

Humanities, Computers and Cultural Heritage

Proceedings

of the XVI international conference
of the Association for History and Computing


14-17 September 2005

Royal Netherlands Academy of Arts and Sciences
Amsterdam, 2005

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ISBN 90-6984-456-7

The paper in this publication meets the requirements of  iso-norm 9706 (1994) for permanence.

Design

Edita-KNAW, Amsterdam
www.knaw.nl/edita

Communication

www.ahc2005.org

Low Countries Organisation Committee

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AHC: international Association for History and Computing
KNAW: Royal Netherlands Academy of Arts and Sciences
NIWI: Netherlands Institute for Scientific Information Sciences
VGI: Low Countries branch of the Association for History and Computing
SIKS: Dutch research school for Information and Knowledge Systems
DANS: Data Archiving and Networked Services

Preface

'History & Computing' and 'Humanities Computing' are in a crucial phase of development. The cultural heritage sector is turning digital, and ever more archival and other historically relevant sources are becoming available online. As a result there is a need for innovative methods and techniques to process the flood of digital resources. Currently, computer scientists show a keen interest in the information problems of cultural heritage and the humanities. Advances in grid computing and the Semantic Web are stimulating a new kind of e-Science, e-Culture, e-Humanities and even e-History.

This volume contains about fifty contributions presented at the XVIth international conference of the Association for History and Computing, that took place in Amsterdam from September 14th till 17th 2005.

The conference papers are intended for an audience of specialists from three broad fields:

- Scholars using computers in historical and related studies (history of art, archaeology, literary studies, etc.)
- Information and computing scientists working in the domain of cultural heritage and the humanities
- Professionals working in cultural heritage institutes (archives, libraries, museums) who use ICT to preserve and give access to their collections

The subject matter of these proceedings is primarily oriented at methodological issues. It is not restricted to one particular domain within history and the humanities. The papers included in this volume were selected by the conference committee and the session convenors. Due to time pressure, the papers could only superficially be refereed and marginally edited. Some papers that arrived too late to be processed could regrettably not be included in the volume. Such papers and the abstracts of poster presentations can be found on the conference website (www.ahc2005.org). A selection of the proceedings is being considered for publication in international journals.

The papers in this volume of proceedings can be characterized on the following characteristics:

- A first group of papers deals with *portals* and *gateways* to heritage information. More particularly, several papers on *virtual libraries* and *digital archives* are included.
- *Data enrichment* is the overall theme of the papers on *electronic text editing* and digital source editions. *Text analysis and retrieval* is a subject that has always received some, but not much attention from computing historians. We are happy that in this volume, a number of papers is dedicated to text analytical and ontological problems, partly inspired by the discussions

on the Semantic Web, but also influenced by participants from the field of literary and linguistic computing.

- *Images & multimedia* is one of the subject that attracts special attention from computing scientists. Papers on visual object detection and content-based artist identification show advances that are made in this area.
- *Geographical Information Systems* is a topic that has become remarkably 'hot' in historical studies over the past few years. The conference includes five sessions and 14 papers on historical GIS applications, ranging from building a historical GIS to time-space analysis and applications in urban history.
- *Quantitative data analysis* was one of the most important subjects in the early years of historical computing, but now it is attracting a relatively modest attention. Computer applications of statistics have become mainstream in social and economic history and apparently require less specific attention at AHC conferences.
- A number of papers deals with *digitization strategies* in heritage institutions and on the digitization of historical sources. However, the session convenors and other referees were fairly strict on referring 'me and my database' kind of papers to poster sessions, unless they clearly presented new methods of database design. The *XML markup language* offers a strong tool for the encoding of irregular source structures. A score of papers is dedicated to the role of XML in the structuring of heritage information.
- Large cross-sectional, nominative *databases in historical research* is a subject that might be called 'traditional' at AHC conferences. Two sessions and a handful of papers were dedicated to this subject.
- Finally, there is a number of papers with a *theoretical and methodological* component, in which *virtual networks* and collaboratories play a role. Moreover, several papers claiming *new approaches* to history and computing are included in these proceedings.

