

Reviews

HANS GÖRANSSON: *Neolithic Man and The Forest Environment around Alvastra Pile Dwelling*. Theses and papers in North-European Archeology 20. 90 pp. Lund University Press.

When different scientific disciplines pursue a common subject, new explanations of interest to both may arise. However, specialists in one field may not be able to evaluate difficulties and limitations in others. The archaeologist sees and interprets objects found in the earth, whereas the pollen analyst sees and interprets pollen grains incorporated in sediments. In either case, the evaluation of the conclusions requires specialized knowledge.

Pollen analysis may appear objective, as grains are identified and then counted. However, identification itself raises problems, and exactitude of identification varies widely with the individual analyst. Thus, identifications of "cereal" pollen grains give causes for doubt, unless they are based on size statistics and morphological observations (cp. Beug 1961, Andersen 1979, Köhler and Lange 1979). One may also see pollen of a genus, *Filipendula*, identified with *F. vulgaris* in some pollen spectra and with *F. ulmaria* in others, although the pollen of the two species are indistinguishable. Such species identifications have no ecological significance.

The calculation of the pollen counts raises other problems. Percentage calculations are still widely used, as they may show how one component replaces another. The tree pollen sum is fairly easy to delimit, although some borderline cases, hazel e.g., are considered varyingly by individual analysts. Tree pollen percentages, however, do not reflect tree composition directly. Disregarding problems of dispersal, pollen productivity in trees varies widely. If some high pollen producers (*Betula*, *Alnus*, *Pinus*, *Corylus*) are reduced and others not (*Quercus*), then the latter will become even more overrepresented, whereas low pollen producers (*Tilia*, *Fraxinus*), if not corrected are still underrepresented (cp. Andersen 1970, Bradshaw 1981). Therefore, partly corrected tree pollen spectra are not less distorted than the uncorrected.

The construction and interpretation of pollen diagrams are also influenced by problems of identification. If the identified taxa include a variety of species with ambiguous habitat preferences (Liguliflorae, Rubiaceae, Umbelliferae, Caryophyllaceae), then, these taxa cannot be considered indicative of pasture or dry meadow. Even more definitely identified taxa (*Rumex acetosella* coll., *Artemisia*) can hardly be classified as crop weeds,

as their preferences for habitat also are ambiguous, and because prehistoric weed floras and cultivation methods are not sufficiently well known for such a distinction (Behre 1981, Wilberding 1986, Groenman-van Waateringe 1988). Pollen grains from these taxa occur since the Lateglacial. Hence, scattered grains of them give no certainty of human interference with the vegetation.

The above mentioned examples may warn the non-specialist that pollen-analytical evidence may not always be unambiguous and needs scrutiny before being accepted. All of them occur in H. Göransson's publication.

Today it has become fashionable first to construct a "model" and then to prove it by searching for evidence (cp. Birks 1985). This method was used by H. Göransson. He mentions earlier models, which in fact do not differ greatly, and then advances a new model for the utilization of the nemoral deciduous forests in North-West Europe from Mesolithic time up to Middle Neolithic time. Evidence for this model is searched for in pollen diagrams from Östgötaland, Sweden.

Göransson's model includes a "Mesolithic coppice phase", an "Early Neolithic destruction phase", and a "Middle Neolithic coppice phase". Trees are assumed to have been girdled but allowed to shoot from the living bases providing material for browsing and leaf fodder, and glades were cultivated with cereals, in the two coppice phases. The forest is, however, assumed to have been so dense that few pollen grains from the glades could reach bogs or lakes. Hence, the tree composition did not change and the pollen from cultivated plants is difficult to find. These phases correspond to the Atlantic "virgin forest" and the Neolithic "forest regeneration phase" of previous investigators. Göransson's Early Neolithic destruction phase corresponds to the "landnam phase" of Iversen and others. Trees, particularly elm and lime, were damaged by cold winters and diseases, and were further damaged by fires and browsing so that pollen from open areas could be transported into lakes and bogs, in Göransson's model.

Thirteen pollen diagrams from Östgötaland are presented. Some of them could be dated by radiocarbon. The Mesolithic coppice phase could be represented in five. None of them contradict the model. Elm and lime are common, and scattered grains of *Artemisia* and *Rumex acetosella*, and low amounts of *Pteridium* and *Populus*, may indicate glades. Varying amounts of charcoal dust are also recorded. These pollen grains could also derive from openings caused by wind-throw and natural fires in

the pine woods. Two pollen grains from Dags Mosse "seem to be of *Triticum*-type" (p. 34). Cereal growing occurred in Central Europe at that time, and cereals might have been known in Sweden. However, judging from the illustrations (Fig. 47 a and b), the pollen grains do not differ from certain wild grasses (*Glyceria*, *Elymus*, *Ammophila*). Hence, evidence for Göransson's Mesolithic coppice phase is difficult to find.

The Early Neolithic destruction phase is especially reflected in nine pollen diagrams. There are minima for elm and lime and maxima for pine, birch and sometimes hazel, *Populus* and *Pteridium*, scattered grains of *Plantago lanceolata*; and *Artemisia* pollen may be common. Charcoal dust is usually also frequent. This phase clearly was "destructive" for elm and lime, but it is difficult to accept the climatic explanation, as both trees are still common in Russia and tolerate low winter temperatures, which could not have occurred in western Europe. Furthermore, no diseases have been demonstrated for lime. Natural "destruction" of lime therefore is very unlikely, and if man eradicated lime, then why not elm?

Eight pollen diagrams may reflect the Middle Neolithic coppice phase more or less clearly, among them diagrams from the Alvastra Mire. There is an increase of elm and lime whereas *Plantago lanceolata*, *Artemisia* and other indicators of open areas are scarce. Charcoal dust is scarce in some diagrams and common in others. The pile dwelling of Alvastra seems to fall at the beginning of the "coppice phase", or rather at the end of the "destruction phase", as the lime values are still low. H. Göransson finds these types of evidence indicative of coppiced woodland, where young trees shooting from the tree bases were cut down at regular intervals and the glades produced in this way were used for growing cereals for a few years. Göransson emphasises the occurrence of large grass pollen grains identified as cereals in pollen diagrams from the Isberga kettle-hole (Figs. 25 and 26), whereas this pollen type is very scarce or absent at the other sites. Cereal pollen is difficult to distinguish from the pollen of *Glyceria*, which may occur abundantly in small kettle-holes (Andersen 1979), and no data on size or surface sculpturing support a distinction of the large grass pollen grains from the Isberga site from *Glyceria* pollen. Hence, Göransson's model for this coppice phase is also difficult to prove – or disprove.

