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From the Editor

If you enjoy reading about the work of others, chances are they will enjoy reading about yours. *Mesolithic Miscellany* publishes research reports, book reviews, national synopses of recent excavations and research, statements for debate, conference summaries, important radiocarbon dates, announcements, and summaries or abstracts of recent publications to inform readers of current developments in the field. Recent Publications is a category that is particularly important and particularly difficult to keep up-to-date. Reprints or simple citations of your work would be most useful. Please prepare a brief abstract of the article or publication if one is not included in the text. We always need more reports, reviews and papers from you, the reader.

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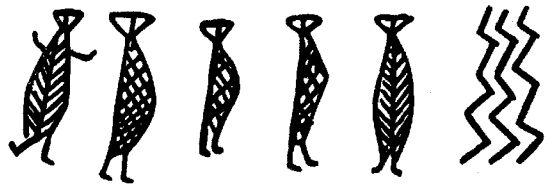

November 1994

Mesolithic Miscellany

Volume 15 Number 2

From the Editor

There have been fifteen years of *Mesolithic Miscellany* to date and it is time for some changes. I will step down as editor of this newsletter with this issue and will pass the mantle on to Clive Bonsall at the University of Edinburgh. Clive has been the co-editor for the last several years and can readily take on the task. In passing I do hope that M2 has served you well and it will continue to do so in the coming years. Please address all future correspondence, manuscripts, subscriptions, and miscellaneous items directly to Clive Bonsall.

T. Douglas Price

In this issue . . .

Meeting Announcement

5th Mesolithic in Europe Congress
UISPP International Symposium,12th Commission

Grenoble (Isère, France)

This, the fifth congress in the series, will focus on three themes: 1. regional syntheses; 2. occupations, exploitation and natural environments of high altitudes; and 3. discoveries, projects and activities since 1990. The congress will be held at the University domain of Saint-Martin-d'Hères (Grenoble). The programme will consist of three days of communications and two days of excursions to alpine sites. Applications are due by 30 October 1994. Only those individuals applying in 1994 will receive the second circular.

Registration: 200 FF
Excursions: 200 FF, 220 FF

Organizers: P. Bintz, A. Thévenin & S.K. Kozłowski

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New Data on the Chronology of the Zvejnieki Stone Age Cemetery

Ilga Zagorska
Riga
and
Lars Larsson
University of Lund

The cemetery at Zvejnieki is situated close to the shore of Lake Burtnieku, in northern Latvia near the mouth of the River Ruja (*Fig. 1*). The cemetery was discovered in 1964 during gravel extraction, and excavated between 1964 and 1971 by Francis Zagorskis. Altogether 4200m^2 divided into several trenches in an area 300m x 50m were excavated. Concentrations of graves were found in particular areas. The first group, comprising more than seventy burials within a zone 30–40m wide and 90m long, was found in the western part of the site on the highest part of the gravel ridge (*Fig. 2*). The second group, numbering around 114 burials, was found within a 40-metre long and 25-metre wide area in the southeastern part of the site. The two groups were situated about a hundred metres apart, but graves were found in all the trenches except for the easternmost trench with remains of Neolithic settlement (*Fig. 2*).

Zvejnieki is the largest cemetery in northern Europe, comprising 315 graves. According to the artifacts the site was used as a burial ground as well as a settlement from the Late Mesolithic until the Late Neolithic (Zagorskis 1987). Important skeletal material was also recovered (Denisova 1975).

The archaeological chronology, worked out by the director of the excavations, Francis Zagorskis, was based on: (1) the typology of bone, antler, flint and amber artifacts, animal tooth pendants, and pottery; (2) the spatial distribution of the burials; and (3) the changing burial customs. Zagorskis considered that the Zvejnieki burial ground was used for a long period of time – approximately three thousand years, from the turn of the 6th/5th millennium BC until the first quarter of the 2nd millennium BC, *i.e.* Late Mesolithic to Late Neolithic. The periods when people were buried more intensively were the 5th millennium BC (first group of burials) and the 3rd millennium BC (second group of burials) (Zagorskis 1974).

In spite of the importance of the cemetery, no radiocarbon dates had been obtained for the graves. In order to get a more detailed view of the burial activities within the Zvejnieki cemetery, samples from 12 graves were submitted for accelerator dating at the AMS ^{14}C Laboratory at Uppsala, Sweden. The samples were taken in order to obtain dates from different trenches and concentrations of graves, as well as from different groups of graves identified by F. Zagorskis.

