristics:

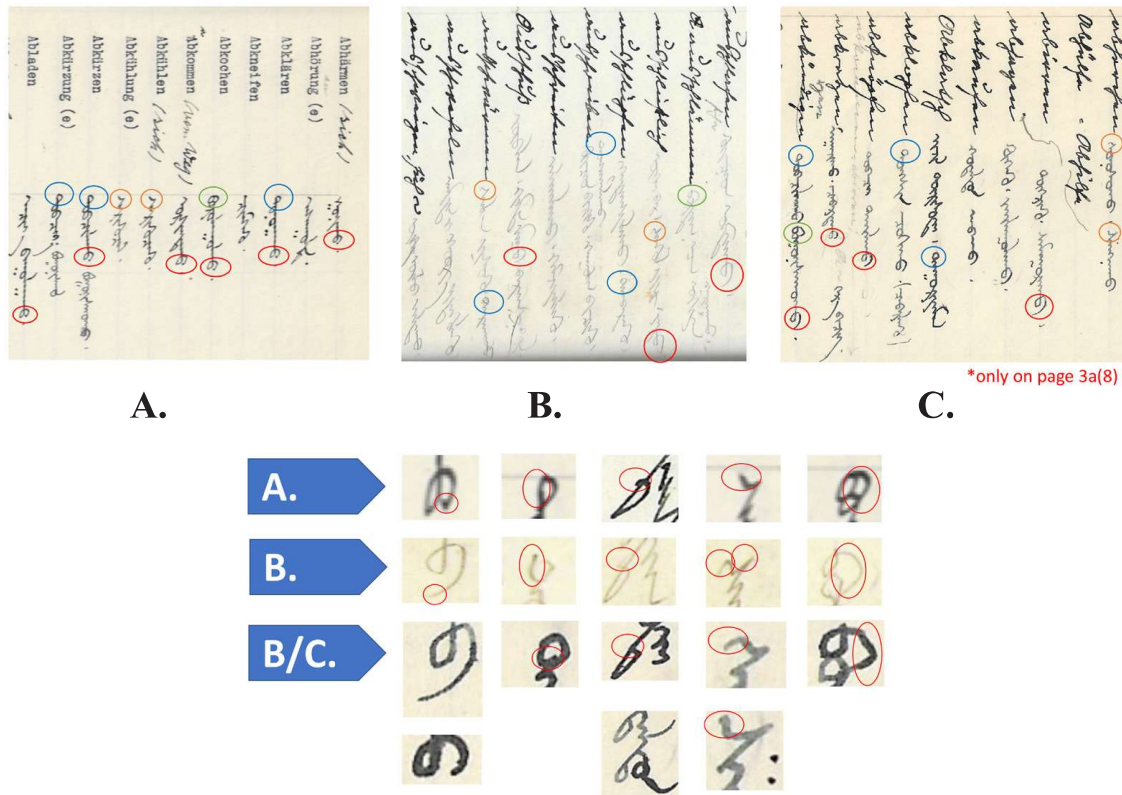


Figure 20. Comparison of the letters *u/ü*, *d*, *s* and the syllable *bo/bu*

As the comparative images above demonstrate, the handwriting samples can be clearly distinguished into three different handwritings, here designated A, B, and C. For instance, Scribe A finishes the terminal grapheme *num* with an upward stroke, whereas Scribe B extends it downward. By contrast, Scribe C forms the grapheme *gedes* in a slightly more angular shape and ends the terminal grapheme with a noticeably longer forward extension.

Further differences can be observed in the writing of the initial *d* and *t*. Scribe A begins these letters with a straight *nuruu* grapheme whereas Scribe B begins them with a rounded back. In contrast, Scribe C writes them with an upward stroke from below. The initial letter *s* likewise exhibits distinctive forms. Scribe A begins it with a downward-curving bow from above, Scribe B with a wavy form, whereas Scribe C begins it with an upward stroke from below.

Taken together, a comparison of these graphemes, stroke direction, and terminal forms clearly indicates that at least three different scribes participated in the compilation of the Mongolian parts of the GMI.

Identification of Scribe A:

In the next stage of the analysis, the three handwriting styles were compared with the manuscripts written by individuals who were likely to have participated in the compilation of the index. It was hypothesized that Scribe A, the individual who entered the Mongolian-script equivalents in ink after each typewritten German headword, was D. Natsagdorj. To test this hypothesis, Scribe A's handwriting was compared with the manuscript of Natsagdorj's poem *Minu nutuy* (My Homeland).

The comparison revealed complete correspondence in the essential features, including grapheme formation, stroke sequence, and characteristic letter forms. Based on these findings, there are compelling grounds to assume that Scribe A was Dashdorjiin Natsagdorj.