Piles of hazel were used extensively for construction purposes and were probably derived from coppices in Neolithic time (Godwin 1975, Malmros 1986), and hazel and alder coppices were used for pasture or swidden cultivation of cereals (Andersen 1985, 1989). The piles used for construction of the Alvastra dwelling could also have derived from coppiced woodland (Bartholin 1978). H. Göransson's proposition that coppiced woodlands were used extensively in Neolithic time thus is very likely. These finds, however, rather belong to the "destruction" or "landnam phase", or the end of it, and not to the "coppice phase".

Göransson's article presents valuable pollen diagrams from the Alvastra area. In the present reviewer's opinion the preconceived models, however fascinating, may lead the investigator to look too hard for proof of his model. Coppice phases, as de-

finied by Göransson, are difficult to prove or disprove in pollen analyses from lakes and bogs, if tree composition did not change, and if pollen from small glades could not reach the investigation site. Hence, the model must remain a model. The destruction phase is easier to demonstrate; however, opinions differ considerably as to its explanation.

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REFERENCES

- ANDERSEN, S. T. 1970: The relative pollen productivity and pollen representation of North European trees and correction factors for tree pollen spectra. *Danmarks Geologiske Undersøgelse*, 2. Række, Nr. 96: 99 p.
- 1979: Identification of wild grass and cereal pollen. *Danmarks Geologiske Undersøgelse, Årbog* 1978: 69–92.
- 1985: Natur- og kulturlandskaber i Næsbyholm Storskov siden istiden. *Antikvariske Studier*, 7: 85–107.
- 1989: Pollen spectra from the double passage-grave Klekken-dehøj on Møn. Evidence of swidden cultivation in the Neolithic of Denmark. *Journal of Danish Archaeology*, 7.
- BARTHOLIN, T. S. 1978: Alvastra pile dwelling: Tree studies. The dating and the landscape. *Fornvännen*, 73: 213–219.
- BEHRE, K.-E. 1981: The interpretation of anthropogenic indicators in pollen diagrams. *Pollen et Spores*, 23: 225–45.
- BEUG, H.-J. 1961: *Leitfaden der Pollenbestimmung für Mitteleuropa und angrenzende Gebiete*. Lief. 1. Gustav Fischer Verlag, Stuttgart.
- BIRKS, H. J. B. 1985: Recent and possible future mathematical developments in quantitative palaeoecology. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 50: 107–147.
- BRADSHAW, R. H. W. 1981: Quantitative reconstruction of local woodland vegetation using pollen analysis from a small basin in Norfolk, England. *Journal of Ecology*, 69: 941–55.
- GODWIN, H. 1975: *History of the British Flora. A Factual Basis for Phytogeography*. 541 p. Cambridge University Press, Cambridge.
- GROENMAN-van WAATERINGE 1988: New trends in palynoarchaeology in northwest Europe and the frantic search for local data. In R. E. WEBB (ed.): *Recent Developments in Environmental Analysis in Old and New World Archaeology*. BAR International Series 416: 1–19.
- KÖHLER, E. & LANGE, E. 1979: A contribution to distinguishing cereal from wild grass pollen grains by LM and SEM. *Grana*, 18: 133–140.
- MALMROS, C. 1986: A neolithic road built of wood at Tibirke, Zealand, Denmark. Contribution to the history of coppice management in the sub-boreal period. *Striae*, 24: 153–156.
- WILLERDING, J. 1986: Aussagen von Pollenanalyse und Makrorestanalyse zu Fragen der frühen Landnutzung. In K.-E. BEHRE (ed.): *Anthropogenic Indicators in Pollen Diagrams*: 135–151. Balkema, Rotterdam, Boston.

LARS BLOMQVIST: *Megalitgravarna i Sverige. Typ, tid, rum och social miljö*. Theses and Papers in Archaeology, New Series, Published by the Institute of Archaeology at the University of Stockholm, 1, Stockholm 1989. 333 pp. With English summary.

The appearance of a monographical survey of the megalithic tombs in a given area has become far too rare an event despite the fact that this group of prehistoric monuments is one of the most imposing and frequently discussed in Europe. But now we can welcome a survey of the 484 known megalithic tombs of Sweden, which – apart from giving a lot of listed data – deals with numerous aspects of megalithic tombs. Nevertheless this book is not a survey comparable to Audrey Henshall's on the Scottish megalithic tombs: the survey is not provided with a catalogue proper or an analysis of the finds.

The main part of the thesis is a morphological analysis of the megalithic tombs, the various constructional elements being first defined, then the monuments grouped and divided into different types and sub-types by means of statistical methods. Then the chronology and spatial pattern of each type is thoroughly examined, as well as the location of the tombs in different types of land, related to topography and geology. A final chapter deals with the social and economical background. A number of appendices – for instance, many important distribution maps of the various types of graves – gives further documentation.

As mentioned, a catalogue proper is missing. This is certainly a failing in a monograph like this. However this lack is partly remedied by a complete list of the morphological traits of each tomb, as well as by plans of a large number of these, and a full list of all the finds with references to the litterature. Unfortunately the list of morphological traits is written as (computer) codes, which makes it very difficult to read unless one is willing to learn the codes. Also in analysing the different traits in the text itself these codes are used, making the reading of this part of the book unnecessarily slow.

When an archaeological material such as the megalithic tombs is studied, and especially when dealing with their spatial distribution and their evidence, for instance as to population background and its density, the assessment of representativity is of crucial importance. And here I believe the author underestimates the number of tombs obliterated by later agricultural or building activities. Even though he deals with the problem in a separate chapter (p. 12–15) the conclusions as to representativity, at least in the Scanian area, do not seem to be adequately founded. A very early systematic registration project carried out by the Danish National Museum in the second half of the last century yielded invaluable information about the number and location of tombs now destroyed and under plough. Of the known 7287 megalithic tombs in Denmark, only 2354 have survived (32%). Glimpses from older reports and maps however, show that also before the last half of the 19th century very many monuments must have disappeared. It seems to be a quite sound estimate of Klaus Ebbesen (quoted by Lars Blomqvist) that the number of megalithic tombs which have survived in Denmark are only about a tenth of the original number! A re-

cent study of an area north of Copenhagen, in which were included older documents that have not come into the files of the National Museum, suggests that in certain regions the number of destroyed tombs considerably exceeds 10 times the preserved number preserved, or 3 times the number of known tombs.

What Lars Blomqvist does not make clear, is that there is in Sweden no survey comparable to the Danish one. Only well into the present century has a systematic registration scheme been implemented in Sweden. Accordingly there are not the same possibilities of evaluating representativity in Sweden as in Denmark. As to Scania, the part of Sweden closest to Denmark and partly with the same sort of landscape, we are told, without further documentation, that the estimated number of megalithic tombs should be only 50% higher than the 109 registered sites, and that there is no reason to transfer the frequency of destruction from Denmark to Sweden. Here I cannot agree, the differences between Zealand and neighbouring Scania cannot be that great (from 50% to 1000% or more), and as a matter of fact, there are in existence Swedish documents which hint at a similar destruction rate for Scania (e.g. in the Malmö area) as for Zealand.

