

THE TRADE IN EIDSBORG HONES OVER SKIEN IN THE MEDIEVAL PERIOD

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In a letter dated October 24th. 1395, we learn that Grjotgard Nikolasson of Kviteseid in West Telemark was sentenced to pay a fine of four »lester» honestone for various offences, among others omitting for 12 years to pay a certain tax to the bishop — or rather the embezzlement of taxes collected for 12 years on behalf of the bishop. To enable him to pay this fine, he mortgages two large farms near the waterways of West Telemark. The honestone mentioned in the letter was a product of the Eidsborg quarries. Four »lester» equals approximately 9 tons of stone, and the stones, in suitable pieces, were to be delivered in Skien (Tveitane 1981).

This letter provides us with a good introduction to the hone industry in Telemark. The trade in hones (mullions) was an important part of the town privileges granted to Skien in 1358, and the first mention of Skien in our written sources, is in connection with stone — »hardstone» (supposedly honestone) used as missiles in the battle of Fimreite in 1184 (Seierstad 1958). The hone industry is, however, thought to be older, presumably to date back to the Viking Age.

In Eidsborg, Telemark, (fig. 1) a stone particularly suitable for hones was quarried over a large are from prehistoric times up to the 1920s. It is a light grey schistose quartzite, in English geological literature often referred to as Norwegian Ragstone (Falck-Muus 1920, Moore 1978), making up the top part of the so called Bandak group of the Telemark supra crustals (Dons 1960). This rock was fairly easily split up into large slabs, approximately 2 inches thick and 1—2 m long, in older times with the aid of wedges and, in winter, water and ice, in modern times by blasting. The slabs were divided into pieces of roughly 1—1½ inches and shaped into mullions. Finished mullions of modern times measured roughly 30 × 5 × 3 cm, but older products were said to be shorter and more narrow. The mullions were transported (carried) from the quarries down to lake Bandak and stored there in a special »shed» awaiting shipment on the waterways (down the network of rivers and lakes) either by boat, or by sled in winter on the frozen rivers, to the Skien district where they were sent off by boat to other parts of Norway or to other countries (Falck-Muus 1920).

The production, transport and trade in honestone required an organization involving people over a large area, either in the quarrying, where the farms of the Eidsborg district apparently had the rights, or in the many aspects of transportation, freight and actual trade. The economic importance must have been considerable, and one would expect the industry to play an important part in the settlement history of the West-Telemark waterways district.

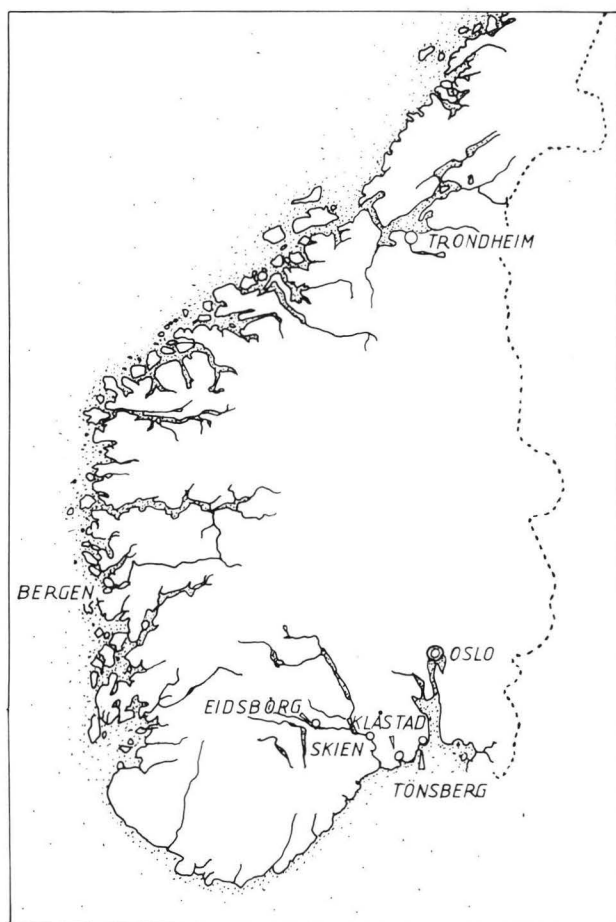


Fig. 1. Norway, with Eidsborg and Skien.

According to historical sources, Eidsborg hones were exported to several countries in Europe even in Medieval times. They were f.ex. mentioned in connection with English ships in 1294 and in the Hansa diplomas from Lübeck in 1460 (Falck-Muus 1920). A shipwreck of a possible hulk — a North European (Continental) ship — found at Bøle in the Skien river, carried a cargo of hones. The ship's construction and a dutch pottery vessel found in the ship, set the date of this wreck to the 13th or 14th century¹. Yet another shipwreck, discovered in 1893 but excavated in 1970 on dry land at Klåstad, Tjølling near Larvik and the site of Kaupang, also show a connection to the hone industry in Eidsborg. The ship belongs to a Viking type, it has a 14C-date of 800 ± 80 AD, and carried a cargo of at least 50 pieces of honestone (Christensen 1978). This discovery led to the theory that hones were quarried at Eidsborg in early Viking times and were exported to other Viking Age centres by way of Kaupang (Ski-ringssal). In the later, medieval times, when Kaupang had disappeared as a trading port of importance, the shipment of hones took place from the high medieval town of Skien (12th and 13th centuries onwards), as is known from its town privileges.

In 1978 and 1979 archaeological excavations were carried out in the town of Skien (fig. 2). The first, on Rådhusplassen, took place on the waterfront, and revealed layers from 14th century upwards. A large amount of hones were found, but considering the

