Recording, organising and presenting data

Data sources

All material used in this study comes from public archives and collections, and from private collections. I have tried to be as thorough as possible, but certainly, I have not recorded everything – far from. Especially private collections contain a lot more material, if only you can find your way to the collections. I began recording material in 2006 and stop in 2016, not because the sources are depleted, but because it is time to move onto analyses and publication.

Museums

A number of museums possess artefacts from the research area in their collections, and to varying degrees, they have carried out excavations in the area as well. I have used material from the following authorized museums: The National Museum (NM), Moesgård Museum (FHM), Horsens Museum (HOM), Vejle Museum (VKH), Skanderborg Museum (SBM), Odder Museum (OOM) and Glud Museum (GLM). The capital letters in brackets are the official National codes for the museums. By definition, they must be the first part of all numbers used by the museums to identify materials in their archives and magazines.

The numbering standard that archaeological museums follow to day has a tripartite structure. The first part is the museum code. The second part is the project or filing number, which is simply a sequential set of numbers to keep what belongs together separated from everything else. The third part is a set of sub-numbers used within each project. The sub-number system can vary from museum to museum, but it is common that artefacts are numbered with an X followed by digits. Well, it is common now, but for many years, Moesgård Museum had its own peculiar system (from the early 50'ies to the late 80'ies). The rule was that all artefacts and written records was numbered sequentially with letters (e.g. A, B, C ---- Z, AA, AB etc.). Drawings and photos had separate numbers, but while AA could be an artefact, AB might well be a description of a drawing. You will find several examples of this system in the catalogue, most of which are from my own excavations. From experience, I can state that it was a terribly bad system.

All museums however, have material that antedates the current norm. How they deal with this differs. Some museums like Horsens Museum have transferred the old collection to the new system with a filing number. Thus HOM 10 XA553 is an artefact (a nice thin-butted, thick-bladed flint axe, actually) from the old collection with the original number A553. Likewise, HOM 12 X370 is an artefact from a large private collection (Lindeman's collection) handed over to the museum in 1914. Moesgård Museum, on the other hand, has just added an AM in front of the original numbers (e.g. FHM AM625) (AM stands for Aarhus Museum, which was the original name of the museum). Rather inconsequently perhaps, they have chosen to give a former private collection a filing number. From the beginning, the artefacts in the Rathlousdal collection had an H in front of the number to separate them from other artefacts in the museum. Now H1643 has become FHM 5164 H1643.

The National Museum has a system of their own, naturally, and it has not changed a lot over the last 150 years or so. A remarkable thing about the system is that artefacts are filed separate from written information relating to the artefacts. Thus, there is no mutual filing number connecting the artefacts from an excavation with the report that describes it. Artefacts are numbered using three different series. An A in front of a number indicates that the artefact is Neolithic, a B that it is from the Bronze Age, and a C that it is from the Iron Age. Originally, every artefact received a unique number in the series, but rather quickly, it became obvious that the numbers would become astronomical with this approach. As a result, sub-numbers were introduced. Thus, when A1233 referred to one artefact in 1873, then A50361 refers to many artefacts found in 1955 from an excavation at Toftum. The artefacts have received sub numbers, where each of the 729 sub numbers may refer to one or more artefacts. Thus, TT6 refer to "9 rim shards decorated with a row of finger or nail imprints below the rim". The TT prefix is unique to Toftum, added to avoid having to write the full number to each artefact. Thus, what formally should have been A50361-6 now becomes TT6. Every newer excavation at the National Museum has these two letter prefixes taken from the site name (e.g. **T**of**T**um).

In the catalogue, I am using the current numbering systems as explicitly as possible. This may result in discrepancies in relation to other publications that mention the same artefacts. Thus when an author refers to a copper axe as HOM A4 (Vandkilde 1996:425), it may not be immediately apparent that it is the same as HOM 12 XA4 in the current publication.

Archives

All museums have their own archives, naturally. Originally, it was a simple protocol describing the artefacts they acquired. Here you could see what was acquired, how it was acquired, and hopefully also where it came from and what the find circumstances were. Letters and other papers were not formally filed, and have in many cases been lost. If they exist, they may not be at the museums, but in a local historical archive.

