

Referencing people in biodiversity research needs persistent unique identifiers and primary data – the example of G.W.H. Schimper

Christian Bräuchler*¹, Dorothea McEwan** and Heimo Rainer*/***

Abstract

Digitization of natural history objects brings about numerous challenges for the housing institutions, data aggregators and the scientific community as a whole. This is especially true with respect to data management. Based on the experiences at the Department of Botany of the Natural History Museum Vienna we illustrate one major common problem: referencing people names. We focus on collectors as a subset of people associated with objects. Problems and possible ways of unambiguously referencing collector names in collection management systems and global online platforms (such as GBIF) by using persistent unique identifiers (e. g., Wikidata, GND, VIAF, or ORCID) for these names are outlined. The example of G.W.H. Schimper, who is best known for collecting 100,000s of specimens in Algeria, Egypt, Ethiopia and Saudi Arabia in the 19th century, is used to demonstrate the importance of primary (e. g., biographical) data and its open availability in this context. To close gaps and settle uncertainties in publicly recommended authority lists, several biographical details for G.W.H. Schimper are presented and verified by official documents and their transcripts: date and place of birth, sequence of given names, and date and place of marriage of his parents.

Key Words: Collection Management Systems, JACQ, Disambiguation, biographical data, Schimper

Introduction

The Department of Botany of the Natural History Museum Vienna (W; acronyms for herbaria according to THIERS 2020) houses a herbarium with about 5.5 million objects, among them many nomenclatural type specimens. Systematic digitization of these type specimens began in 2005 by participating in an international initiative funded by the Andrew W. Mellon foundation (USA). For capturing specimen data, JACQ (2004 ff.) was used and continuously developed further. Of the problems arising during data management, referencing of people names is one common to all digitization initiatives. These People names are associated with the specimens in various ways. Among others they may have described the taxon represented by the specimen, have identified it, revised it, removed samples for analysis from it, collected it, distributed it, or kept it in their herbarium at a point of time. Of the people names associated with the specimens, collector names represent a very important subset, for combined with collector's number they are frequently used to refer to a particular specimen or gathering. In consequence

* Christian Bräuchler, Heimo Rainer, Natural History Museum Vienna, Department of Botany, Burgring 7, 1010 Wien, Austria

** Dorothea McEwan, The Warburg Institute, University of London

*** Heimo Rainer, University of Vienna, Department of Botany and Biodiversity Research, Division of Systematic and Evolutionary Botany,

¹ Corresponding author: Christian Bräuchler: christian.braeuchler@nhm-wien.ac.at

the collector (or collecting team) name was mandatory to be entered into the database for each and any specimen from the beginning. We demonstrate how the referencing problem was approached in JACQ, how this is currently done for records in GBIF (2020) and how this problem may be permanently fixed in the future. Using the example of G.W.H. Schimper, best known for collecting 100,000s of specimens in Egypt and Ethiopia in the 19th century including many types (preserved at W and many other herbaria), we underline the importance of primary data (e. g., official documents verifying biographical details) and its open availability for unambiguous referencing of people names.

Collector names in JACQ

When databasing of W specimens in JACQ started, initially collector names were referenced to a lookup table to avoid entry of variants for one and the same collector. Curators were the administrators of this table and, being well aware of the problems of ambiguities for referencing certain collector names, carefully expanded the list. As the system was used by more and more project team members at W and also by an increasing number of other institutions (e. g., GZU and WU in Austria, as well as HAL and JE in Germany, and later herbaria in Ukraine and Russia), the number of different collector names extracted from the labels was rapidly growing. Consequently, the authorization to add new names to the lookup table had to be extended to all users of JACQ for practical reasons. Where the collector name was illegible (or abbreviated without any reference table), mostly on handwritten labels of all kinds, “illegible” was entered; when a name was missing, the specimen was associated with the entry “Anonymous collector”. Cases where only the last name was available on the labels could become critical if multiple persons with the same surname were active in the same field. When the identity could not be solved without further information/research (e. g., Schimper, see below), an entry for the surname without initials was created to document the ambiguity. To add to the complexity, it was not uncommon that specimens were not distributed by the collector. The name of the distributor frequently, but unfortunately not always, was accompanied by “comm.” or equivalent (for Latin *communicavit* = has communicated/forwarded/distributed). This must be considered during data entry, for the name of the distributor could be easily mistaken for the collector name.

In 2007, externally available identifiers of the Harvard University Herbaria Botanists web resource (HUH IDs at https://kiki.huh.harvard.edu/databases/botanist_index.html) were implemented in JACQ (as a direct link to public URLs) to facilitate unambiguous referencing of collector names by automatically linking to all the ancillary information available in their database. This approach, to facilitate data capture from inside a collection management system by linking out to an external web resource, was not common practice by that time, and, in consequence obviously was also not intended by the data provider. For approximately four years, however, this routine supported clean data entry, before identifiers changed and the system had to be adjusted at our end. An important lesson was learned from this:

1) managers of Collection Management System should generally consider the reuse of such external resources, in the preferred way of keeping external identifiers when integrating records into their local systems, but should contact the responsible curator of the external source database;

2) likewise, data providers should conceptionally bear in mind potential reuse of their publicly available information and announce any changes to the resource. Problems with linking to external sources can occur when the providers for any given reason change the identifiers, that are exposed and reused by third parties, without further notice. A different set of problems occurs if landing pages for web links are not maintained or redirect to new pages or subdomains not implemented. A more serious problem would be a shift of a given identifier to a different person.