It seems quite right however, that the destruction rate has been much lower in the west coast area of central Sweden, where the tombs are not situated in agricultural land, and where there are plenty of natural sources of stone for building materials.

The problems of representativity become most clear in chapter 7.3 dealing with burial intensity, where an attempt is made to calculate number of burials per generation in a given area. On page 177, the author estimates that the dolmens of Zealand have served 408 groups of people. But the number of dolmens used for the analysis is the known number, not the original number which must have been considerably higher, and even though reference is made to the work of Klaus Ebbesen, the author does not pay attention to that very conclusion. Accordingly, the mentioned estimate of groups involved is built on a false assumption. Furthermore the Danish and Swedish material is now compared directly in order to find differences in burial intensity, thus disregarding the earlier statement in the chapter on representativity, of differential destruction rate. One needs to consider both the different rates of destruction in the different Swedish regions and the various qualities of registrations.

One of the most important parts of the thesis is the computer analysis of the constructional elements – it is of great value that an objective and statistical method has been employed in order to define and separate the different types of megalithic tombs. This enables the author to draw very interesting conclusions as to the differential distribution of certain types of tombs and morphological traits in the following chapters. The dolmen is defined as a grave with a passage shorter than 2,0 or 1,7 m (according to region!), or no passage at all, including three subgroups, dolmens with rectangular chambers, dolmens with square chambers and dolmens with polygonal chambers. All passage tombs have passages longer than the lengths men-

tioned, and also here subgroups can be established, with regional differences, as in some areas the chamber is expanded, in others the passage. Also other constructional elements, such as the occurrence of sill-stones in the passage, are included in the analysis.

Even though such an objective way of treating an archaeological material is indeed very welcome, one often feels that this kind of computer analysis tells us what we have already been aware of for years. As a matter of fact the definitions do not differ very much from those of the Danish tombs presented by Sophus Müller in his book "Vor Oldtid" from 1897. And it comes certainly as no surprise that only few rectangular dolmens have a passage, or that no dolmens of this type have dry-walling. As mentioned, it is the length of the passage which is the decisive factor in separating the dolmen and the passage grave. In Denmark the preference has been laid on defining a passage grave as having a passage whose axis is not in the extension of the axis of the chamber. The advantage of this definition is that it is not biased by tombs whose passage has been partly destroyed and therefore is shorter than was originally the case. The table on page 46 clearly shows that this definition could have been used to separate dolmens from passage graves. On the other hand the chosen definitions of the Swedish tombs seem to be a better tool for describing the local differences here. Even though there are some differences between Danish and Swedish megalithic tombs, and there are Danish local types unknown to Sweden, it is not explained why the classification is not applicable in Denmark.

Then the main elements are analysed. A very interesting chapter (p. 62–69) deals with the passage and the orientation of the entrance. When trying to evaluate whether the Neolithic people preferred specific directions, representing for instance sunrise at specific times of the year, it is essential not only to look at the tombs on a map, but to use the actual horizon, and that is what Lars Blomquist has done in collaboration with an astronomer. The result shows that there is no preferred orientation, only that easterly-south-easterly orientations predominate, hinting at an interest for sunrise in the period between February-March and October-November. Since the astronomical aspect of megalithic tombs is widely discussed by the interested public it is indeed praiseworthy that these problems are being dealt with seriously and objectively by a professional archaeologist. The same can be said about the analysis of the dimensions of the megalithic tombs, indicating that there is no positive proof that the claimed international unit "the Megalithic Yard" has been used.

A chapter (p. 94–110) deals with chronological aspects, and not surprisingly it is concluded that the simpler dolmens were erected in the early Neolithic, the larger dolmens at the transition early/middle Neolithic and the passage graves in the first part of the middle Neolithic.

An interesting point is that there are very few artifacts from the early part of the Corded Ware Culture in the megalithic tombs, hinting at a break in the burial tradition at this time. It is stated that the only place in Scandinavia, where there is evidence of a continuity of burial at the Funnel Beaker

Culture/Single Grave Culture transition is the island of Zealand. But what about for instance the thick-butted hollow-bladed flint-axes, the B flint-axes, and tanged arrowheads, which are known from megalithic tombs in other parts of Denmark as well as from Scania? The complex problems of the Pitted Ware Culture in relation to the questions of continuity at this time are not considered.

Even though an examination of the pottery evidence obviously is not the subject of this thesis, the author concludes that the latest phase of the Funnel Beaker Culture (MN V) must have started already during MN I, and that there are no find combinations which contradict this. It is to be emphasised here, that even though the division of the middle Neolithic pottery styles made by Klaus Ebbesen have been disputed, this is supported by a number of settlement finds, showing that there is no possibility of MN V being simultaneous with MN I or the immediately following middle Neolithic periods and, furthermore, the radiocarbon datings published in an article quoted by the author clearly show, that there is not even an overlap between these datings of MN I and MN IV/V.

The relatively few radiocarbon datings of the megalithic tombs themselves are reviewed, and it is concluded that the megalithic tombs were built within a few hundred years around 3500 BC.

In a shorter section (4.4) the complex problems of the development which led to the building of the megalithic tombs are taken up. Initially we are told that the NW-French, English (what about the Scottish?) and Irish megalithic tombs belong to the same area of tradition. It is proposed that the spectacular trapezoidal (cultic) houses of Lepenski Vir could represent the origin of megalithic tombs since they are very similar in plan with some of those from the areas mentioned above. A totally superficial and purposeless comparison is made with Irish megalithic tombs. To include the houses of Lepenski Vir so far separated in time and space from megalithic tombs will confuse the complex discussion of the origin of megalithic tombs rather than stimulate it. Why go to Yugoslavia when in the late Mesolithic of Brittany we have a fair background for (local) development of the earliest and most impressive megalithic tradition of Europe?!

Also the the Danish earthen long barrows are mentioned in this connection, and their possible house-shape and the use of mortuary houses is underlined. But it is still a question to what extent the earthen long barrows have incorporated true mortuary houses. On page 113 a reconstruction drawing of a mortuary house from the Danish site at Rustrup is shown, but there is no mortuary house of this kind at the site – what is shown is a reconstruction drawing of a supposed mortuary house from the English Fussell's Lodge Long Barrow (an interpretation, which incidentally is questioned by a number of British scholars). This mistake could have been avoided if the author had used the Rustrup-publication proper, not a short, popular, preliminary one. On the same page, another short article of this type is quoted, although the site (Lindebjerg) has been fully published; nor is the thorough review article (in *Proceedings of the Prehistoric Society* no. 45, 1979) on the Danish earthen

long barrows even mentioned.

The author is more succesful when approaching the Scandinavian megalithic material: the development of the Danish dolmens is shortly mentioned, and the differences between the Swedish and the Danish tombs are discussed, the relatively high degree of uniformity of the Swedish megalithic tombs is seen against the background of the greater variation among the Danish ones. Also some morphological traits are separated and their Danish or German background considered.