With the introduction of unique project and filing numbers, information moved to filing cabinets, and it was not just scholarly information that was filed, but every scrap of paper that related to a project. The suspension files in the cabinets swelled, and it can be time consuming to work your way through the filing cabinets to see if there is anything of interest. When you find something, you have either to take notes, go to a photocopier or as I did, bring your notebook and a scanner.

To day, the digital revolution is really beginning to make its impact felt. Digital archiving become more and more common and the volume of the suspension files in the filing cabinets are shrinking. By default you have to add a folder the minute you take a new filing number, but new folders often remains empty or with very little in them. It is great for the employees at a museum, who sits with all the information at their fingertips, but it causes big problems for a visiting scholar in search for information. All information is hidden in a computer system that only the employees can access, and for security reasons there is no way that an outsider can be allowed inside the system.

The only way you can get at this information is to make an employee copy it for you onto a memory stick or forward it by email to you. For me it has worked without a problem, because the employees are old friends that I have known for years, but how will it work with a true outsider?

There is a more fundamental problem, however. If there are no papers in the filing cabinets, how can you know that there is something of interest in the first place? The solution to this is the national archives.

There are two such archives with relevance to archaeology: "Fund og Fortidsminder" (Sites and Monuments Records), and "Museernes Samlinger" (Museum Collections). Both has a public interface with free access and a "professional" interface with protected access. The URL for the public access is currently http://www.kulturarv.dk/fundogfortidsminder/ and www.kulturarv.dk/mussam/Forside.action respectively. Both sites are in Danish only.

Sites and monuments record

The National Museum initiated the sites and monuments record as early as 1873, but it would take almost 60 years before the initial recording had been completed for all of Denmark (Christoffersen 1992: 10). The project, known as "herredsrejserne" (the district journeys), aimed at creating a systematic inventory of existing monuments, monuments that were known to have existed, and sites where artefacts could be found or was known to have been found. Each year an employee of the National museum would systematically travel through one or more of the 155 districts, where they would look for monuments in the landscape and take notes of what the local population could tell them about finds and lost monuments. Klaus Ebbesen (1985b) has provided us with a thorough history of these travels – what led to them, how they were organised, what their results were, and how they should be evaluated. It is highly recommended reading, but unfortunately in Danish only.

County	District	Year of survey	Surveyor
Århus	Hads	1903-04	H. Kjær
Århus	Ning	1893-94	A. Reeh & C.I.W. Smith
Skanderborg	Nim	1894-98	M. Kristensen
Skanderborg	Tyrsting	1877	H. Petersen
Skanderborg	Voer	1894-98	M. Kristensen
Vejle	Bjerre	1878-79	H. Petersen
Vejle	Hatting	1879	H. Petersen

Figure 3. Table showing who surveyed the districts of the research area, when they were surveyed.

One of the arguments to establish this project was the alarming rate with which prehistoric monuments disappeared across the country. There were no laws to stop people demolishing the monuments, and the destruction went on unhindered throughout the period of the district journeys and beyond. Only in 1937, a law was passed to protect prehistoric monuments. This led to a new series of journeys to seek out those monuments that were worthy of protection (Pauly 1992: 43 ff.). The result was depressing. All too often a monument described during the district journeys as well preserved, received the short verdict – disappeared!

The quality of the surveyors differed, which is clearly notable in the records. In this respect, the research area in this project benefitted. Those, who carried out the surveys here (Fig. 3) are all among those that Klaus Ebbesen in his evaluation found to be the best (Ebbesen 1985b: 14-16). Despite this, it is easy to see the limitations of the survey. It merely scratched the surface of what was out there, and obviously, the surveyors focused on the monuments, and paid less attention to traces of settlements and artefact finds.

The district surveys became the backbone of what we refer to as "Sognebeskrivelsen" – The Parish Records. It received this name because the content was organised parish by parish. A separate map existed for each parish, on which the monuments or finds were marked together with a number that corresponded to a list of descriptions for the parish. The numbers that had to be unique within each parish are known as *sb* numbers. Thus, a unique reference to a particular monument would be Aarhus County, Hads District, Alrø Parish, sb. 1 (which is Alrunes grave – a long gone megalithic tomb). To make this system easier to handle counties, districts and parishes was numbered. Thus, Aarhus County has number 15, Hads District has number 2 within Aarhus County and Alrø Parish has number 1 within Hads District. Consequently, 150201 sb 1 identifies Alrunes grave. The six digits number known as the location number is still in use.