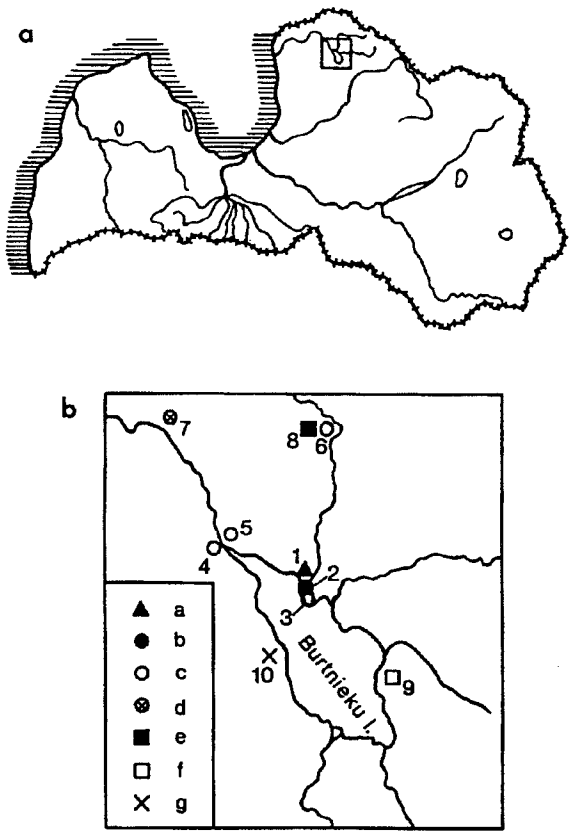

Figure 1 *a* – The territory of Latvia. *b* – The Burtnieki Lake region showing locations of Stone Age sites. 1. Zvejnieki burial ground; 2. Mesolithic settlement site (Zvejnieki II); 3. Neolithic settlement site (Zvejnieki I).

In general, the twelve analyses confirmed F. Zagorskis' archaeological chronology (*Table 1*). There were some discrepancies, however, which helped us to obtain a more nuanced picture of the period of burial activities and changing mortuary practices during successive stages of the Stone Age.

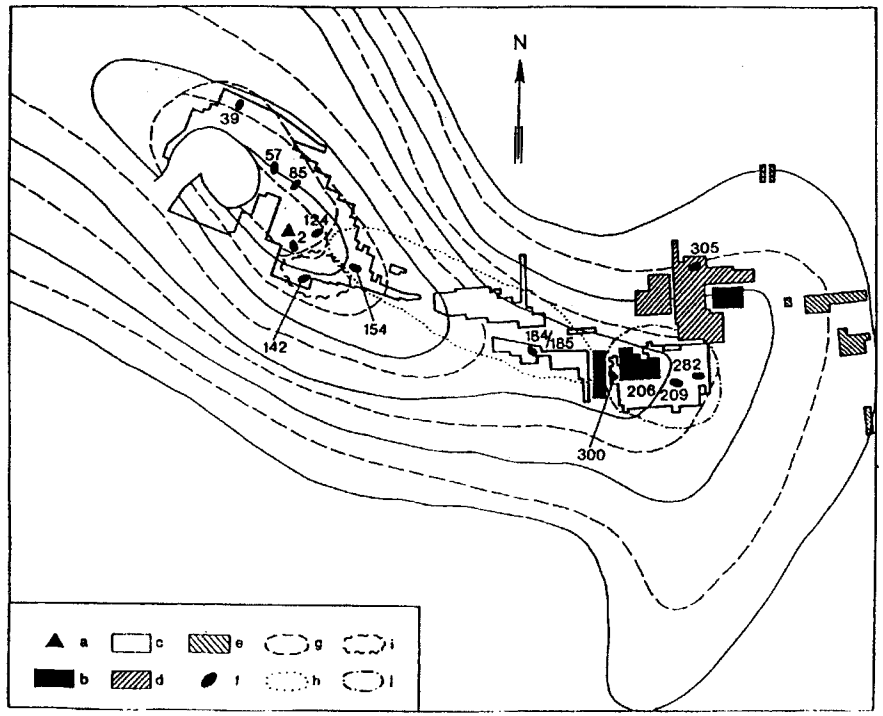

Figure 2 Plan of the Zvejnieki archaeological complex (after Zagorskis 1974, with additions). *Key*: a – highest point of the gravel ridge; b – buildings; c – excavated part of the burial ground; d – Mesolithic settlement site (Zvejnieki II); e – Neolithic settlement site (Zvejnieki I); f – burials dated by ^{14}C. g – 1st group of burials; h – transitional zone; i – group of burials at the southern edge of the 1st group; j – 2nd group of burials.