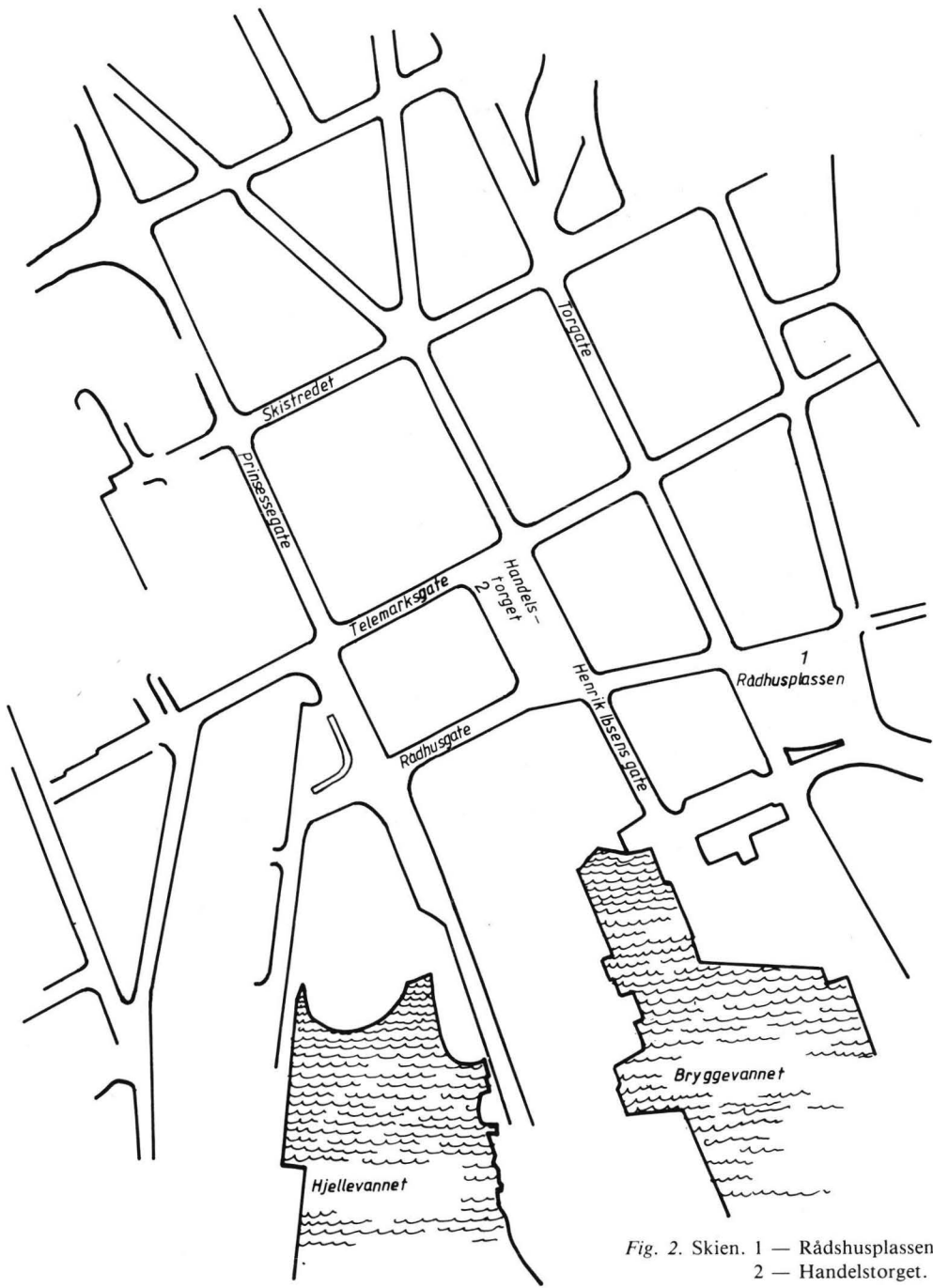


Fig. 2. Skien. 1 — Rådhusplassen
2 — Handels- torget.

known history of the town, a certain amount of hones was only to be expected and no *particular* notice was taken of this material. However, when the second excavation, on Handels- torget in 1979, gave as a result settlement levels of an unexpected age — back to late 10th century — with unused honestone (mullions) found even in the oldest

levels, it was decided to take a closer look at the hones, together with the industry this material represented, and its connection with the early settlement in Skien².

Hones from archaeological sites have been studied previously by several people. The main work, done on British material, is by the late dr. S. E. Ellis on the petrography and provenance of Anglo-Saxon and Medieval English hones (Ellis 1969). He classified and described the various hones from English sites, and with the aid of a Potassium-Argon date on a mullion from London (Salter's Hall) he suggests the Eidsborg quarries in Norway as a possible source for at least *some* of his hones [group IA (1)]. His work has later been carried on by David Moore, who has petrographically examined the major part of the hones from more recent English sites, with the same results — a large part of the hones *may* have originated in the Eidsborg quarries (Moore 1978).

Recently, in connection with an extensive treatment of the Hedeby hone material by Heid Gjøstein Resi (Norway), an attempt has been made to establish the provenance of the various hone groups of Hedeby (West Germany), Aggersborg (Denmark), Wollin (Poland) and Kaupang (Norway) by Potassium-Argon age determination of the rock. The results show the presence of possible Eidsborg hones on all sites mentioned (Mitchell et al. 1984). These attempts at provenance determination all take as a departure point the actual site with the group of hones found there. In determining the origin, Eidsborg is focused on by the simple fact that it is a well known quarry with an extensive production carried on up to our days. But even though the Eidsborg origin is probable, one cannot on the basis of these studies, completely rule out the possibility of similar rock being quarried elsewhere for the same purpose, and this uncertainty (however slight) makes more extensive conclusions on the Eidsborg hone production and trade very difficult. In connection with the Skien material it was therefore decided on a different approach to the study of the hone trade — with startingpoint the actual quarries and the hone finds along the trade route known from late medieval documents. The results of a study of this material, both by archaeological and more extensive geological methods, would serve as background material for an examination of honestone on various well dated archaeological sites, to determine the presence of Eidsborg hones. Thus one might get some information on the general distribution pattern, the development of the hone trade, and — with the Skien material as a comparison — to study Skien's connection with this trade³.

Skien's position at the point where the West-Telemark waterway joins the fjord, makes an Eidsborg origin probable for the mullions found, and this assumption was confirmed by a geological examination. A piece of a Skien mullion was therefore used as reference in studying hones from well dated sites in Denmark and England. It was not possible (a question of both economy and time!) to study all sites in all countries purporting to have Eidsborg hones, and these two countries were picked out as they had proven connections (whether directly or indirectly) with Skien — pottery from these two countries make up the bulk of the medieval ceramics material on the site (Myrvoll 1982 b). They also have well dated sites from the relevant period, approximately 800—1400 AD, and have published information on Eidsborg hones among the finds.