Collector names in data aggregators like GBIF and VIAF

The problem of ambiguous collector names may proliferate when delivering data to aggregators like GBIF on the basis of specimen records or VIAF (<https://viaf.org/>) on the basis of a person's publication activities. For propagation of specimen data to GBIF, collector names are only delivered in clear text so far, without accompanying standard authoritative identifiers such as GND (https://www.dnb.de/DE/Professionell/Standardisierung/GND/gnd_node.html), or VIAF. In VIAF, an aggregator of mostly national bibliographical repositories, usually persons of a certain importance are listed. In many collections like W, a large portion of collectors may be of local or regional relevance only and/or never published. Thus these collectors did not find their way into systems like VIAF.

To settle ambiguities and justly attribute specimens in GBIF to a given person (collector or identifier), the Bionomia platform (<https://bionomia.net/>; initially called "Bloodhound Tracker") was designed (SHORTHOUSE & PAGE 2019). Records from GBIF are pooled on the platform and periodically updated. Tools for grouping those records based on the collector and identifier names are provided. To attribute specimen records to a certain person, the ID/profile for the person must be derived from ORCID (<https://orcid.org/>) for living persons or from Wikidata (<https://wikidata.org>) for deceased persons. As one prerequisite to qualify a person's name to be available for attribution via a Wikidata entry presence of precise birth and death dates in that entry is mandatory. Sometimes these dates are not present in Wikidata and to unambiguously identify a person by other means, as much additional information as possible is desirable. Hence it may become necessary to investigate an individual's history in more detail. Potential problems arising here may be multiple IDs for one and the same person in both reference systems, sometimes with contradictory data. For being able to decide which variant is the correct one, it is crucial to have primary (or original) data available online, which, however, often is not the case for Wikidata entries.

The topic of the role, function, and activities of people in biodiversity data lead to the formation of a task group in TDWG (<https://www.tdwg.org/community/attribution/people/>) and in the MOBILISE Cost Action as part of activities in Working Group 2 "Development of Standards and Guidelines for Data gathering and large-scale digitization of collection objects" (<https://osf.io/59e8r/>). In the course of a MOBILISE workshop an abstract was published by the group (GROOM et al. 2019). Work is in progress to provide standardized procedures for attribution of peoples engagement in the collection and subsequent curation of biodiversity objects.

The importance of primary data for unambiguous referencing of collector names using G.W.H. Schimper as an example

To illustrate the problem of ambiguous names and the difficulties in assigning an ID to them, the German Georg Wilhelm Heinrich Schimper (1804–1878; GWHS in the following) provides an excellent example. Among the African material at W, he constitutes one of the major collectors and is represented by hundreds of types. Several sets of his collections were acquired by W over time (see Fig. 1. for an example of an acquisition list for GWHS collections), adding up to at least 4700 specimens in total. Of those, some 2400 have been digitized so far and are included in the JACQ platform. GWHS is notoriously difficult to attach to the correct id due to several reasons and it needs a variety of information from additional sources to fix it. To fully understand the problem, it is necessary to take a closer look on his biography. GWHS was one of the most proficient, but also most expensive and controversial collectors for the *Unio itineraria* (the following details are taken from BAUR 1970, WÖRZ 2007, and WÖRZ 2016). The *Unio itineraria* (aka “Württembergischer Reiseverein” or “Esslinger Reiseverein”) was an early stock company dedicated to improving the knowledge of the vegetation of little explored areas by financing promising young scientists to travel to those regions and send back plants and other natural history objects. The company was based in the German town Esslingen (then Württemberg), run by Ernst Gottlieb Steudel and Christian Friedrich Hochstetter (father of Ferdinand von Hochstetter, the first intendant of the K.K. Naturhistorisches Hofmuseum Wien) and existed for about 20 years (1825–1845). On the premises of the *Unio Itineraria*, GWHS first went to Algeria and later (1834/5) to Egypt. From there he proceeded to Ethiopia in 1837 and stayed until he died in 1878 (MCEWAN 2015). The objects (primarily plants) collected on these trips were later sold to subscribers. Thus, GWHS is today best known for his contributions to the knowledge on the flora of Ethiopia, where he lived for more than 40 years. During his long stay, GWHS continuously collected plants also after the demise of the *Unio itineraria*. His collections, adding up to some 100.000s, are found today in institutions all over the world (including a set at ETH, that has been repatriated by BR) and are very rich in type specimens.