Peter Doorn
President of the AHC

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DIMITO: Digitization of rural microtoponyms at the Meertens Instituut

Douwe Zeldenrust

Introduction

The end of 2004 saw the start of a brand new project at the Meertens Institute. Its name was Dimito, short for the DIgitization of rural MIcroTOponyms. Rural microtoponyms is the collective term for the names of small entities in both natural and man-made landscape. The first category covers all sorts of rugged features, such as moors, natural forests and marshes, as well as streams, lakes etcetera. The second covers cultivated landscape and includes individual parcels as well as arable land, grazing land and man-made forests. This collection of rural microtoponyms is the largest onomastic collection at Meertens. Often, the phenomenon is designated by the word 'field name', but this paper will use the word 'microtoponym'.¹

For thirty years, the Meertens Institute has been gathering data on the plethora of microtoponyms in the Netherlands. This unique material comes mainly on handwritten cards which state the name, the origin of the name, the location and the soil composition and use. The collection contains an estimated 200,000 microtoponyms and over 1,700 topographical maps – mostly from the Kadaster (Dutch Land Registry Office) – upon which the microtoponyms are marked. These maps are referred to as 'field name maps' in the archives of the Meertens Instituut. This term will also be used in this paper.²

This collection of microtoponyms is not only an excellent source of information for onomasticians inside and outside the Meertens Instituut, it is also a focus of interest for, amongst others, historians, historical geographers and archaeologists,³ partly because most of the names relate to parcels of land that have been swallowed up by land consolidation or urban expansion. If the microtoponyms could be digitized with the aid of a geographic information system (GIS) this would facilitate and open up new avenues of research in various disciplines.⁴

Dimito is a pilot project. The key objective is to explore the potential for digitization on the basis of a small sample from the available material. The first part of this paper describes the cards and the field name maps. The second addresses the question of digitization. The third reviews the new opportunities offered by the digital database. The paper ends by answering the question that prompted the pilot in the first place: is it useful and feasible to digitize the entire collection?

Section 1: Cards and field name maps

The onomasticians at the Meertens Instituut specialize in the study of proper names. The onomastics discipline consists basically of two subdomains: antroponymy (the study of personal names) and toponymy (the study of place names). Other names belonging to

1 Doreen Gerritzen, *Veldnamen in Noord-Nederland. Een pilot voor een multidisciplinaire database*. Subsidy application for the Digitization Fund (unpublished, 2003). Marc van Oostendorp initiated this project together with Doreen Gerritzen. I am indebted to both of them for their comments on this paper.

2 See the archive of the Meertens Instituut, collection no. 49, collection of field name maps ca. 1860 - 1964 and s.a.

3 H. Beijers (*et al.*), *Veldnamen als historische bron*, een handleiding voor methodisch onderzoek ('s-Hertogenbosch 1991).

4 On 25 April 2003 a workshop was organized at the Meertens Instituut on the study of microtoponyms in the twenty-first century. Presentations were held by, amongst others, Nico Bakker from the Ordnance Survey Office, Jelle Vervloet from Wageningen University and Hans Mol from the Fryske Akademy. See: <http://www.meertens.nl/books/veldnamen>

Naam:	<i>Palleweid</i>
Ligging:	<i>Vennewaterpalda</i>
Gesteldheid:	<i>Heilo - E, 738</i>
Gebruik:	
Bron:	<i>C.D. Nagtglas</i>

Example 1. A card from the Municipality of Heiloo relating to the microtoponym 'Palleweid'

businesses, organizations, pets etcetera can also feature in the research. This pilot relates to the collection of microtoponyms which Meertens has been building up since 1948.⁵

This collection is the result of the work and commitment of Meertens staff and individuals who donated items of interest. It includes correspondence with researchers, questionnaires, documents about microtoponyms at sites in the Netherlands, rough versions of maps, cards and other letters and documents.⁶

In the course of time one whole collection was compiled from this multiplicity of sources. The data was filtered out and then recorded on around 200,000 cards and inserted on 1,749 accompanying field name maps. There is space on each card for five pieces of data: the name plus (usually) information on the location, the soil composition, the soil use and the origin of the name. The name is marked on the field name map so that the geographical location can be traced.⁷

The cards are filed in drawers and are duplicated. The microtoponyms can be accessed under place name or in alphabetical order per province. There are no place names in the latter system. In principle, the cards in both databases are copies of each other. The pilot made use of the database that can be accessed by

place name. This conferred an added benefit: searches could also be performed by place name in the digital version.⁸

Various problems arose when we tried to digitize the cards and the field name maps. To begin with, the 200,000 or so cards had mostly been filled in by hand and were nowhere near as legible as they might have been, so they could not be machine-processed with an OCR program (optical character recognition).⁹ The upshot was that the text on the cards had to be entered manually into the database.