Hones from sites in these two countries were sorted into major groups (by archaeological methods), the possible Eidsborg hones were picked out, and samples taken back for further laboratory analysis in the Geological Museum, Oslo. Finally samples were collected from the actual quarries by a geologist with special background knowledge of the Eidsborg district geology. The results of the archaeological examination and geological analysis were in the end supplemented by information from published

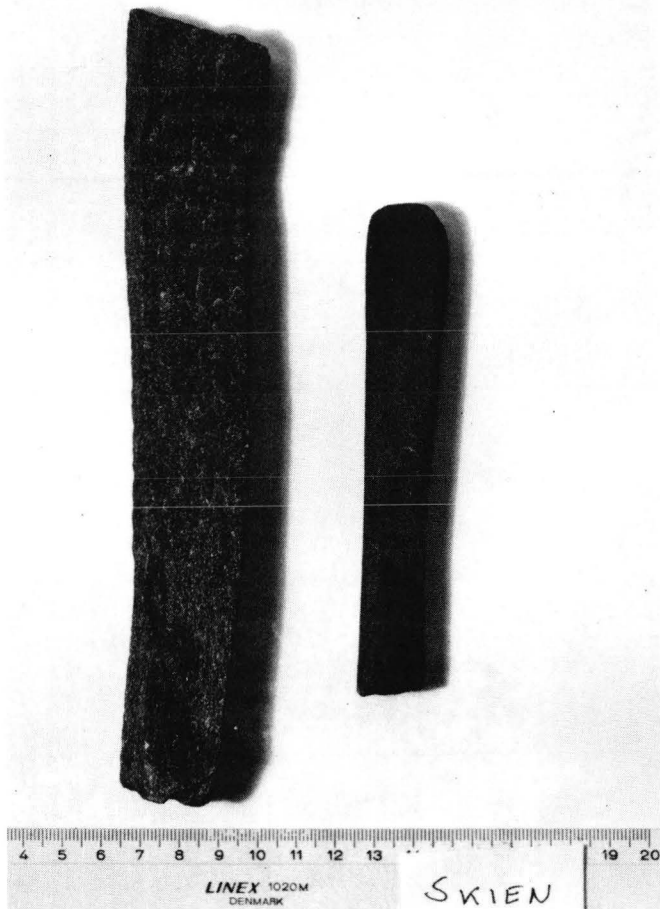


Fig. 3. Hone and mullion from the Handelstorget excavation.

sites to complete the possible distribution pattern, as a basis for conclusions on the history of the hone trade.

The hone finds from medieval levels on Handelstorget, Skien, consist of approximately 200 pieces, most of them mullions with no traces of use. They were found over a triangular area of 72 m² with deposits varying in thickness from 0,5 to 2 m, spanning a period from late 10th century to 13th century, roughly 250 years (Myrvoll 1982 b and 1984). Considering the size of the site, the number of mullions found is very high, higher than normal for a medieval town site. The fact that almost all were mullions (unused) also indicates they were there for a different purpose from the expected local use.

The majority of the mullions were 2–3 cm wide and between 1,5 and 2 cm thick (fig. 3). As most of them appeared to be broken, no standard length was ascertained, but 15–20 cm is common. The hones were all but two of the same type of stone, the light grey schist typical of the Eidsborg hones. The two exceptions were both of a fine-grained dark stone, by Moore classified as blue phyllite (Moore 1978); they were small and had definite traces of wear.

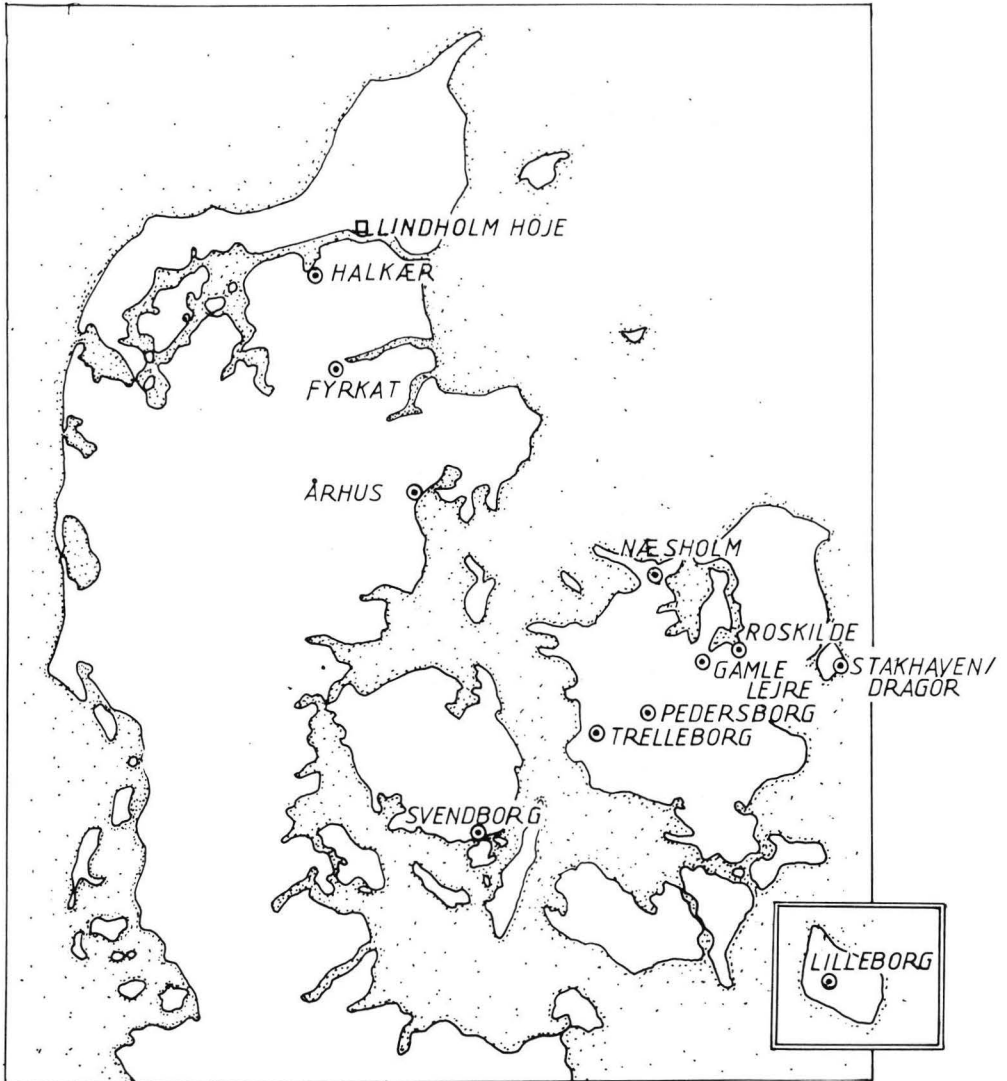


Fig. 4. Denmark. Sites included in the study.

With this uniform material from Skien in mind, let us take a look at Danish and English hones from medieval sites.

The map of Denmark (fig. 4) shows sites included in this study, sites covering the period 900—ca. 1400. The Fyrkat and Trelleborg material represent settlements in connection with the late Viking Age military camps, and Gamle Lejre a settlement site from the same period, TL-dated 990 AD. Halkær, Næsholm, Pedersborg and Lilleborg are medieval «equivalents» to the Viking strongholds, mottes, dated late 12th to late 14th century. The three remaining sites represent medieval town material — with the well known towns Roskilde and Århus (the Sønder vold site part Viking age, part medieval, Store Torv a high medieval site), and Stakhaven/ Dragør representing a late- and post-medieval seasonal fishmarket of wide renown.