Burial no. 305 was found within the area of the Mesolithic occupation (*Fig. 2*). A man was placed in an extended supine position (*Fig. 3a*). The skeleton was covered by a layer of red ochre. A bone point with small barbs near the tip was found between the legs. Archaeologically, the grave was dated to the second half of the 7th millennium BC. This date was confirmed by the radiocarbon determination of 8240±70 BP. It is the earliest known burial from the East Baltic region.

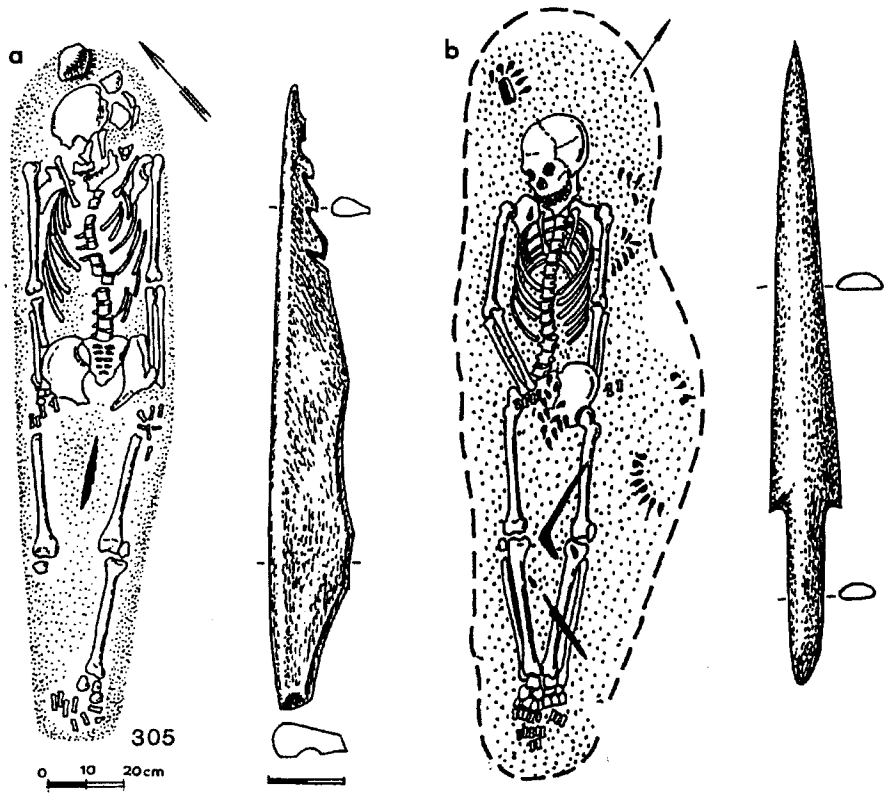

Figure 3 *a* – Burial 305 with grave good (after Zargorskis 1987); *b* – Burial 57 with one of the grave goods – a bone spear-head (after Zagorskis 1987).

Table 1 Radiocarbon dates from the Zvejnieki cemetery.

Lab. no.	*Sample and context*	*^{14}C age BP*	*$^{13}C‰$ vs PDB*
Ua-3634	Zvejnieki, sample 1, grave 305	8240±70	–21.59
Ua-3635	Zvejnieki, sample 2, grave 39	6775±55	–23.01
Ua-3636	Zvejnieki, sample 3, grave 57	6825±60	–22.97
Ua-3637	Zvejnieki, sample 4, grave 85	6460±60	–23.17
Ua-3638	Zvejnieki, sample 5, grave 2	6900±65	–20.07
Ua-3639	Zvejnieki, sample 6, grave 124	5280±55	–23.03
Ua-3640	Zvejnieki, sample 7, grave 142	2370±65	–21.63
Ua-3641	Zvejnieki, sample 8, grave 185	5230±65	–23.03
Ua-3642	Zvejnieki, sample 9, grave 300	5690±45	–22.81
Ua-3643	Zvejnieki, sample 10, grave 206	5285±50	–23.47
Ua-3644	Zvejnieki, sample 11, grave 154	7730±70	–23.33
Ua-3645	Zvejnieki, sample 12, grave 282	5100±65	–22.53

The radiocarbon analyses also confirm the division of the burials into two main chronological groups. The first group includes burials 2, 39, 57, 85 and 154. Burial no. 57, a woman in a supine position and covered with red ochre, was rich in grave goods (*Fig. 3b*). Three main sets of pendants – one including a stone axe – were found in different parts of the grave.

