

RESEARCH ARTICLE

The Danish runestones – when and where?

Lisbeth M. Imer*

The National Museum of Denmark, Frederiksholms Kanal 12, DK – 1220 Copenhagen K, Denmark

(Received 6 February 2015; accepted 24 September 2015)

This article concerns the dating and distribution of Danish runestones from the eighth to the eleventh centuries. On the basis of both old and more recent investigations, the runestones are divided into five chronological periods each with their own characteristics and according to typological features regarding runes, language, style, and ornament. The majority of Danish runestones were erected within two generations after the conversion around AD 970–1020/25 and probably as a result of the stress and societal changes in connection with the advent of Christianity. The geographical distribution changed dramatically during the 400 year long runestone period and was probably due to the changing political situation. In the eighth and ninth centuries, runestones were mainly erected on Fyn, Sjælland, and Skåne. Runestones were almost exclusively erected in Jutland in the tenth century before the conversion and in the decades around the year 1000, runestones were erected in the north-eastern parts of Jutland and along the coast in Skåne. The runestone fashion died out in most parts of Denmark during the eleventh century, although on Bornholm the tradition began in the early eleventh century and came to an end within a few generations in the late eleventh century or around AD 1100.

Keywords: runestones; chronology; distribution; Viking Age

The tradition of erecting runestones in commemoration of family members, partners in business, and in rare cases oneself was initiated during the Iron Age in Scandinavia except in Norway where the tradition started as early as the Late Roman Iron Age (Imer 2011a). The tradition continued throughout the Iron and Viking Ages and lingered on into the very latest part of the eleventh century and maybe as late as around 1130 in some parts of Scandinavia. The tradition started in the eighth century and came to an end in the early eleventh century in most parts of Denmark. On Bornholm, it began in the early eleventh century, when it had practically stopped in other parts of the country, and it came to an end in the latest part of the eleventh century. Around 260 runestones were erected during the 400 year long Danish tradition in the Danish area including Skåne, Halland, Blekinge, and Schleswig. The distribution of runestones differed during the long timespan as did the number of erected stones, for example, more stones were erected after the conversion than in the previous periods. This article concentrates on the dating and the distribution of the Danish runestones in order to present an overview of the chronological layout of the Danish runestone tradition.

The method for establishing a runestone chronology follows almost the same pattern as the construction of chronologies for other types of artefacts or monuments, however, as the runestones are made of stone, methods such as radiocarbon dating and dendrochronology are excluded. The evidence of a connection between

runestones and written sources forms the basis of the chronology and within this framework different typological features are used to try and fit the remainder of the runestones into an overall chronological picture. The typological features vary according to the outline of each runestone and in many cases the runestones cannot be dated very accurately. The typological features are: ornamentation, the outline of the inscription, the length of the inscription, the nature of the textual content, the typology of the runes, separation marks, and different stages and features of the language.

The following analysis is based on earlier research and adjusted to the results of new chronological improvements. The chronological studies were carried out by Marie Stoklund and some of the latest dates relevant to this article were published in 2006 (Stoklund 2006, p. 366–72). In this article, Stoklund incorporates the archaeologically or historically dated objects into a discussion of, first and foremost, the beginning and end of the runestone tradition in Denmark, the central runestones of the Viking Age (the Jelling, Hedeby and Bække-Læborg stones), and into a discussion on the appearance of the dotted runes. The following presents an overview of earlier attempts to create a runestone chronology, an outline of the present chronology based on Stoklund's work and recent investigations of the dating of the runestone material. The dates correspond with those presented in the online database <http://runer.ku.dk>, which has been established by runologists from the University of Copenhagen and the National

*Email: lisbeth.imer@natmus.dk

Museum of Denmark. Further information on the runestones mentioned in the text can be retrieved from this website.

The earliest attempt to establish a chronology for the Danish runestones was carried out by Ludvig F. A. Wimmer in the late nineteenth century in connection with his publications of the runic monuments in Denmark (Wimmer 1893-1908). According to Wimmer not less than 18 monuments could be dated historically, as they mentioned historically known persons or events. These were the two Jelling stones, the four Hedeby stones, Sønder Vissing 1, the three Hällestad stones, Sjörup, Års, two of the Århus stones (Århus 1 and 3), Kolind, Sjelle, Nylarsker 2 and Norra Åsum. These were dated to between *c.* 935 and *c.* 1010, apart from the Nylarsker stone I (dated to *c.* 1050) and the Norra Åsum stone (dated to *c.* 1210) (Wimmer, 1893-1908, p. CLXXIX). In addition to the historically datable monuments he listed a number of stones with religious inscriptions which could be placed on either side of the Conversion. Wimmer stressed that the dating of these stones was not as accurate as the historically dated monuments because the runestones contained heathen features, such as the Thor's hammer, and were not reliable in the chronological analysis (Wimmer, 1893-1908, p. CLXXX-CLXXXI). The remainder of the runic monuments was placed in relation to the historically dated stones by means of language and rune forms, which gave a relative chronology for most of the material. Finally, when none of the abovementioned features were at hand, Wimmer estimated the date of the runestones according to the general character of the inscription or the monument (Wimmer, 1893-1908, p. CLXXXIV).

Wimmer's method for building a chronology for runestones has formed the methodological basis for runestone dating and today his work stands as the pioneer work for modern runology. His dates have, of course, now been discussed and modified and other datable features such as ornament and style have been incorporated.