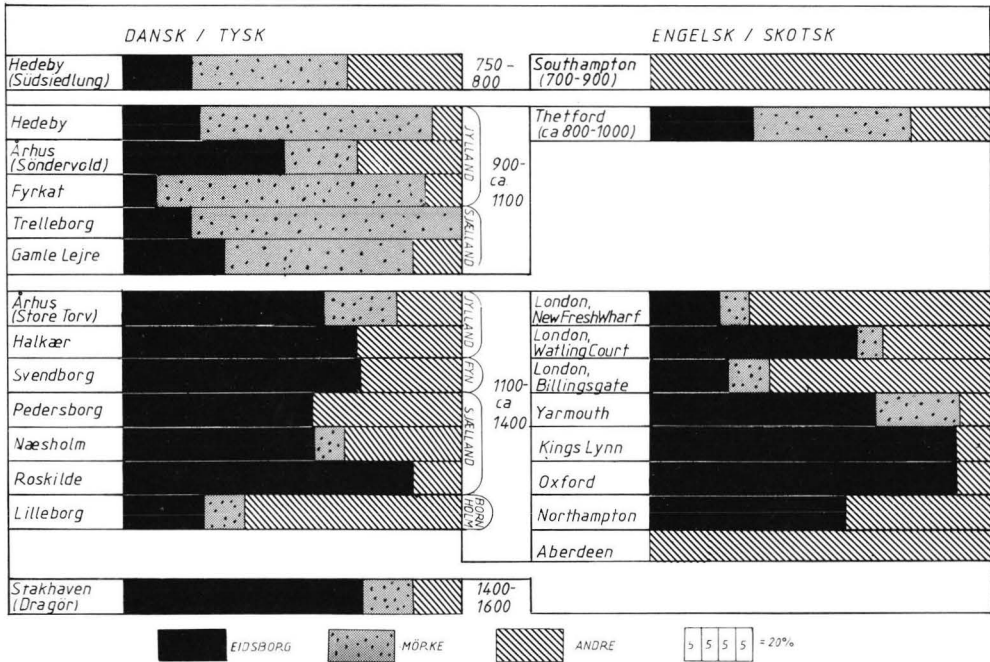


Fig. 5. Distribution of Eidsborg hones on sites in Denmark and Great Britain.

As may be seen from the diagram (fig. 5) hones of Eidsborg (or Skien) type were represented on *all sites*, but in varying degrees. On the medieval sites, they are in complete dominance, while on the Viking sites the majority of the hones belong to the blue phyllite group, a group hardly represented on the medieval sites. (Århus Søndervold is an exception, but this site also contained medieval deposits up to the 14th and 15th century). One should note, however, that on Bornholm other types of hones dominate, even though the »Eidsborg» stone is the second largest group. This picture is completed by information on the Hedeby material (Michell et al. 1984, Resi 1981, Dunlop 1980), a Viking Age town site, where the finds are completely in accordance with the rest of the Viking Age hone finds.

Turning to England (fig. 6), hones from various sites in London and from Saxon Southampton were examined, while with the other places indicated on the map the detailed publications on their hone finds have been used ⁴. With the exception of Southampton and Thetford, all were town sites with levels from 11th century upwards. A more detailed chronology was difficult to obtain, but of the London hones, none of the stones similar to those of Skien/Eidsborg were older than »Post-Conquest», that is younger than 1066 AD. The oldest found in London (from Billingsgate, a waterfront excavation) has a date of approximately 1080 AD. Of the London material a find from Ludgate in 1982 must also be mentioned. Here two layers of stone chips were found, in levels belonging to the 13th and 14th century. The stone was similar to the Skien hones and the find was interpreted as concentration of waste from the shaping of hones. Two samples were taken for further analyses.

Of the remaining English material it should be noted that Saxon Southampton (dated 8th and 9th century) did not have a single hone of the Eidsborg type (fig. 5). Thetford,