It is of interest to learn that in the Swedish West Coast region it was the long passage which "grew", while in Scania the chamber was enlarged. But within a relatively short period of time the two elements seem to have been considered equal; and it is at about this time that the impressive number of passage tombs of the Fallbygden region was erected.

The morphological/typological analysis of the megalithic tombs enables the author to draw interesting conclusions as to local traits and the individual areas of innovation and development. For instance, the morphological analysis has demonstrated that the West Coast region did not seem to have much contact with Scania, but rather with North Jutland, and also the relative paucity of finds in the megalithic tombs links these two areas (here a study of the evidence of pottery and other artifact types could probably have accentuated this link). The constructional elements in Scania show connections with Denmark as well as Northern Germany.

Also the chapter on the topographical situation of the tombs and their relation to soil-type is worth mentioning.

The final chapter on social and economic behaviour is doubtless the weakest part of the book. It begins with a section expressing some generalities as to the possible vehicles of sea transport, and transport times between different regions, which does not give us any better insight. Some of the known evidence of local traits within the Funnel Beaker Culture is quoted, and a map showing different areas of tradition is presented (page 172). There is nothing, however, which justifies the exact mapping of the foci of these areas, at least as regards Denmark. Why, for instance, is the alleged centre of the n-e Danish area placed on Southern Zealand, when the distribution of a peculiarity of the shape of certain passage grave chambers and a special pottery ornament show "points of gravity" respectively in the Smålands Sea and in the Baltic South East of the Island of Falster – how can we talk about centres when different local cultural traits show diverging distributions? In the map the North German area south of the Baltic Sea is not included, even though the pottery evidence and tomb morphology demonstrates that the southernmost Danish isles and this area might belong to the same "area of tradition". A particular ornamental pattern – checkerboard ornamentation – has its "point of gravity" in the Baltic Sea South of Scania with finds in Scania, South-east Zealand, Møn, Bornholm and Rügen, thus hinting at other "areas of tradition" than those proposed by the map.

The following section (p. 173–179) is an attempt to determine the intensity of burial during the time of the Funnel Beaker Culture and to find regional and chronological differences in this intensity. The analysis and conclusions, however,

are built upon presumptions which go much further than our factual evidence. We have already touched upon the problems of representativity. The author estimates that a dolmen was made to contain 1–4 bodies, the passage tombs 10–20. The number of burials is probably not an unsound estimate; but it is a crucial problem, that so very, very few tombs have yielded properly analysed skeletal material. We have no information which can reveal to us whether the burial rate in a single community remained the same during the period in question or not, and we cannot say whether there might have been different ritual attitudes affecting the number of individuals buried in the tombs. We do not know to what extent the dolmens were used for burials during the middle Neolithic period, but the Danish Klokkehøj evidence (quoted by the author) demonstrates clearly that this can be the case. This Klokkehøj evidence of intensive middle neolithic use of dolmens is mentioned, but it does not find its way into the analysis proper.

We are told that the (possible) lack of burial continuity at the beginning of the Single Grave Culture might be due to lack of space – the chambers were now filled up with bodies. But the evidence and possibility of burials of excarnated bones or the removal of bones which is documented and discussed in the quoted Klokkehøj publication is not considered. When dealing with issues like burial intensity and demography it is astonishing to find that the most successful studies of this kind (from Orkney, and here to a much larger extent built upon factual data) are not even quoted.

The assessed numbers of burial and the burial intensity are reviewed on the known number of tombs in Denmark and Sweden. But due to differential regional obliteration rates and very different quality of recording of megalithic tombs, the sources of error are staggering and the different sets of data are incompatible. Incidentally the author seems to compare the numbers of passage graves in the two countries directly, even though his definition disagrees with the current Danish one.

The conclusion, that the intensity of burial at the beginning of the Middle Neolithic in Denmark either dropped or was unchanged, whereas in Sweden it increased, is therefore built on a chain of hypothetical assessments. It must be admitted, however, that the author himself ends this section recapitulating that "the sources of error are too great to draw conclusions from the megalithic tombs themselves by such calculations" (p. 179).

The next section (p. 179–184) deals with the labour involved in and the economy underlying the construction of the megalithic tombs. The complex problems of neolithisation and the use of the environment at the time of the megalithic tombs are dealt with in a couple of pages!! However, new and fresh thoughts are expressed as to the labour involved in the opening of the forest, the number of animals and their "output" of calories needed for a society building a megalithic tomb and the land necessary for this production. The Fallbygden region is of special interest in this respect, since almost all the tombs here are of the developed passage grave type, hinting that they were built during a relatively short period of time. Considering the possible intensity of burial seen in relation to the potentialities

of this region, the population estimate has indeed very wide brackets – between 500 and 12000 individuals. Blomqvist makes it quite clear how this great span shows the difficulties in making calculations of population. Nevertheless, it is much more stimulating to see calculations based on data from one local area, rather than comparing areas in a way involving too many sources of error.

A final section deals with the hypothesis that the megalithic tombs can be regarded as territorial markers. With some justification the author criticises the Swedish attempts, but he does not mention the Danish attempts to see clusterings reflecting tribal territories, although the article on this problem is quoted in the literature list. It is also surprising that he has not taken any notice of the very interesting literature on this aspect of the megalithic tombs in The British Isles (especially Orkney), where both chronology and spatial distribution are considered. Blomqvist's only non-Swedish reference to this issue is a popular book on the Carbon-14 revolution. Even though there are many problems with the notions of megalithic tombs serving as territorial foci, Blomqvist seems to go too far by simply rejecting the matter as merely hypotheses and speculations, especially in view of the fact that quite a number of the preceding pages in his own work is of a speculative nature.

The basic parts of this thesis are fundamentally sound, but in the wish to touch upon almost *all* aspects related to megalithic tombs, the quality sometimes tends to become uneven, and not in all cases has the author given himself enough time to become acquainted with the relevant and fundamental literature outside Sweden.

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ALAN SAVILLE (*et al.*) *Hazleton North: the excavation of a Neolithic long cairn of the Cotswold-Severn group*. English Heritage Archaeological Report no. 13. London 1990. 281 pp.