The Parish Record was and is not the only topographical archive at the National Museum. There is in fact a parallel archive to the Parish Records, where the National Museum parish by parish store all information

related to the parish – information that is not necessarily duplicated in the Parish Record. Apparently, the notion that the Parish Record was for monuments and not for artefacts and various types of information had stuck with the employees (Ebbesen 1985b: 27). Attempts were made to change this, but with little effect as recording practice in the National Museum remained a personal matter.

To worsen the situation, after the Second World War the momentum of Danish archaeology moved away from the National Museum to the local museums all across Denmark, now being staffed with professional archaeologists. Each year new finds by the thousand were made, and only few of these ever reached the ears of the National Museum. The Parish Records was far from being the national archive that it should have been.

A project to migrate the Parish Record from paper to digital format began in 1980, and in 1982, a body within the National Museum called DKC was formed to take care of the project (Christoffersen 1992: 10). It was expected that the work could be done in ten years, but it was to take about twenty years before all information was transferred. The reason was partly that the project was understaffed, partly that an in depth crosschecking of information was attempted and not least because it was decided to ask the local museums to provide information on both existing and new sites and monuments. Many museums did just that, and it almost choked the project to death.

In 2002, the project was moved from the National Museum to "Kulturarvsstyrelsen" (Heritage Agency), which is a branch of the ministry of cultural affairs, and from then on things began to develop. In 2008 a contract was signed for the development of a new database system that radically and successfully changed "Sognebeskrivelsen". The name changed to "Fund og Fortidsminder" – Finds and Historic Monuments – and at the same time a merging took part between "Sognebeskrivelsen" and a database of marine finds that had existed for some years.

The novelty of the new system was, apart from a modernised user interface, primarily twofold. Firstly, and most important, the recording of information was decentralised. It is now the individual museum employees that enter and update information in the system, making it a tool in the daily administration. Secondly, you can now add digital information to the recording. If you have created a new entry in the database and filled out the compulsory administrative fields, you can simply attach a full report as a pdf-file.

The new system certainly works, but there is a caveat. I have noted that many employees add a new site the minute a new project crosses their table. It may be a request for an archaeological survey before some building activity takes place. Many of these requests end with the conclusion that there are no archaeological finds. This results in a dummy site that at best has the information attached that there is no site or at worst simply remains as a site with no information. I have seen several examples of this type of "site" in recent years.

Museum collections

The Museum Collections was an initiative launched in 2004, although its origin goes back to the 1940'ies. At that time, a system was developed to record the collections of items at the historical museums. It was a paper-based system of course, and an attempt to create a computer based version in the 80'ies and 90'ies was not very successful. The organising principle of the system was purpose of artefacts, which made it unsuitable for archaeology. As a result, archaeology did not use the system.

The computer-based system launched in 2004 was to record artefacts in the museums. Archaeological artefacts now became classified as "Jordfund" (soil finds) exclusively. More importantly, however, it is also a fully flexed case handling system for culture historical museums, where you can record all administrative information as well as scientific information for the individual projects. Further, digital information can be organised and stored in the system. If used properly, it should fully solve the problems with the secluded storage of digital information on the internal computer systems of the museums.

The system comes with a web-based registration interface called Regin, and it is easy to use. However, it is not compulsory for museums to use it, and some museums are more reluctant to do so than others. The government offered a generous funding to the museums to record their existing artefacts and projects, but the day to day use of the system is entirely up to the individual museums.

How well does it work then? That varies considerably, from museum to museum and from employee to employee at the individual museums. If used correctly, all new information should immediately be catalogued in Regin, and when scientific information is available it should be uploaded to the system. This does not always happen, however, and it appears to me that after a good start, the use of the system has become increasingly occasional. A good way to test it is to compare the content of the Sites and Monuments Records with the content of the Museums Collections. All information in the Sites and Monuments Records should be mirrored in the Museums Collections (but not the other way around). I have seen several recent examples, where this is not the case, and the Museums Collections thus cannot be expected to reflect the information available for the various project. We are back to a point, where you systematically have to question the employees for available information in the museums computer system.