To further substantiate this conclusion, the following handwriting characteristics were compared:

- the terminal form of words ending with the grapheme *num*
- the terminal letter *l*
- the initial masculine *q*
- the syllables *kö/kü*
- the syllable *bo*

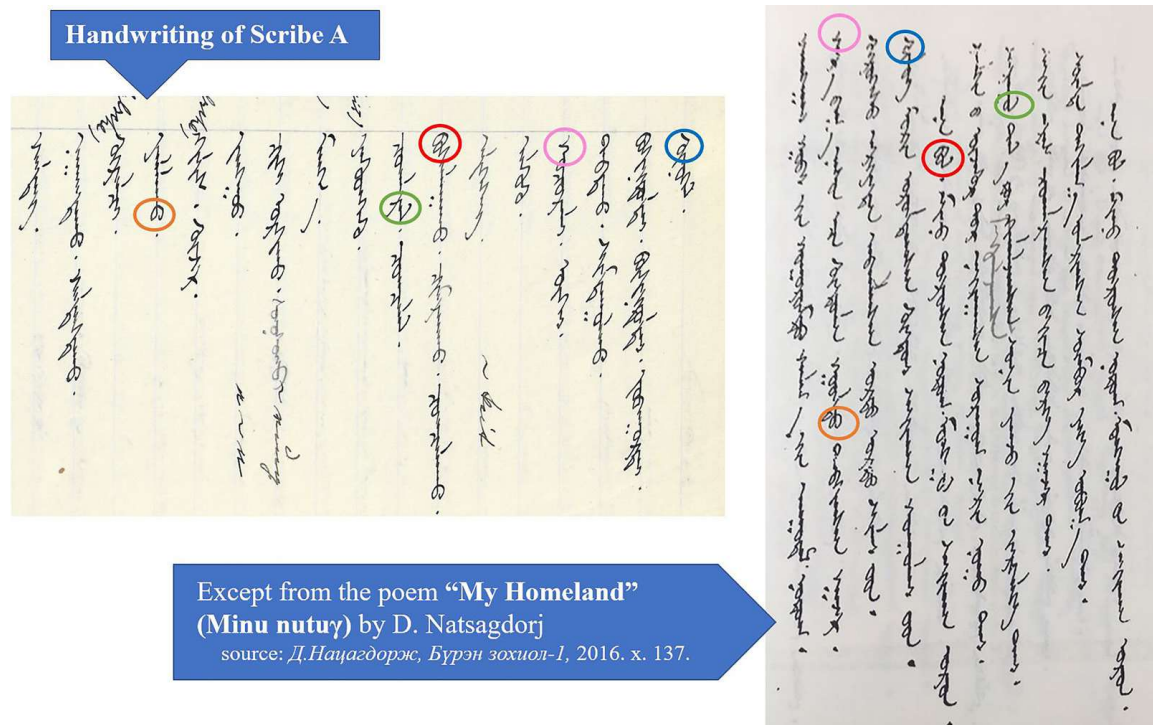
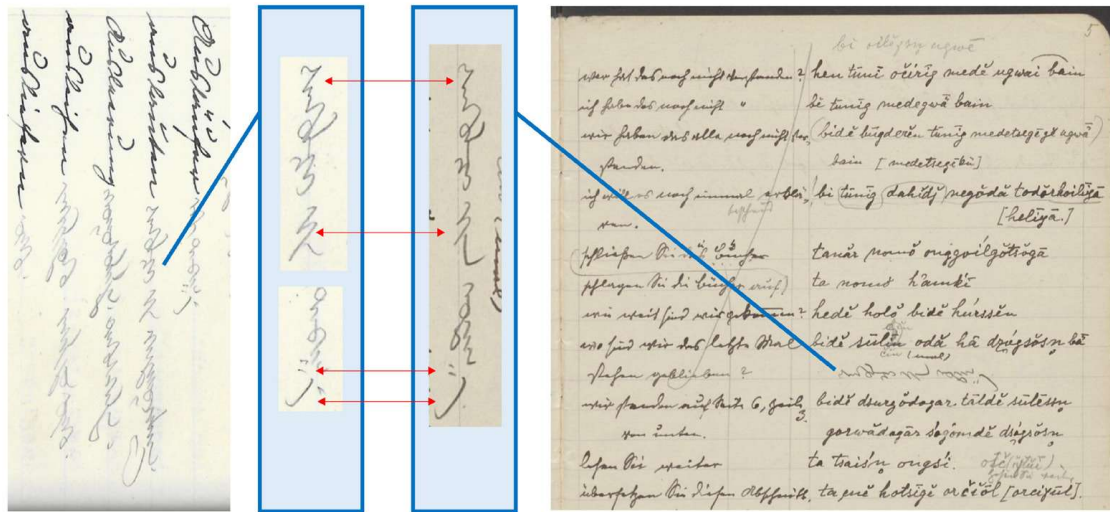


Figure 21. Comparison with D. Natsagdorj's handwritten manuscripts

Identification of Scribe B:

We identify Scribe B, the individual who entered the Mongolian-script equivalents in pencil in the handwritten section and who also made corrections in pencil to Dashdorjiin Natsagdorj's entries, as Erich Haenisch. Although only a few samples of Erich Haenisch's handwriting in the traditional Mongolian script are currently accessible, one of his notebooks contain the phrase *segülči-yin uday-a* (for the last time), written in pencil. A comparison of this note with the handwriting in the GMI revealed striking similarities in several features, including the form of the initial *s*, the genitive case suffix, and the terminal *-y-a*. These similarities provide strong evidence for identifying Scribe B as Erich Haenisch.