Second, the cards had not been systematically filled in. For instance, in the example above, 'composition' has been crossed out and the writer has filled in a reference to one of the field name maps. 'Use' has been left blank. This pattern repeated itself across most of the 400 cards from the Municipality of Heiloo (i.e. the cards used for the pilot). Then, there was the problem of legibility. The people who were recording the entries in the database sometimes had to revert to an educated guess. It was not always clear whether the letters were upper-case or lower-case and punctuation marks had been used on a few cards and left out on the rest. Capital letters and punctuation marks can be important in linguistic research.

Third, the microtoponyms in the sample were undated. They had been collected by individuals or had found their way into the collection from books and archives. So, there was no way of telling whether they were recent or several centuries old. In other words, a microtoponym might just as easily stem from the 16th century as the 20th century. Time stratification is impossible without dates. Researchers will have to take account of this when consulting and comparing the information.

In addition, the microtoponyms could not be exactly located on the basis of, for example, geographical coordinates. This is an essential part of a geographic information system. However, all was not lost, as most of the cards contained a reference to one of the field

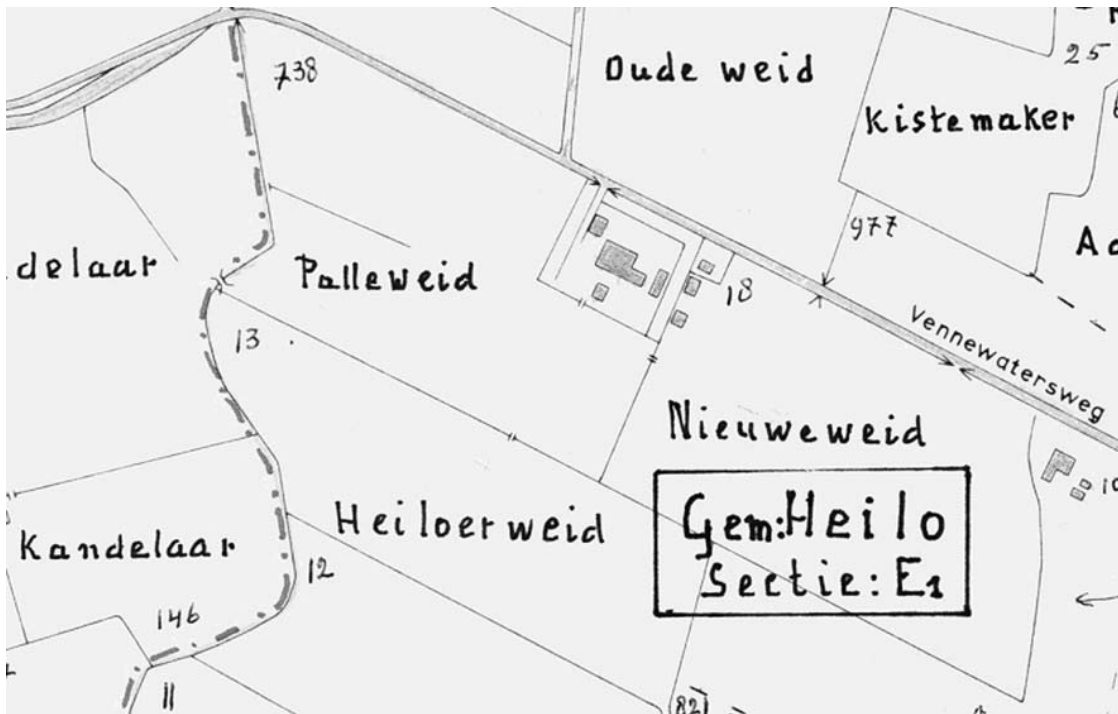
⁵ Needless to say the collection at the Meertens Instituut does not pretend to be complete. There are sure to be many microtoponyms in the Netherlands which are not in the collection. For more information on the Meertens Instituut see: <http://www.meertens.nl>

⁶ See above, the archive of the Meertens Instituut, collection no. 99, field name collection 1941- 1992.

⁷ Meertens Instituut archive, collection no. 49, field name maps.