Where does the National Museum stand in all this? If you look for the National Museum in the Museums Collections, it will be in vain. They have decided not to participate, and they do not have an alternative computer based system. They still use their own paper based

archiving system, and if you wish to see what they have, you have to be there in person.

Private collections

Denmark is an area rich in prehistoric artefacts and the collecting by private citizens has always been an important source of information. Originally, local farmers did almost all the collecting of artefacts. Every farm had artefacts lying around found during fieldwork, and these were often acquired by interested people. A good example is Lindemann's collection acquired by Horsens Museum in 1914. Lindemann was a medical doctor, who through his work came in contact with a large part of the local population. He collected artefacts throughout his life, and he carefully numbered and catalogued his acquisitions. A collection like Lindemann's is of vital importance for a study like this, and when you look through the catalogue you may note how often artefacts from HOM 12 appear.

A collection of a somewhat different nature is the Rathlousdal collection. Emil von Holstein-Rathlou, a local nobleman at Odder south of Aarhus, created it over the years, mostly by buying artefacts from dealers, who in turn got it from farmers or by regular plundering of barrows. Only few of the artefacts were of local origin obtained from the farmers near Rathlousdal. Holstein-Rathlou did not number his artefacts, nor keep a catalogue. When he knew where an artefact came from, he wrote the name on the artefact, but apparently, he seldom knew (Laursen & Schmidt 2013:94). The Rathlousdal collection contains an exquisite set of artefacts, but its archaeological use is limited as it fails to produce contextual information.

In addition to the collections of Lindemann and Rathlousdal, two other major collections of this nature are involved in the current study. One is barrister Arendt's collection at Skanderborg Museum, the other is bank manager Donner's collection. The latter, which is a local collection centred on Horsens, was sold on auction in 2004. Before the auction, it was thoroughly photographed by Horsens Museum. Information from a few other private collections of this nature has also been added to the catalogue, primarily in connection with the finds from Stensballe Sund.

An entirely different type of private collection, mostly of a more recent nature is gathered by armature archaeologists. What is different here is that the artefacts are actively collected through field walking and to a lesser degree by small-scale excavations. These collections are mostly well documented and of a high value for studies like the current. I have been in contact with many people who have smaller or larger collection, and who almost all can tell me exactly where the artefacts were found. By principle, these people all appear anonymous in the catalogue, labelled as private citizens. There are however four exceptions to this rule, and in all four cases it is based on the persons association with archaeology.

Jens Bagge has collected artefacts since his boyhood centred on his ancestral farm, that he now owns, and along Horsens Fjord on both its northern and southern side. His collection is extremely well documented with detailed mappings of the finds. More recently, he has created a museum for local archaeology in a former now modernised stable on the farm. The museum, of course, contains his own collection, but he is also encouraging others, who have found artefacts in the area, to contribute to the museum and in this way create a strong local heritage collection.

Finn Dahlhof Knudsen, who has lived all his life in Horsens, has since his youth collected artefacts, mostly in a walking or biking distance from his home. The amounts of artefacts that he has managed to collect are stunning. He used a numbering system for sites from where he collected artefacts, but he did not make a detailed recording of where he found the artefacts, and it is obvious that he sometimes attributed artefacts to a site even if he walked some distance from where the "site" was on the map. Despite these problems, the material is valuable. Various archaeologists have filed descriptions of the collection, and he is well known publicly for the collection. The complete collection has now been handed over to Horsens Museum (HOM 769).

The brothers Jan and Jens Jensen collected artefacts in their boyhood around Tåning and later in their youth around Serridslev, from where they also were in frequent contact with Horsens Museum. Their collection from these two areas is large and very well documented. Jan Jensen later became permanently employed by Horsens Museum as an excavation technician, and is now exclusively "collecting" as part of his job.

In his youth, Per Borup collected artefacts around his home in Gylling and on the isle of Alrø. His large collection primarily comes from two settlement sites, one at Gylling and one on Alrø, and it forms a backbone in our knowledge of these two sites. The collection is now at Moesgård Museum (FHM 4187). Per Borup went on to study archaeology at University of Aarhus, and he is now employed at Horsens Museum as a museum inspector.