The dates span the period fom the 6th millennium BC to the middle of the 5th millennium BC, but indicate that the majority of the Late Mesolithic burials belong to the first quarter of the 5th millennium BC with the range 6900±65 to 6460±60 BP. Burial no. 154, a man placed in a supine position covered by large stones and some red ochre, is considerably older with a date of 7730±70 BP.

The second group includes multiple burial no. 206–209 and 282 – dated as 5285±50 BP and 5100±65 BP, respectively. Burial no. 300 is slightly earlier – 5690±45 BP. Contemporary with the second group are burials 184/185 and 124 from the first grouping and the transitional zone – dated as 5230±65 and 5280±55 BP, respectively.

Archaeologically, burial no. 300 with its characteristic inventory – biconical arrowheads – belongs to the Early Neolithic, consistent with the ^{14}C date of 5690±45 BP.

The multiple burial no. 206–209 and similar burials represent newcomers in the region and the beginning of the Middle Neolithic. According to the Lubana Lowland dates, this was the third millennium BC. It is now clear that the second group of burials must be dated mainly to the last quarter of the 4th millennium BC, *i.e.* some 500 years earlier.

Completely different is the dating of twelve burials at the southern edge of the first group (*Fig. 2*). Archaeologically they were singled out as a separate and not readily datable group, as none of the burials had grave goods. Burial no. 142 was dated to the Early Iron Age.

The main conclusions drawn by archaeologists about the Zvejnieki cemetery have been confirmed by radiocarbon analyses. The archaeologically-derived data and the radiocarbon dates both show that the Zvejnieki Stone Age burial ground was in use for a period of three thousand years or longer. The ^{14}C determinations have pushed back the date of the earliest burials to the 7th millennium BC and have shown that some of the latest burials date to the end of the 4th millennium BC. As yet, none of the crouched burials have been radiocarbon dated. Only the intensity of use of the burial ground varied over the period of its existence; the burials were concentrated mainly in two periods – the first half of the 5th millennium BC and the second half of the 4th millennium BC.

The location of Zvejnieki close to an inland lake suggests that fish may have been very important in the diet. However, since this was a freshwater basin, the ^{13}C content should be low. The results of the ^{13}C analyses provide values between –20.07‰ and –23.33‰. This does not provide a basis for evaluating the importance of fishing, since the values are typical for a diet based on food of terrestrial origin. On the other hand, $\delta^{13}C$ values within the Baltic Sea have probably not been as high as in the Atlantic (Welinder 1984). Thus the value of –18‰ from a burial at Kams on the Baltic island of Gotland indicates a considerable marine diet.

The typological method as applied to the cemetery has been shown to be valid. The same cannot be said of the use of the territorial principle in the dating of the burials. It is clear that the highest part of the gravel ridge, where the first group of burials was situated, was in use for an extended period of time, while the area to the west of it and that around the Zvejnieki farmstead were used only for a restricted period of time. The two main periods of use of the burial ground also differed in

mortuary practices – reflected in the arrangement of the grave pits, the orientation of interred individuals, the grave pit fillings and, of course, the character of the grave goods and animal tooth pendants. During the second phase some new traditions, for example the creation of special 'offering places', took place. It must be emphasized, however, that there were variations in mortuary customs even among burials from the same time period. It is clear that not all the differences in mortuary practices can be explained on a chronological basis; they also seem to reflect social and ethnic processes.

The Mesolithic graves from the Zvejnieki cemeteries can thus be placed in an interesting context with regard to both Western and Eastern Europe, which was one of the main aims of the radiocarbon dating programme.

The burials from Zvejnieki show a number of similarities to those in the cemeteries at Skateholm in southern Sweden (Larsson 1984) and Bøgebakken in eastern Denmark (Albrethsen & Brinch Petersen 1977), such as the position of the graves and the grave gifts and their positions. The rapidly increasing information on mortuary practice from new excavations of cemeteries and single graves in Denmark will widen the factual base of comparative studies (Brinch Petersen 1988; Hougaard Rasmussen 1990; Brinch Petersen *et al.* 1993). In Scandinavia only one grave has given a ^{14}C age comparable to the oldest burial at Zvejnieki; this is one of at least three recorded graves at Kams in the northwestern part of the Baltic island of Gotland (Larsson 1982), and was dated to 8050±75 BP. This grave was partly destroyed when documented. The other two graves contained males buried in a sitting position.