This lavish report is on the complete excavation of a large megalithic burial cairn of the Severn-Cotswold group. Perhaps it is the most complete and detailed report of its kind that has ever appeared. There are 281 pages of text and 234 consecutively numbered figures, and a series of specialist reports on the human and animal bones, the plant and molluscan remains, the soils, geological aspects, a geophysical survey, and the radiocarbon dates. One loses count of the number of plans and sections, but obviously they have been drawn in enormous detail in the field and have been re-drawn most professionally for the publication. Eight of them are large pullout plans. One of these shows the 53 m long and up to 19 m wide cairn after removal of the topsoil, with all stones down to a size of about 3 cm drawn. According to my calculation there are between 100,000 and 200,000 stones in this plan alone. Fortunately we are not given equally detailed plans for every 20 cm down through the mass of stones, but the three-dimensional aspect is well dealt with through the section drawings. There are also many plans of particular parts of the construction like the internal walling or the original outer revetment and collapsed material outside it, and explanatory plans illustrating questions

dealt with in the text. Not least impressive are the plans of the chambers, both the master plans with all bones superimposed and the simplified plans showing details, as for instance skulls or femurs, or bones that could be compared. There are a very large number of excellent and informative photographs, which not only back up the explanations in the text, but show that the site was always neat and tidy and the weather unfailingly ideal for archaeological photography. There are several contributors, but Alan Saville is cited alone as author. Not a cheap excavation or a cheap publication.

The monument was a cairn built of slabs of limestone, prized out of quarries on both sides of the cairn. It was built in roughly rectangular areas along both sides an axial spine following a system that must have been rather like building in bays outlined by rows of stakes, a method that has been reported at sites in both Denmark and England. The outside of the cairn was bounded by a neat dry wall, which originally increased in height towards the wide "proximal" end of the cairn. At this end there were projecting "horns" and a blank concave facade, as in many other Severn-Cotswold tombs, while the chambers were in the middle of the sides. A large and consistent series of C14 dates places Hazleton North soon after 3000 bc uncalibrated, so it was roughly the same age as the earliest mortuary structures in Denmark.

The most interesting part was the two burial chambers in the middle of the north and south sides. Each had an entrance, a passage, and a chamber, separated by jambs and/or sills. It is symptomatic of the high standard of the excavation that a long section was drawn right down a passage that was only a meter wide.

At the West Kennett long barrow Piggott set out the theory that whole bodies were put in the chambers, but while or after they decayed parts of them were 'borrowed' to be used at rituals taking place elsewhere, perhaps at the causewayed enclosures, where scattered human bones are not uncommon. It was skulls and long bones that there was most use for, and they were not always returned. The consequence of this activity was both that the skeletons were disturbed and that they were very incomplete, with skulls and long bones being the most underrepresented. This is not an "ossuary theory". The ossuary theory is that bones are defleshed (or excarnated) elsewhere, and laid in for the first time as skeletal parts. The West Kennett theory is that whole bodies were put in the chambers, and parts of them later taken out again.

It has been surprisingly difficult to find support anywhere except West Kennett for this very attractive theory, but conditions could hardly be better than at Hazleton North, where if the results are disappointing, it can be that the archaeologists were so centred on excavational finesses that they forget the important things. Reading the report it is in all events evident that there had been a lot of rummaging around in the chambers and passage, and the bones were very broken and in a confused mass, except for one or two final burials in the north entrance area. It was not only dry bones, but also coherent bits of corpses that got pushed around. This rummaging was not merely an incidental accompaniment to the deposition of new corpses

(another of the possible theories), for it had been done most thoroughly in places where there were no new corpses.

Despite the space taken up, we are not given enough raw data to judge for ourselves. It seems fairly clear that only a little survived of each corpse (except the last ones), but it seems at the same time that all parts of the skeletons were roughly equally represented. In all events there is no very significant excess of patellas, though there may be of foot bones. Other small bones of the body are not dealt with. One must therefore accept that no consistent pattern has been demonstrated involving the removal of skulls and long bones and leaving behind of uninteresting bones like ribs, knee caps, scapulae, or vertebrae. No doubt the fragmentary condition of a lot of the material made it very difficult to deal adequately with these questions, but the authors seem uninterested, and even unaware of the West Kennett long barrow and the various views that exist. In all events the placing of several skulls a little inwards from the entrance does look like the return of the witch-doctor's requisites. In contrast with the later Danish collective tombs, very few grave goods were put in with the bodies.

This book raises the question how detailed an archaeological report ought to be. Excavations of objects like this generally appear in 25-35 page articles and still contain enough documentation to satisfy most archaeological readers, but that way we would have been deprived of many of the photographs. The vast majority of readers will certainly skip over a lot of this book, and with such a wealth of detail may well find it difficult to find exactly the information they think important. On the other hand the excavation was obviously superb, carried out and recorded with perfect consistency, so perhaps for once it was worth devoting so much time and money to post-excavation and publication. This was definitely an excavator's excavation. Perhaps English Heritage should also have invested in a ghost-writer, who with a fresh mind could have unravelled some of the problems that arise when even the best excavators are over-familiar with their subject, and made it also into a readers' report.

David Liversage

TERESA DĄBROWSKA: *Wczesne fazy kultury przeworskiej. Chronologia – Zasięg – powiązania* (Frühstufen der Przeworsk-Kultur. Chronologie – Gebiet – Verbindungen). Państwowe Wydawnictwo Naukowe, Warszawa 1988, 339 pp.

One could long have wished for a successor to Józef Kostrzewski's "Die Ostgermanische Kultur..." (1919). Late pre-Roman chronology builds largely on forms with their main distribution east of the Oder, just as the myth of eastern elements in north Jutland and in particular in the Kraghede material, has been mooted for nearly a century.

Now the successor has almost come. Teresa Dąbrowska's new book "Wczesne fazy..." (The Early Phases of the Przeworsk Culture) gives a really good up-to-date survey, but one thing is lacking to succeed Kostrzewski, the language. Even the by East European standards very full German resumé of 20 pages can-

not compensate. The work will remain inaccessible to the majority of west European scholars. This is much to be regretted, as Polish research has progressed far since the days of Kostrzewski, and the Przeworsk finds are so rich and varied that in many ways they provide a key to the problems of late pre-Roman times in northern Europe. This is not the only recent key Polish work that has appeared in this way. The series, *Prahistoria Ziemi Polskich* (Prehistory of the Lands of Poland, Warsaw 1975-81), a fine scholarly survey, appeared in Polish, without resumé in other languages, and in so small an edition that only local demand could be satisfied. The references in Dąbrowska's book tell the same story - a mass of weighty studies only a few of which have been made available to the west European readership. One may hope that the new political opening in the East will lead to a similar opening in archaeology.

The aim of the book is not to set up new typologies - that has been done in full measure by generations of Polish and German scholars (including the author herself). The aim is rather to trace the Przeworsk Culture's origins and cultural relations. We begin (chapter II) with a short account of the present state of research on the chronology of the later pre-Roman Iron Age. In Poland this is called period "A" following Eggers, and it is subdivided into the three phases A₁, A₂, and A₃. These can be further sub-divided - a pure A₂, a transitional period A₂/A₃, a pure A₃, and a more problematical transitional phase A₃/B₁. The principal leading forms are still fibulae and weapons, although pottery, belt fittings, and ornaments play a role. The chronology is supported by an enviably long series of large, well excavated cemeteries. In terms of absolute chronology the beginning of A₁ is placed at the end of the 3rd century B.C., of A₂ in the middle of the second half of the second century B.C., and A₃ begins in the middle of the last century B.C. and continues into the first decades of our era. Each phase thus lasts about 75 years, and the sub-phases last for about a generation. It can be objected that not enough attention is given to the settlement material and this creates unnecessary uncertainty about some conclusions later in the work. The detailed chronology provides, however, a good basis of cultural historical interpretations, and the discussion of cultural contacts and currents adds a new dimension. This is also intended.