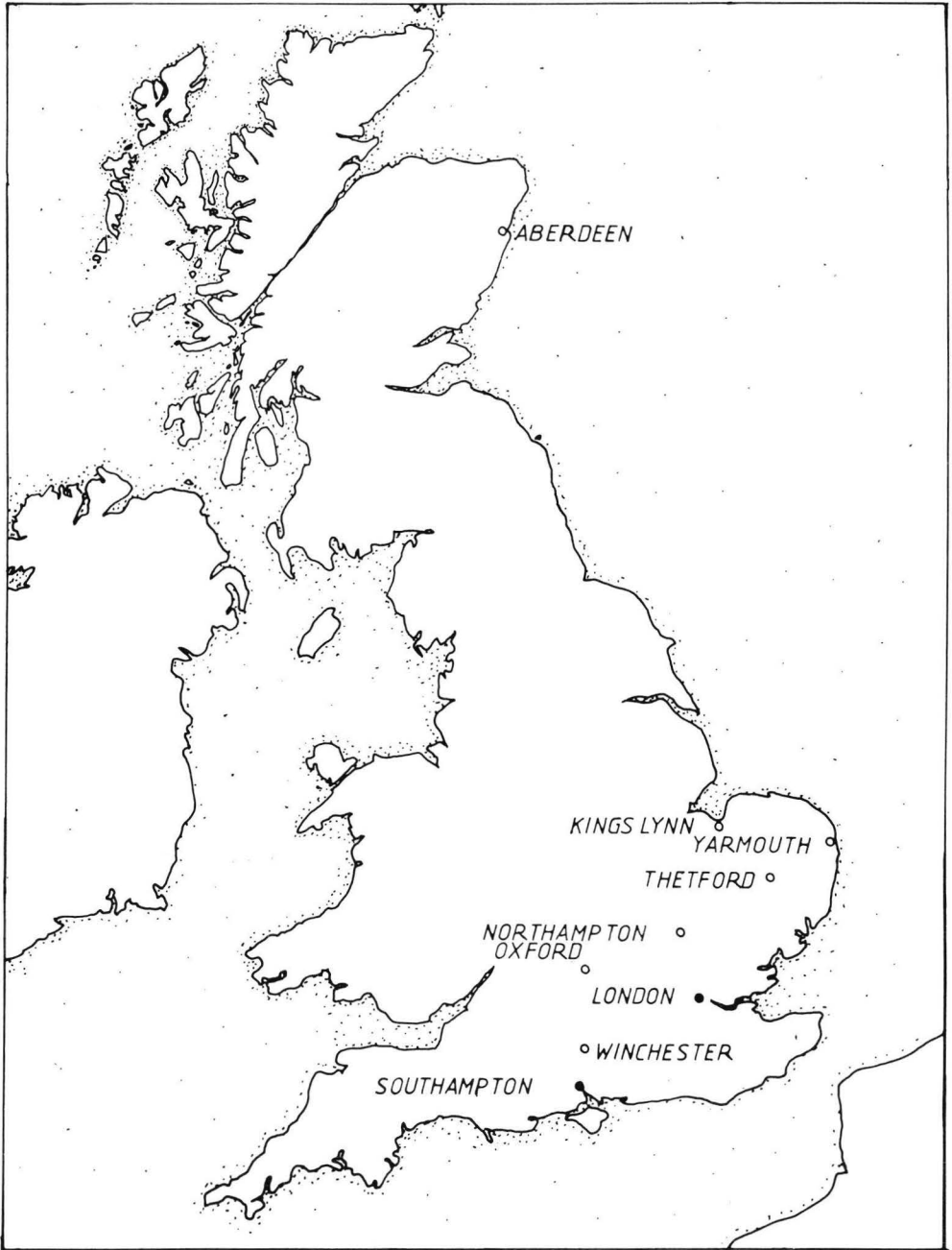


Fig. 6. Great Britain. Sites included in the study.

which is also a »Pre-Conquest« site, does have Eidsborg hones represented, but with blue phyllite hones in the majority (Dunlop 1980). On all the other sites Eidsborg hones take up a large percentage (dominance) as opposed to the blue phyllite hones, but London also apparently received a large amount of hones from other areas. In the East

Anglian towns, Eidsborg hones totally dominate the medieval finds, but in the north, in medieval Aberdeen, all hones are of local origin with none from Eidsborg (Murray 1982).

To sum up the results of this study, hones of a stone similar in appearance to those found in Skien and to that quarried in Eidsborg are found on sites ranging in time from 9th century up to 16th and 17th centuries. On sites earlier than 11th century they make up a relatively small part of the total hone finds, but from 11th century upwards they appear to be more and more popular, almost totally replacing the blue phyllite hones.

If all of these hones were quarried in Eidsborg, the industry must have had a distribution network covering most of Northern Europe, amazing considering the period we are dealing with. It was therefore most important to establish beyond reasonable doubt whether these stones really *were* products of the Eidsborg quarries, and for this purpose Dr. William Griffin of Geological Museum in Oslo was contacted. Under his

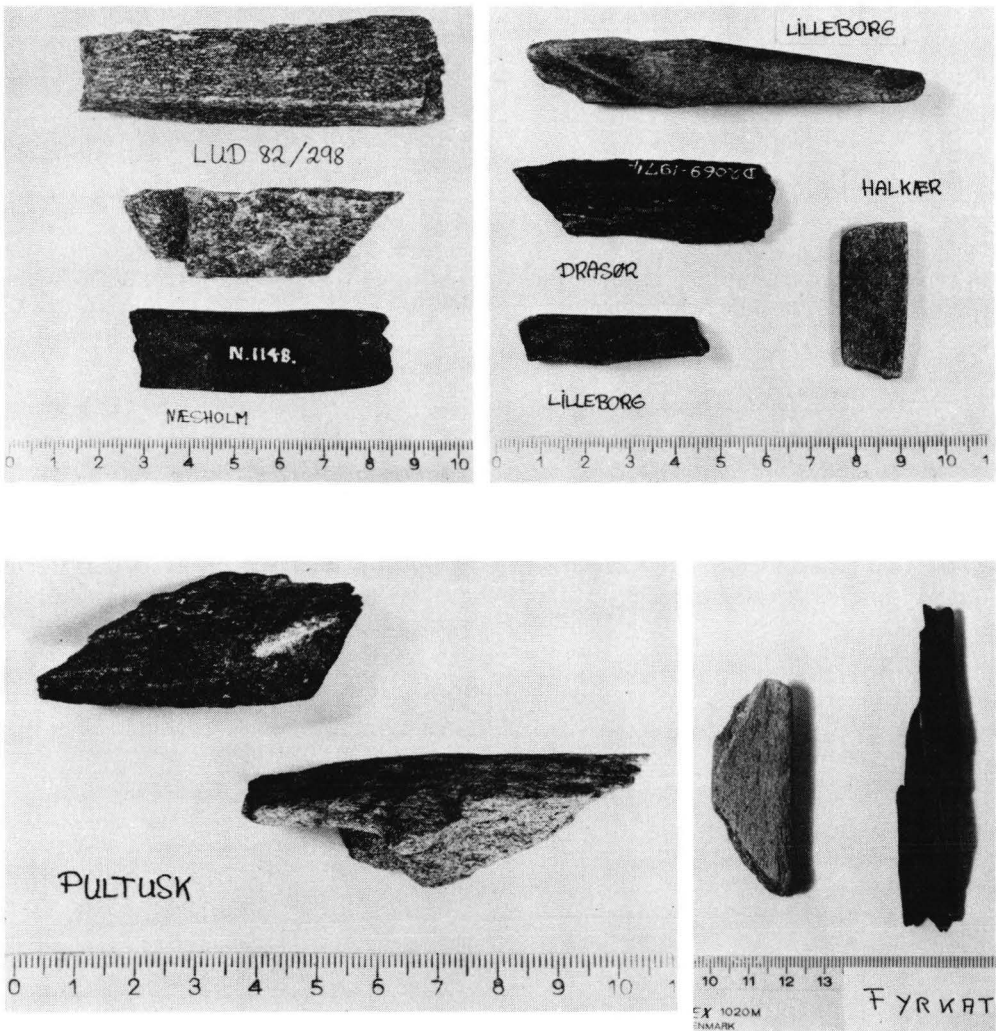


Fig. 7. Hones from Denmark, England and Poland.

auspices, as part of a project for the new National Laboratory, a series of analyses were started on the samples, using Strontium isotopes. The analyses were carried out by Sven Dahlgren, who also collected relevant samples from the Eidsborg quarries.

In all 21 samples were analysed. Of these, 5 were taken from the quarries and 4 from the Skien finds. Of the rest, 8 samples came from Danish sites: Store Torv in Århus two samples (1 dark and 1 light), Fyrkat also two samples (1 dark and 1 light), while one sample each was analysed from Dragør, Halkær, Svendborg and Lilleborg. Two samples were done from the London material (Ludgate), and in addition two samples were included from Pułusk in Poland, where this type of stone makes up approximately 1/5 of the hone material. These two Polish samples were dated 13th/14th century (fig. 7).

The Strontium isotope analysis uses the relationship between Strontium 86 and 87, together with that of Rubidium 86 and Strontium 86, in establishing a Rubidium-Strontium Evolution Diagram (or Isochron diagram). Strontium will in the case of the Eidsborg stone mainly be tied to calcite and mica. The following tables give the results. All 21 samples together give a bad result as to the Quality Of Fit Number for the curve (MSWD), which ideally should be as close to zero as possible.