Handwriting of Scribe B

excerpt from Erich Haenisch's handwritten notes

Figure 22. Comparison of some GMI entries with E. Haenisch's handwriting

Hypothesis Regarding the Identity of Scribe C

The identification of the third scribe proved considerably more difficult because comparative material was extremely limited. We compared the handwriting in the GMI primarily with correspondences from archives, including letters⁹ exchanged between Bazaryn Ishdorj and Mongolian students studying in Germany and France at the time, letters exchanged among Dashdorjiin Natsagdorj, Damdiny Pagmadulam, and Bazaryn Ishdorj, as well as Erich Haenisch's letter to Jamsrany Tseveen (Tsyben Zhamtsarano). However, none of these documents exhibited handwriting that matched closely enough to allow for reliable identification. Among the materials examined, the handwriting of D. Pagmadulam, Natsagdorj's wife, bears the closest resemblance to that of Scribe C.

⁹ УТА. Фонд № 6, данс. 1, хадгаламжийн нэгж-140, unpaginated.

Handwritten text in Mongolian script, likely a list or inventory, with several lines of text. A red circle highlights a specific character or mark in the third line from the top.

Figure 23. Handwriting of Scribe C

23. Материальные средства родителей . . .
 24. На какие средства живете и получаете Вами оклад на службе. . .
 25. АДРЕС. . .
 Подпись заполнявшего анкету: . . .
 "28" Октября 1925 г.

Three examples of handwritten signatures in blue ink. Each signature has a red circle highlighting a specific part of the writing.

Figure 24. Examples of signatures of D. Pagmadulam¹⁰

¹⁰ УТА. Фонд № 6, данс. 1, хадгаламжийн нэгж-140, unpaginated.

However, so far only her signature in the traditional Mongolian script could be located for comparison. Certain features, particularly the *gezeg* of the letter *m* and the *ever* of the letter *l*, exhibit similarities to the handwriting of Scribe C in the GMI. On this basis, we suggest that Scribe C may have been D. Pagmadulam. At present, however, this attribution remains tentative and should be regarded as a working hypothesis pending the discovery of additional comparative material.

Based on an analysis of the structure, indexing system, lexical selection, and handwriting variation in the German–Mongolian Index associated with D. Natsagdorj, as well as a comparative study of an extensive corpus of archival materials, this study aims to clarify the index’s composition and identify the individuals involved in its creation.

Concluding Remarks

In this article, we have presented some of the findings obtained to date by our trinational research team. In particular, we have provided the first detailed description of the physical characteristics and extent of the two volumes, including their unpaginated pages. The principal findings of the study are summarized below:

- This study provides new evidence regarding how the German-Mongolian Index came into the possession of Walther Heissig.
- It was determined when and by whom the two volumes were cataloged in the library of the *Seminar für Sprach- und Kulturwissenschaft Zentralasiens* at the University of Bonn.
- Using Optical Character Analysis (OCA), we have confirmed that the two volumes of the German-Mongolian Index are based primarily on Schmidt’s dictionary, as further demonstrated by comparisons of the headwords and their semantic explanations.
- The material derived from this primary source was evidently revised and supplemented by Erich Haenisch and other contributors.
- The task of adding the Mongolian equivalents in the traditional Mongolian script was carried out primarily by D. Natsagdorj, with other Mongolian contributions, possibly including D. Pagmadulam.
- The comparative analysis indicates that at least three different scribes contributed to the compilation of the index.
 - The evidence strongly supports the identification of Scribe A as Dashdorjiin Natsagdorj and Scribe B as Erich Haenisch.
 - Regarding Scribe C, we propose that this individual may have been Damdiny Pagmadulam, based on the historical evidence that she lived with Natsagdorj, the likelihood of her participation in the project, and the limited comparative handwriting material currently available. This identification, however, remains provisional and requires further confirmation through the discovery and analysis of additional archival materials.
- Although the indexing system, orthographic forms, and Mongolian equivalents largely follow Schmidt’s dictionary, the GMI also exhibits substantial editorial intervention.
 - In numerous instances, obsolete lexical items were replaced by words and technical terms current at the time, semantically related Mongolians synonyms were grouped under a single German headword, and additional lexical items and explanatory notes were introduced.
- These findings indicate that the GMI is far more than a mere duplication of Schmidt’s dictionary. Rather, it is the result of a process of revision, expansion, and modernization.
- The compilers systematically reorganized the lexical material, modernized certain translations, introduced explanatory synonyms, refined semantic distinctions, and selectively expanded or removed entries.
- On the basis of the lexical correspondences, supplementary glosses, and comparative analysis presented in this study, it is reasonable to conclude that the compilers were preparing a contemporary German-Mongolian dictionary.
- The abundance of entries related to the European way of life suggests that the GMI was intended to serve as a practical dictionary for everyday use for Mongolians in Germany.