Danmarks Runeindskrifter (DR) (Jacobsen and Moltke 1942) included all the known runic inscriptions found in Denmark at the time. The Viking Age chronology in DR was based on Jacobsen's critique of Wimmer's perception of the historically dated runestones, which she had published as early as the 1930s (Jacobsen 1932, 1935). In her article Jacobsen only accepted six monuments as historically datable, namely the two Hedeby stones mentioning King Sigtryg, Gnupa's son, the Jelling stones, the stone in Sønder Vissing, erected by Tove, Harald Gorm's son's wife, and the Norra Åsum stone commemorating Archbishop Absalon and Esbern Mule (Jacobsen 1932, p. 104). Jacobsen included only these six historical runestones in forming the relative chronology in her article in DR on Dating and Typology (Danish: Tidsfæstelse og Typologi p. 1013-1042), in which the Jelling stones formed the most important basis. Gorm's runestone was

dated to the first half of the tenth century in DR (Jacobsen and Moltke 1942, p. 79, p. 1013), whereas Harald's stone was dated to *c.* 985. The stone had to have been erected after 970, when Harald had gained control over Norway, and the passage "won for himself all of Denmark" would point to the siege of Hedeby in 983. It was concluded that the inscription must have been erected in the mid 980's as Harald died in 987 (Jacobsen and Moltke 1942, p. 77, p. 1013). Two of the Hedeby stones that Asfrid erected in memory of Sigtryg, her son with Gnupa, have to date after 934 when Gnupa, according to the historian Widukind, was defeated by the German king Henry the Fowler. In DR, the two younger Hedeby stones were the subject of an internal discussion between Jacobsen and Moltke. Jacobsen thought the stones mentioned Sven Estridsen, who reigned in the mid-eleventh century, whereas Moltke held them to be connected to Sven Forkbeard's reign.

The DR chronology was based on the abovementioned historically dated monuments and events together with the historically datable medieval inscriptions. The runic material was divided into four periods, period 2 being the Viking Age. The typological features were described on this basis and the remainder of the runic material was placed within the four periods. To the authors, it was important to stress that the classification was typological and that an inscription belonging to one period could be of the same age as inscriptions belonging to other typological periods (Jacobsen and Moltke 1942, p. 1035).

'The listing of inscriptions is not a chronological tool for dating every single inscription. Generally, inscriptions on the same stage of development will belong in the same period, but one certain type is not limited to one certain period. Archaic and new trends will always stretch over a long period, so that one inscription, which typologically speaking belongs in one period, could be contemporary with an inscription, which typologically speaking belongs in an earlier or later period.' (Jacobsen and Moltke 1942, author's translation)

Typologies will always have overlaps and smooth transitions from one phase to another as is seen in the Swedish runestone material, where overlaps between the different style groups occur (Gräslund 1998, p. 86). Gräslund's chronology is mainly restricted to the runestones of the eleventh century and takes into consideration the ornamentation and the typology along with the outline of the snake heads, Pr 1 to Pr 4 (Pr being the abbreviation of 'profile'), with which the stones were decorated. This chronology has been discussed by Magnus Källström, who argues that the absolute dates of the different style groups should be revised and that regional variation might play a role in the establishment of a chronology, as in some cases Pr 2 might be younger than Pr 4. However, Gräslund's typology seems reliable overall (Källström 2007, p. 64-75).

Despite the clear statement from the editors of DR that the defined periods were typological rather than chronological, the typology has been used in most publications since its publication (cf. Stoklund 1991, p. 289). This is probably due to being referred to as ‘periods’ rather than ‘types’ in DR even though they were typological, and also due to Jacobsen and Moltke had made an overall estimate of the timespan of the single periods.

The runestones were placed in defined periods, or phases, within the overall period 2 ‘Viking Age’: 2.1 Helnæs-Gørlev (*c.* 750 (or 800)-900), 2.2a Pre-Jelling (around 900), 2.2b Jelling (tenth century), 2.2c Post-Jelling, and Christian Post-Jelling (*c.* 1000–1050). The reason for the rather late date of the Post-Jelling type was due to the fact that Lis Jacobsen considered the Hedeby stones mentioning King Sven were erected by Sven Estridsen shortly before 1050. The runestones on Bornholm were placed in a later period, the Pre-medieval period 3. Each group was characterized with typological features describing a typological development (Jacobsen and Moltke 1942, p. 1020–30).

The oldest groups of runestones in Denmark are not ornamented and cannot be linked by any historical events. They are therefore dated by comparison with other datable inscriptions on the basis of the outline of the inscriptions, the runes and the use of language.

In DR, the oldest group of runestones was labelled group 2.1 Helnæs-Gørlev type (Jacobsen and Moltke 1942, p. 1020–22). The stones were united in one group according to the linguistic stage of the texts and it was stated that the runestone texts could sometimes show traces of preservation of older graphemes such as the ᚱ (h) and ᚱ (m) and the use of ᚱ for /a/ (Jacobsen and Moltke 1942, p. 1020). Only a few inscriptions containing these graphemes were known when DR was published and later research suggests its division into two different and most likely, chronologically separated types.

The discovery of the Ribe skull fragment in 1973 made it clear that a distinction had to be made between the use of ᚱ ᚱ and ᚱ ᚱ and the use of ᚱ ᚱ and ᚱ ᚱ. The Ribe skull was uncovered in a reliable stratigraphic context during the Ribe excavations (Stoklund 2004b:27). The skull fragment was found just above a piece of wood, dated by dendrochronology to AD 719, and just below two wooden posts also dated by dendrochronology. The posts cannot have been felled before AD 730 and 759, respectively (Stoklund 1996, 2004). The loss or deposition of the object can therefore be narrowed down to the period AD 725–750 (Søvsø 2014). There are no finds in the archaeological record using ᚱ for ᚱ in combination with ᚱ for ᚱ or the use of ᚱ for ᚱ in combination with ᚱ for ᚱ. The reading of the Snoldelev stone in DR (p. 300–301, p. 1020–21) opened the possibility that the use of ᚱ for ᚱ could be used with a much younger ᚱ-rune ᚱ, which is known from the very latest part of the tenth century