New studies and radiometric dates of previously investigated cemeteries provide a new and valuable perspective on the Mesolithic cemeteries along the east coast of the Baltic and neighbouring areas. The large cemetery at Olenii ostrov in Karelia with its 141 graves has been shown by radiocarbon dating to have been used during the period *ca* 7500–7300 BP (Price & Jacobs 1990), while a grave within a cemetery at Spiginas in northern Lithuania has been dated to 7470±60 BP (Butrimas 1989). This would suggest that the cemeteries at Olenii ostrov and Spiginas are contemporary with the burials at Zvejnieki. These results show that there is a considerable quantity of grave material dating from the sixth and fifth millennia BC throughout Northern Europe, providing an excellent basis for a future comparative study of the burial practices of North European hunter-gatherer societies.

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Mesolithic–Neolithic Utilization of Interior Regions of Eastern Norway: the first field season at Rødsmo

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Over the past 30 years there have been a considerable number of studies of the Mesolithic and Neolithic utilization of the interior regions of southern Norway: well over a thousand sites have been identified and hundreds have been excavated (Bang Andersen 1985; Bjørgo *et al.* 1992; Boaz 1994; Indrelid 1973, 1986: Johansen 1978). While these studies have provided the basis for the development of an understanding of the prehistory of this region, they are based on a biased sample; one that does not provide an adequate representation of the topographic or biotopic variability that is present in this region. The majority of these studies have been conducted in the highlands and other higher lying interior areas of southern Norway, almost exclusively in areas well above the treeline. Further, as all of these projects were associated with hydroelectric development, they have been limited to relatively small rivers and lakes. These water bodies were chosen because of their potential to produce hydroelectric energy, and not to provide a representative sample of the prehistoric utilization of these areas. As a result, there is more data available regarding the prehistoric utilization of small lakes in the highlands than there is from the large interior fjords, such as the Randsfjord and Mjøsa.

The establishment of a new military training station in the Rødsmo area of Åmot township, Hedmark county (*Fig. 1*) is providing the first opportunity for the study of the Mesolithic and Neolithic periods in a different type of setting. The *ca* 51m^2 project area is well below the treeline at 250–300m a.s.l. Further, it is also located between the two major rivers in this region, the Glomma and Rena. As such, the study area provides not only the first glimpse of the Mesolithic and Neolithic utilization of these important low-lying river systems, but also of the surrounding areas.

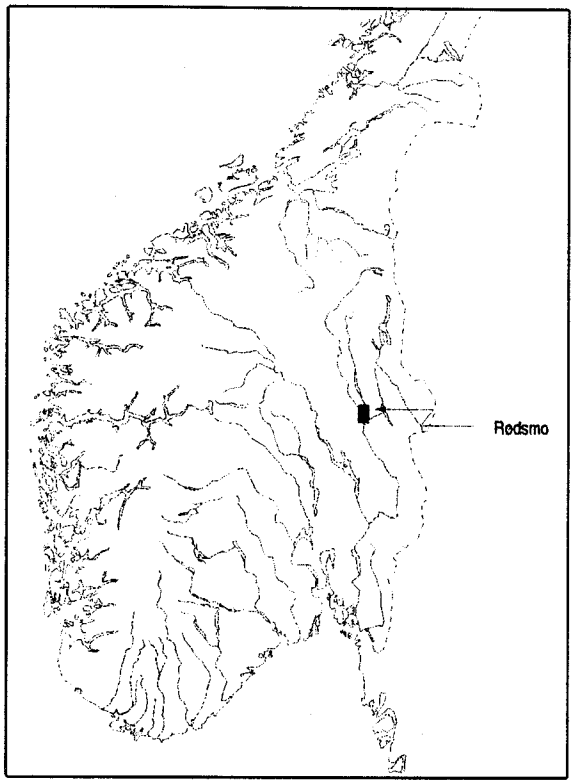

Figure 1 Location of Rødsmo

Project area

Rødsmo is located at the junction of the two most important rivers in this (Østerdalen) region, the Glomma and the Rena (*Fig. 2*). The junction of these two rivers forms the southernmost point in the project area. From this point, the project area extends to the north *ca* 16km; the total extent of the project area is approximately 51km^2.