To begin with, the distribution of the Przeworsk Culture is analyzed in relation to the fine chronology. It is found that by and large the culture occupied from the beginning the area it was later to fill, though the earliest graves appear to be concentrated to Silesia and Kujavia (chapt. III). In Silesia the Przeworsk Culture took over from the regional La Tène group, while the remaining areas, i.e. central Poland, Kujavia and Mazovia, had until then been occupied by the Pomeranian Culture (also known as the Bell-Grave culture) (chapt. IV). The relation between these two cultures has always been a problem for Polish archaeology. From the German side it was before the war maintained that there was a clear cultural and demographic break (e.g. von Richthofen 1930), while from the Polish side a gradual and continuous development was postulated (e.g. Kostrzewski 1965). The discussion, which was coloured by the geopolitical situation, to some extent died with the scholars of the

Kossina school (of whom Kostrzewski ironically enough was one) (Martens 1988). T. Dąbrowska has returned to the matter and shows here that an earlier Pomeranian presence can only be shown on 5% of all the Przeworsk sites. At most of these the Przeworsk occupation does not begin until period A₂ or A₃. If the succession were gradual then, it could only be documented at considerably less than 5% of the total Przeworsk sites! One could add here that 5% is so few that the co-existence can rest on factors no less haphazard than the occurrence of Neolithic pottery on the same sites would be. However, Dąbrowska goes a little further, and points to a little group of sites where she is of the opinion that peaceful co-existence between bearers of the Przeworsk and Pomeranian cultures can be shown into period A₂ (pp. 97–99). The relationship with the surrounding cultures must have been different, for the Przeworsk Culture clearly surrounded itself with a broad, uninhabited buffer zone.

In the succeeding chapters (V–VII) the author considers the pre-Roman Przeworsk Culture's complex mesh of contacts with the outside world – the Celts, the Jastorf Culture, northern Jutland, the Poienești-Łukaševka Culture, and the Mediterranean. Here we will only take note of the northern contacts. These have been dealt with separately by the same author in German after the book had gone to press in 1984 (Dąbrowska 1988). As this article in some ways complements the book it will be included here.

The synchronization of the different regional chronologies is not dealt with at any one place in the book. Nevertheless the following picture can be extracted (see in particular pp. 193–94):

	La Tène	Przeworsk	Jastorf	Jutland (north)
225 B.C.-----	C ₁	A ₁	Ripdorf IIa	II
	C ₂		Ripdorf IIb	IIIa
125 B.C.-----	D ₁	A ₂	Seedorf IIc	IIIa
50 B.C.-----	D ₂	A ₃	Seedorf IId	IIIb
A.D. 10–20-----	EARLY ROMAN IRON AGE			

The periodisation of the Jastorf Culture follows Hingst 1959.

It can be seen that there is a considerable difference between this view and that of C. J. Becker (most recently 1980, 56, fig. 1), where period IIIa is equated with Seedorf and the entire pre-Roman phase of the Przeworsk Culture. Dąbrowska explains the difference with the argument that fibulae with bulbs on the bow (*Kugelfibeln*) are dated to period IIIa in Denmark. Furthermore the Przeworsk-influenced Laténisation tendencies like rich grave furnishings and weapon graves first appear at a late stage in period IIIa, with find combinations that would best be described as A₂ in Przeworsk terms. As A₁ in recent Polish archaeology is synchronized with Hingst's phases IIa/IIb (e.g. Wolągewicz 1982, 84–85), the same follows for the early part of IIIa, or part of it.

The problem in judging these suggested synchronizations is, unfortunately, that the Danish material fails us, especially in Jutland. There are simply no well furnished graves with leading forms from the early period. However at Kraghede in grave A-1 there was found an iron fibula of Kostrzewski's B construction. B fibulae are a leading type of period A₁, but can also be found in A₂. The later ones are usually short (<8 cm; *Wczesne fazy...* 15–19). The one from Kraghede lacks the foot, but even without it measures 10 cm. Whether the fibula dates the context is an open question, as the pottery from the grave is highly atypical for its usual dating (Becker 1961, 261; Martens 1989). Another early find is the two-edged sword in Kraghede grave 3, which to judge from illustrations (Klindt-Jensen 1949, fig. 13) seems to agree with Kostrzewski's type I. Dąbrowska dates this type mainly to A₁, but indicates that it may occasionally occur in A₂. As only a jar with two handles (Klindt-Jensen 1949, fig. 29a) is published out of the five pots and iron knife found in this grave, the dating of the grave remains somewhat unclear. The problem of synchronization is all the more frustrating because the finds from Bornholm, the only material in which a substantial number of interregional metal forms are known, are either unpublished or put forward in a confusing manner (but see note).

It is a problem for late pre-Roman studies in Denmark that well dated graves from period IIIa are virtually absent. This cannot be explained away only as lack of research. Graves of this period are rare because they are most frequently found alone and are therefore difficult to localise (Funen and Bornholm are exceptions to the rule). This should not make one give up – on the contrary the search for the missing graves from period II and IIIa should be intensified and the existing material be published, especially now that so much is known about the settlements. It can be of vital importance for the understanding of possible influences from the south-east.

Dąbrowska's discussion of north Jutland contacts (called "Jastorf" in the book, 167–75) is naturally affected by the poor state of publication in Jutland. It seems likely that the distribution map of Przeworsk-like pottery in Denmark (Dąbrowska 1988, fig. 4, 201) is mainly an expression of how Danish research has focussed in south and central Jutland on the typical and in Vendsyssel on the atypical (Becker 1961; Klindt-Jensen 1949; Martens 1989). In burial customs, however, the special character of north Jutland still seems valid. Dąbrowska points out that the earliest weapon forms in north Jutland can be dated to A₂ (single-edged sword, shield bosses like Bohnsack 3 and 4). On Bornholm earlier forms are present (from A₁), and this should show the direction of movement of the influences. However single-edged swords are most common in the Przeworsk Culture's northern neighbour, Okseywia, so the inspiration could just as well come from this quarter. Against this argues, according to Dąbrowska, the use of pit cremation in both north Jutland and the Przeworsk Culture, in contrast with the Okseywia weapon graves, which are always urn burials. Here however the author forgets that pit cremation had been the rule in Vendsyssel since the latest Bronze Age (Becker 1980).