onwards. However, the reading was insecurely based on the damaged last rune of the inscription, which preserved only the upper part of the left vertical line. According to the authors of DR the slanting line would suggest that the rune had the shape of ᚱ, but it is equally possible that we should read it as an m. It is therefore plausible that a distinction between the runestones which contain ᚱ ᚱ and ᚱ ᚱ, and the runestones which contain ᚱ ᚱ and ᚱ ᚱ (or in short twig inscriptions ᚱ ᚱ and ᚱ ᚱ), is chronological, although the finds that establish this chronological basis are few. This was also noted by Stoklund in various articles (Stoklund 1996, p. 200, 2004, p. 38, 2006, p. 367–68, 2010, p. 244–45), and results in the Helnæs-Gørlev group, which is labelled group 2.1 in DR, being divided into two chronological groups, labelled the Helnæs group (Stoklund 1996, p. 200) or Ribe-Snoldelev group (Stoklund 2010, p. 44–45) and the Gørlev group (Stoklund 1996, p. 200) or the Gørlev-Malt group, respectively (Stoklund 2010, p. 244–45).

We do not know the date of the simplification of ᚱ ᚱ and ᚱ ᚱ to ᚱ ᚱ and ᚱ ᚱ. We know from the Ribe skull fragment that the first two were in use in the early eighth century, Stoklund dates the Ribe-Snoldelev group to ‘somewhat after 700 with a wide margin’ (Stoklund 2010, p. 345), but exactly when the simplified 16 character futhark was introduced is still a puzzle simply because of the lack of finds. The earliest archaeologically datable find from Denmark with the new 16 character futhark is the belt end fitting from Duesminde. The belt end fitting is a Frankish product produced in the period AD 825–875 and found within the Duesminde treasure dated as being deposited in the middle of the tenth century (Wamers and Brandt, 2005). The runic inscription was added before the piece was changed from belt end fitting to pendant so the date of the inscription must be ascribed to the latter half of the ninth century or the beginning of the tenth century. This leaves us with a rather wide time span from the mid-eighth to the early or mid-tenth century when the use of rune types in Denmark is rather blurred. The 2014 discovery of a Thor’s hammer with runes from Købelev on Lolland adds another datable piece to the rare tenth century runic inscriptions on portable objects (Rasmussen *et al.* 2014). The inscription reads **hmar: is** ‘(this) is a hammer’ and has ᚱ ᚱ and ᚱ ᚱ. Other archaeologically dated inscriptions with longbranch runes are the Lindholm Høje knife shaft (ninth century) and the Århus comb (tenth century). The Lindholm knife shaft cannot be used as an argument of an early use of the simplified 16 character futhark (with the use of ᚱ ᚱ and ᚱ ᚱ), as these particular runes are not used in the inscription. The short twig runes can be dated archaeologically to the ninth century at the earliest by the Hedeby inscriptions, although these particular inscriptions seem to be rather loosely dated (cf. Stoklund 2006, p. 368). However, the comb with short twig runes from Elisenhof, Northern Germany

(dated to the latter half of the ninth century) (Moltke 1985, p. 370) indicates that the short twig runes came into use during the ninth century, and as they are regarded as a further development of the simplified 16 character futhark (with * **h** and † **m**) (Fridell, 2011), it seems reasonable to suggest that the change happened somewhere around AD 800. The runestones from these two earliest periods of the runestone tradition in Denmark are quite few in number (Figures 1 and 2). They were erected in the central parts of Denmark, foremost on Fyn and Sjælland, and it is possible that their distribution is associated with the centralization

of power and the pressure from the expanding Frankish Empire (Imer 2010).

The monuments are generally unornamented and frequently lacking word divisions. The inscriptions are mostly arranged in parallel order or as single line inscriptions and very short, mostly names in the nominative, name and verb without an object, names in the genitive, and the ‘After NN’ type. The very common tenth century type ‘X erected this stone after Y’ occurs only in the Helnæs inscription. The following type, Gørlev, has the same characteristics as the Helnæs type, apart from the fact that the inscriptions are



Figure 1. The Helnæs group of runestones from the eighth century. Grey dots indicate possible runestones dated to this period.



Figure 2. The Gørlev group of runestones from the ninth century. Grey dots indicate possible runestones dated to this period.

written in the standardized 16 character futhork with the introduction of * **h** and **ƿ** **m**. The rare use of framing is common to both types.

Some of the runestones of the tenth century are dated according to historical events including the Hedeby 2 and 4 stones that are associated with king Gnupa in the early tenth century and the Jelling 1 stone connected to Gorm and Thyra. In DR, the Bække-Læborg stones were not counted among the historically datable runestones as it was uncertain whether the ‘Thyra’ mentioned on Bække 1 and Læborg, was associated with the Jelling dynasty and because the presence of a Thor’s hammer on Læborg was thought to be a much older heathen trait placing the stone in an earlier phase than Jelling 1 (Jacobsen and Moltke 1942, p. 50–53). Moltke later stated that the Bække-Læborg group should be dated to after Jelling because of the layout of the inscription on the Horne stone (Moltke 1985, p. 229–30).