⁸ *Ibid.*

⁹ OCR converts digital images of printed texts or tables into signs which can be further processed by other computer programs (word-processors, databases, spreadsheets). See also: <http://www.niwi.nl/nl/geschiedenis>



Example 2. Part of a field name map, belonging to the Palleweid, from the Municipality of Heiloo

name maps, which meant that a position could be determined if the microtoponym was recorded on the map. But neither the size of the field nor its exact location could be ascertained in many cases. Though areas (based on e.g. land registry data) were usually marked on the field name maps, they did not always correspond with the microtoponym. It is not impossible for a microtoponym from the 16th century to be marked on a land registry map from the early 20th century. If so, it is most unlikely that the boundaries will still be the same. Finally, there was a distinct possibility that not all the microtoponyms were marked on the field name map and that the number of microtoponyms on the map did not correspond with the information on the cards.

The digitization of the field name maps presented its own problems. The maps had been entered in a database in the past in an attempt to impose some order on the collection.¹⁰ The maps turned out to be highly diverse. Most came from the Land Registry Office, some came from the water authorities and a few had no source reference. Sometimes, dates and scales

were missing. Some maps were poor copies, while others turned out to be originals. Some overlapped, and there was absolutely no doubt that they did not cover the whole of the country. Though it was easy enough to digitize the maps, it was a lot more problematic trying to fit them into a geographic information system. Old maps often have imperfections which are copied to the digital environment, and hence, to the location of the microtoponyms. The so-called 'accuracy' of the field name maps turned out to be an illusion.

Section 2: Digitizing the microtoponyms

The problems connected with the digitization of the microtoponyms at the Meertens Instituut also feature in the literature: specifically, determining the exact location of the microtoponym (essential in a geographic information system). Onomastician Rob Rentenaar wrote: 'The more special categories in the sources relevant to toponymy include those created by the onomasticians themselves, such as records, questionnaires and field name maps. In theory, these are the most reliable sources that a researcher could wish for.'

¹⁰ See the field name map database of Leendert Brouwer from the Meertens Instituut.

After all, the information has been recorded straight from the mouths of the users with the sole aim of obtaining the purest possible toponymical data. All the same, it can do no harm to exercise caution. Memories can change over the years (...).¹¹

This quote from Rentenaar not only suggests that it is not entirely possible to assign an exact position to a microtoponym, it offers a perspective for the problems. Within the context of the quote, the microtoponym collection of the Meertens Instituut can be seen as one of the '(...) categories in the sources relevant to toponymy (...)'.¹² And, as usual, that one unique source has an upside and a downside, so researchers will have to check out its reliability. This is where the digital database can prove useful. The geographic information system in which the microtoponyms will eventually end up will add no extra information to the current collection or make it more accurate. Its only function is to provide better and alternative access to the collections and to facilitate comparison.¹³

With this as the starting point it is possible to digitize the microtoponym collection. Researchers can even check the source by, for example, consulting scans of the originals. They can study the card and (if available) the field name map for each microtoponym. If necessary, the original can always be retrieved, but the quality of the digital copies would be so good that the original could remain undisturbed.

The two components of the microtoponym collection, the cards and the field name maps, would be digitized separately and linked in a geographic information system. The information on the cards and on the field name maps was entered into a database, which would ultimately consist of three groups of data: the data on the cards, followed by the data on the field name maps and, finally, administrative data stating, for example, the creation date of the record.

The database had a total of 27 fields. We shall begin by describing the fields for the cards. Each card was assigned a unique number. Obviously, the informa-

tion on the card would be repeated in the database. The next five fields were: name, location, composition, use and source. The seventh field was for recording any notes on the back of the card. This applied to roughly 8 % of the 400 cards from the Municipality of Heiloo. The eighth field was for the name of the location or the municipality. The ninth was reserved for a computer path for the image of the fiche. The tenth was for the path for the reverse image of the card (if any). This way, an image of the card could be retrieved for each record. The last two fields in the group were reserved for the x and y coordinates of the microtoponym. The search method for these coordinates is explained later.

The next group of database fields were for the field name maps. All eleven fields were copied from the database of the field name maps: identification number, cluster number (for specific dialects in specific regions), cabinet number, specification (often geographic), toponyms (for indicating the presence of toponyms), main card (the database further explanation), title, field name map (the database offers no further explanation), place name, province, and finally, a computer path for the image of the map so that a map could be found for every microtoponym.

Last but not least, the administrative part. This consisted of four fields: one for the entry date of the card, one for the name of the person who entered it, one to indicate whether the microtoponym came only from a card, could only be pinpointed on a map, or had both a card and a position on the map. Finally, field 27 was reserved for remarks. Needless to say, more fields could be added at a later date if required.

