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The Electronic Medieval Age

"who can do medieval history in the twenty-first century without appreciating that the digital promise of the 1960s is now entering fulfillment, in ways both anticipated and unforeseen?"
- Michael McCormick[1]

Abstract

This conference paper has been inspired by the fact that in recent years more and more medieval source material has been published digitally, often in database format. These electronic publications are mainly the result of converting primary or secondary sources, which have previously been either available in print or only obtainable for scholars as a single top copy in an archive, into an electronic format. These new publications open up for new possibilities for the medievalist: Hypotheses concerning large amounts of data can now be tested in ways that were impossible only a decade ago, not only since adding further information (other kinds of variables) has become easier, but also because of the development of PCs, i.e. new tools for searching, cross-checking and manipulating large amount of data.

My examples are mainly from new databases, and recent quantitative research, concerning Sweden and (to a lesser degree) Finland. Printed indexes of Swedish medieval men and women (roughly 38 800 rows) have been converted into a relational database. When divided chronologically and according to gender the female ratio slightly fluctuates during periods of the late medieval age and in the decades before the year 1350. My idea is that these fluctuations may reflect demographic disasters as well as recoveries. The study of life spans could increase our knowledge about life and death in those harsh times of famines and pestilences.

New media for the Medievalist

In the Scandinavian countries, authorities from the sixteenth century and onwards came to systematically build up archives of medieval written records concerning public matters that were in the interest of the state to preserve. Those records were most often made on parchment and they are simply called medieval letters (or sometimes diploma), not to be confused with private letters. In the nineteenth century scholars started to publish the letters and sometimes the series of published letters are called Diplomatarium (*Diplomatarium Suecana* for example which was started in the year 1830[2]). The purpose of these publications was not only scientific. The compilation of these publications was also part of the nationalistic project that would legitimate the (sometimes newborn) states in Scandinavia. This anachronism, that a medieval letter can be determined as being originally "Swedish", "Danish" or "Finnish", is shown among other things in that some letters are included in more than one Scandinavian Diplomatarium. Having this kind of source critic remarks in mind it must be underlined that there is no doubt that the printed

Scandinavian Diplomata are of immense value for the medievalist, and that the scientific importance of the work behind them has increased due to new media.

Today we can watch a process where our sources not only go from parchment to printed text, but also from there further on to a digitalized version. For example The National Archives in Stockholm (Svenska Riksarkivet) is now working on a project, which in the end will make all Swedish medieval letters that have been printed accessible on the web (see the overview in table 1). But it does not end here; there are other electronic devices for us to acquire the needed information from. One of these tools is the 40 000 rows (posts) on a compact disc in Swedish the so-called 'Huvudkartoteket'.[3] Basically each row represents a Swedish letter, printed as well as unprinted.[4] The second version of the Huvudkartoteket was published in the year 2001, and after that an updated edition has on and off been available on the web (for limited search but not for downloading).[5] The main text column (field) of the Huvudkartoteket contains a so-called 'regest', a summary of the contents of the letter. Sometimes this summary is a plain transcription of the introduction from the printed version of the letter, but often that printed summary has been updated (this at least applies to many of the oldest letters that were published in print at a time when summaries, as a rule, were formulated in a very laconic way).

In other columns (fields) on the Huvudkartoteket we find additional kinds of data such as date of issue, place of issue, language, seals, printed version(s), scientific references, names of medieval witnesses and so on. These columns are among other things an important source in order to find corrections of errors in earlier printed versions. However, when looking for data in the Huvudkartoteket we must be aware that the information is not always symmetrical.[6] Finding one type of information, say the price of silver, in one summary but not another, does not mean that we can be sure that there are no such prices in the latter without checking the original. The Diplomatarium Suecana and the Huvudkartoteket have their counterparts in Finland, i.e. the Finlands Medeltidsurkunder and the Diplomatarium Fennicum,[7] even if there are some differences: The Finlands Medeltidsurkunder covers the whole medieval age, while the Diplomatarium Fennicum does not contain as many variables as the Huvudkartoteket.