The inscriptions on the Bække and Læborg stones do not follow the normal pattern of inscriptions as in ‘X raised this stone in memory of Y’. In the Læborg inscription Ravnunge-Tue erects the stone in memory of Thyra, his *drōttning*, and in Bække 1 it is announced that Ravnunge-Tue, Fundin, and Gnyple built Thyra’s mound. If the inscriptions were intended to honour family members we would expect the normal ‘X raised this stone in memory of Y’ as e.g. Tue did in the Bække 2 inscription commemorating his mother, Viborg.¹ The textual content in these inscriptions and the fact that they are raised just south-west of Jelling serve as an argument that the stones can really be linked to the early stage of the Jelling dynasty and that the queen commemorated on the Læborg stone is Gorm’s wife Thyra. As Stoklund and others before her have stated, the term *drōttning* ‘mistress’ is the female equivalent of *drōttin* ‘lord’ and it has nothing to do with ‘wife’, ‘spouse’, or the later generalized ‘wife of the monarch’ (Stoklund 2005, p. 43 with further references). In the Jelling 1 text Gorm mentions Thyra as his ‘wife’ not his ‘queen’. This means that there is not a marital relationship between the runestone sponsor Ravnunge-Tue and the commemorated Thyra in the Læborg text and it leaves room for an interpretation of Thyra in the Læborg text being king Gorm’s wife. Therefore the Bække-Læborg group should be dated to the mid-tenth century contemporary with Jelling 1.

One of the tenth century runestones refers to a grave mound (Gunderup 1) (Jacobsen and Moltke 1942, p. 179–81), dating it to the time before the conversion and a further runestone (Randbøl) was found on top of a grave (Jacobsen and Moltke 1942, p. 64–65) which probably also dates it to the time before the conversion. Randbøl is the only Danish runestone found in connection with a contemporary grave. The stones are normally unornamented with the exception of Thor’s hammers on Læborg and the snake’s heads on Jelling 1. Sometimes the division

marks and the use of framing are outlined in such a way that they resemble a rather simplified snake’s head conclusion of the inscription, e.g. Bække 2 and Randbøl. Normally, the inscriptions are arranged in parallel order or bustrophedon. Only the Horne fragment seems to be arranged in contour device (Moltke 1985, p. 229) but this is very insecure as the stone is a fragment and it might equally have been arranged in bustrophedon. Linguistic characteristics are the preservation of nominative – *r*, but a development of – *r* to – *r* after dental has happened. The dem. pron. **þānsi**, **þānsi** is not yet assimilated into the forms **þasi**, **þāni**. *s* is preserved in the pron. *æs* (later *ær*) and pret. *was* (later *war*), and prep. ‘after’ has the old short forms *aft*, *æft*, *øft* (they are later superseded by the longer form *æftir*). Jelling 1 is included in this group, whereas Jelling 2 is placed on the verge of the next chronological group. The common text on the tenth century stones is ‘X raised this stone in memory of Y’. The order of the inscription is dominated by vertical, parallel lines (cf. Jacobsen and Moltke 1942, p. 1023–24). These stylistic and linguistic traits are found on other runestones and are therefore included in the tenth century pre-conversion runestone tradition.

The distribution of the Pre-conversion runestones of the tenth century differs from the previous periods in that the concentration of stones has moved west with the majority of the runestones being erected in Jutland. The Glavendrup, Rønninge, and Tryggevælde stones are the only stones to have been erected on Fyn and Sjælland in this period and they are ascribed to the same group of people with the sponsor Ragnhild being the most prominent actor. Also, a few stones may have been erected on Lolland and Falster, e.g. Sdr. Kirkeby and Bregninge (Figure 3).

Regarding the chronology of the tenth century runestones, we should consider whether a very strong division between the 2.2.a Pre-Jelling and 2.2.b Jelling types is appropriate (cf. Stoklund 1991, p. 292). The Pre-Jelling type refers to a small number of around 10 runestones, e.g. the Glavendrup and Tryggevælde stones erected by Ragnhild and the Bække 1 and Læborg stones (Jacobsen and Moltke 1942, p. 1022–23). DR also includes Øster Løgum, Laurbjerg and Hammel, which it is suggested here to be closer to the ninth century runestones. The absence of any stylistic traits which can divide the Pre-Jelling and Jelling types is problematic and a more unified type of Pre-conversion stones covering the tenth century up until the time of the conversion, c. 970 is more appropriate. Some of the stones lack so many stylistic and linguistic traits that they cannot be dated as accurately and might belong to the time period after the conversion.

It is evident that the Jelling stones have played an important role in the establishment of a chronology of the Late Viking Age runestones and style history. Therefore it might be useful to briefly sum up the various



Figure 3. The pre-conversion group of runestones from c. AD 900–970. Light grey dots indicate possible runestones dated to this period.

Table 1. The various dates of Jelling 1.

Wimmer 1893-1908:8–17 (DRM)	935–940	Historical date
Jacobsen and Moltke 1942:77, 1013 (DR)	900–950	Historical date
Christensen and Krogh 1987	Before 958/59	Archaeological/historical/dendrochronological date
Stoklund 2000/2006	Before 958/59	Archaeological/historical/dendrochronological date
Lund 2014	Before 958/59	Archaeological/historical/dendrochronological date

opinions regarding the date of these monuments. The dates of the two stones are registered as shown in the tables below (Tables 1 and 2).

These dates show that the historically fixed dates for the Jelling stones can be interpreted according to new contextual data. However, it remains clear that Jelling 1 must have been erected in the middle of the tenth century up until c. 960 and that Jelling 2 must have been erected sometime between the baptism of Harald in the early 960’s and his death in the late 980’s (Lund 2014, p. 70). Runographically or linguistically the two stones show no distinct traces which could help to place them on either side of c. 960 (cf. Stoklund 1991, p. 291).

The excavations in Jelling between 1976 and 1979 were of decisive importance for the chronology of the two Jelling stones. In the North mound, the remains of a grave was uncovered and pieces of wood from the grave chamber were dated by dendrochronology to 958/59 (Christensen & Krogh, 1987, p. 225f.). The grave was thought to have been built for king Gorm, who was

Table 2. The various dates of Jelling 2.