Equally interesting for Danish archaeologists is the existence

of 'Jastorf' pottery in Przeworsk contexts and still further to the south-east. This exotic pottery, which clearly has parallels in period II/IIIa of Jutland, occurs at Przeworsk settlements, which are almost as little known as the cemeteries are familiar. Other "Jastorf" influences mentioned by Dąbrowska are bulb-on-bow fibulae and crown neck-rings. Also clay "fire-dogs" and decorated hearths are cited as traits of both cultures. These external elements in the otherwise so homogeneous Przeworsk complex are encountered particularly in the NE part of its area. Here also occur wetland deposits, a type of discovery otherwise unknown in the region.

On the base of these external elements, which seem concentrated in the early phase of the culture, the author closes with the following cultural historical thesis (chapt. IX). The Przeworsk Culture takes form in the region against the background of the cultural disturbance brought about by the migration of the Bastarnae through the area at the transition to the late pre-Roman Iron Age. According to the written records these people make their appearance on the Black Sea coast just when the Poinęsti-Lukaševka Culture with its Jastorf traits and the Przeworsk Culture first appear. No less interesting is the way the author points out that the Przeworsk Culture is more closely linked to distant regions than to its own immediate neighbours. The resulting judgement that the underlying cause lies in the political alliances of the times, is set out with noteworthy caution by the author (Dąbrowska 1988, 194) – a point otherwise calling for a considerably more advanced political system than generally attributed to the period.

In general the book would have gained by having a larger number of illustrations, as one needs to have a considerable library at hand in order to follow her analysis and comparisons. Teresa Dąbrowska's new book is beyond doubt a major contribution to pre-Roman archaeology from one of Poland's leading scholars. Let us hope it soon appears in German or English translation, so it can take its rightful place among the definitive works of the subject [translated by D. Liversage].

Jes Martens

NOTE

After completion of the review appeared the publication of the pre-Roman graves from Nørre Sandegård on Bornholm (Becker 1990). It seems to support the above proposals for synchronization.

REFERENCES

- BECKER, C. J. 1961: *Førrømersk jernalder i Syd- og Midtjylland*. Nationalmuseet, Copenhagen.
- 1980: Vendsyssel während der vorrömischen Eisenzeit, in L. KAELAS & J. WIGFORS (eds.): *Die vorrömische Eisenzeit im Kattegat-gebiet und in Poland*, 54–67.
- 1990: *Nørre Sandegård. Arkæologiske undersøgelser på Bornholm 1948–52*. Historisk-filosofiske Skrifter 13, Det Kongelige Danske Videnskaberne Selskab, Copenhagen.
- DĄBROWSKA, T. 1973: Cmentarzysko kultury przeworskiej w Karczewcu, pow. Węgrów. *Materiały starożytne i wczesnośredniowieczne* II, 383–531.
- 1977: Próba ustalenia chronologii względnej cmentarzysk kloszowych z obszaru Mazowsza. *Wiadomości Archeologiczne* LXII-2, 117–36.
- 1988: Frühe Einflüsse der Przeworsk-Kultur auf die Jastorf-kultur. *Zeitschrift für Archäologie*, 23, 191–210.
- HINGST, H. 1959: *Vorgeschichte des Kreises Stormarn*. Die vor- und frühgeschichtlichen Denkmäler und Funde in Schleswig-Holstein, Bd. V. Kurt Wachholtz, Neumünster.
- KLINDT-JENSEN, O. 1949: Foreign Influences in Denmark's Early Iron Age. *Acta Archaeologica* XX, 1–248.
- KOSTRZEWSKI, J. 1919: *Die Ostgermanische Kultur der Spätlatènezeit*. Kurt Kabitsch, Leipzig.
- 1965: *Zur Frage der Siedlungsstetigkeit in der Urgeschichte Polens*. Ossolineum, Warsaw.
- MARTENS, J. 1988: The Vandals: myths and facts about a Germanic tribe of the first half of the 1st millennium A.D., in S. J. SHENNAN (ed.): *Archaeological Approaches to Cultural Identity*. Unwin Hyman, London, 57–66.
- 1989: The cemetery at Kraghede. On the so-called 'Kraghede-group' and its cultural position in the light of recent research and the excavations at Borremose. *Mémoires Archéologiques*, in print.
- RICHTHOFEN, B. von 1930: Zur Herkunft der Wandalen. *Alt-schlesien* 3, 21–36.
- WOLAŃGIEWICZ, R. 1982: 'Przemiany kulturowe i osadnicze w kręgu jastorfskim i na jego wschodnim pograniczu', in W. HENSEL (ed.): *Przemiany ludnościowe i kulturowe I. tysiąclecia p.n.e. na ziemiach między Odra i Dnieprem*, 83–106. Warsaw.
- Prahistoria Ziem Polskich*, ed. W. HENSEL. Ossolineum, Warsaw, 1975–81, vol. I-V.
- MARGARETA BESKOW SJÖBERG (ed.): *Ölands järnåldersgravfält*, Vol. I. Riksantikvarieämbetet och Statens Historiska Museer, Kalmar 1987. 438 pp. in *quarto* with numerous maps and illustrations.

This is the first of a four-volume work in which Öland's thousands of Iron Age graves will be presented collectively for the first time. This volume begins with the parishes of Alböke, Köping, Råppling, Löt, Egby, Bredsåtra, and Gårdslösa, seven parishes and seven chapters, each constructed like a nest of Chinese boxes. Each chapter begins with a presentation of the parish in question, its topography, geology, and history, from which the view is gradually brought closer. A survey of recorded sites with graves is followed by a individual description of the graves accompanied by determinations of the extensive osteological material; this is supplemented by a list of the finds of graves that were not properly investigated. There follow descriptions and illustrations of the contents of each grave (most of the objects are shown at scale 1:1). Each chapter ends with a summary in Swedish and English of the Iron Age graves in the parish, including their topographical situation and chrono-

nological spacing. All chapters are illustrated with numerous photographs, drawings of finds, and plans/maps.

The book's last chapter, to which there also is an English translation, is not merely a summary, but takes up a number of central questions concerning Iron Age settlement and its relationship to the graves. In this chapter there is a fine series of maps, not only of the graves, but also of dated settlement sites from the older and younger Iron Ages, objects of gold of the later Roman Iron Age and Migration Period, and silver objects from the Viking Age. The area of study has the further advantage that it includes Skedemosse with its large Iron Age ritual deposits. In other words the chapter opens for a series of questions which unavoidably arise in a "parish survey" of this kind. The book is more than a catalogue because it deals with a series of central questions connected with Öland's Iron Age.

The considerable work going into the publication was carried out by a project group consisting of many specialists whose work has made them familiar with the parish they deal with. This has not only made an undertaking of this size possible, but has brought it up on a level that would otherwise have been difficult to reach. On the other hand enough central direction has to be retained to ensure that uniformity and perspective are not lost in detail. The book lives fully up to this requirement.