In my current project in Swedish medieval economic history I have done a small piece of work in the huge ongoing process of digitalisation. I study the market transactions I can find in the Huvudkartoteket and Diplomatarium Suecanum up to the year 1370, and since economic transactions are reciprocal, it is in my interest to collect easily accessible information about the

men and women that once took part in the exchange (most of the fragments that have been preserved are from the real property market and the credit market). The National Archives in Stockholm kindly gave me the indexes of persons from the printed letters in different digital formats and most of them had to be optically read into text files. All persons known through the letters are not included in the printed indexes of persons; persons without a name are obviously excluded. As far as I have seen the principle that has guided the creators of these indexes has been that at least one letter of the name must have been preserved for being included. That means that the young girl "J" who entered a nunnery at the latest in the year 1250 (Diplomatarium Suecanum No. 385) is included, but not the wife of "Bose i Skepperstad" who in 1321, together with her husband, took part in commercial activities concerning landed property with the monastery of Nydala (Diplomatarium Suecanum No. 2315).

My aim has been to create a row (post) for each individual in a digital format. In other words each identified man or woman that were included in a printed index should also be found in the database, spelled in the same way and with the same references to either page numbers or diploma numbers (se table 1). The order of the names has been kept (with very few exceptions) since the alphabetical order in itself represents a kind of information that makes it easier for the user to find and check the source of the digital row in the printed index. To give you a notion what it looked like at the start of the procedure I'll give you a short example from the index of persons at the beginning of the sixth volume just after it had been optically read into a text file:

A, d. in der A 471 se Albertus
A. de Villanoua, påvlig skrivare; påskrift 763
Aaron 629 se Aron
Abernus (Abiorn 395, 463, Anbernus 12, Anbiorn 409) 1. dom., fr. Leksand, kanik i Västerås, morbror (avunculus) t. Holmger Jonsson, s. v.12 – 2. Onampson; tillbytt sig en gd i Vännaryd 395 – 3. Rydberni, kanik i Strängnäs; påvlig provision 585 f – 4. av Sagu, f. i Åbo 409 – 5. f. i Tveta hd 463 – 6. hövitsman på Varberg; intyg 455

Some of these references could not be included in the database since they refer to other names in the index, like the third line (in English: Aaron 629 see Aron). Otherwise that line would have been downloaded into the database as a separate person, which would have resulted in an unnecessary duplication of information, which would also distort the statistical overview of the number of recorded individuals. In order to save space a certain name was only printed once in the indexes, but in a digital format there is no such need with today's hardwares and softwares. After some editing work the result looked like this:

A. de Villanoua, påvlig skrivare; påskrift 763.
Abernus 1. Anbernus dom., från Leksand, kanik i Västerås, morbror (avunculus) till Holmger Jonsson, s. v.12.
Abernus 2. Abiorn Onampson; tillbytt sig en gård i Vännaryd 395.
Abernus 3. Rydberni, kanik i Strängnäs; påvlig provision 585 f.
Abernus 4. Anbiorn av Sagu, född i Åbo 409.
Abernus 5. Abiorn född i Tveta härad 463.
Abernus 6. hövitsman på Varberg; intyg 455.

Even though my purpose was to create a digital copy of the printed indexes, I must admit that the outcome of my edition includes a good deal of interpretation. The dashes [–] are replaced with the standard Latin name form 'Abernus' and the abbreviation *'gd'* is changed into Swedish *'gård'* (eng. 'farm'). A flaw is that nothing has been done about the short form '*dom.*' for the Latin word '*dominus*', but 'dom.' could easily be replaced by 'dominus' in a relational database. How to handle the many and varying abbreviations in the indexes is a problem to be dealt with, especially some of those in Latin, the meanings of which are not as obvious to everybody as 'dom.' for 'dominus'. The individuals above with its references were imported to a relational database where I have added three more columns to the table created there (and other scholars who would like to use this table may of course add as many columns as he or she likes for his or her purposes).[8]

The first column below shows the volume number of the index from which the identified person is taken from. The second one is a unique personal number provided by the auto number function in the database program, while the function of the column *genus* is obvious. The genus variable was partly created manually by initially setting all rows to a number one (= man) and afterwards changing each woman into a number two variable by browsing each index in numerical order. Since this order is the same as the alphabetical order in the printed indexes most female names were found in clusters separated from the men. There is a question mark for less than two dozen individuals; for example boys as well as girls could be baptized with the name "Kætillögh" in medieval Sweden. The seven men that start the index of persons in the Diplomatarium Suecanum's sixth volume look like this in the table:

VolumeNo	*pers_id*	*genus*	*pers_bes*
DS6	11522	1	A. de Villanoua, påvlig skrivare; påskrift 763.
DS6	11523	1	Abernus 1. Anbernus dom., från Leksand, kanik i Västerås, morbror (avunculus) till Holmger Jonsson, s. v. 12.
DS6	11524	1	Abernus 2. Abiorn Onampson; tillbytt sig en gård i Vännaryd 395.
DS6	11525	1	Abernus 3. Rydberni, kanik i Strängnäs; påvlig provision 585 f.
DS6	11526	1	Abernus 4. Anbiorn av Sagu, född i Åbo 409.
DS6	11527	1	Abernus 5. Abiorn född i Tveta härad 463.
DS6	11528	1	Abernus 6. hövitsman på Varberg; intyg 455.

The contents of the printed indexes diverge slightly, reflecting varying kinds of interests among their creators. The most comprehensive information among the indexes of persons we can probably find in the seventh volume. The time span and the types of reference for each volume are shown in the table below.

TABLE 1

OVERVIEW OF THE PRINTED SWEDISH MEDIEVAL LETTERS (DIPLOMA) PUBLISHED 1829-2004			
Volume	Period	Diploma Number	Kind of Reference in Index of Persons
DS 1-2	11th century to 1310	1-1772	Page Number
DS 3	1311-1326	1773-2600	Page Number
DS 4	1327-1340	2601-3532	Page Number
DS 5	1341-1347	3533-4274	Page Number
DS 6	1348-1355	4275-5521	Page Number
DS 7	1356-1360	5522-6390	Diploma Number
DS 8	1361-1365	6391-7270	Page Number
DS 9	1366-1370	7271-8272	Diploma Number
DS 10	1371-1375	8273-9172	Diploma Number
SD 1	1401-1407	1-917	Page Number
SD 2	1408-1414	918-2029	Page Number

SD 3	1415-1420	2030-2845	Page Number
SD supplement	1401-1407	2846-3140	No Index of Persons

Source: Diplomatarium Suecanum, 1829-2004.

Comment: No updates have been done due to the fact that later research has changed the date of a few letters.

TABLE 2

SUMMARY OF THE SQL-BASED DS- & SD- INDEX OF PERSONS IN THE DATABASE

Volume	Period	Personal Autonumber
DS 1-2	11th century to 1310	1-3501
DS 3	1311-1326	3502-5984
DS 4	1327-1340	5985-8889
DS 5	1341-1347	8890-11521
DS 6	1348-1355	11522-15134
DS 7	1356-1360	15135-18084
DS 8	1361-1365	18085-20689
DS 9	1366-1370	20690-23655
DS 10	1371-1375	23656-26131
SD 1	1401-1407	50000-54153
SD 2	1408-1414	54154-59255
SD 3	1415-1420	59256-62688

Source: The database is basically built on the indexes of persons from the Diplomatarium Suecanum 1829-2004.

Comment: A supplement starts at number 90 000 (to date 8 people).

There is a lot of research behind a good index. Identifications and references are often the results of years of hard work and qualified research. The information in different indexes of persons (and other kinds of indexes as well) is not always symmetrical. This means that finding one type of information in a certain index does not mean we can be certain to find it in another, which means we may take similar measure of precaution when using the indexes as with the Huvudkartoteket. In fact each publication reflects the interests of its time. When the older indexes were compiled the interest in ordinary peasants was low, so one can find different men from the countryside in a row simply called 'Johannes' or 'Nicholaus'.

Probably more unnamed women than men are missing in the table above. Women are also often treated different from men. If a woman's first name has been preserved we are told who she belonged to, but when reading the mate's row (post) we sometimes cannot be sure if he was married or not. But information is not only twisted by the fact that nameless men and women in the documents are missing. Another defect works in the opposite direction and gives the impression that the letters contain evidence of more people than they actually do. Some persons, in particular from the high nobility, appear in several volumes and have for that reason been computed more than once. Obviously I ought to have fixed this imperfection in the database, but that would have taken too long. There are, for sure, many other things to bring up as important points of source criticism. And there are errors in the indexes, done by the scholars that made them and certainly also by me during my editing.