Quality of Fit (MSWD)	400
Isochron (»age«)	1044 ± 108 mil. years
Initial Ratio	0.70817 ± 0.00792

All samples (21).

When the two dark samples from Århus and Fyrkat (SM10 and SM12) were excluded, the results are considerably better.

Quality of Fit (MSWD)	35
Isochron (»age«)	1035 ± 34 mil. years
Initial Ratio	0.71332 ± 0.00260

All samples (19) except SM 10 & SM 12

These two tables include all 5 Eidsborg samples in the analysis. In the next two, the quarry samples are separated from the archaeological material

Quality of Fit (MSWD)	42
Isochron (»age«)	1025 ± 130 mil. years
Initial Ratio	0.71493 ± 0.01702

All archaeological samples (12) except SM 10 & 12

and set up on its own.

Quality of Fit (MSWD)	33
Isochron (»age«)	1030 ± 55 mil. years
Initial Ratio	0.71325 ± 0.00254

Eidsborg quarry samples (5)

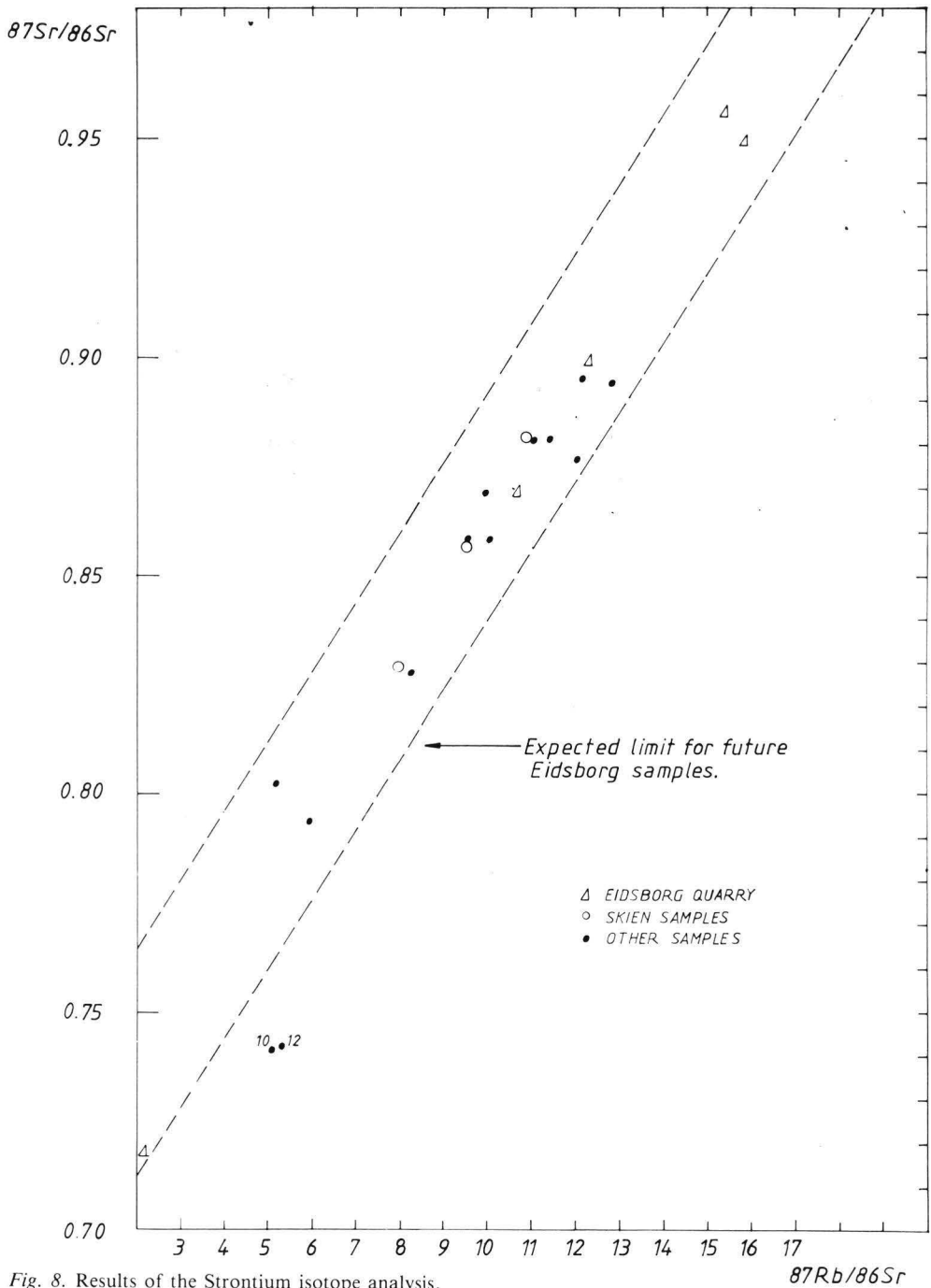


Fig. 8. Results of the Strontium isotope analysis.

These two tables may then be compared, and show an acceptable accordance with each other. Finally the two dark samples were done on their own and the difference between these and the other samples is striking.

Quality of Fit (MSWD)	—
Isochron (»age«)	236 ± 223 mil. years
Initial Ratio	0.72450 ± 0.01674

SM 10 + SM 12 (Blue Phyllite)

The results are plotted on the diagram fig. 8.

The results of the Strontium Isotope Analysis give the geologist basis for the conclusion that with the exception of the two dark samples, *all* the analysed samples originate in the Eidsborg quarries — or from an identical rock both as to isotope content and age. Identical rock is not found in Europe, and though the existence of quarries in similar rock elsewhere in the world may not be *completely* excluded, it would certainly be highly improbable to find hones from such a locality in Northern Europe.