GWHS was part of the Schimper-family of Baden (now Germany) which produced four important scientists of the 19th century. Three of these Schimpers were contemporaries, all four were working on different aspects of natural history, all were connected to botany, and all collected plant specimens today preserved in a variety of herbaria. Although their lives took quite different paths, each had a considerable impact on our understanding of nature today. GWHS’ older brother Karl Friedrich Schimper (1803–1867; KFS) discovered the pleistocenic iceages (and actually coined the term “Eiszeit” = ice age), the folding of the Alps and the principles of leaf arrangement (WUNSCHMANN 1890, SCHÄFER 2003). Their cousin was the eminent bryologist and phytopaleontologist Wilhelm Philipp Schimper (1808–1880; WPS) in Strasbourg (GÜMBEL 1890, GÖTZ 1980). Wilhelm Philipp’s son Andreas Franz Wilhelm Schimper (1856–1901; AFWS), in turn, was a famous plant geographer and co-founder of the “Lehrbuch der Botanik”, often referred to as “Der Strasburger” (STRASBURGER 1894), a textbook serving as the botanical reference for all scholars of biology in the German speaking area since that time (GÖTZ 1980). GWHS’ given names have been cited in a variety of combinations

78 423.
XII.
a

Botanische Abtheilung.

Pflanzen aus Abyssinien, gesammelt von Schimper,
mitgetheilt vom Kaiserverein.
Jahrgang I. Sp. 412.

| N ^o . | Bestimmung. | Zahl der Exempl. | Vaterland. |
|------------------|---|------------------|------------|
| | <u>Lichenes.</u> | | |
| 1. | <i>Uncia</i> | | |
| 2. | <i>Parmelia</i> | | |
| | <u>Musci.</u> | | |
| 3. | <i>Entostodon Tomplebinii</i> Hook. & Taylor | | |
| | <u>Filices.</u> | | |
| 4. | <i>Aspidium (Sphaeridium) Schimperianum</i> Hookf. | | |
| 5. | <i>Asplenium furcatum</i> L. | | |
| 6. | <i>Diantium thalictroides</i> Willd. | | |
| 7. | <i>Gymnogramme leptophylla</i> Don. | | |
| | <u>Gramineae.</u> | | |
| 8. | <i>Festuca abyssinica</i> Hookf. | | |
| 9. | <i>Gastridium australe</i> Cal. Beauv. | | |
| 10. | <i>Danthonia elongata</i> Hookf. | | |
| 11. | " <i>casertini</i> Hookf. | | |
| 12. | " <i>abyssinica</i> Hookf. | | |
| 13. | <i>Bromus Tassensis</i> Hookf. | | |
| 14. | <i>Anthistiria abyssinica</i> Hookf. | | |
| 15. | " <i>punctilata</i> Hookf. | | |
| 16. | <i>Pappophorum Schimperianum</i> Hookf. | | |
| 17. | <i>Pennisetum pentastachyum</i> Hookf. | | |
| 18. | " <i>villosum</i> R. Br. | | |
| 19. | " <i>riparioides</i> Hookf. | | |
| 20. | " <i>riparium</i> " | | |
| 21. | " <i>longistylum</i> " | | |
| 22. | " <i>glaucofolium</i> " | | |
| 23. | " <i>macrostachyon</i> Fres. | | |
| 24. | <i>Leptochloa fuscata</i> Hookf. | | |
| 25. | <i>Hypodacrydium conchroides</i> Hookf. (nov. gen.) | | |
| 26. | <i>Leptochloa elegans</i> Hookf. (nov. gen.) | | |
| 27. | <i>Harpachne Schimperii</i> Hookf. (nov. gen.) | | |
| 28. | <i>Phalaris appendiculata</i> Schult. | | |
| 29. | <i>Sporobolus capensis</i> Trin. | | |
| 30. | <i>Trachypogon adonioides</i> Hookf. (nov. gen.) | | |
| 31. | <i>Trichura (Brachypogon) Schimperii</i> Hookf. | | |
| 32. | <i>Tricholoma (Eriochloa) grandiflora</i> Hookf. | | |

Fig. 1: Front cover of accession book for one batch of Georg Wilhelm Heinrich Schimper's collectants at W

(e.g., Wilhelm, Wilhelm Georg, Georg Heinrich Wilhelm, Georg Wilhelm, Georg Wilhelm Heinrich; some of these variants linked under HUH ID 0003970, VIAF ID 13080700, and Wikidata ID Q72899), but he usually was called only “Wilhelm”. GWHS and WPS thus were at times mixed up, because both were frequently simply cited as “W. Schimper” (especially in letters or on labels of herbarium specimens). This resulted, e.g., in two unspecified entries for “W. Schimper” in HUH (ID 0094171, 0094172), and a Wikidata entry for Wilhelm Schimper (Q27596561). Both GWHS and WPS had a strong connection to the French speaking botanical community and, funnily enough, the same problem arose with the given names in that language (George and Guillaume, both abbreviated as G. Schimper). The fact that AFWS also was called Wilhelm (which was his third given name) may represent an additional source of confusion. Sometimes given names were omitted completely (especially on labels), making the situation even more complicated. In all these cases disambiguation of names could only be achieved at the specimen level by additional information.