To sum up, we must be critical, we must be careful with the data provided, and we must be aware of all kinds of drawbacks like the irregularity of information. But there are so many benefits with the coming of *The Electronic Medieval Age*. The Huvudkartoteket, for example, represents a minor revolution. Digital methods will help us to find what we are looking for much more quickly than before and we may also use them as tools for quantitative studies in which we are able to manipulate large amounts of data in order to test hypothesis concerning medieval society.

2. Demographical tendencies of Medieval Sweden and Finland reflected?

I would like to round off by mentioning two ideas for further research, both of them connected to questions of demographical changes. In the following table 3 we see the representation of the sexes from the database built on the indexes of persons.

TABLE 3

MEN AND WOMEN IN SWEDISH MEDIEVAL LETTERS

Volume	Period	Women	% Women	Total
DS 1-2	11th century to 1310	362	10,3	3504
DS 3	1311-1326	235	9,5	2482
DS 4	1327-1340	322	11,1	2905
DS 5	1341-1347	269	10,2	2635
DS 6	1348-1355	360	10	3611
DS 7	1356-1360	250	8,5	2947
DS 8	1361-1365	195	7,5	2605
DS 9	1366-1370	275	9,3	2967
DS 10	1371-1375	206	8,3	2476
SD 1	1401-1407	351	8,4	4154
SD 2	1408-1414	413	8,1	5101
SD 3	1415-1420	302	8,8	3413
Sum		3540	9,1	38800

Source: Relational database table ('perstab') basically built on the indexes of persons from the Diplomatarium Suecanum, 1829-2004.

Regardless of the source critical remarks I have brought up (if possible), there are 38 800 men and women known by name from the indexes of persons. Not even 10 % of these observations are women; most of them (like the men) were propertied and belonged to the upper strata of

society.[9] If we consider the percentage of women for each period, there is a falling tendency down below 10 % in the DS 3-period (1311-1326) and later on from the DS 6 (1348-1355) and during the SD 1 to SD 3 periods (1401-1420). This could of course be a coincidence or it may have to do with how those alphabetical listings once were constructed, most of them not after the early 1950s. But as an economic historian I wonder if the variations in those relational figures between the sexes could be a symptom of demographic realities. It is worth a moment of speculation in the light of a new demographic study of the fourteenth and fifteenth centuries.

Janken Myrdal has published a book about how Sweden was hit by the Black Death between 1350 and 1500. Myrdal's work is a synthesis between the many studies that previously have been made and uses new sources, for example statistical investigations through the Huvudkartoteket. In short, Sweden and the many epidemics of Bubonic plague is no exception from the rest of Western Europe. The reduction of the population was massive and the desolation of the countryside went on for almost a hundred years. The author brings up the question of whether the female part of the population was struck harder, but he regrets not having had the time to investigate this further.[10] Ostoelogical research has detected no sign of women's (contrary to men's) health becoming worse due to changes in nutrition during the Middle Ages in Sweden.[11]

It is a fact that many of the people hit by the first great epidemic of Black Death in Europe 1347-1352 were children to parents that had survived a line of catastrophic harvests 1315-1319.[12] And from the middle of the fourteenth century Sweden was struck disastrously by plague in the years 1350, 1359-1360, 1368-1369 (and maybe 1389), followed by harsh epidemics in 1413, 1421-1422, 1439-1440, 1455, 1464-1465 and 1495.[13] Between these pandemics there were numerous minor epidemic outbreaks. The lower proportion of females in table no. 3 during periods of bad harvests and the Bubonic plagues supports the impression that women were hit harder during the late medieval demographic crises. The upper strata of Sweden seem, according to Myrdal, to have survived the Black Death better than the poor. The aristocracy simply had the resources to get away when the disease was approaching,[14] albeit we may doubt that the upper strata women were given that opportunity in the same degree as their male relatives – the medieval age was of course an era where men came first, women second![15]