With this publications Swedish archaeologists have wished to open up for studies of Öland's rich Iron Age, and have done so in a way that will answer most of the questions Iron Age scholars will wish to ask for many years to come, many of which are entered into in the last chapter. Also the book with its systematic arrangement is easy to find one's way around in and has excellent maps, all relevant references to the literature, an abundance of drawings of objects found (here direct cross-references between descriptions and illustrations would have been an advantage), and a careful account of its own preconditions. This is the beginning of a large and important project, whose continuation and completion are awaited with expectation. And last but not least – the book is beautiful! [Translated by D. Liversage].

Lotte Hedeager

Danmarks længste udgravning. Arkæologi på naturgassens vej 1979–86 (The longest excavation in Denmark. Archaeology along the natural gas pipeline 1979–86). Udgivet af Nationalmuseet og de danske naturgasselskaber. Poul Kristensens Forlag, Herning. 1987. 516 pp. With summaries in English.

Our Danish colleagues got a great chance for large archaeological survey of their country in combination with small excavations when in 1979 the Parliament decided the major part of the Danish energy-supply to be based on natural gas. The investigations were due to a cooperation between the gas companies and the archaeological authorities: the pipeline in the projection phase should be placed with greatest consideration for the protected monuments and time was left for reconnaissance surveys and trial excavations before the final work with the pipeline was

done. Sometimes the route of the gaspipe had to be moved because of the risk to disturb important archaeological remains on the line or nearby. This happened e.g. in the Gudme-region, south-east Funen, to spare an area which was a centre of cult and trading in the Germanic Iron Age.

The pipelines were laid from Frøslev in the south to Viborg in the north and from the North Sea in the west to Copenhagen in the east, that means a length of about 3000 km including all criss-crossed ditches completed up to 1986 with a width of 10–20 m in an average. In the beginning the responsibility for all scientific efforts lay with the Archaeological Office, but later it was transferred to the Archaeological Secretariat of the State Antiquary for coordination. Most of the actual fieldwork however, had to be carried out all over the country, by the local museums whose members even wrote the reports concerning 250 excavations with areas from 200 m² to more than 1000 m²: the actual work was done in the field. It still continues (in particular in north Jutland: 500 ff.) as all small distribution lines have not yet been laid.

The book now published on the investigations caused by the main pipeline-project is not only a well arranged collection of all or at least the more important reports in the topographical section as the most valuable part of the publication. At the same time it contains larger contributions in form of a more common introduction to archaeological fieldwork (e.g. 9 ff.: 'About the Finding of Hidden Relics of the Past – in Time'; 21 ff.: 'If you learn to use your eyes...'; 87 ff.: 'Holes in the Ground') as well as an outline of Danish prehistory in essential part already known without the news from the gasline (e.g. 37 ff.: 'The Prehistory of Denmark – after the Natural Gas'; 107 ff.: 'Medieval Pottery'). Furthermore small essays of common importance are incorporated (e.g. 10: 'The Past and the Law'; 132: 'Building with Stone in the Middle Ages'; 162: 'The Runic Stone from Snoldelev'; 308: 'Construction-work and Archaeology'; 372: 'Bronze Casting'; 411: 'Animal Bones from Archaeological Excavations'; 417: 'Ridged Fields and Ploughing Furrows in Denmark') and even short special remarks on archaeological methods (e.g. 12: 'Geophysical Prospections'; 14: 'Phosphate Analysis'; 94 ff.: 'Thousands of Potsherds'; 101: 'Thermoluminescence Dating'; 256: 'Computers and Excavations'; 305: 'Dendrochronology'; 316: 'Radiocarbon Dating'; 359: 'Pollen Analysis'; 400: 'Metal Detections'). All the mentioned articles up to now are of course published in Danish but there is no difficulty for a foreigner to take part in the conclusions as detailed summaries or in some cases even English versions follow pp. 423 to 484 and 513 to 516.

The main topographical part (pp. 113 to 422) is only given in a Danish version but there are English translations of the illustration-texts. This part covers about 1700 findplaces in all, most of them unknown before the start of the gasline project and some only seldom visible on the surface. First field observations brought the basic information for the researches between the coursefixing of a pipestretch and the bringing down of the pipes. By this method a lot of sites could be located and investigated, but it was almost impossible to identify bog offerings and other objects covered e.g. by a layer of sand. Therefore

a large number of trial excavations had to be carried out with the result that only about a fifth of them extended to full excavations. With a width of at least 10 metres and a length of some 3000 kilometres an area of more than 30 square kilometres has been investigated. About 1700 relics were registered. That means nearly 60 objects per square kilometre. Before the gas project, only about three sites per square kilometre were known in the Danish territory. This comparison may be one of the most important results of the described work as it brings an idea of how much archaeological material still remains below the surface in the open country.

Of course it is impossible to mention all the more important sites discovered during the preparation of the gasline in a short review like this. But some must be named.

First of all it should be noted, that relics of settlements formed the overwhelming part of the sites – about 650. In some extent they are characterised by flint objects up to the Iron Age. In terms of chronology not all periods are equally represented. So settlements from the Neolithic are richly documented in the reconnaissance material, but only few of them were worth an excavation, so a 15 m long and 6 m wide two-aisled long-house at Ornehus, Præstø amt (site no. 413) from the Passage Grave period or the Dolmen period. Settlement finds from the Early Bronze Age are rare but such from the Late Bronze Age were discovered in large quantity with three-aisled houses mainly 15–30 m long. Most houses however belong to the younger periods, i.e. especially to the Iron Age, but even there no spectacular features came to light. The longest found in Bække, Ribe amt (site no. 1422), measured 50.5 m. From the Middle Ages only about 35 sites are reported at all, some of them remains of deserted villages.

Closely related to the settlements is a cult house from the Bronze Age (site no. 4) from Sandagergård, Frederiksborg amt. This had a double stoneframe of 18,5 x 7,5 m with a thin culture layer and three urn graves inside, all dating to period IV. Just south of this probably ritual structure and in obvious connection with the building there were found two or three menhirs and four stones with rock carvings showing raised hands (adorating).

Further noteworthy discoveries are a three-aisled long-house under a Bronze Age barrow at Byhøj, Sorø amt (site no. 336), a Bronze Age hoard with new and broken objects from Lindø, Odense amt (site no. 440) – important because hoards normally turn up by chance, a Viking Age grave with two horses and four dogs (maybe indicating special forms of hunting) from Stavrbj, Odense amt (site no. 549) and a large village in Katrinebjerg, Skanderborg amt (site no. 1072) of Migration Period date – a period from which settlements generally are difficult to recognize.

Altogether the picture of the Danish prehistory has not been revolutionised by the researches in connection with the gasline – the density of sites, however, has grown considerably and the work is still in progress. Our Danish colleagues had a unique chance and they took it up. As a published result they produced a multicomponent book, including some archaeological high-

lights, which is a well made and welcome treasure for everyone interested in the prehistory of northern Europe.

Torsten Capelle