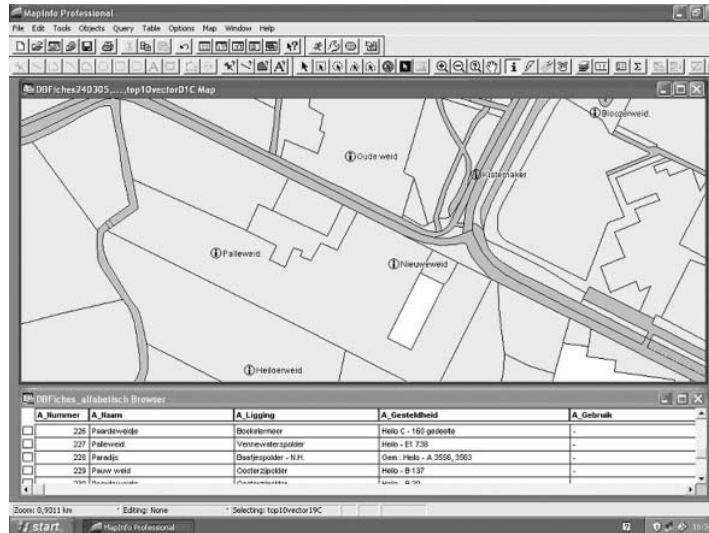
As mentioned above, two fields in the database were reserved for an x and a y coordinate. The current collection of microtoponyms does not have geographic coordinates. An accurate system of geographic determination is essential in a GIS, not least for the exchange of geographical information. Otherwise, it is merely an extensive database.¹⁴

11 Rob Rentenaar, 'Plaatsnamen in historische bronnen', in: *Naamkunde*, no. 2, Vol. 34 2002 (Leuven 2002) 144.

12 *Ibid*

13 Gerritzen, *Veldnamen*

14 For more information see: Ian N. Gregory, *A Place in History*, 'A guide to using GIS in Historical Research' (Oxford 2003) and Paul Ell & Ian N. Gregory, Adding a new dimension to historical research with GIS, in: *History and Computing*, Vol. 13 no. 1 (Edinburgh 2001).



Example 3: The microtoponyms in a geographic information system (MapInfo). The base layer is the TOP 10 Vector Map of the Netherlands; 'i' marks the spot where the microtoponym has been 'pinned'. The database contains the data belonging to the microtoponym. Clicking on 'i' enables you to zoom in on the image of the card of the Paleisweide (see Example 1) and the field name map (see Example 2).

Geo-referencing was (and still is) the easiest and most economic technique to assign geographic coordinates to the field name maps (and the cards in the next step). Most GIS software has a function that enables this technique to be applied.¹⁵ What happens is that first a map is scanned (in this case a field name map) and the image is projected onto a map of the Netherlands which has x and y coordinates. The pilot used the TOP 10 Vector Map¹⁶. The image of the field name map is then 'pinned' to the vector map, which gives each point on the field name map a coordinate. It sounds simple but, as mentioned earlier, some of the field name maps have no source references or are poor copies. Old maps can also be seriously flawed. So, positioning can be an awkward and delicate task.

Once the field name maps were geo-referenced, the individual microtoponyms could be assigned an x and a y coordinate. The field had to be manually pinned into the map and the coordinates added at the right record. One extra advantage of this technique is that a microtoponym gets one coordinate. In other words,

it is assigned to a point and not to an area. Notwithstanding the inaccuracies in the maps mentioned in paragraph one, Rentenaar suggests that the data is not particularly accurate either. Once a microtoponym has been linked to one point in a geographic information system, there are various ways of adjusting the accuracy; for instance, by marking out a radius of 100 metres within which the microtoponym is valid. It is also possible to compare and exchange files. One click on the mouse will retrieve an image of the card and the field name map for every microtoponym. Hence, researchers can consult the original source in each case.

Section 3: Microtoponyms and openings for research

Having established that it is technically feasible to digitize the microtoponym collection of the Meertens Instituut, this section will discuss the new research openings offered by the database itself and the potential for exchange with other geographic information systems.

¹⁵ In this pilot we opted for MapInfo 7.8. First, because MapInfo is already being used at the Meertens Instituut for other projects, so we were already familiar with it, and second, because it met the project criteria. A database could be built which could be adapted to different formats and which also allowed the import of various database formats. The package could also be used for geo-referencing. Last but not least, it was cheaper than the alternative, ArcView.

¹⁶ The TOP 10 Vector is the most detailed digital database at the Ordnance Survey Office. The Meertens Instituut is licensed to use it.