This conclusion on the geology is well in accordance with the archaeological results, as to the uniformity of the hone material from the medieval sites in Northern Europe,

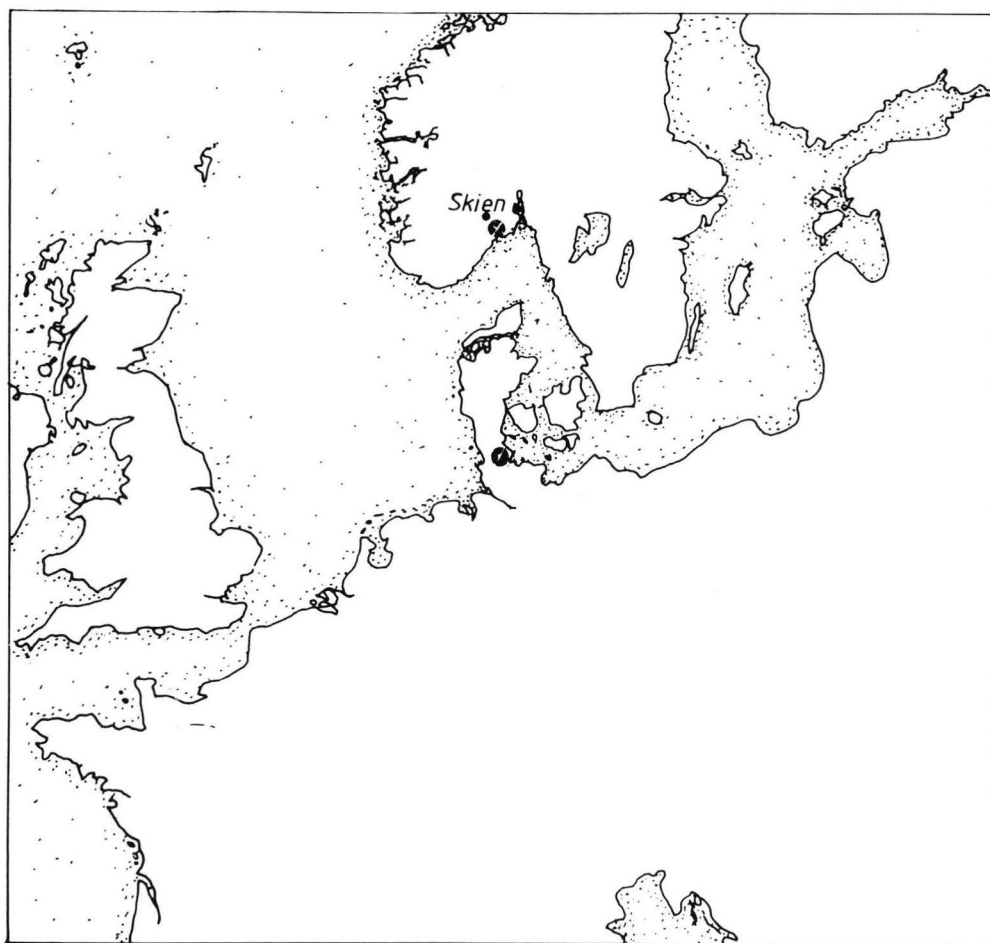


Fig. 9. Distribution of Eidsborg hones dated earlier than 900 AD.

and it strengthens the results of the Potassium Argon dating of Hedeby hones (Mitchell et al. 1984), which suggests different sources for the light grey and blue phyllite hones. It does also open up for some interesting prospects on the age, development and size of the hone industry in Eidsborg.

The earliest dated Eidsborg hones are found in the Klåstad shipwreck (near Kaupang), in Kaupang itself and in the southern settlement in Hedeby (fig. 9). Although the chronology seems somewhat uncertain, all of these sites apparently date back earlier than 900 AD. Between 900 and 1100, Eidsborg hones are distributed over roughly the same area, with the addition of Thetford in England and Wollin in Poland — apparently the distribution is limited to the Norwegian/Danish Viking Age cultural sphere, as neither Paviken on Gotland, a port dated 10th century (Lundstrøm 1981) or Saxon Southampton has any Eidsborg hones (fig. 10).

In Telemark itself, the hones in the Viking Age grave finds are mainly of the light grey Eidsborg stone, but a few of the dark blue phyllite hones also occur, mainly in the coastal area (fig. 11 a and b). As these finds have no closer dating, it is difficult to assess the actual commencement of the industry but as there is a marked increase