The topography within this area consists largely of post-glacial features. Along the Rena River dead ice pits, moraines and eskers dominate the terrain. Away from the river there are large expanses of gently sloping and relatively flat terrain, covered

mostly with thin moraine deposits. Towards the east the topography becomes more irregular with some small hills and areas with exposed bedrock outcrops. Throughout the project area there are several small lakes, and numerous creeks and bogs. The majority of the area is covered by open pine forests; however, there are some smaller patches of spruce forest.

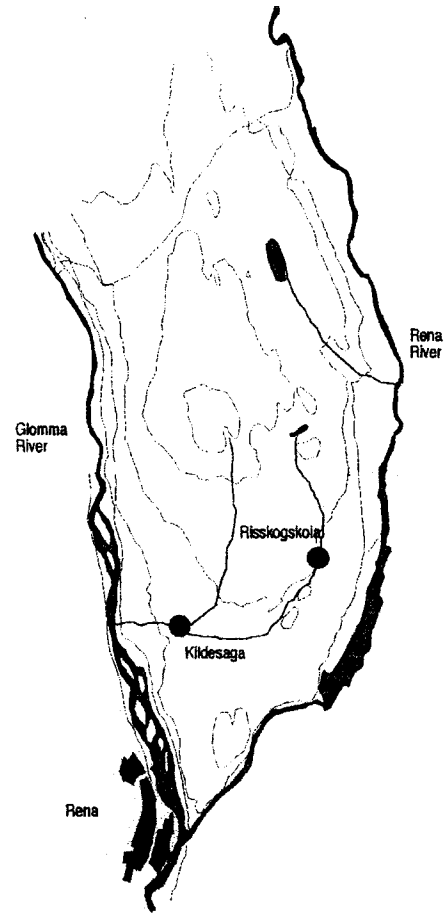

Figure 2 Location of study area and the town of Rena

Survey

While the Rødsmo project provides the opportunity to study a previously unknown region, it also provides a number of new challenges. There have only been limited impacts from agricultural activities in this forested region, and in only a very few instances are there any cultural materials visible at the surface. As in most of southern Norway, it is necessary to employ subsurface testing to locate sites in these regions.

A wide variety of surveying strategies could have been chosen for use in this area. The broad expanses of largely flat terrain might tempt one to suggest the use of a systematic surveying strategy, with test pits excavated at pre-determined intervals across the entire project area. Given the size of the area, a stratified sampling strategy, based on topographical and environmental variation, would have been a more realistic approach.

Such methodology often leads to the identification of new types of sites in unexpected locations, and also provides results that are deemed more 'objective'. However, in this case it was decided to allow the archaeologist's biases to influence the results of the survey, and to utilize intuitive shovel-testing in order to locate sites. While systematic testing strategies are useful and in many instances preferable, they are most effective only after a basic understanding of the distribution of the sites in an area has been established. As virtually nothing is known regarding either the chronology or the nature of the utilization of this region, in these initial stages it is more important to focus efforts on the more 'typical' and intensively utilized site locations.

This year's (1994) survey at Rødsmo focused upon two types of terrain: areas in the vicinity of water, and those areas which provided commanding overviews. The eastern shore of the Rena river, the larger lakes (including those that are now bogs), and streams in the project area were surveyed the most intensively. These locations were shovel-tested and all deposits were sieved through a 4-mm mesh sieve. There are literally hundreds of small bogs which may or may not have been smaller ponds in the past, as well many small, seasonal streams. These areas have not been as intensively surveyed, but it is in these areas where surveys will begin again in the 1995 field season.

Survey results

The initial survey of the Rødsmo area in 1993 focused upon the identification of

antiquities from the Iron Age and Mediæval Periods. As a result, only eight Stone Age sites were identified. Surveys utilizing the methodology described above, located an additional 92 sites during the 1994 field season, bringing the total number of registered sites in the Rødsmo area to a hundred. While obviously finite, the number of sites that eventually are identified will largely be a result of the intensity of the survey. The primary consideration that will determine the intensity of the survey during the two remaining field seasons will be the division of the available resources between further surveying and excavation.