Wimmer 1895:17–30 (DRM)	c. 980	Historical date
Jacobsen and Moltke 1942:77, 1013 (DR)	c. 985	Historical date
Lindqvist 1931:144–47, the stone cut in two tempi	c. 953/after Harald’s death	Historical/art historical/archaeological date
La Cour 1951	960 s	Historical date
Christiansson 1953, supports Lindqvist’s conception of two tempi, the last one added by Sven Forkbeard	950–990	Art historical/historical date
Christensen 1969:223–40, supports the conception of two tempi	960 s/c. 985	Historical date
Glob 1969:18–27, supports the conception of two tempi	c. 950/c. 985	Historical/art historical/archaeological date
Moltke 1972, all three sides of the stone cut at the same time	960–985	Runological investigation and historical date
Moltke 1976:170–172 (1985:213)	Shortly after 960	Historical date
Randsborg 1980:27	About 960	Historical date
Stoklund 2000	c. 962–987	Historical date
Stoklund 2006:366	c. 965–74 (or c. 985)	Historical date
Lund 2014:70	Early 960 s to late 980 s	Historical date

possibly moved from the North mound to the church at the time of conversion. If the North mound was really built for king Gorm, Jelling 1 must have been erected

before 958/959 (Stoklund 2006, p. 369). Although it has no importance for the chronology of the Jelling stones, it cannot be excluded that the north mound contained Thyra's grave (Lund 2014, p. 70).

The Jelling stones formed the backbone of the runestone chronology in earlier research. The date of the Post-Jelling type of runestones, which in DR was placed in the first half of the eleventh century, has relied on the date of Jelling 2. To Moltke the date of Jelling 2 was important as there has to be a certain amount of time in between the rune and language forms in the Jelling 2 inscription and the Post-Jelling type inscriptions with dotted runes and new language types. As early as 1952 Moltke agreed with Vilhelm la Cour's new date of the 960's for the Jelling 2 stone (Moltke 1952, p. 262) which allows the possibility of dating the Post-Jelling type of runestones to 25 years earlier. Using la Cour's dating of Jelling 2, Karl Martin Nielsen argued in 1970 that the Post-Jelling type was to be dated in the time between 975 and 1025. Nielsen additionally pointed out the fact that the Danish runestone texts refer to Gorm, Harald and Sven Forkbeard but that no texts refer to Canute the Great, which is notable as some of the many eleventh century Swedish (and one Scanian) runestone texts relate to men who took Canute's payment in England. This could underline the fact that the runestone fashion had come to an end in Denmark (except for Bornholm) in the 1020s (Nielsen 1970, p. 36–44, especially p. 43, see also, Stoklund 1991, p. 292, and, Stoklund 2006, p. 371).

Stoklund agrees that the absence of the runestones from the Southern Scandinavian area (apart from the younger Simris 2, which in ornament and style is influenced by the traditional Swedish runestones) mentioning Canute is significant and also believes it suggests the early ending of the runestone tradition in Denmark (Stoklund 1991, p. 293). Stoklund also continues the discussion of the date of the Hedeby stones (1 and 3) with dotted runes and compares them with the Scanian runestones with dotted runes (the Hällestad stones and Sjörup). The inscriptions on these stones could refer to the battle on the Fyris plain in the 980 s, which would aid the dating of the stones (Snædal 1985). But because of the presence of dotted runes on the Hedeby stones, Stoklund believes that they could be of the same date as the Scanian stones. She touches upon the ornamented stones by mentioning Århus 3 with the mask, which might be dated to the second part of the tenth century (Stoklund 1991, p. 291–294). Århus 3 carries dotted runes, underlining the fact that dotted runes were in use at some point during the second part of the tenth century and that the Hedeby stones should be connected to Sven Forkbeard rather than Sven Estridsen.

The chronology of the Post-Jelling type of runestones has been more and more confirmed by style history and archaeological evidence in recent years. Compared to the

Swedish runestone material, the Danish runestones are rarely ornamented and dating runestones according to the ornaments was not used as a tool in the early runic corpuses. In DR, it is stated that a large number of the runestone pictures such as the large animal, the mask and the ship are so common on the Post-Jelling type that they must be characteristic for the type itself (Jacobsen and Moltke 1942, p. 1025). This means that the ornaments were not used as a foundation for dating, but that they were included as an extra indication in the relative dating of the types.

Gunhild Øeby Nielsen takes up the discussion of the ornamented runestones and their relation to chronology, referring to Signe Horn Fuglesang's work from the 1990s (Øeby Nielsen 2007, p. 40–47) in her PhD dissertation. Fourteen runestones from Denmark (fifteen including the 2011 find of a fragmented runestone in Ribe) are ornamented in the Late Viking Age styles Mammen and Ringerike (Baldringe, Bjerring, Bösarp, Jelling 2, Sjelle, Skjern 2, Västra Strö 2, Skårby 1, Århus 3, Århus 5, Sædinge, Tullstorp, Lund 1 and Hunnestad 1), which are dated to the latter half of the tenth century and first half of the eleventh century. Previous discussion of whether the Århus stones (3 and 5) have been ornamented in Mammen style (Fuglesang 1991, p. 103) or if they have elements of Ringerike style (Roesdahl and Wilson 2006, p. 214–15) are not included here as there is no doubt that the stones belong to the later part of the runestone tradition in Denmark. According to Fuglesang's work the date of the Mammen style can be based on a number of archaeologically dated artifacts. The Mammen grave with the axe head ornamented in Mammen style is dated by dendrochronology to AD 970/71 and provides us with a *terminus ante quem* for the fully developed Mammen style. A further *ante quem* date can be deduced from the Birka grave P.119 to c. 975. The wood panels from the north mound in Jelling, dendrochronologically dated to 958/959 show traces of the Mammen style but are not yet fully developed. This means that the Mammen style must have been created in the 960 s (Fuglesang 1991, p. 103).