At W, specimens are present for at least the two most frequently confused GWHS and WPS. Where no initials were provided on the labels or those were ambiguous (“W.”), either erroneous id’s have been connected or only the family name was included (“Schimper”). A first approach to assigning the name to the correct HUH ID could be the collecting locality. GWHS, for example, collected in Algeria, Greece, Egypt, Saudi Arabia, and Ethiopia, but not WPS. Although this will settle a large portion of the specimens, WPS also identified and described the mosses collected by his cousin. WPS’ name thus may also occur associated with those specimens. For specimens from France and Germany it is more difficult, for all (four) Schimpers collected there at times and thus a thorough knowledge of the biographies is necessary. One example at W is a specimen attributed to GWHS (<https://w.jacq.org/W0033315>) and collected in Suriname. None of the Schimpers collected there, but the specimen only includes “Schimper” and “comm.” indicating it was distributed/communicated by Schimper (see also under “Collector names in JACQ”). However, there are no records that GWHS distributed specimens other than his own, while his cousin WPS at Strasbourg ran a botanical exchange company (ANONYMOUS 1842). Based on the acquisition books at W, we could confirm, that the specimen was distributed by WPS and actually has been collected by August Kappler (1817–1887), well know for his Suriname collections at that time.

Although GWHS left no biography, there is a rich body of literature dealing with his life, potentially offering sources for information needed to attach the correct ID. Beside his contributions to science, GWHS is celebrated today in Ethiopia by introducing the cultivation of the potato, left his mark by supervising planning and building of one church and also held official administrative positions for several years (MCEWAN 2015). The great variety of these activities and the ensuing long lasting output resulted in a strong interest in his person by researchers and amateurs from many different fields (e.g. CUFODONTIS 1951, GÖTZ 1985, GRÄBER 1998). Many of these contributions were rather focused on certain aspects of Schimpers life and published in very regional or hard to find literature. The most comprehensive and freely available summary of Schimper’s life and work to date is the database of his two manuscript books kept in London, The British Library, Add Ms 28505 and 28506 (GESTRICH et al. 2015 at <http://exist.gihl.ac.uk:8079/Schimper/>).

While we treat the database as a major source of information, there are some biographical facts that have frequently been cited, but for which evidence in form of primary data has not been available so far. As outlined above, the correct and reproducible identification of a given collector strongly relies on open access to primary (biographical) data. To settle the case of the above example GWHS, and – given GWHS importance also beyond life sciences – in order to avoid future duplication of the considerable investment of time necessary to trace these documents we here present such for GWHS’s date and place of birth and the marriage of his parents.

G.W.H. Schimper’s date and place of birth and his given names

There have been numerous divergent statements on GWHS’ date of birth. Most authors (e.g., WUNSCHMANN 1890, CUFODONTIS 1951) state that GWHS was born at Reichenschwand (close to Nürnberg) on 02.08.1804, the English entry on Wikipedia has 19.08.1804 (https://en.wikipedia.org/wiki/Georg_Wilhelm_Schimper), while DE BARY (1879) lists Mannheim and the year 1805. WÖRZ (2007) also mentions “?Mannheim”. GÖTZ (1985) suspected Reichenschwand and Mannheim to be wrong for he did not find a record in the relevant parish registers for that year. WÖRZ (2016) did not add additional information, but mentions “August” or “September” as month of birth. These contradicting statements are also found in the German Wikipedia entry (https://de.wikipedia.org/wiki/Wilhelm_Schimper). Rather unnoticed at an international level went the works of Gerd Gräber, a school teacher involved in Ethiopian studies in his free time. He contributed to an exhibition on GWHS’ life on the occasion of the 120th anniversary of his death that was on display at the Reiss Museum, Mannheim 08.03.-03.05.1998. According to an accompanying leaflet (provided by G. Gräber in 2011), the exhibition included for the first time a photograph of the record for GWHS from the parish register of Lauf an der Pegnitz. Therein the latter is also confirmed as place of birth on 02.08.1804 and the correct sequence of all three given names is given as Georg Wilhelm Heinrich – not Wilhelm, Georg Wilhelm (as still labelled in the Wikidata ID Q72899), or Georg Heinrich Wilhelm (as in VIAF ID 13080700). A photograph of this record is provided in GRÄBER (1998), but without transcription. The information was later included in MCEWAN (2015) and UHLIG & BAUSI (2011). Since Gräber’s article was published in German in a regional journal in 1998, his findings were overlooked by others working on GWHS’ biography (e.g., FRIIS 2009, WÖRZ 2016).

Recently SCHORLING (2019) confirmed the birth date and place after a request at the city archive at Lauf a.d. Pegnitz, where a transcript of the parish register record made by Gräber in the 1990ies is kept. This transcript was liberally provided to the first author by S. Grünewald working at the city archive, combined with a note that they do not hold the original, and in their copy of the parish register the entry for GWHS is missing. According to Grünewald’s comments, this is not uncommon and following her recommendation the first author contacted the Protestant regional church archive (“Landeskirchliches Archiv der Evangelisch-Lutherischen Kirche in Bayern” = LAELKB) who provided helpful support to access scans of the originals in their online repository (www.archion.de). A check of these originals has not been done since Gräber first found them. In order to fix the case once and for all and make the evidence publically available to the international scientific community (and thus avoid possible future duplication of efforts), we received