The Black Death also came to Finland but did not strike so hard here as in Sweden and Norway. That is at least the picture we have today, although that image has been questioned.[16] The lack of direct evidence can in my opinion be bridged thanks to the new tools. Marko Lamberg has

demonstrated this[17], and Myrdal has recently further analyzed some of his prosopographical figures for towns.[18] In his study Myrdal presents suggestions of further research; the new electronic devices are inspiring since there are so many new opportunities. Among the possibilities for reaching a clearer image of what happened in Finland one could among other methods perform prosopographical studies, not least to see if more people disappear after each great outbreak of the Black Death.[19]

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Notes

[1] McCormick, 2001, p. 4.
[2] Fritz B, "De svenska medeltidsbrevens tradering till 1800-talets början/En arkivhistorisk översikt", Särtryck ur Meddelanden från Svenska Riksarkivet för åren 1976-1977, p. 114.
[3] Huvudkartoteket, "De svenska medeltidsbreven i Svenskt Diplomatariums huvudkartotek", CD-ROM version 2, Svenska Riksarkivet, Stockholm 2001. The project of creating the Huvudkartoteket started already in the 1980s under the leadership of Birgitta Fritz, and after her the project has been taken over by Claes Gejrot. There is one more important digital publication of summaries concerning Swedish and Finnish medieval history (and so far unprinted). It is by Birgitta Fritz and Göran Bäärnhielm with more than 1300 summaries from the letters that contain monetary data from 1319 to 1363. The title is: "Sveriges mynthistoria: Magnus Erikssons tid 1319-1363" (University of Stockholm, Word Perfect file, 1990).
[4] From the period 1330-1350 there seems to be roughly 15 % more rows (posts) in the Huvudkartoteket than printed letters in the Diplomatarium Suecana (Myrdal 2003, p. 107). For a more detailed analysis of the relationship between Diplomatarium Suecana and the Huvudkartoteket, see Myrdal 2003, p. 105-116.
[5] www.ra.se/ra/diplomat.html.
[6] Myrdal 2003, p. 125.
[7] Diplomatarium Fennicum, www.sls.fi/fmu (Database) and Finlands Medeltidsurkunder vol. FMU I-VIII, 1910-1935. FMU can also be found in an optically read version at www.sls.fi/fmu.
[8] The software I use is called R:BASE and it is built on Standard Query Language (SQL) which is a very effective tool in relational dabases fore connecting and measuring data. Anyone who is interested in having a copy of 'perstab' may write to Bo.Franzen@ekohist.su.se.
[9] In my database on the trading town of Arboga from the fifteenth and sixteenth centuries the ratio between the sexes is somewhat higher for women, 16,2 % (Franzén B, "Sturetidens monetära system / Pant eller penningar som information i köpstaden Arboga", 1998, table 3:1 and 3:2 page 77 f and 89), although that index of persons (printed as well as my downloaded version) includes women as well as men without a name. In my opinion medieval towns offered more market opportunities for women than elsewhere (see Franzén 2002), and daughters in towns did, according to the law, inherit equally with the men, while outside the towns they inherited only half compared to the sons. This anomaly – i. e. that women in Swedish towns seem to have been a little bit better off economically than in the countryside – could be a phenomenon caused by adoption of burgher institutions from Hanseatic codes. The relatively less constrained life for women in the towns may explain the higher female proportion in Arboga compared with the Diplomatarium Suecanum, although the figures of the former are of a later date than of the latter.
[10] Myrdal 2003, p. 97 f.
[11] Söderberg, p. 55-56.
[12] Myrdal, 1999 p. 118.
[13] Myrdal 2003, p. 243 f.
[14] Myrdal 2003, p. 98.

[15] Primarily figures in my ongoing project shows a decreasing share of women participating in the exchange of landed property and credit during the fourteenth century (up to the year 1370), a result that so far has surprised me because of my hypothesis that the increasing commercialization of society ought to have been followed by a trend of emancipation.
[16] Kallioinen 1998, p. 440.
[17] The method of measuring the life span of individuals in a quantitative way is demonstrated by Marko Lamberg in his appendix 1-3; see Lamberg, prosopographical tables, Bilaga 1-3, p. 253-275.
[18] Myrdal 2003, p. 97 f.
[19] Myrdal 2003, p. 148 f.