Else Roesdahl and David Wilson have related the ornamented Århus runestones (Århus 3 and 5) to the Mammen and Ringerike styles and dated them to the time shortly before AD 1000. They believe that all of the Århus stones most likely belong to the time around the turn of the millennium. Furthermore, Roesdahl and Wilson argue that the Hedeby stones 1 and 3 are more likely to have been erected in the time after AD 994. Hedeby 3 is erected by king Sven in memory of Skarde, who had been 'to the west', *i.e.* England and king Sven is not recorded to have been in England before AD 994 (Roesdahl and Wilson 2006, p. 226–27). This corresponds very well with the dating of the Hällestad stones which some researchers connect to the battle on the Fyris

plains in the 980's (Snædal 1985, see also Stoklund 1991, p. 293). The chronological connection between the Århus, Hedeby and Hällestad stones is important for our understanding of the dotted runes, especially the dotted **m**-rune, which seems to have no linguistic importance. It is used on the Århus 1 and 5, the Hällestad 1 and 3 stones and the Sandby 3 stone on Sjælland, which probably dates a little later than the others. The dates of the Århus and Hedeby stones form an important basis for the dating of the runestones with the dotted runes **† e**, **ŋ y/ø**, and **ƿ g**, which are an innovation in runic writing. The dotted runes **† d** and **Ɔ p** do not come into use until the earliest part of the Middle Ages and the runic coins of Sven Estridsen are the earliest evidenced examples (Stoklund 2006, p. 371). Dotted runes cannot have entered the orthography before the very latest part of the tenth century. This means that runestones with dotted runes (around 30 in all) are probably dated to after *c.* 980 or 990 until *c.* AD 1020. The runestones in this period are first and foremost erected in the eastern part of Jutland and southern parts of Skåne.

What we can deduce from using style and ornamentation in the chronology is that even if we exclude Jelling 2 from the foundation of the Late Viking Age runestone chronology, we would still be able to form a chronology based on the stylistic traits of the Mammen style and the appearance of dotted runes on *e.g.* Århus 3. However, Jelling 2 fits very well into the overall picture of Late Viking Age runestones with its Mammen ornamentation.

A number of new stylistic traits, runographically, linguistically as well as the physical appearance, are found on the Post-conversion runestones, although they do not all contain all stylistic traits. Characteristic is the presence

of dotted runes, assimilated pron. **þasi**, **þani** for older **þansi**, **þansi**, *r* for the older *s* in pron. *æer* and pret. *war*, extended or assimilated form of prep. 'after' *æftir*, *øftir* or the side form *at*, crosses as ornaments, and division marks outlined as crosses. The textual content is very similar to the former Pre-conversion type (Jacobsen and Moltke 1942, p. 1025). Some of the stones are ornamented in the Mammen and Ringerike styles and the layout of the inscriptions is dominated by the contour device where the inscription follows the shape of the stone (Jacobsen and Moltke 1942, p. 1025). Some of the runes have changed their form, for example, **ʝ m** is sometimes used instead of **ƿ**, and **h s** (normally **h**) is used in some inscriptions. The number of Post-conversion runestones is much larger than in the previous periods making this group the most common type of runestones in Denmark. More than 100 runestones can be ascribed to this period (cf. Jacobsen and Moltke 1942, p. 1025) and the reason for this runestone boom is probably found in the societal changes after the conversion as the runestones of the late Viking Age cannot be connected to the landowning aristocracy alone. The density of runestones erected in some areas contradicts the view that the tradition was confined to the upper levels of society alone (Øeby Nielsen 2007, p. 110–116). Additionally, in the runestone texts of this period we also find merchants, seamen and brothers-in-arms. The distribution of this group of stones is concentrated in two main areas of the country, in Skåne along the coasts and the area around Lund, and the mid-eastern parts of Jutland (Figure 4).

In many cases the division of the Pre-conversion and the Post-conversion inscriptions (in DR the Jelling- 2.2b and Post-Jelling 2.2c groups) cannot be maintained.



Figure 4. The post-conversion group of runestones from *c.* AD 970–1020/25. Light grey dots indicate possible runestones dated to this period.

Stoklund is of the opinion that we should not advocate a strict division between the two as inscriptions such as Øster Alling and Rimsø (in DR typologically classified as Post-Jelling (Jacobsen and Moltke 1942, p. 147) and Jelling (Jacobsen and Moltke 1942, 152), respectively) are carved by the same rune carver and thereby should be more or less of the same date (Stoklund 1991, p. 294). Moltke did not make a clear distinction in his 1976 book but he still operated with a Jelling type, which he dated to *c.* 900–*c.* 985 and with a Post-Jelling type, which was dated according to the Hedeby stones with their innovations (Moltke 1976, p. 161). It is clear that in some cases it can be very difficult to place the runestones from the tenth century on either side of the conversion if they do not contain any characteristic traits. In these cases we must settle on a date of *c.* 900–1020/25 and this date is used in many cases in the database <http://runer.ku.dk>. The overall perspective however, is that the large group of post-conversion runestones have quite clear indications of belonging to a later stage of runestone erection than the Pre-Christian ones. In his 1980 book, Randsborg even suggests a further chronological division within the Post-Jelling type. He claims that runestones with texts arranged in contour device are four times as common in Scania as in Jutland, where vertical bands are found on more than half of the stones (Randsborg 1980, p. 35). The contour device is regarded as a clear typological trait for the Post-Jelling type of stones and it makes it likely that a large part of the Scanian stones are some years younger than most of the stones from the eastern part of Jutland.