Of the 100 sites that have been located, 63 were found along the eastern bank of the Rena river. These sites vary greatly in size; the largest covers an area of *ca* 2000m^2. However most are much smaller, *ca* 20m^2. Flint is by far the most common raw material type. However, artifacts of quartz, quartzite, jasper and rock crystal are also found on a few sites. Fire-cracked rock and red ochre are also common. Many of these sites are found in 'classic' locations – on small peninsulas, locations with good overviews of the river, along small protected bays, or where smaller creeks enter the river. However, in other areas along the river, it was common to find sites where there were no obvious topographic features that could be used to 'explain' the site location. Much of the eastern shore of the Rena river runs is downcut into a large terrace of glacial deposits. In these areas sites were found at flat and open locations along the shoreline, in locations which offer no protection from the elements.

If the results of the survey of this river (in terms of the number of sites identified per surveyed km) are compared with those from previous surveys in the interior of eastern Norway, one comes to some surprising results (*Fig. 3*). Ninety lakes/rivers were surveyed as a part of the Hardangervidda project (Indrelid 1986: tables 2, 18, 48, 56, 63, 68 & 81). No sites were located in the course of 48 of these surveys; the number of sites found per surveyed km for each of the 42 positive surveys is shown in *Figure 3*. As shown in this figure, less than 1.5 sites were identified per km in the majority of these surveys. In the Dokkfløy, which was surveyed intensively over a period of three years, the number of sites per km of surveyed shoreline is 3.03 (Boaz 1994). In comparison, 63 sites were identified in the survey of the 12-km long section of the eastern shore of the Rena – an average of 5.25 sites per surveyed km. While such comparisons are heavily biased by the intensity of the survey, it is important to note that the survey along the Rena was conducted by three people over a 2-week period. As such the difference between the results of this and the other surveys is not solely a function of the intensity of the survey.

Thirty-seven sites were located in areas to the east of the river, in the 'interior' of the project area. The identification of these sites proved to be extremely difficult and

time consuming. During the survey of these areas the average number of testpits taken per identified site ranged between 100 and 170 on a weekly basis. Of the 37 sites that were found away from the river, 23 were located along or near the bank of the largest stream in the area, the Ygle. Seventeen of these sites were found in the western section of the project area, near Risskogskoia, the other six were found on the eastern side of the project area, near Kildesaga (*Fig. 2*). In both of these areas, a number of sites were registered as 'housepits' and will be discussed more thoroughly below. The remaining 14 sites in the 'interior' of the project area are found along small lakes and ponds, many of which are now bogs.

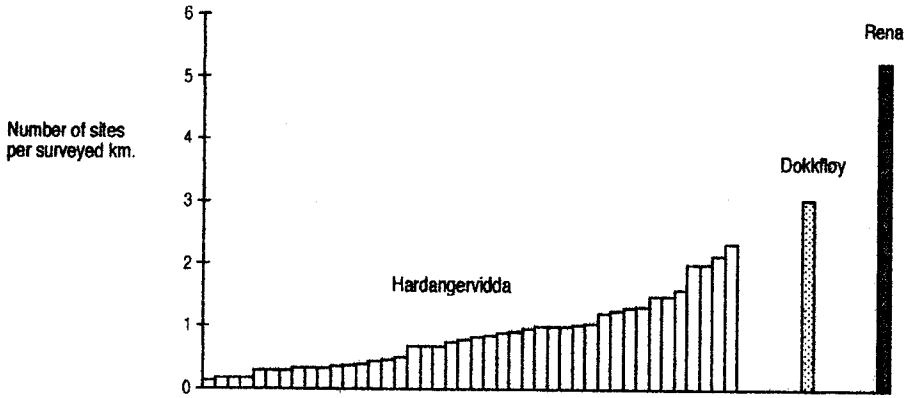

Figure 2 Number of sites identified per surveyed kilometre in various areas of southern Norway. Note: only positive surveys from Hardangervidda project are shown, see text.

'Housepits?'

Between 1985 and 1987 Egil Mikkelsen excavated a Late Mesolithic site, Svevollen 1, south of Elverum, Hedmark county (Mikkelsen 1989). This site is interpreted as representing a semi-subterranean housepit with an area of *ca* 12m^2, and a depth of 50–60cm. On the southwestern side of this feature, there was a *ca* 50-cm thick mound which consisted of a mixture of sand, fire-cracked rock, burnt bone and flint. This mound is interpreted as representing the results of cleaning of occupational debris from the inside of the housepit. Mikkelsen (1989:53) draws parallels between

this structure and the 'Fire Cracked Rock Mounds' (Skärvstensvaller) found in northern Sweden (Lundberg 1985). While such structures have been known in Sweden since the 1920s, Mikkelsen (1989) was the first to identify their presence in eastern Norway.