The data can now be consulted by other means besides the cards. Qualitative, quantitative and geographical data can be retrieved and displayed. For example, you might want to search for specific microtoponyms, such as all the 'gallows fields', in a specific area. These fields can now be shown on a map of the Netherlands, making the spread visible. Or you might want to look at the geographical distribution of the word *weid* (meadow). There are many instances of *weid* in the Municipality of Heiloo (North Holland) whereas, the province of Brabant might be more inclined to use the word *veldje* (field). You could then try to ascertain where the change occurred and whether it was gradual or abrupt.¹⁷

Other digital files can also be used as a base layer: a map showing land use could be used instead of the TOP 10 Vector Map. Alterra, part of Wageningen University, has a digital map showing soil use in the Netherlands in 1900.¹⁸ It is now possible, on the basis of the microtoponyms, which are known to sometimes indicate how the soil was used, to investigate the qualitative and quantitative aspects of this relationship.¹⁹

Moreover, data can be exchanged. The recently launched web site www.kich.nl (Knowledge Infrastructure for Cultural History) provides integrated information from four knowledge institutes. The Netherlands Department for Conservation, the *Rijksdienst voor het Oudheidkundig Bodemonderzoek* (government department for archaeological investigation), the Knowledge Directorate of the Ministry of Agriculture, Nature and Food Quality and Alterra (Wageningen University) have unlocked, linked, combined and organized information on cultural history. It is now possible, for example, to select the existing or archaeological monuments in an area and display them on a map.²⁰ If such a map is used as a base layer for the microtoponym database, the relationships between the microtoponyms and monuments can be explored.

This research serves at least two purposes. First, it enables us to determine how often microtoponyms in a specific area refer to, say, archaeological monuments. Second, it helps us to perform qualitative research. Does the name 'Roman Mound' really indicate Roman remains? And the sword cuts both ways. If there

is indeed a demonstrable relationship, it may be that a microtoponym with an archaeological background points to undiscovered remains and can create some intriguing puzzles for planners, policymakers, designers and other professionals (which KICH names as its main target group).²¹ So, onomastic research can extend into other disciplines.

Conclusion

It would, in general, be possible to digitize the microtoponym collection at the Meertens Instituut and set up a geographic information system (GIS), even though some aspects would present a problem. One serious obstacle is the determination of the location of microtoponyms, despite the presence of field maps. A geographic information system requires exact positioning. This is unattainable with a database of field name maps, many of which are decades old and have very little affinity with modern digital maps. Further, the statement by onomastician Rentenaar suggests that human sources of information are not always reliable. We tackled these problems by assigning one point to a microtoponym instead of an area, and then demarcating a 100-metre radius around it. This leaves space for further adjustments, even for individual cases.

To prevent deterioration in the original material we decided to link each microtoponym to a scanned image of the card containing the data and of the field name map. This means that (good quality) digital copies of the original material can be consulted for each microtoponym. The database can also be accessed from other perspectives, besides the geographic. It contains the data from the cards and other fields that can be filled thanks to the available material.

The digital source that has developed in the meantime does not only provide easier access to the collection, it opens up opportunities for new research questions. Paper data can only be accessed through the cards; this data can be consulted in different ways. Qualitative, quantitative and geographic data can be requested and displayed. One could, for example, search for all the 'gallows fields' in a specific area and show them on a map.

17 For a classification of the field names see: M. Schönveld, *Veldnamen in Nederland* (Amsterdam 1950).

18 See: <http://www.hgnnederland.nl>

19 Schönveld, *bestand* 73-87.

20 Zie: www.kich.nl

21 Ibidem.

It also opens new opportunities for interdisciplinary research. Onomastics can create new insight in tandem with other disciplines. Other maps could be used as a base layer for the field names; say, a map of the archaeological monuments in the Netherlands – which would shed light on the relationship between the microtoponyms and monuments. If this relationship were demonstrated, then some microtoponyms might even lead the way to undiscovered archaeological remains. This would provide a valid reason for exploring an area further or conserving it.

Finally, the last issue of *Naamkunde* featured an article in which Hans Bennis, Director of the Meertens Instituut, expressed concern about the future of onomastics as a discipline. He ended with an appeal: ‘ (...) Fellow onomasticians, draw attention to the importance and the role of onomastics in the academic scheme of things!’²² Perhaps, a digital database of microtoponyms offering new research opportunities will go some way towards communicating that message, and win onomastics a place alongside other geographically-oriented humanities.

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