The runestones on Bornholm are distinctive as the tradition began at a time when that of the rest of the southern Scandinavian area was coming to an end (Figure 5). In DR, the group was placed in period 3, a

pre-medieval period dated to AD 1050–1150. This rather late date of the Bornholm runestones was presumably due to Jacobsen and Moltke dating the previous group of runestones, the Post-Jelling type, to the time period from around the turn of the Millennium to AD 1050. Period 3 in DR was dominated by the runestones on Bornholm and Sven Estridson's runic coins. Most of the stones could be separated into two chronological groups within this time period (Jacobsen and Moltke 1942, p. 1028). As mentioned above, more recent results have shown that the Post-Jelling type should be pushed back in time leaving space in the chronology for the Bornholm group of runestones to similarly be pushed back a quarter of a century to *c.* AD 1025 to 1125, and recent collaborations by Marie Stoklund and Rikke Steenholt Olesen have enhanced our knowledge on the grouping and dating these runestones. This work has resulted in the dates now available on <http://runer.ku.dk>. Important for the Bornholm runestones is the reference of rune types to the runic coins of Sven Estridson, which were produced in the last decade of his reign (*c.* 1065–75) (Stoklund 2006, p. 373) and similarly the ornamentation with snake heads similar to the 'run-slingor' on the eleventh century runestones of Middle Sweden. However, the lack of a link between the runestones and historical or archaeological evidence, and additionally the lack of historically or archaeologically datable runic inscriptions from the eleventh century, means that the beginning of the runestone tradition on Bornholm is still quite insecurely dated.

In other parts of the country a few runestones were erected during the late eleventh and twelfth centuries. In western Jutland the runestones in Hanning and Ådum represent a late tradition along with the now lost Allerup-sten from Fyn. The stones at Alsted, Fjenneslev, and Sandby 3 on



Figure 5. The bornholm group of runestones and the end of the runestone tradition in Denmark *c.* AD 1025–1125.

Table 3. The chronology for runestones in Denmark.

Type	Date
Helnæs group	Probably c. AD 700–800
Gørlev group	Probably c. AD 800–900
Pre-conversion group	c. AD 900–970
Post-conversion group	c. AD 970–1020/1025
Bornholm group	c. AD 1025–1125

Sjælland are dated to the eleventh century as well as the Tillitse stone on Lolland. The youngest known runestone is the very accurately dated Norra Åsum stone from the northern part of Skåne. It mentions archbishop Absalon and Asbjørn Mule, who are known from the historical sources. This stone must have been erected between Absalons appointment as archbishop of Lund and his death in 1201 or alternatively before Asbjørn Mule's death in 1215.

The last 40 years of research has provided us with many new results regarding the typology and chronology of the Danish runestones since the publication of DR in 1941–42. Although many of the criteria for relative dating in DR are still valid, the typology as such cannot be used without reference to the subsequent chronological studies. This article is an attempt to collate this work and the chronology of the Danish runestones is summarized in Table 3.

The Helnæs-Gørlev group is separated into two chronological groups probably at the turn of the ninth century, although finds supporting this hypothesis are still lacking. The Pre-Jelling and Jelling types are merged into one group covering the tenth century up until the time of the conversion and the Post-conversion group is moved back in time to the decades around the year AD 1000. The Bornholm group and a few other runestones in Denmark are dated to the earliest medieval period, although a few might have been erected in the twelfth century. It is important, however, to note that many runestones cannot be fitted into one of the chronological groups due to the lack of diagnostic traits. The above mentioned characteristics correspond with the dates presented in the online database <http://runer.ku.dk>, established by runologists from the University of Copenhagen and the National Museum of Denmark.

Funding

This work was supported by the Bikuben foundation under the Jelling project.

Note

1. The text on this particular runestone is very difficult to grasp. Some researchers believe that two sponsors are mentioned (e.g. Barnes 2012, 146), but the general (Danish) opinion is that the text is much abbreviated, and that Ravnunge-Tue is the sole sponsor (e.g. Lerche Nielse 1993, p. 55, note; Sawyer 2000, p. 163, note 19; Imer 2011b, p. 41).

Supplemental data

The underlying research materials for this article can be accessed at <http://runer.ku.dk>

References

- Barnes, M., 2012. *Runes – A handbook*. Woodbridge: Boydell.
- Christensen, A.E., 1969. *Vikingetidens Danmark*. København: Gyldendal.
- Christensen, K. and Krog, K.J., 1987. Jelling-højene dateret. *Kristendommens Indførelse Og Gorm Den Gamles Død. Nationalmuseets Arbejdsmark*, (1987), 223–231.
- Christiansson, H., 1953. Jellingestenens bildvärld. *Kuml*, (1953), 72–101.
- Fridell, S., 2011. Graphic variation and change in the younger Futhark. *NOWELE*, 60, 69–88. doi:10.1075/nowele.60-61
- Fuglesang, S.H., 1991. The axehead from Mammen and the Mammen style. In: M. Iversen, ed. *Mammen. Grav, kunst og samfund i vikingetid*. Århus: Århus Universitetsforlag, 83–107.
- Glob, P.V., 1969. Kong Haralds kumler. *Skalk*, 1969 (4), 18–27.
- Gräslund, A.-S., 1998. Ornamentiken som dateringsgrund för Upplands runstenar. In: A. Dybdahl and J.R. Hagland, eds. *Innskrifter og datering. Dating inscriptions*. Trondheim: Tapir, 73–91).
- Imer, L.M. (2010). Faaborg-stenen og de ældste danske runesten. *Otteogtyvende tværfaglige vikingesymposium, Syddansk Universitet 2009* (pp. 35–43). Højbjerg: Hikuin.
- Imer, L.M., 2011a. The oldest runic monuments in the North – dating and distribution. In: M. Schulte and R. Nedome, eds., *Language and Literacy in Early Scandinavia and Beyond*. *NOWELE*, 62/63, 169–212.
- Imer, L.M., 2011b. Fortidens kalejdoskop – Om definitionen af kontekster i runologien. *Arkæologisk Forum*, 24 (2011), 37–42.
- Jacobsen, L., 1932. Vikingetidens 'historiske' danske Runeindskrifter. *Bidrag Til Spørgsmaalet Om Runestenenes Tidspæstelse*. *Scandia*, 5, 103–147.
- Jacobsen, L., 1935. Runeindskrifternes vidnesbyrd om kampene omkring Hedeby. Fra Harald Gormsson til Sven Estridsøn. *Scandia*, 8, 64–79.
- Jacobsen, L. and Moltke, E., 1942. *Danmarks Runeindskrifter. Text*. København: Ejnar Munksgaards Forlag.
- Källström, M. (2007). *Mästare och minnesmärken. Studier kring vikingatida runristare och skriftmiljöer i Norden*. *Acta Universitatis Stockholmiensis. Stockholm Studies in Scandinavian Philology. New Series* 43. Stockholm.
- La Cour, V., 1951. *Danevirkestudier: En arkæologisk-historisk Undersøgelse*. København. P. Haase og Søns Forlag.
- Lerche Nielse, M., 1993. *Svensk og norsk indflydelse i vikingetidens danske runeindskrifter*. Upubliceret speciale fra Københavns Universitet.
- Lindqvist, S., 1931. Kunst. *Nordisk Kultur*, XXIII, 144–147.
- Lund, N., 2014. Gorm den Gamle og Thyra Danebod. In: K. Kryger, ed. *Danske Kongegrave I*. København: Museum Tusulanums forlag, 55–79.
- Moltke, E., 1952. Danevirke og de danske kongesten. *Grænsevagten*, 34, 257–262.
- Moltke, E., 1972. Harald Blåtands runesten i Jelling. Epigrafi, kronologi og historie. *Kuml*, 1971, 7–33.
- Moltke, E., 1976. *Runerne i Danmark og deres oprindelse*. København: Forum.
- Moltke, E., 1985. *Runes and their Origin – Denmark and Elsewhere*. København: The National Museum.