Collecting information

Recording artefacts

Whereas the recording of written information is trivial, the recording of artefacts is far from so. We must record two things: what is it, and where is it from. To take the trivial problem first – where is it from? To me, where, means a geographical reference in terms of a set of UTM coordinates. The only problem is, how imprecise will I allow the coordinates to be? This is a question of the scale of the maps to be used. If the map covers all of Denmark a coordinate for the mid-point of a parish is more than sufficient, but I am working on a more detailed scale. Consequently, I decided that the mid-

point of a cadastral ownership was acceptable as long as the map covered the complete research area. This then became the cut-off point for letting artefacts into the study. In the chapter on classification, I discuss the grading of position further.

The real problem – what is it – is far more complicated to deal with. The standard procedure is to set up a classification system and then record the artefacts with reference to this, possibly supplemented with a few measurements, a verbal description, and a few illustrations of typical artefacts. I also follow this procedure here, but in addition, I have found that it is necessary to be more systematic with the illustrations of the artefacts. The reasoning for this differs for pottery on the one hand and flint or stone tools on the other.

For pottery, form and decoration are the two things you normally want to document with pottery. You can and should classify both, but especially the decoration is difficult to handle through classification due to the combination of a high individuality of the ornaments and a usually heavy fragmentation of the pottery. Through the years, I have worked a lot with pottery, and I have always found that only through a visual representation was it possible to evaluate a material.

To illustrate pottery, you have the option between drawings and photos. Personally, I have always preferred drawings, but in the present study, photos were the only option. I wanted a close to total illustration of decorated shards, I had to do it simultaneously with the recording of the material, and I did not have the funding for draughtsmen anyway. A total photo recording could not have been done using traditional film based cameras, but with digital cameras, it proved to be close to an ideal approach. Taking pictures of shards and pots individually, removing the background from the pictures, and subsequently combining the individual pictures to illustrations, turned out to be very efficient.

I had one problem though – how to document the shape of the pots? The only way would be to reconstruct and draw the profiles of the pots, and then later combine the profiles with the photos. This is an approach used successfully by Niels H. Andersen in connection with Sarup (Andersen1999b). As I could not bring the material to a draughtsman, I would have to start reconstructing and drawing profiles in a cramped space in the museum magazines, redraw them later on before combining them with the photos. I considered doing so, but gave it up as I realised how much extra time it would cost me. The lack of the profile drawings is a clear weakness in the catalogue.

For the flint and stone artefacts, the background for bringing illustrations of all items is slightly different. Probably, it can best be explained through an example. In the late 70'ies Jan Skamby Madsen made a survey of the Neolithic in Hads district (Madsen, J.S. 1979). He advertised in the local papers for people who possessed artefacts from the area, and received a massive response. He recorded the artefacts using available classifications. The recording happened before Poul Otto

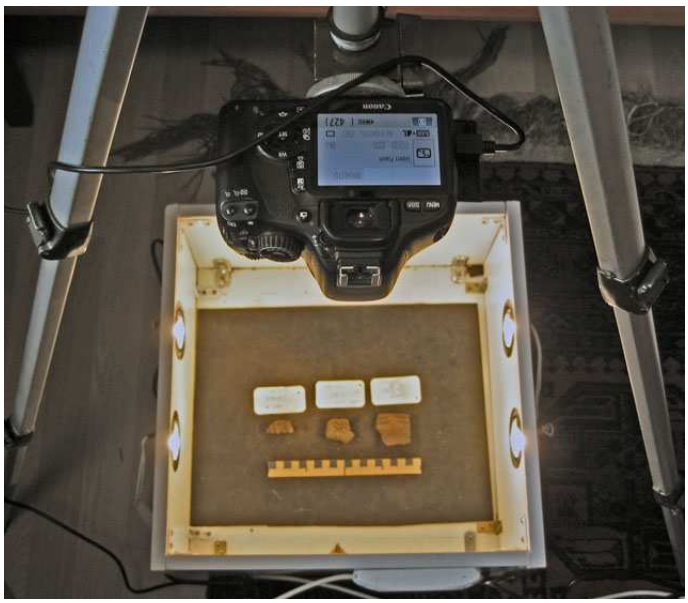

Figure 4. A mobile photo stand that fits any floor. The photos of the catalouge have all been phographed in this way.