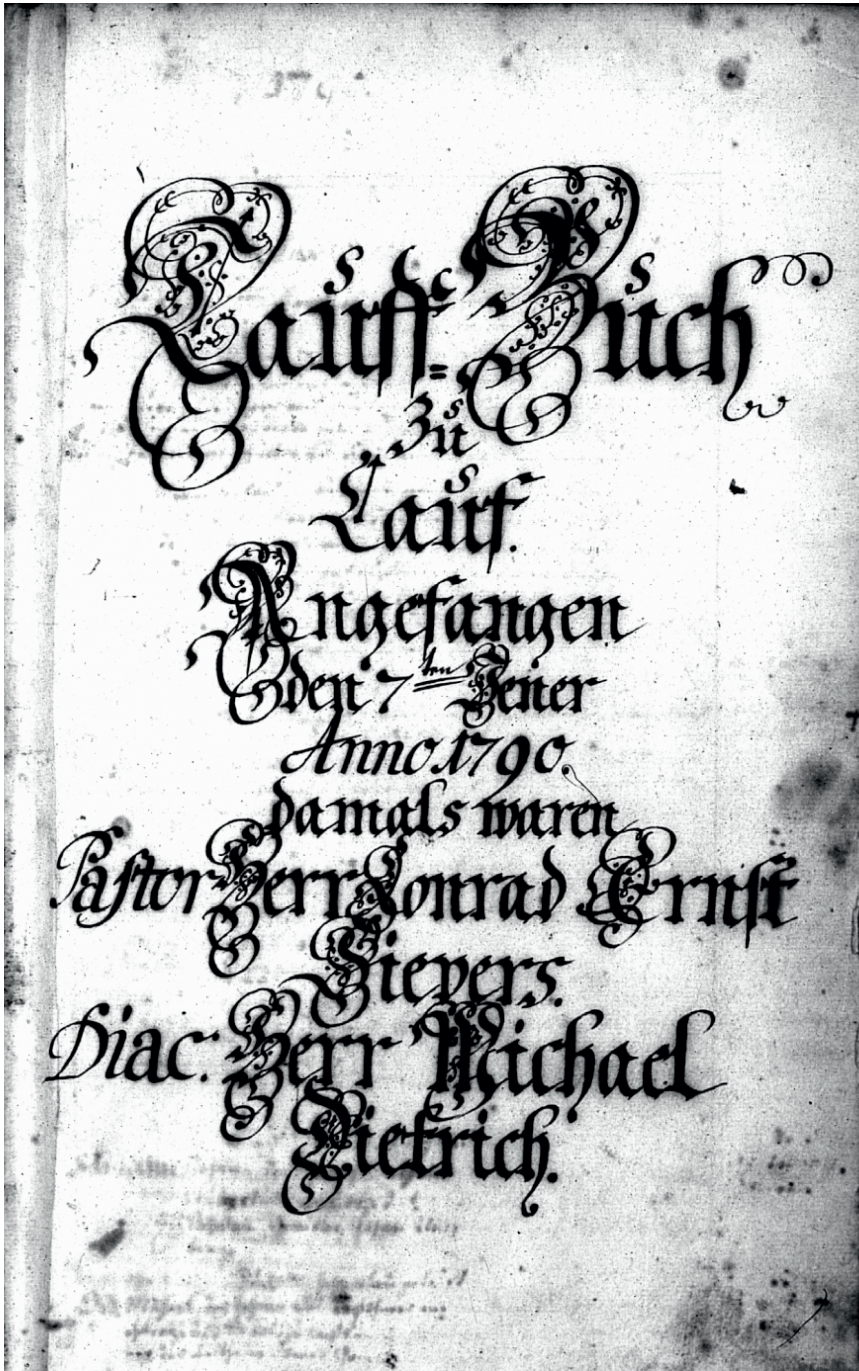


Fig. 2: Front page of the parish register containing the record for Georg Wilhelm Heinrich Schimper („Tauf-Buch zu Lauf. Angefangen den 7ten Jenner Anno 1790. Damals waren Paster Herr Konrad Ernst Sievers, Diac. Herr Michael Dietrich“); Source: LAELKB, PFA Lauf KB 9.5.0001 – 263 – 05, 1804 Nr. 60

the kind permission of the LAELKB to reproduce the relevant parts of the parish register here (Figs. 2–4).

The transcript of the record as provided by the city archive Lauf with minor edits by the first author reads („/“ is used to separate lines):

„[on the right margin:] 60. Söhnlein. / den 3ten August [1804] wurde getauft, / Schimper, Georg Wilhelm Heinrich; des Tit. Salv. Herrn Friedrich / Ludwig Heinrich Schimpers, Churfürstlich-Baadischen / Cammeral-Renovators zu Mannheim, und dessen Frau / Gemahlin Margaretha Katharina Jakobina Wilhelmina, / nat. von Furtenbach, ehel. erz.