- Nielsen, K.M., 1970. Om dateringen af de senurnordiske runeindskrifter, synkopen og 16 tegns futharken. *Aarbøger for Nordisk Oldkyndighed og Historie*, 1969, 5–51.
- Øeby Nielsen, G., 2007. *Runesten og deres fundforhold*. Århus: Afdeling for Middelalder- og Renæssancearkæologi, Aarhus Universitet.
- Randsborg, K., 1980. *The Viking Age in Denmark. The formation of a state*. London: Duckworth.
- Rasmussen, A., Pentz, P., and Imer, L., 2014. Dette er en hammer. *Skalk*, 2014 (4), 16–17.
- Roesdahl, E. and Wilson, D., 2006. The Århus rune-stones. In: P. Gammeltoft and B. Jørgensen, eds.. *Names through the Looking-Glass. Festschrift in Honour of Gillian Fellows-Jensen*. København, C. A. Reitzel 208–229.
- Sawyer, B., 2000. *The Viking-Age Rune-Stones. Custom and Commemoration in Early Medieval Scandinavia*. Oxford University Press, New York.
- Snædal, T., 1985. 'Han flydde inte vid Uppsala ...' Slaget på Fyrisvallarna och några skånska runstenar. *Ale*, (1985) (2), 13–23).
- Søvsø, M., 2014. Om dateringen af Ribe runejerneskallen. *Futhark: International Journal of Runic Studies*, 4, 173–176.
- Stoklund, M., 1991. Runesten, kronologi og samfundsrekonstruktion. Nogle kritiske overvejelser med udgangspunkt i runestenene i Mammenområdet. In: M. Iversen, ed. *Mammen. Grav, kunst og samfund i vikingetid*. Århus: Århus Universitetsforlag, 285–297.
- Stoklund, M. (1996). The Ribe cranium inscription and the Scandinavian transition to the younger reduced futhark. In: T. Looijenga and A. Quak (eds.) *Frisian Runes and neighbouring Traditions. Proceedings of the First International Symposium on Frisian Runes at the Fries Museum, Leeuwarden 26.29 January 1994*. *Amsterdamer Beiträge zur älteren Germanistik* 45 (pp. 199–210). Amsterdam: Edition Rodopi B.V.
- Stoklund, M., 2000. Jelling. §Runologisches. *Reallexikon Der Germanischen Altertumskunde*, 16, 56–58.
- Stoklund, M., 2004. The Runic Inscription on the Ribe Skull Fragment. In: M. Bencard, A. Kann Rasmussen, and H. Brinch Madsen, eds. *Ribe Excavations 1970-76*. Vol. 5. Esbjerg: Sydjysk Universitetsforlag, 27–42.
- Stoklund, M., 2005. Tolkningen af Bække-, Læborg- og Jellingindskrifterne og meningen med at rejse runesten. *Hikuin*, 32, 37–48.
- Stoklund, M., 2006. Chronology and Typology of the Danish Runic Inscriptions. In: M. Stoklund, et al., eds. *Runes and their Secrets. Studies in runology*. Copenhagen: Museum Tusulanum Press, 355–383.
- Stoklund, M., 2010. The Danish Inscriptions of the Early Viking Age and the Transition to the Younger Futhark. In: J.O. Askedal, et al., eds. *Zentrale Probleme bei der Erforschung der älteren Runen. Akten einer internationalen Tagung an der Norwegischen Akademie der Wissenschaften, Osloer Beiträge zur Germanistik*. 41, Frankfurt am Main: Peter Lang, 237–252.
- Wamers, E. and Brandt, M. (eds.) (2005). *Die Macht des Silbers. Karolingische Schätze im Norden*. Katalog zur Ausstellung im Archäologischen Museum Frankfurt und im Dom-Museum Hildesheim in Zusammenarbeit mit dem Dänischen Nationalmuseum Kopenhagen. Halle: Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt.
- Wimmer, L.F.A., 1893-1908. *Danmarks Runemindesmærker I-IV*. København: Gyldendalske Boghandel. Nordisk Forlag.