Nielsen flint axe studies became available (Nielsen, 1978, 1979), and consequently the different types of Early Neolithic thin-butted Flint axes and indeed the notion of thick-butted B flint axes was unknown. Jan Skamby Madsen recorded the thick-butted flint axes as of either Lindø type, St. Valby type or EGK type, which was what was available then. It is certain that some of the axes classified as Lindø and St. Valby axes were B axes or even later C axes, but we do not know which, because sketches of the axes that could have solved the problem were not made.

Many of the flint and stone artefacts in this study, as was the case with Jan Skamby Madsen's study, are in private possession, which means that they are or will with time become unavailable to other researchers for reclassification. I have come across the problem frequently in the museum archives. An archaeologist has seen artefacts in private possession, and left a note in the archives with a list of the types of artefacts, but without illustrations. Such recordings are really of limited use. It is imperative that illustrations are made, and that all major items are photographed both in plane view and in lateral view. This is what I have done in the catalogue, and it ensures that a reclassification can take placed based on the catalogue.

I photograph artefacts in a homemade square box with lights placed in three sides of the box and with the camera mounted on a tripod above the box (Fig. 4). The camera is connected to a laptop computer from where it is controlled, and to which the pictures are automatically transferred and stored. Artefacts are normally photographed with light from three sides to reduce shadows, but with decorations on pot shards, I normally dim the light on one side to bring more contrast to the ornaments. The setup is easily moveable and can be placed on a floor anywhere, making the recording flexible.