However, test excavations of the site of Svevollen II, by Fuglestvedt (1992) have produced a substantially different interpretation of the nature of these structures. Fuglestvedt (1992:82–86) interprets the stratigraphy from both Svevollen 1 & 2 as indicating that they are open-air sites that represent activities that occurred in natural depressions. The mound of fire-cracked rocks, burnt bone and flint, is interpreted as a midden produced by the cleaning activities conducted by the occupants of these sites. However, both Svevollen I & II are dated to the terminal Mesolithic, 5500–5000 BP (Fuglestvedt 1992:156; Mikkelsen 1989:44).

Ten sites in the Rødsmo project area are registered as 'housepits'. The results of preliminary investigations indicate that at least three of these depressions have been disturbed by, or are the result of, the excavation of pitfalls during the Iron Age or Mediæval periods. At some of these sites there are indications of post-depositional disturbance, in some cases treefalls. However, in other cases it is not possible to explain these features away, as either the results of natural disturbances or post-Mesolithic disturbances.

In an effort to begin to come to grips with these problems, test excavations were undertaken at one of these sites during the 1994 field season – the site of R.112 along the Ygle, within the complex of sites along Risskogskoia. This site consists of two distinct pits, both of which are surrounded by middens of fire-cracked rock, flint and burnt bone. The presence of two adjacent pits is unusual; no similar patterns were found in the sites in the Svevollen area.

A 2lxlm trench was excavated, and provided a profile between the two pits, and the intervening midden. This profile revealed a complex combination of cultural and natural stratigraphy within both the pits and midden. The cultural deposits in the midden reached a depth of 65cm under the surface. From these excavations over 30,000 fire-cracked rocks and *ca* 1.5kg of bone fragments were recovered. The faunal remains, while consisting primarily of small fragments of burnt bone, also contain a relatively high percentage of larger, well-preserved fragments. Several hazelnut shells were recovered and have been submitted for ^{14}C dating. The lithic assemblage consists predominantly of flint artifacts, with a relatively high percentage of scrapers and retouched débitage.

In contrast to both of the sites from Svevollen, which are interpreted as

representing relatively 'clean' late Mesolithic occupations, R.112 contained artifacts diagnostic of both Mesolithic and Neolithic occupations of the site.

While the analysis of the material from this year's excavation is in the initial stages, some preliminary conclusions can be reached. The two pits at R.112 are man made and do not represent the utilization of natural depressions. Similarly, these pits and middens are not the result of treefalls. While a single treefall could produce a 'midden-like' accumulation of cultural materials, it is difficult to imagine a scenario in which a series of treefalls produces a semi-circular ring of midden-like deposits around this pit. However, it remains to be proven whether or not the pits and the cultural materials are contemporaraneous.

Future plans

Two field seasons remain in the Rødsmo project. During these two years efforts will focus upon the collection of data from which it will be possible to address two major themes. The first of these will be an attempt to resolve the questions regarding the 'housepits.' The identification of whether these constructions represent housepits, or other types of construction from the Mesolithic, or the mixture of the debris from a number of occupations over a longer period is a critical aspect of the understanding of the change in settlement and subsistence that occurred at the end of the Mesolithic. This is not simply a question of who is right and who is wrong, but rather carries important implications for the understanding of the nature of the settlement and subsistence patterns during the latest part of the Mesolithic and into the Neolithic. For example, if these structures do represent housepits, then they clearly raise the possibility that during the terminal Mesolithic there was a significant shift away from the emphasis upon coastal resources that characterizes the preceding Nøstvet period. Further, the presence of such structures could also be taken to indicate an increasing degree of sedentism prior to the beginning of the Neolithic.

The other question involves the intensity and chronological placement of the utilization of the Rena river. The results of the survey along the Rena river at the very least, document a much more intensive utilization of this area than was expected or is accounted for by previous models of settlement and subsistence for the Mesolithic or Neolithic in eastern Norway. These results also strongly suggest that the utilization of these lower-lying forested areas was much more intensive than the higher-lying regions of eastern Norway.

In any event, the excavations that will be conducted in the Rødsmo area in the next two years will provide important new information regarding the Mesolithic

utilization of a previously unknown region. As such, these excavations will change our understanding of the nature of the utilization of the interior regions of eastern Norway.

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