- Furthermore, the absence of loanwords, the selection of the closest possible Mongolian equivalents, and the attempt to conform to the modern language indicate the high linguistic standards of the compilers.

Taken together, these findings demonstrate that the German-Mongolian Index was not the work of a single individual but the product of a collaborative, multi-stage lexicographical enterprise involving successive stages of editorial revision, lexical expansion, and translation. More importantly, the evidence suggests that this Index represents the earliest known attempt to compile an updated German-Mongolian dictionary, and it thus marks a milestone in both the history of Mongolian lexicography and German-Mongolian scholarly cooperation.

Acknowledgements

We sincerely thank Ms. Katharina Kröbel (MA student of Mongolian Studies at the University of Bonn) for her invaluable contribution in proofreading and correcting the first version of the English text. We also thank Mr. Battogtokhyn Rinchinnorov from the National Central Archives of Mongolia for his support in locating relevant materials. Thanks also go to Mr. Khatanbatyn Mendsaikhan for sharing a photograph of source material that was helpful for comparing D. Pagmadulam's signature and to Ms. Mananhuar for sharing photos showing examples of D. Natsagdorj's handwriting. Finally, we would like to thank Ms. Alexandra Edzard from the Berlin State Library for her valuable support in our work with the Haenisch estate.

References

a) In Latin Script

- Sagaster, Klaus (2014). Die Mongolistik und Zentralasienwissenschaft in Bonn. Ein Beitrag zum 50-jährigen Jubiläum. In: *Mongolische Notizen. Mitteilungen der Deutsch-Mongolischen Gesellschaft* (22): 3-8.
- Schmidt, Isaak Jakob (1835). *Mongolisch-Deutsch-Russisches Wörterbuch, nebst einem deutschen und einem russischen Wortregister*. St. Petersburg: Kaiserliche Akademie der Wissenschaften; Leipzig: Leopold Voss.
- Walravens, Hartmut (Ed., 2018). Walther Heissig (1913-2005). Aus dem Nachlass des Mongolisten und Ethnologen – Nachlassübersicht – Briefwechsel mit Erich Haenisch, Lajos Ligeti, Käthe Uray-Köhalmi, John R. Krueger und Erik Haarh. Books on Demand GmbH.

b) In Cyrillic Script

- Идшинноров, С. (Эмх., 1997). *Жамсраны Цэвээн: Түүвэр зохиолууд, №1*. Эрхлэн гаргасан байгууллага: Монголын үндэсний түүхийн музей. Улаанбаатар: Тана ХХК. 178-179.
- Монгол Улсын Шинжлэх ухааны академи., Хэл зохиолын хүрээлэн., Улаанбаатар Их Сургууль (Эрх.). (2016). *Д.Нацагдорж, Бүрэн зохиол-1*. Ред. Д.Цэдэв. (Нэмж зассан 3 дахь хэвлэл). Улаанбаатар: Мөнхийн үсэг ХХК. (Анхны хэвлэл 2006).
- Мэндсайхан, Х. (2016). *Пагмадулам*. Улаанбаатар: Соёмбо Принтинг ХХК.
- Төрдалай, Р. (2005). Герман Улсад суралцсан монгол оюутан, сурагчдын түүхэнд холбогдох зарим тэмдэглэл (1926-1930 он). *Acta Mongolica*, 4(236), 235-250.
- Цэрэнсодном, Д. (Эмх. 2017). *Судар бичгийн хүрээлэнгийн гишүүн Шагж гэви*. Улаанбаатар: “Тод бичиг” ХХК.

Archival Sources

- Erich Haenisch's Original Handwritten Letter (in German) to Jamsrany Tseveen on February 1, 1928: МУУТА, Фонд №31, данс. 1, хадгаламжийн нэгж 32. Хуудасны дугаар 7 & 7a; захидал № 119.
- Letters exchanged between Ishdorj and Mongolian students studying in Germany and France: УТА. Фонд № 6, данс. 1, хадгаламжийн нэгж-140.
- Staatsbibliothek zu Berlin, Handschriften und Alte Drucke, NL Haenisch, K 4, 3s.