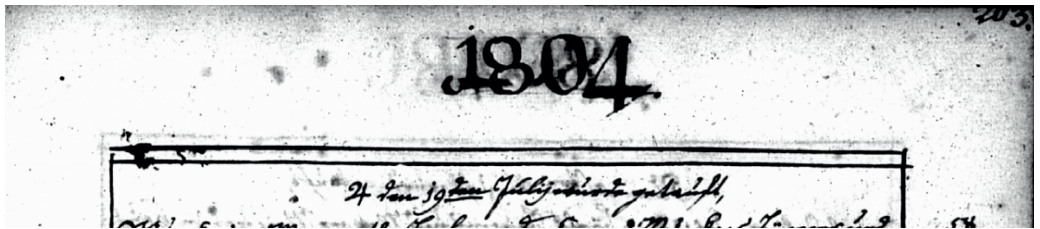


Fig. 3: Top of the parish register page containing the record for Georg Wilhelm Heinrich Schimper; Source: LAELKB, PFA Lauf KB 9.5.0001 – 263 – 05, 1804 Nr. 60

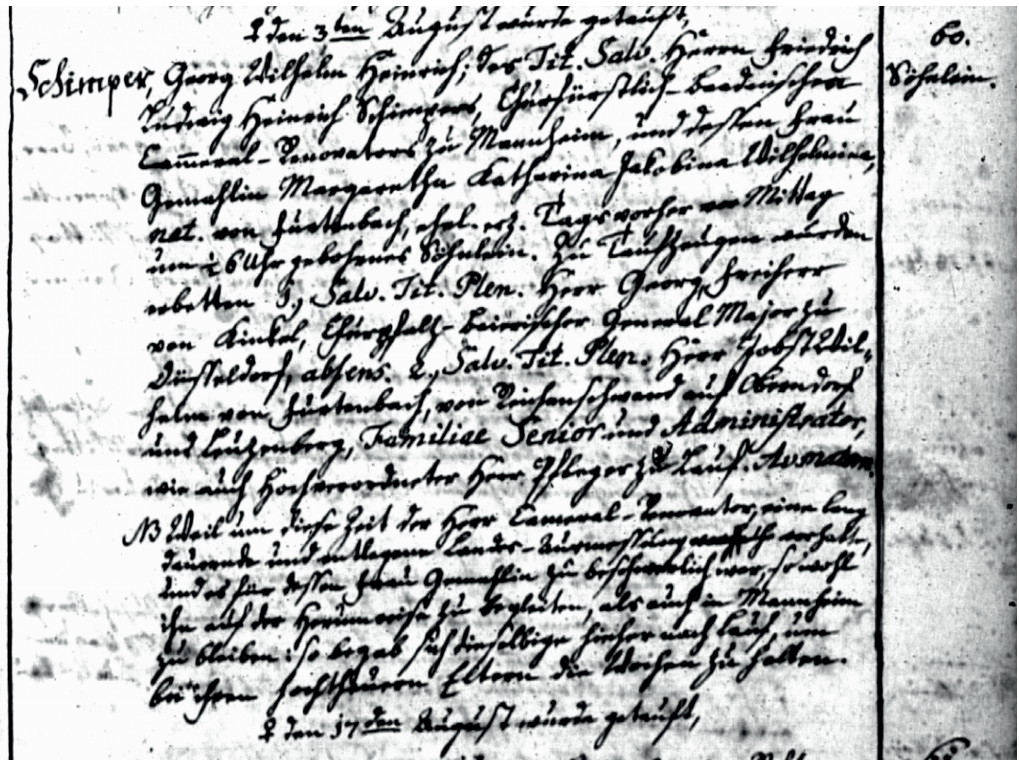


Fig. 4: Record for Georg Wilhelm Heinrich Schimper in the parish register from Lauf an der Pegnitz 1804; Source: LAELKB, PFA Lauf KB 9.5.0001 – 263 – 05, 1804 Nr. 60

Tags vorher vor Mittag / um ½ 6 Uhr gebohenes Söhnlein. Zu Taufzeugen wurden / erbetten 1.) Salv. Tit. Plen. Herr Georg Freiherr / von Kinkel, Churpfalz-Baierischer General Major zu / Düsseldorf, absens. 2.) Salv. Tit. Plen. Herr Jobst Wil- / helm von Furtenbach, von Reichenschwand auf Oberndorf / und Leuzenberg, Familiae Senior und Administrator, / wie auch Hochverordneter Herr, Pfleger zu Lauf. Av. matern. / NB Weil um diese Zeit der Herr Cameral Renovator, eine lang / dauernde und entlegene Landes- Vermessung [illegible] vorhatte, / und es für dessen Frau Gemahlin zu beschwerlich war, sowohl / ihn auf der Herumreise zu begleiten, als auch in Mannheim / zu bleiben: so begab sich dieselbige hierher nach Lauf, um / bei ihren hochtheuren Eltern die Wehen zu halten.“

It states that Georg Wilhelm Heinrich Schimper, son of Friedrich Ludwig Heinrich Schimper and Margaretha Katharina Jakobina Wilhelmina (née von Furtenbach), was baptized on 03.08.1804 and had been born the day before (i. e., 02.08.1804) at 5.30 in the morning. Since the father was on a long and distant geodetic survey at that time, and it would have been too exhausting for the mother to accompany him, she had come to Lauf to give birth at her parents' place. Her father was the last magistrate of the castle in Lauf, where his family lived. And so GWHS was born there.