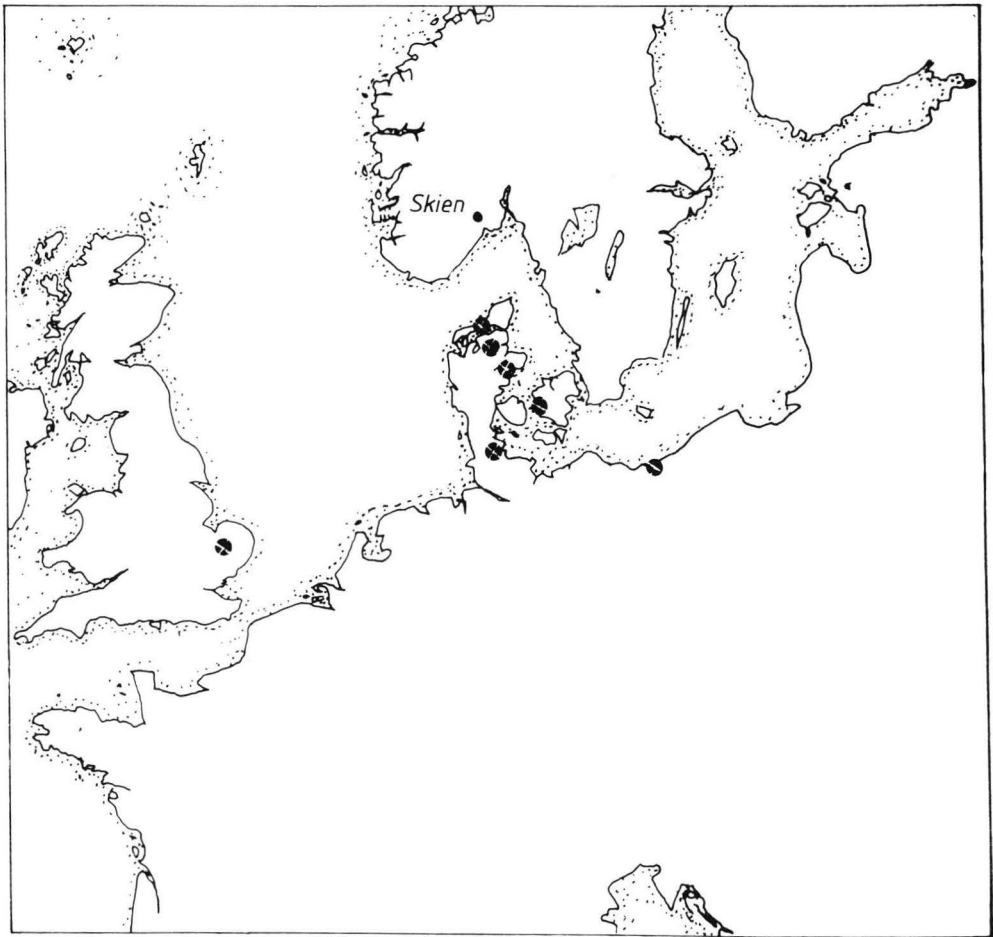
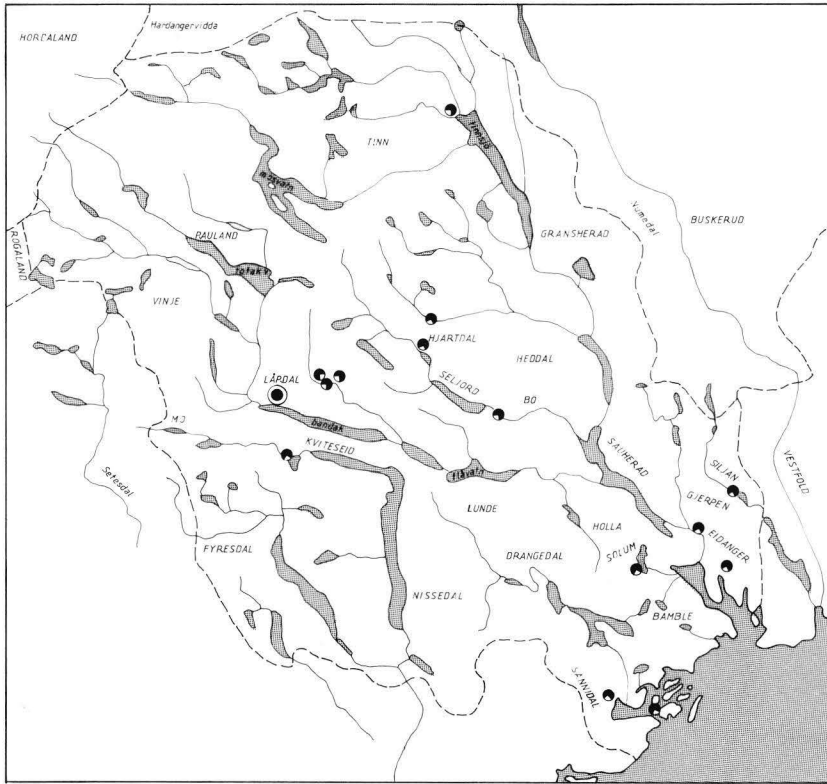
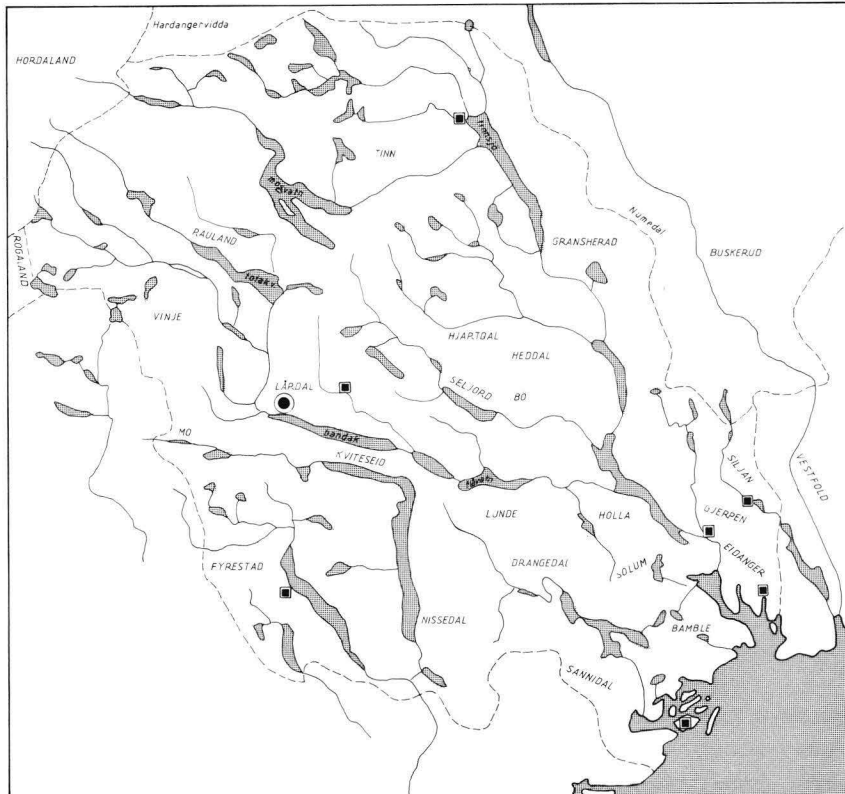


Fig. 10. Distribution of Eidsborg hones dated 900 — ca. 1100 AD.



a



b



Fig. 12. Distribution of Eidsborg hones dated ca. 1100 — ca. 1400 AD.

in the number of gravefinds both in the Lårdal (Eidsborg) and Kviteeid district in the 10th century (Kaland 1969), it seems to suggest a production for local use in the 9th century (some of these hones finding their way abroad), with an increase in production and regular trade in the 10th century. Resi's work on the Viking Age hones does show, however, that although Eidsborg hones are found both in Hedeby, Aggersborg, Kaupang and Wollin (Mitchell et al. 1984), in no case do they dominate the group. The material from Århus, Fyrkat, Trelleborg and Gamle Lejre give the same picture: Eidsborg hones are represented, but play a relatively small part.

The picture changes however, from the 11th century onwards. The Eidsborg hones are now traded to all Norwegian major towns, to Denmark, to the Baltic as far as Bornholm and the interior of Poland, and to England. In Denmark the Eidsborg hones apparently take over the market, in England this seems to be the case for East Anglia

Fig. 11. Telemark. Gravefinds containing
 a — light grey hones
 b — dark phyllite hones.

and connected districts. In London the Norwegian hones take up a smaller part, and none were found up north in Aberdeen. In the western part of the Baltic the situation seems similar, with approximately 1/5 of the material Norwegian, both in Bornholm and in Poland (fig. 12).

This development must be associated with the development of Skien as a trading port for the Eidsborg hones. The earliest settlement levels date back to the late 10th century (Myrvoll 1984), and the many mullions make an association of the settlement with the rise in the hone trade natural, as does its position on the river, the obvious meeting place for traders from abroad and traders from the interior of Telemark. The steadily increasing production and trade in honestone left its mark on the growing settlement, an economic surplus which must have been behind the rise of the powerful Dag-family on Bratsberg close to Skien, and which is reflected in the Skien town privileges of 1358, where the hone trade is more or less established as the basis for the town's existence.

And here we return to our departure point — Grjotgard's fine in 1395. He was to deliver 9 tons of stone (quite a considerable quantity) *in Skien*, for further shipment to Denmark, England or maybe Poland? Perhaps in ships of the type which at about this time was wrecked near Bøle in the Skien fjord.

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¹ Personal comments from Arne Emil Christensen on the ship, and Niels-Knud Liebgott on the vessel.

² A short account of the excavations may be found in Myrvoll (1982 a).

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⁴ A survey of the published hone-material may be found in Dunlop 1980. For the hones in King's Lynn, see Clarke and Carter (1977).

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