Pictures are stored on the computer in raw format

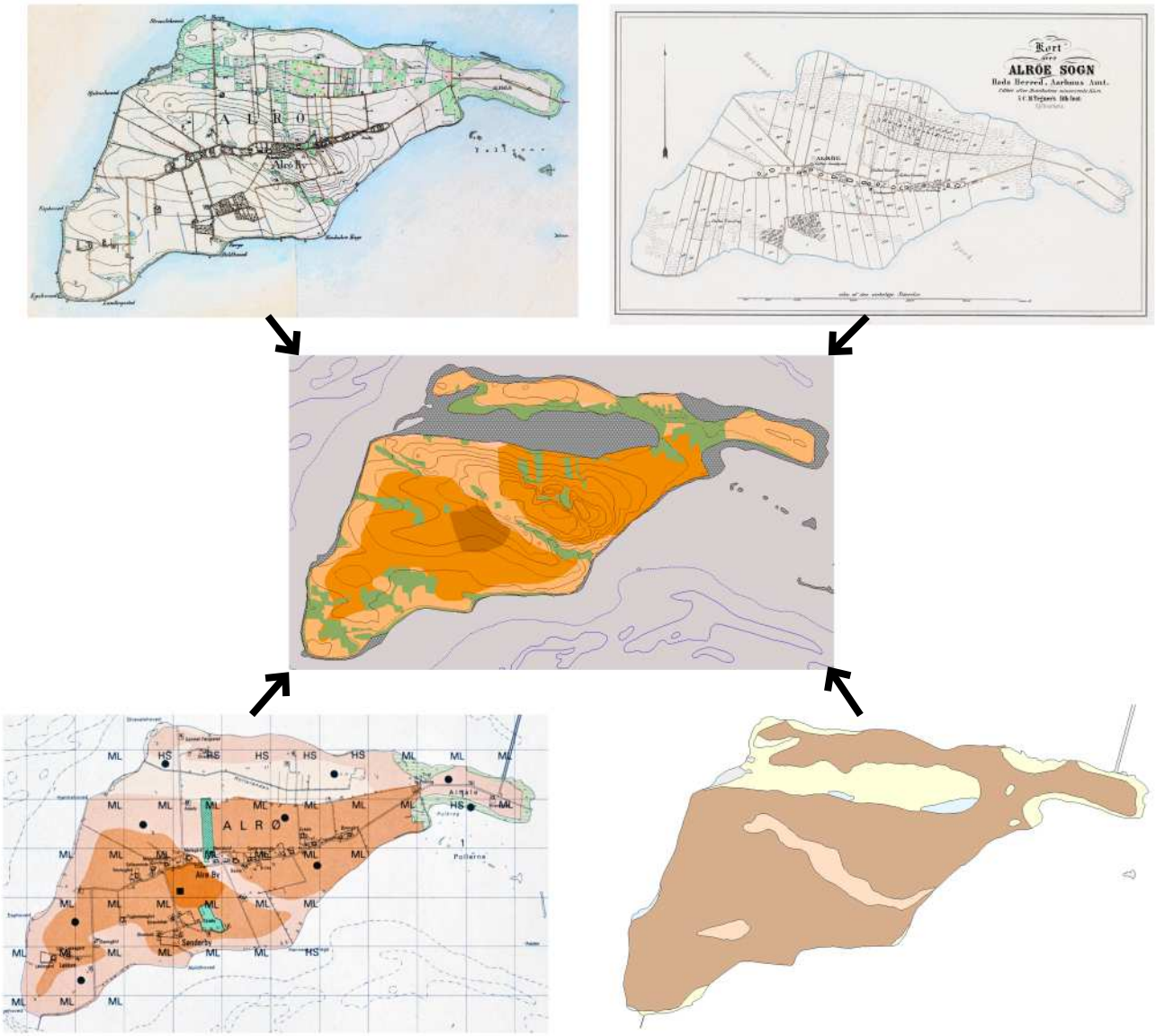

Figure 5. The ingredients for the map of the research area illustrated on the isle of Alrø. The ingredients are; Ornance survey map from 1870'ies and 80'ies (top left); Economic maps of parishes from 1830'ies and 40'ies (top right); Land use soil map from 1970'ies (bottom left); Geological survey map from 20th century (bottom right). The finished map in the center combines information from these four maps.

and later transferred to 16 bit uncompressed tif-format. I subsequently use Adobe Photoshop to edit the pictures. In the beginning, I had some problems controlling the colours of the pictures, which is notable in the catalogue, but most pictures are now of a fully acceptable quality.

Making maps

The mapping system and the maps used in a study of this nature are of crucial importance. A key objective is to produce distribution maps that show the nature and extent of settlement. Therefore, it is important to have a strong and flexible mapping system to facilitate the production of maps. MapInfo is the system used here, primarily because it is the system used in Danish archaeology. It is a strong mapping system, but it is not a Geographic Information System, and it cannot be used for predictive modelling. I considered this problem, but decided to stay with MapInfo, as I did not expect to move into regular predictive modelling.

To create a map of the research area to be used as a backdrop for the distribution of sites and artefacts proved to be a challenging and time consuming task. I wanted a map that was as close as possible to the primeval landscape. This meant that I had to go back to sources prior to the modern development of the landscape. In particular, this was important with respect to two parameters – contour lines and wetland areas.

If you take the contour lines from a modern map you will soon find out that cuts, and dams for roads and railways as well as gravel quarries are remarkably visible. They are anomalies that immediately catch the eye. I wanted a set of contour lines that antedated

these disturbances. These exist on the so-called "Høje Målebordsblade" – a set of ordnance survey maps in 1:20,000 made between 1842 and 1899 (Fig. 5). The maps that cover the research area date around 1870-80. The contour lines are at 5 feet (Danish) intervals, which is 1.57 m. The measurements are reputedly very precise and the maps are of high quality. The only problem is that the contour lines do not exist digitally. To create a contour map I had to trace them manually, which was a time consuming job, not least because the highest part of Denmark is involved.

Drainage works carried out since the middle of 19th century has profoundly changed the Danish Landscape making previously waterlogged areas farmable. If you compare the above-mentioned ordnance survey maps with current maps, you will immediately note at huge difference in the extent of wetland areas. However, even at that time drainage had already taken place on a major scale, so we have to go further back to find an un-drained landscape.

The earliest maps showing land use information, are from the late 18th century. The so-called "Original 1 kort" are detailed maps of individual cadastral townships with the individual fields of the farms marked. From these it is possible to reconstruct the extent of the wetland zone, but to do so for the 180 cadastral townships of the research area would be too time consuming. Instead I chose to use the so-called "Minorerede sognekort" available for the research area from the 1830'ies and 40'ies. These are primarily economical parish maps drawn in 1:20,000 showing roads, houses, fields, forests and wetland areas (Fig. 5). I used these maps in conjunction with the ordnance survey maps to reconstruct the wetland areas.