The marriage of G.W.H. Schimper's parents

Although the primary home of the Schimper family was Mannheim it seems they regularly visited Lauf an der Pegnitz, where Jobst Wilhelm von Furtenbach, the father of GWHS' mother, was magistrate at the local castle. Beside being the place of birth for GWHS, his parents also got married in that small town close to Nürnberg as is proven by the church register of that time (Fig. 5–7)

The transcript of the record reads:

„[on the right margin:] 26. / Dom.[ine] Exaudi Semel p.[ro] Semp.[er] / Der wohlgeborene Herr Friedrich Ludwig Heinrich Schimper / hochverordneter Churfürstl. Rheinpfälzischer / Cammeral Renovator in Mannheim, des wohlgebor / nen Herrn David Schimper, hochbestelten Pfalz- / Zweybrückischen Oberamtmanns zu Berg Zabern S. / N. t. Hern Sohn W. / Das hochwohlgeborne Fräulein Margaretha Katharina / Jacobina Wilhemina von Furtenbach des hochwohlgebo. / Herrn Jobst Wilhelm von Furtenbach, von Reichen- / schwand, auf Oberndorf und Leuzenberg, eines hochloeb- / l. / Raths der Republik Nürn- b. hochverordneten Herrn / Pflegers des hiesigen Staedtleins u. Amts Lauf / ihrer hochadel. Familie Senioris und Administratoris, / [...] gesamten Lehen und Stiftungs Güter [...] / Tochter. / Cop. auf oberherrl. Erlaubnis im hiesigen Pfleg- / Schloße (zeichen für Kirchl.) d. 2ten Juni Ledig und Erlaubnisschein / von der Churfürstl. Regierung“

This is the document confirming that GWHS' parents, Friedrich Ludwig Heinrich Schimper and Margaretha Katharina Jakobina Wilhelmina von Furtenbach got married at Lauf an der Pegnitz on 02.06.1802 and that the bride's father was magistrate of the village Lauf.