To map soil types a geological map would be the most obvious choice. Unfortunately, a detailed map of top soils exists for only part of the area. Using that would leave major blank spots on the map. Instead, I have chosen to use "Den danske jordklassificering" – The Danish Soil Classification (Madsen H.B. et al. 1992). The soil classification maps were produced in the 1970'ies. They show up to eight different soil types of agricultural relevance (Fig. 5). I have used five of these categories: sand, clay-mixed sand, sand-mixed clay, clay and heavy clay. A sixth category – humus – is substituted by the wetland areas recorded from the historical maps. The inherent weakness of the soil classification maps is that they are generalisations. They provide average representations, and thus completely overlook local variations with pockets of sand in clayey areas, etc.

I use the detailed geological maps *ad hoc*, where they are available. Thus, the distribution of marine sand has been used to map the maximum extent of the sea. At what date this happened is a different matter that I will discuss later. Wherever it is possible, I also use the geological maps to add a geological label to the location of sites and finds.

Database recording

The information in this project is recorded in an object oriented database named Archaeoinfo. The database is multipurpose database for archaeological recording that I constructed in Microsoft Access around the beginning of this millennium.

As with the sites and monuments records, the basic organizing unit in the project is the parish. The primary key of each site consist of the 6-digit location number of the parish from where it originated followed by a unique sequence number within the parish. The sequence number is not the same as the sb number of the sites and monuments records, but one unique to this study. In addition, each site has a UTM coordinate and a reference to the cadastral township within which it is located.

Each site can posses any number of features, or as named in this study, constructs. A construct can be anything that you find suitable to characterize a find situation (Andresen & Madsen 1992: 55). Mostly it will be something like a megalithic chamber, a surface scatter, a wetland deposit, a settlement pit, or a set of stray finds. The total set of classes is discussed in the chapter on "Chronology and classification". The constructs are numbered sequentially within each site using capital letters (e.g. Construct A, Construct B, etc.).

Each construct can posses any number of finds. A find in this study mostly equals only one artefact, the key of which is the name of the construct combined with a sequential number (e.g. A1, A2, A3, etc.). The classification of artefacts is discussed in the chapter on "Chronology and classification".

All classification schemes used are hierarchical. Hierarchies can be created to any depth, and they can be changed dynamically even after recordings have occurred. That is, you can insert a new level in the middle of a hierarchy or move a branch of a hierarchy from one position to another without causing problems with material already recorded. The classification system is pointer based, so when you make alterations, pointers are just moved. When you search the database, you can also use the hierarchy actively. That is you can search for one particular class, but you can also search for a class and all its sub-classes.

Both constructs and finds can be linked to a chronological classification. This system has a hierarchical build up as well with as many levels as you wish, and you can search it using the hierarchy. You can attribute absolute start and end dates to the individual periods and subsequently search the database using time intervals.

The search results can be produced in report format, as cross tabulations, or most importantly send directly to MapInfo for immediate mapping. This hot-link function makes the mapping process dynamic and very efficient.

Filing information

Text is kept in Microsoft Word format, distributed into a

large number of files. Thus for the catalogue, each parish has its own file containing the verbal description of monuments, sites and finds from the parish.

Illustrations are kept as image files or Pdf files. Photos are preferably in uncompressed tif format although a few has ended up in jpg format. Other illustrations are preferably in Pdf format. This is primarily the case with maps coming from MapInfo, but various diagrams produced in Microsoft Excel or Adobe Illustrator are kept as Pdf files as well.

Generating the catalogue

I am using Adobe InDesign to organize the information into a coherent presentation. Each parish has its own InDesign file in which descriptions and illustrations are combined in a layout that at any time is ready for print. The book function in InDesign combines the individual files and ensures that the pagination is always correct. From day one of the project, the catalogue has existed in its "final" form, albeit initially with very little information.

InDesign is a desktop publishing system, and the primary aim of using it, of course, is the final publication. However, the system has proved invaluable as an organizing tool. In this way, I have found it easy to handle the literally thousands of bits and pieces that make up the catalogue.

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