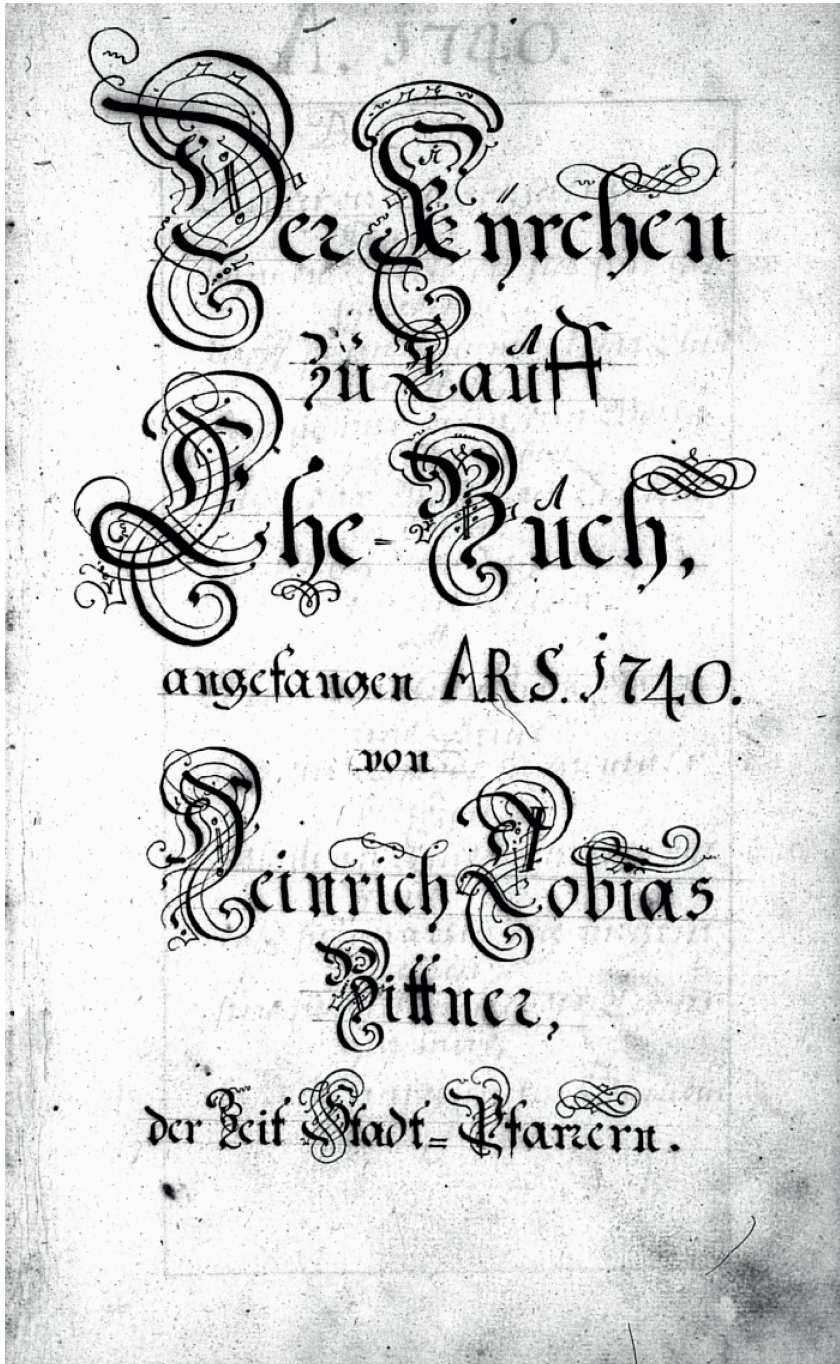


Fig. 5: Front page of the church register of Lauf an der Pegnitz, containing the record for the marriage of Georg Wilhelm Heinrich Schimper's parents ("Der Kyrchen zu Lauff Ehe-Buch angefangen ARS. 1740 von Heinrich Tobias Bittner, der Zeit Stadt-Pfarrern"); Source: LAELKB, Pfa Lauf KB 9.5.0001 – 263 – 11, 1802 Nr. 26

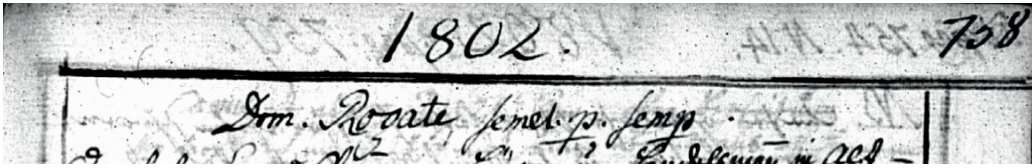


Fig. 6: Top of the church register page containing the record for the marriage of Georg Wilhelm Heinrich Schimper's parents; Quelle: LAELKB, Pfa Lauf KB 9.5.0001 – 263 – 11, 1802 Nr. 26

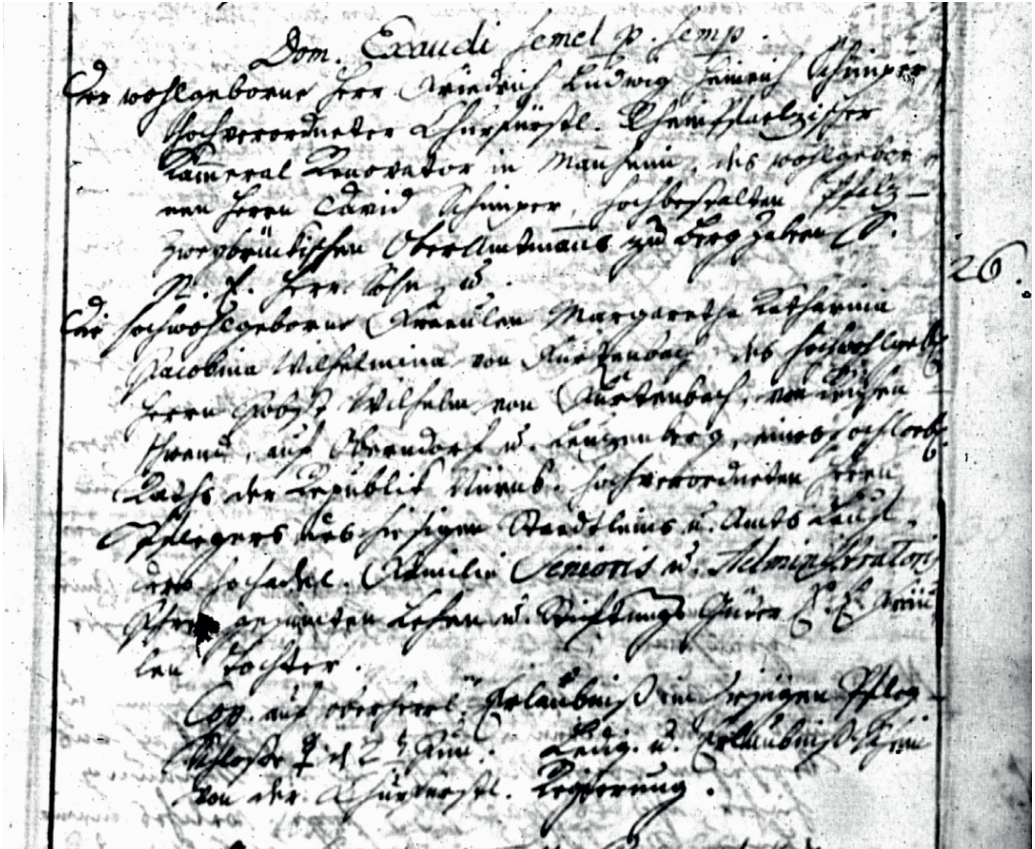


Fig. 7: Church register page containing the record for the marriage of Georg Wilhelm Heinrich Schimper's parents; Source: LAELKB, Pfa Lauf KB 9.5.0001 – 263 – 11, 1802 Nr. 26

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Autor(en)/Author(s): Bräuchler Christian, McEwan Dorothea, Rainer Heimo

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